



# Motor Protection Circuit Breaker and Motor Circuit Protector Specifications

Bulletins 140MP, 140MT, 140M

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## Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

| Topic                                                                                                                                                    | Page           |
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| Updated Cat. No. Explanation for Bulletin 140MT devices                                                                                                  | 24             |
| Updated Hp ratings for 140MT-C3E-B16, 140MT-D9E-B16, 140MT-D9E-C10, 140MT-D9E-C25, 140MT-D9V-C10, and 140MT-D9V-C25 devices                              | 25             |
| Updated High Inrush Hp ratings for 140MT-D9T-B16, 140MT-D9T-C10, and 140MT-D9T-C25 devices                                                               | 26             |
| Updated Hp ratings for 140MT-D9N-B16, 140MT-D9N-C10, and 140MT-D9N-C25 devices                                                                           | 27             |
| Updated current ratings for connecting modules                                                                                                           | 38             |
| Updated connecting module descriptions; added connecting modules for joining 140MT-C and 140MT-D MPCBs to 100S-E08...E38 safety contactors with QJ coils | 38             |
| Removed "Pending" from Bulletin 140MT cULus Listing, UL 60947 application ratings, and Type 2 coordination ratings                                       | 40, 43, 44, 45 |

|                                                      |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
|------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                      |  |  |  |  |
| <b>Bulletin No.</b>                                  | <b>140MP-A</b>                                                                    | <b>140MT-C</b>                                                                    | <b>140MT-D</b>                                                                      | <b>140M-F</b>                                                                       |
| Frame Size                                           | —                                                                                 | C-Frame                                                                           | D-Frame                                                                             | F-Frame                                                                             |
| Max. Current $I_e$                                   | 32 A                                                                              | 32 A                                                                              | 40 A                                                                                | 45 A                                                                                |
| Current Rating                                       | 0.1...32 A                                                                        | 0.1...32 A                                                                        | 0.4...40 A                                                                          | 6.3...45 A                                                                          |
| Short-circuit protection                             | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| Standard magnetic trip                               | ✓                                                                                 | ✓                                                                                 | 140MT-D9E...                                                                        | 140M-F8E...                                                                         |
| High magnetic trip                                   | —                                                                                 | —                                                                                 | 140MT-D9T...                                                                        | 140M-F8T...                                                                         |
| Magnetic-only trip (Motor Circuit Protector [MCP])   | —                                                                                 | —                                                                                 | 140MT-D9N...                                                                        | 140M-F8N...                                                                         |
| Overload protection                                  | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| Trip Class                                           | 10A                                                                               | 10                                                                                | 10                                                                                  | 10                                                                                  |
| Phase loss sensitivity                               | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| Variable-frequency Drive (VFD) downstream compatible | —                                                                                 | —                                                                                 | 140MT-D9V...                                                                        | ✓                                                                                   |
| <b>UL 60947-4-1 Application Ratings:</b>             |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| Motor Disconnect                                     | ✓ (see ratings)                                                                   | ✓ (see ratings)                                                                   | ✓ (see ratings)                                                                     | ✓ (see ratings)                                                                     |
| Group Installation                                   | ✓ (see ratings)                                                                   | ✓ (see ratings)                                                                   | ✓ (see ratings)                                                                     | ✓ (see ratings)                                                                     |
| Tap Conductor Protection                             | —                                                                                 | ✓ (see ratings)                                                                   | ✓ (see ratings)                                                                     | ✓ (see ratings)                                                                     |
| Manual, Self Protected (Type E)                      | —                                                                                 | ✓ (see ratings)                                                                   | ✓ (see ratings)                                                                     | ✓ (see ratings)                                                                     |
| Type F ratings with 100-C and 100-E Contactors       | —                                                                                 | ✓ (see ratings)                                                                   | ✓ (see ratings)                                                                     | ✓ (see ratings)                                                                     |
| <b>Standards Compliance and Certifications:</b>      |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| UL 60947-4-1, CSA C22.2, No. 60947-4-1               | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| IEC/EN 60947-2, IEC/EN 60947-4-1                     | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| CE                                                   | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| ATEX                                                 | —                                                                                 | ✓                                                                                 | ✓ <sup>(1)</sup>                                                                    | —                                                                                   |
| IECEX                                                | —                                                                                 | ✓                                                                                 | ✓ <sup>(1)</sup>                                                                    | —                                                                                   |
| EAC                                                  | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| CCC                                                  | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| KC                                                   | ✓                                                                                 | —                                                                                 | —                                                                                   | —                                                                                   |
| CB Scheme                                            | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| <b>Accessories (Optional)</b>                        |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| External rotary operator                             | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| Auxiliary contacts                                   | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| Trip Indication contacts                             | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| Undervoltage release                                 | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| Shunt release                                        | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| Insulated three-phase busbar                         | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| Connecting modules for 100-C contactors              | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | ✓                                                                                   |
| Connecting modules for 100-E contactors              | ✓                                                                                 | ✓                                                                                 | ✓                                                                                   | —                                                                                   |
| Connecting modules for 100-K contactors              | ✓                                                                                 | ✓                                                                                 | —                                                                                   | —                                                                                   |
| Lockable knob                                        | ✓                                                                                 | ✓                                                                                 | Standard                                                                            | ✓                                                                                   |
| Anti-tamper cover                                    | ✓                                                                                 | ✓                                                                                 | Standard                                                                            | ✓                                                                                   |
| Product Selection                                    | <a href="#">page 6</a>                                                            |                                                                                   | <a href="#">page 25</a>                                                             |                                                                                     |

(1) Does not apply to Cat. No. 140MT-D9N... devices.

### Product Overview

Bulletin 140MP Motor Protection Circuit Breakers (MPCBs) or Motor Protective Switching Devices (MPSDs) are UL Listed as Manual Motor Controllers (with approvals for Suitable as Motor Disconnect and Suitable for use in Group Installation).

Group motor installations eliminate the need for individual branch short circuit protective devices for each motor circuit, reducing panel space, installation & wiring time, and costs. There is only one Branch Circuit Protective Device (BCPD) for the "Group".



According to UL 60947-4-1, CSA C22.2 No.60947-4-1, these devices may provide the following control and protection functions.

- Disconnect for Motor Branch Circuit
- Manual Switching (Motor control means)
- Overload Protection (Thermal Protection)

These devices meet requirement of Motor Protective Switching Devices (MPSD) according to IEC 60947-4-1 and Circuit Breaker according to IEC 60947-2 standard for application outside of North America. These devices provide the following functions.

- Disconnect for Motor Branch Circuit
- Short-circuit Protection (Magnetic Protection)
- Overload Protection (Thermal Protection)
- Manual Switching (Motor control means)

140MP devices provide Trip Class 10A overload protection and phase loss sensitivity protection. These are suitable for single- and three-phase application.

### Group Installation with MPCBs

There is only one Branch Circuit Protective Device (BCPD) for the "Group".

Group installation has been successfully used for many years in the U.S. and Canada. It allows "two or motors or one or more motors and other loads to be connected to the same branch-circuit..." The most restrictive part of the conditions specified for Group Installation is the requirement for the protection of the conductors for each motor circuit.

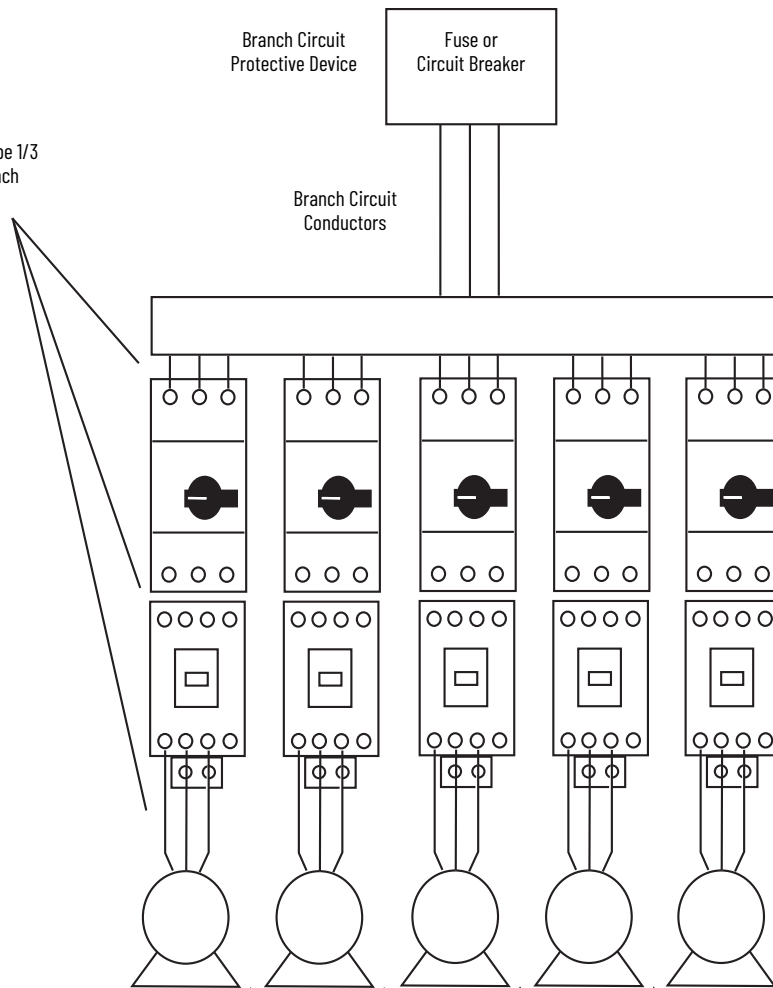
[Figure 1](#) shows an example that illustrates installations involving multiple motors with a single BCPD protecting the entire "Group".

**Bulletin 140MP Motor Protection Circuit Breakers are UL/CSA Listed for Group Installation:** conductors from the BCPD to each motor must be a minimum of 1/3 the ampacity of the Branch Circuit conductors.

Figure 1 - Group Installation with MPCBs

**Group Installation**

Single motor taps must be 1/3 the ampacity of the branch circuit conductors



## Catalog Number Explanation

140MP
-
A
3
E
-
B10

a
b
c
d
e

| a               |                                        |
|-----------------|----------------------------------------|
| Bulletin Number |                                        |
| Code            | Description                            |
| 140MP           | 140MP Motor Protection Circuit Breaker |

| b          |             |
|------------|-------------|
| Frame Size |             |
| Code       | Description |
| A          | Frame A     |

| c                                         |              |
|-------------------------------------------|--------------|
| Interrupting Rating/<br>Breaking Capacity |              |
| Code                                      | Description  |
| 3                                         | Normal break |

| d        |                                            |
|----------|--------------------------------------------|
| Function |                                            |
| Code     | Description                                |
| E        | Adjustable Thermal/<br>Fixed Magnetic MPCB |

| e             |                              |
|---------------|------------------------------|
| Current Range |                              |
| Code          | Description                  |
| A             | 0.10 (example: A16 = 0.16 A) |
| B             | 1.0 (example: B16 = 1.6 A)   |
| C             | 10 (example: C16 = 16 A)     |

# Product Selection

Table 1 - Bulletin 140MP MPCB Selection Using Current and Hp/kW Ratings

| Rated<br>Operational<br>Current ( $I_e$ )<br>[A] | Motor<br>Current<br>Adjustment<br>Range [A] | Nominal<br>Magnetic<br>Trip<br>Current [A] | Max. Short Circuit<br>Current [kA] |               | Max. 3-phase Hp Ratings <sup>(1)</sup> |      |      |      | Max. kW, 3-Phase – AC-3 <sup>(1)</sup> |          |      |      | Cat. No.      |
|--------------------------------------------------|---------------------------------------------|--------------------------------------------|------------------------------------|---------------|----------------------------------------|------|------|------|----------------------------------------|----------|------|------|---------------|
|                                                  |                                             |                                            | 400V                               | 480V          | 200V                                   | 230V | 460V | 575V | 230V                                   | 400/415V | 500V | 690V |               |
|                                                  |                                             |                                            | ( $I_{cu}$ )                       | (group motor) |                                        |      |      |      |                                        |          |      |      |               |
| 0.16                                             | 0.10...0.16                                 | 2                                          | 100                                | 30            | —                                      | —    | —    | —    | —                                      | 0.02     | 0.06 | 0.06 | 140MP-A3E-A16 |
| 0.25                                             | 0.16...0.25                                 | 3.1                                        | 100                                | 30            | —                                      | —    | —    | —    | —                                      | 0.04     | 0.09 | 0.09 | 140MP-A3E-A25 |
| 0.4                                              | 0.25...0.40                                 | 5                                          | 100                                | 30            | —                                      | —    | —    | 0.25 | 0.06                                   | 0.09     | 0.12 | 0.18 | 140MP-A3E-A40 |
| 0.63                                             | 0.40...0.63                                 | 7.9                                        | 100                                | 30            | —                                      | —    | 0.25 | 0.33 | 0.09                                   | 0.18     | 0.18 | 0.25 | 140MP-A3E-A63 |
| 1                                                | 0.63...1.0                                  | 12.5                                       | 100                                | 30            | —                                      | —    | 0.5  | 0.75 | 0.18                                   | 0.25     | 0.37 | 0.55 | 140MP-A3E-B10 |
| 1.6                                              | 1.0...1.6                                   | 20                                         | 100                                | 30            | 0.25                                   | 0.33 | 1    | 1    | 0.25                                   | 0.55     | 0.75 | 1.1  | 140MP-A3E-B16 |
| 2.5                                              | 1.6...2.5                                   | 31.3                                       | 75                                 | 30            | 0.5                                    | 0.75 | 1.5  | 2    | 0.37                                   | 0.75     | 1.1  | 1.8  | 140MP-A3E-B25 |
| 4                                                | 2.5...4.0                                   | 50                                         | 75                                 | 18            | 1                                      | 1    | 3    | 3    | 0.75                                   | 1.5      | 2.2  | 3    | 140MP-A3E-B40 |
| 6.3                                              | 4.0...6.3                                   | 78.8                                       | 50                                 | 18            | 1.5                                    | 2    | 5    | 5    | 1.5                                    | 2.2      | 3    | 4    | 140MP-A3E-B63 |
| 10                                               | 6.3...10                                    | 150                                        | 50                                 | 18            | 3                                      | 3    | 7.5  | 10   | 2.2                                    | 4        | 6.3  | 7.5  | 140MP-A3E-C10 |
| 12                                               | 8.0...12                                    | 180                                        | 50                                 | 18            | 3                                      | 3    | 7.5  | 10   | 3                                      | 5.5      | 6.3  | 7.5  | 140MP-A3E-C12 |
| 16                                               | 10...16                                     | 240                                        | 15                                 | 18            | 5                                      | 5    | 10   | 15   | 4                                      | 7.5      | 10   | 13   | 140MP-A3E-C16 |
| 20                                               | 16...20                                     | 300                                        | 15                                 | 18            | 5                                      | 7.5  | 15   | 20   | 5.5                                    | 10       | 11   | 17   | 140MP-A3E-C20 |
| 25                                               | 20...25                                     | 375                                        | 15                                 | 18            | 7.5                                    | 7.5  | 20   | 20   | 5.5                                    | 11       | 15   | 22   | 140MP-A3E-C25 |
| 32                                               | 25...32                                     | 480                                        | 15                                 | 18            | 7.5                                    | 10   | 25   | 30   | 7.5                                    | 15       | 20   | 25   | 140MP-A3E-C32 |

(1) Horsepower/kW ratings shown are for reference. The final selection of the MPCB/MPSD depends on the actual motor full load current.

Table 2 - Bulletin 140MP MPCB Selection Using Interrupting Rating/Breaking Capacity

| Breaking Capacity, IEC 60947-2 |                  |                                           |                  |                  |                                           |                   |                  |                                           |                   |                  |                                           |                   |                  | Cat. No.           |                                           |
|--------------------------------|------------------|-------------------------------------------|------------------|------------------|-------------------------------------------|-------------------|------------------|-------------------------------------------|-------------------|------------------|-------------------------------------------|-------------------|------------------|--------------------|-------------------------------------------|
| 230V AC                        |                  |                                           | 400V AC          |                  |                                           | 440V AC           |                  |                                           | 500V AC           |                  |                                           | 690V AC           |                  |                    |                                           |
| $I_{cs}$<br>[kA]               | $I_{cu}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cs}$<br>[kA] | $I_{cu}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cs}$<br>[kA]  | $I_{cu}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cs}$<br>[kA]  | $I_{cu}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cs}$<br>[kA]  | $I_{cu}$<br>[kA] |                    | Back-up Fuse<br>Rating <sup>(1)</sup> [A] |
| 50                             | 100              | — <sup>(2)</sup>                          | 50               | 100              | — <sup>(2)</sup>                          | 30                | 100              | — <sup>(2)</sup>                          | 30                | 100              | — <sup>(2)</sup>                          | 30                | 100              | — <sup>(2)</sup>   | 140MP-A3E-A16                             |
| 50                             | 100              |                                           | 50               | 100              |                                           | 30                | 100              |                                           | 30                | 100              |                                           | 30                | 100              |                    | 140MP-A3E-A25                             |
| 50                             | 100              |                                           | 50               | 100              |                                           | 30                | 100              |                                           | 30                | 100              |                                           | 30                | 100              |                    | 140MP-A3E-A40                             |
| 50                             | 100              |                                           | 50               | 100              |                                           | 30                | 100              |                                           | 30                | 100              |                                           | 30                | 100              |                    | 140MP-A3E-A63                             |
| 50                             | 100              |                                           | 50               | 100              |                                           | 30                | 100              |                                           | 30                | 100              |                                           | 30                | 100              |                    | 140MP-A3E-B10                             |
| 50                             | 100              |                                           | 50               | 100              |                                           | 30                | 100              |                                           | 30                | 100              |                                           | 30                | 100              |                    | 140MP-A3E-B16                             |
| 50                             | 100              |                                           | 50               | 100              |                                           | 30                | 100              |                                           | 30                | 100              |                                           | 30                | 100              |                    | 140MP-A3E-B16                             |
| 50                             | 75               |                                           | 50               | 75               |                                           | 10                | 30               | 25 <sup>(3)</sup>                         | 10                | 20               | 25 <sup>(3)</sup>                         | 5                 | 10               | 25 <sup>(3)</sup>  | 140MP-A3E-B25                             |
| 50                             | 75               |                                           | 50               | 75               |                                           | 6                 | 18               | 25 <sup>(3)</sup>                         | 6                 | 15               | 25 <sup>(3)</sup>                         | 2                 | 3                | 25 <sup>(3)</sup>  | 140MP-A3E-B40                             |
| 50                             | 50               |                                           | 50               | 50               |                                           | 6                 | 18               | 63 <sup>(3)</sup>                         | 6                 | 10               | 63 <sup>(3)</sup>                         | 2                 | 3                | 40 <sup>(3)</sup>  | 140MP-A3E-B63                             |
| 50                             | 50               | 50                                        | 50               | 6                | 18                                        | 63 <sup>(3)</sup> | 6                | 10                                        | 63 <sup>(3)</sup> | 2                | 3                                         | 50 <sup>(3)</sup> | 140MP-A3E-C10    |                    |                                           |
| 25                             | 50               | 80 <sup>(3)</sup>                         | 25               | 50               | 80 <sup>(3)</sup>                         | 6                 | 15               | 63 <sup>(3)</sup>                         | 6                 | 10               | 63 <sup>(3)</sup>                         | 2                 | 3                | 50 <sup>(3)</sup>  | 140MP-A3E-C12                             |
| 15                             | 15               | 80 <sup>(3)</sup>                         | 15               | 15               | 80 <sup>(3)</sup>                         | 4                 | 6                | 63 <sup>(3)</sup>                         | 4                 | 6                | 63 <sup>(3)</sup>                         | 2                 | 3                | 63 <sup>(3)</sup>  | 140MP-A3E-C16                             |
| 10                             | 15               | 125 <sup>(3)</sup>                        | 10               | 15               | 125 <sup>(3)</sup>                        | 3                 | 6                | 125 <sup>(3)</sup>                        | 3                 | 6                | 125 <sup>(3)</sup>                        | 2                 | 3                | 80 <sup>(3)</sup>  | 140MP-A3E-C20                             |
| 10                             | 15               | 125 <sup>(3)</sup>                        | 10               | 15               | 125 <sup>(3)</sup>                        | 3                 | 6                | 125 <sup>(3)</sup>                        | 3                 | 6                | 125 <sup>(3)</sup>                        | 2                 | 3                | 100 <sup>(3)</sup> | 140MP-A3E-C25                             |
| 10                             | 15               | 125 <sup>(3)</sup>                        | 10               | 15               | 125 <sup>(3)</sup>                        | 3                 | 6                | 125 <sup>(3)</sup>                        | 3                 | 6                | 125 <sup>(3)</sup>                        | 2                 | 3                | 100 <sup>(3)</sup> | 140MP-A3E-C32                             |

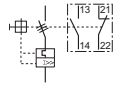
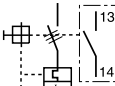
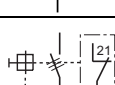
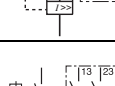
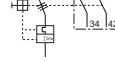
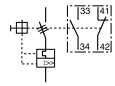
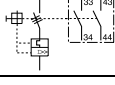
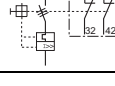
(1) Back-up fuses are type gG, aM.

(2) No Back-up fuse required if  $I_{cc} < I_{cs}$ .

(3) Rated back-up fuse for short-circuit up to 50 kA.

# Accessories

**Table 3 - Auxiliary Contacts**

| Description                                                                        | Auxiliary Contacts                                                                                                                                                                                                                        |               | Connection Diagram | Pkg. Qty.                                                                             | Cat. No. |               |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------|---------------------------------------------------------------------------------------|----------|---------------|
|                                                                                    | N.O                                                                                                                                                                                                                                       | N.C           |                    |                                                                                       |          |               |
|   | <p>Front-mounted Auxiliary Contact</p> <ul style="list-style-type: none"><li>• No additional space required</li><li>• 1 and 2-pole</li></ul>                                                                                              | 1             | 1                  |    | 10       | 140MP-A-AFA11 |
|                                                                                    |                                                                                                                                                                                                                                           | 1             | 0                  |    |          | 140MP-A-AFA10 |
|                                                                                    |                                                                                                                                                                                                                                           | 0             | 1                  |    |          | 140MP-A-AFA01 |
|                                                                                    |                                                                                                                                                                                                                                           | 2             | 0                  |    |          | 140MP-A-AFA20 |
|  | <p>Right-side-mounted Auxiliary Contact</p> <ul style="list-style-type: none"><li>• 2-pole</li><li>• Adds 9 mm (0.35 in.) to the width of the Manual Motor Starter</li><li>• Use compact bus bars with 54 mm (2.13 in.) spacing</li></ul> | Lead Contacts |                    |  | 2        |               |
|                                                                                    |                                                                                                                                                                                                                                           | 2             | 0                  |                                                                                       |          |               |
|                                                                                    |                                                                                                                                                                                                                                           | 1             | 1                  |    |          | 140MP-A-ASA11 |
|                                                                                    |                                                                                                                                                                                                                                           | 2             | 0                  |   |          | 140MP-A-ASA20 |
|                                                                                    |                                                                                                                                                                                                                                           | 0             | 2                  |  |          | 140MP-A-ASA02 |

**Table 4 - Trip Contacts**

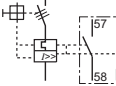
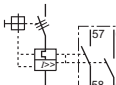
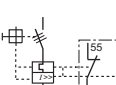
| Description                                                                                                                                                                                                                                                                                                                      | Auxiliary Contacts |      | Connection Diagram                                                                    | Pkg. Qty. | Cat. No.       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------|---------------------------------------------------------------------------------------|-----------|----------------|
|                                                                                                                                                                                                                                                                                                                                  | N.O.               | N.C. |                                                                                       |           |                |
|  <p>Right-side-mounted Trip Signaling Contact</p> <ul style="list-style-type: none"> <li>2-pole</li> <li>Adds 9 mm (0.35 in.) to the width of the Manual Motor Starter</li> <li>Use compact bus bars with 54 mm (2.13 in.) spacing</li> </ul> | 1                  | 1    |  | 2         | 140MP-A-ASAR11 |
|                                                                                                                                                                                                                                                                                                                                  | 2                  | 0    |  |           | 140MP-A-ASAR20 |
|                                                                                                                                                                                                                                                                                                                                  | 0                  | 2    |  |           | 140MP-A-ASAR02 |

Table 5 - Undervoltage and Shunt Trip Units

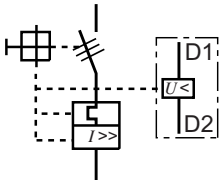
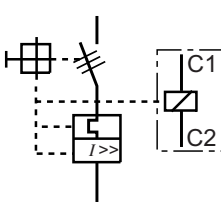
| Description                                                                                                                                                                                                                                                    | Trip Rating               | Connection Diagram                                                                 | Pkg. Qty. | Cat. No.     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------|-----------|--------------|
|  <p>Undervoltage Trip Release</p> <ul style="list-style-type: none"> <li>Left-side mounted</li> <li>Adds 18 mm (0.71 in.) to the width of the Manual Motor Starter</li> </ul> | 20V, 50 Hz/<br>24V, 60 Hz |  | 1         | 140MP-A-UXJ  |
|                                                                                                                                                                                                                                                                | 24V, 50 Hz                |                                                                                    |           | 140MP-A-UXK  |
|                                                                                                                                                                                                                                                                | 48V, 50 Hz                |                                                                                    |           | 140MP-A-UXY  |
|                                                                                                                                                                                                                                                                | 60V, 50 Hz                |                                                                                    |           | 140MP-A-UXYA |
|                                                                                                                                                                                                                                                                | 110V, 50 Hz/ 120V, 60 Hz  |                                                                                    |           | 140MP-A-UXC  |
|                                                                                                                                                                                                                                                                | 208V, 60 Hz               |                                                                                    |           | 140MP-A-UXH  |
|                                                                                                                                                                                                                                                                | 230V, 50 Hz/ 240V, 60 Hz  |                                                                                    |           | 140MP-A-UXF  |
|                                                                                                                                                                                                                                                                | 400V, 50 Hz               |                                                                                    |           | 140MP-A-UXN  |
|                                                                                                                                                                                                                                                                | 415V, 50 Hz/ 480V, 60 Hz  |                                                                                    |           | 140MP-A-UXB  |
|                                                                                                                                                                                                                                                                | 575V, 60 Hz               |                                                                                    |           | 140MP-A-UXM  |
|                                                                                                                                                                                                                                                                |                           |                                                                                    |           |              |
|  <p>Shunt Trip Release</p> <ul style="list-style-type: none"> <li>Left-side mounted</li> <li>Adds 18 mm (0.71 in.) to the width of the Manual Motor Starter</li> </ul>        | 20...24V, 50/60 Hz        |  | 1         | 140MP-A-SNKJ |
|                                                                                                                                                                                                                                                                | 110V, 50/60 Hz            |                                                                                    |           | 140MP-A-SND  |
|                                                                                                                                                                                                                                                                | 200...240V, 50/60 Hz      |                                                                                    |           | 140MP-A-SNAF |
|                                                                                                                                                                                                                                                                | 350...415V, 50/60 Hz      |                                                                                    |           | 140MP-A-SNN  |
|                                                                                                                                                                                                                                                                |                           |                                                                                    |           |              |

Table 6 - Bus Bars

| Description                                                                                                                                                                                                                                 | Terminal Links                 | For Use With | Pkg. Qty. | Cat. No.     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------|-----------|--------------|
|  <p>Compact Bus Bars</p> <ul style="list-style-type: none"> <li>UL: 600V, 60 A</li> <li>IEC: 690V, 65 A</li> </ul>                                       | 2 x 3 connections              | 140MP        | 10        | 140MP-A-W452 |
|                                                                                                                                                                                                                                             | 3 x 3 connections              |              |           | 140MP-A-W453 |
|                                                                                                                                                                                                                                             | 4 x 3 connections              |              |           | 140MP-A-W454 |
|                                                                                                                                                                                                                                             | 5 x 3 connections              |              |           | 140MP-A-W455 |
|                                                                                                                                                                                                                                             | 2 x 3 connections              | 140MP        | 10        | 140MP-A-W542 |
|                                                                                                                                                                                                                                             | 3 x 3 connections              |              |           | 140MP-A-W543 |
|                                                                                                                                                                                                                                             | 4 x 3 connections              |              |           | 140MP-A-W544 |
|                                                                                                                                                                                                                                             | 5 x 3 connections              |              |           | 140MP-A-W545 |
|                                                                                                                                                                                                                                             | 2 x 3 connections              | 140MP        | 10        | 140MP-A-W632 |
|                                                                                                                                                                                                                                             | 3 x 3 connections              |              |           | 140MP-A-W633 |
|                                                                                                                                                                                                                                             | 4 x 3 connections              |              |           | 140MP-A-W634 |
|                                                                                                                                                                                                                                             | 5 x 3 connections              |              |           | 140MP-A-W635 |
|  <p>Bus Bar Feeder Terminal (Flat)</p> <ul style="list-style-type: none"> <li>Supply of compact bus bars</li> <li>Increases terminal capacity</li> </ul> |                                | 140MP-A-W    | 10        | 140MP-A-WTN  |
|                                                                                                                                                                                                                                             | Bus Bar Feeder Terminal (High) | 140MP-A-W    | 10        | 140MP-A-WTNH |

Table 7 - Connecting Modules

| Description                                                                                                                                                                                                                                                                                                                                                     | For Use With             | Cat. No.      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|
|  <p>ECO Connecting Module - 12 A (IEC), 11 A (UL)</p> <ul style="list-style-type: none"> <li>For DOL Starters</li> <li>ECO Starters mount on single DIN Rail (140MP on DIN rail)</li> <li>Electrical and mechanical interconnection of 140MP and 100-K Contactors</li> </ul> | 140MP-A to 100-K         | 140MP-A-PEK12 |
|  <p>ECO Connecting Module - 25 A (IEC), 24 A (UL)</p> <ul style="list-style-type: none"> <li>For DOL Starters</li> <li>ECO Starters mount on single DIN Rail (140MP on DIN rail)</li> <li>Electrical and mechanical interconnection of 140MP and 100-C Contactors</li> </ul> | 140MP-A to 100-C09...C23 | 140MP-A-PEC23 |

Table 7 - Connecting Modules (Continued)

| Description                                                                       |                                                                                                                                                                                                                                                                                           |      | For Use With                           | Cat. No.     |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------------------------------|--------------|
|  | ECO Connecting module <sup>(1)</sup> <ul style="list-style-type: none"> <li>For DOL starters</li> <li>ECO Starters mount on single DIN Rail (140MP on DIN Rail)</li> <li>Electrical and mechanical interconnection of 140MP and 100-E contactors</li> <li>Package quantity: 10</li> </ul> | 16 A | 140MP-A3E-A16...C25 to 100(S)-E09...16 | 140MP-A-PE16 |
|                                                                                   |                                                                                                                                                                                                                                                                                           |      | 140MP-A3E-A16...C16 to 100(S)-E26...38 | 140MP-A-PE26 |
|                                                                                   |                                                                                                                                                                                                                                                                                           | 38 A | 140MP-A3E-C20...C32 to 100(S)-E26...38 | 140MP-A-PE38 |

(1) Not suitable for 100(S)-E09...380J or 300(S)-T0...B00J contactors.

Table 8 - Additional Accessories

| Description                                                                         |                                                                                                                                                                                                                 |                                   | For Use With | Pkg. Qty. | Cat. No.      |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--------------|-----------|---------------|
|    | Blank Space Cover <ul style="list-style-type: none"> <li>For covering unused terminal links</li> <li>Must be ordered in multiples of 10 (10pieces/package)</li> </ul>                                           |                                   | 140MP-A-W    | 50        | 140MP-A-WSN   |
|    | Screw Adapter <ul style="list-style-type: none"> <li>For screw arrangement of a motor protection circuit breaker</li> <li>Hat (DIN) Rail 35 x 7.5 mm (1.4 x 0.3 in.)</li> <li>44 mm (1.7 in.) length</li> </ul> |                                   | 140MP        | 10        | 140MP-A-N45   |
|    | Enclosure <ul style="list-style-type: none"> <li>Up to three padlocks in OFF position</li> <li>Protection Class: IP65; UL/CSA Type 12</li> </ul>                                                                | Red/yellow handle                 | 140MP        | 1         | 140MP-A-ENY65 |
|                                                                                     |                                                                                                                                                                                                                 | Black handle                      |              |           | 140MP-A-ENN65 |
|   | Door Mounting Kit <ul style="list-style-type: none"> <li>Up to three padlocks in OFF position</li> <li>Protection Class: IP65; UL/CSA Type 12</li> </ul>                                                        | Red/yellow handle                 | 140MP        | 1         | 140MP-A-DMY65 |
|                                                                                     |                                                                                                                                                                                                                 | Black handle                      |              |           | 140MP-A-DMN65 |
|  | Door Coupling Handle <ul style="list-style-type: none"> <li>Up to three padlocks in OFF position</li> <li>Defeatable</li> <li>Type 1/3R/12</li> <li>IP64</li> </ul>                                             | Red/Yellow                        | 140MP        | 1         | 140MP-A-DCY65 |
|  |                                                                                                                                                                                                                 | Black                             |              |           | 140MP-A-DC65  |
|  | Coupler <ul style="list-style-type: none"> <li>Coded - Positioning of ON indication dependent from mounting orientation of the 140MP</li> </ul>                                                                 | Driver with screw                 | 140MP        | 1         | 140MP-A-DNC   |
|                                                                                     | <ul style="list-style-type: none"> <li>Uncoded - Positioning of ON indication independent from mounting orientation of the 140MP</li> </ul>                                                                     | Driver without coding, with screw |              |           | 140MP-A-DNUC  |
|  | Shaft Alignment Ring <ul style="list-style-type: none"> <li>Supports the long shafts for alignment to the handle inlet. It makes closing panel doors more easy</li> <li>Use for shafts</li> </ul>               |                                   | 140MP        | 1         | 140MP-A-SAR   |

Table 8 - Additional Accessories

| Description                                                                       |                                                                                                                                                                                                                                                                                                                                       |                   | For Use With | Pkg. Qty. | Cat. No.    |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------|-----------|-------------|
|  | Extension Shaft                                                                                                                                                                                                                                                                                                                       | 105 mm (4.13 in.) | 140MP        | 10        | 140MP-A-DS  |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                       | 180 mm (7.1 in.)  |              |           | 140MP-A-DSM |
|  | Extension Shaft Support <ul style="list-style-type: none"><li>Supports the shaft in the extension of handle (140MP-A-DC)</li><li>Required for shaft lengths &gt;130 mm (5.1 in.)</li><li>Snaps on the right side of the MPCB</li><li>Width: 9 mm (0.35 in.)</li><li>For use with screw-mounted or hat rail mounted devices.</li></ul> |                   | 140MP        | 1         | 140MP-A-SHS |
|  | Lockable Handle Accessory <ul style="list-style-type: none"><li>For locking 140MP devices in the OFF position</li></ul>                                                                                                                                                                                                               |                   | 140MP        | 10        | 140MP-A-KN1 |

# Specifications

## MPCB Specifications

**Table 9 - General Ratings**

| Attribute                                       |                                             | Value                                                  |
|-------------------------------------------------|---------------------------------------------|--------------------------------------------------------|
| Standards compliance                            | IEC                                         | IEC/EN 60947-2, IEC/EN 60947-4-1, IEC/EN 60947-1       |
|                                                 | cULus                                       | UL 60947-1, UL 60947-4-1, CSA C22.2, No. 60947-4-1     |
| Certifications                                  | Global                                      | RINA (Marine)                                          |
|                                                 | Regional                                    | CCC, KC, EAC, CE, IEC, cULus, CB Scheme                |
| Rated operating voltage $U_e$                   |                                             | 690V AC                                                |
| Maximum operating voltage (UL)                  |                                             | 600V                                                   |
| Rated Frequency                                 |                                             | 50/60 Hz                                               |
| Trip Class                                      |                                             | 10A                                                    |
| Number of operations                            | Mechanical                                  | 100,000 Cycles                                         |
|                                                 | Electrical                                  | 100,000 Cycles (0.1...16 A); 50,000 Cycles (20...32 A) |
| Rated impulse withstand voltage $U_{imp}$       |                                             | 6 kV                                                   |
| Rated insulation voltage $U_i$                  |                                             | 690V                                                   |
| Pollution Degree                                |                                             | 3                                                      |
| Phase loss sensitivity                          |                                             | Yes                                                    |
| Disconnect function per IEC/EN 60947-2          |                                             | Yes                                                    |
| Resistance to shock per IEC 60068-2-27          |                                             | 25 G/11 ms                                             |
| Resistance to vibrations per IEC 60068-2-6      |                                             | 5 G /3 ... 150 Hz                                      |
| Mounting                                        |                                             | DIN Rail (EN 60715)                                    |
| Group mounting (side by side)                   |                                             | up to 40 °C (104 °F)                                   |
| Minimum distance to other units same type       | Horizontal                                  | 0 mm (0 in.)                                           |
|                                                 | Vertical                                    | 150 mm (5.9 in.)                                       |
| Minimum distance to electrical conductive board | Horizontal, up to 400V                      | 0 mm (0 in.)                                           |
|                                                 | Horizontal, up to 690V                      | > 1.5 mm (0.06 in.)                                    |
|                                                 | Vertical                                    | 75 mm (2.96 in.)                                       |
| Degree of Protection                            | Housing                                     | IP20                                                   |
|                                                 | Main Terminals                              | IP10                                                   |
| Short-circuit ratings                           | @230V, 400V, 440V, 500V, and 690V           | See <a href="#">Table 2</a>                            |
|                                                 | @480V and 600V—for motor disconnect         | See <a href="#">Table 14</a>                           |
|                                                 | @480V and 600V—for group motor installation |                                                        |
| Utilization Category                            | IEC 60947-2 (Circuit breaker)               | A                                                      |
|                                                 | IEC 60947-4-1 (Motor Starter)               | AC-3                                                   |

**Table 10 - Power Loss**

| Power Loss                       |     | Rated Operating Current [A] |           |         |         |     |
|----------------------------------|-----|-----------------------------|-----------|---------|---------|-----|
|                                  |     | 0.16...1.6                  | 2.5...6.3 | 10...12 | 16...25 | 32  |
| Power Loss in all 3 Poles up to: | [W] | 5.1                         | 5.4       | 7.2     | 8.4     | 9.3 |

**Table 11 - Environmental Ratings**

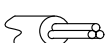
| Attribute                              |                  | Value                                         |
|----------------------------------------|------------------|-----------------------------------------------|
| Operating Ambient air temperature      | Open—compensated | -25 ... +55 °C (-13...+131 °F) <sup>(1)</sup> |
|                                        | Open             | -25 ... +70 °C (-13...+158 °F) <sup>(1)</sup> |
|                                        | Enclosed         | 0 ... +40 °C (32...104 °F)                    |
| Storage Ambient air temperature        |                  | -50 ... +80 °C (-58...+176 °F)                |
| Maximum operating altitude permissible |                  | 2000 m (6561 ft)                              |

(1) With derating. See [Table 12](#).

Table 12 - Ambient Temperature Derating

| Cat. No.      | Ambient Temperature Derating [A] |                |                |
|---------------|----------------------------------|----------------|----------------|
|               | 40 °C (104 °F)                   | 55 °C (131 °F) | 70 °C (158 °F) |
| 140MP-A3E-C10 | 10                               | 10             | 8              |
| 140MP-A3E-C12 | 12                               | 12             | 10             |
| 140MP-A3E-C16 | 16                               | 16             | 12             |
| 140MP-A3E-C20 | 20                               | 20             | 18             |
| 140MP-A3E-C25 | 25                               | 25             | 23             |
| 140MP-A3E-C32 | 32                               | 32             | 29             |

Table 13 - MPCB Connecting Characteristics

| Connection         |                          | No. of Conductors                                                                        | Devices Rated ≤ 16 A                                                                | Devices Rated 20...32 A                                                            |
|--------------------|--------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Type of terminals  |                          |                                                                                          |  |                                                                                    |
| Connection Screw   |                          |                                                                                          | M3.5/Pozidriv No.2                                                                  | M4/Pozidriv No.2                                                                   |
| Wiring             | Solid                    |  1 or 2 | 1...4 mm <sup>2</sup>                                                               | 1...2.5 mm <sup>2</sup><br>2.5...6 mm <sup>2</sup>                                 |
|                    | Flexible with ferrule    |  1 or 2 | 0.75...2.5 mm <sup>2</sup>                                                          | 0.75...6 mm <sup>2</sup>                                                           |
|                    | Flexible/finely stranded |  1 or 2 | 0.75...2.5 mm <sup>2</sup> /No. 16...12 AWG                                         | 1.5...2.5 mm <sup>2</sup> /No.16...8 AWG<br>2.5...6 mm <sup>2</sup> /No.16...8 AWG |
|                    |                          |                                                                                          |                                                                                     | 1...2.5 mm <sup>2</sup> /No.16...8 AWG<br>2.5...6 mm <sup>2</sup> /No.16...8 AWG   |
|                    | Stranded per UL/CSA      |  1 or 2 | 1...4 mm <sup>2</sup> /No. 16...12 AWG                                              |                                                                                    |
|                    | Stripping length         |                                                                                          | 9 mm (0.35 in.)                                                                     | 10 mm (0.39 in.)                                                                   |
| Tightening torques |                          |                                                                                          | 0.8...1.2 N•m/7...10 lb•in                                                          | 2 N•m /18 lb•in                                                                    |

## Application Ratings

Table 14 lists specific application ratings for MPCBs.

Table 14 - UL/CSA Listed Application Ratings, Motor Protection Circuit Breaker Only

| Cat. No.      | UL 60947-4-1 – Manual Motor Controller                 |                                 |      |                    |      |
|---------------|--------------------------------------------------------|---------------------------------|------|--------------------|------|
|               | Branch Circuit Protection<br>Max. Size per NEC/CEC [A] | Max. Short Circuit Current [kA] |      |                    |      |
|               |                                                        | Motor Disconnect                |      | Group Installation |      |
|               |                                                        | 480V                            | 600V | 480V               | 600V |
| 140MP-A3E-A16 | 175                                                    | 30                              | 5    | 30                 | 5    |
| 140MP-A3E-A25 | 175                                                    | 30                              | 5    | 30                 | 5    |
| 140MP-A3E-A40 | 175                                                    | 30                              | 5    | 30                 | 5    |
| 140MP-A3E-A63 | 175                                                    | 30                              | 5    | 30                 | 5    |
| 140MP-A3E-B10 | 175                                                    | 30                              | 5    | 30                 | 5    |
| 140MP-A3E-B16 | 175                                                    | 30                              | 5    | 30                 | 5    |
| 140MP-A3E-B25 | 175                                                    | 30                              | 5    | 30                 | 5    |
| 140MP-A3E-B40 | 175                                                    | 18                              | 5    | 18                 | 5    |
| 140MP-A3E-B63 | 175                                                    | 18                              | 5    | 18                 | 5    |
| 140MP-A3E-C10 | 175                                                    | 18                              | 5    | 18                 | 5    |
| 140MP-A3E-C12 | 175                                                    | 18                              | 5    | 18                 | 5    |
| 140MP-A3E-C16 | 175                                                    | 18                              | 5    | 18                 | 5    |
| 140MP-A3E-C20 | 400                                                    | 18                              | 5    | 18                 | 5    |
| 140MP-A3E-C25 | 400                                                    | 18                              | 5    | 18                 | 5    |
| 140MP-A3E-C32 | 400                                                    | 18                              | 5    | 18                 | 5    |

Table 15 through Table 20 lists specific application ratings for MPCBs in combination with Bulletin 100-K, 100-C, and 100-E contactors.

**Type 1 Coordination**—Specified 100-K contactors are suitable for motor group applications when they are used on the load side of the 140MP-A3E Manual Motor Controllers that are specified in Table 15.

**Table 15 - Type 1 Application Ratings, 140MP to 100-K Miniature IEC Contactors**

| Manual Motor Controller | Contactor <sup>(1)</sup>      | SCCR         |              |                                                   |
|-------------------------|-------------------------------|--------------|--------------|---------------------------------------------------|
|                         |                               | 480V AC [kA] | 600V AC [kA] | Maximum Fuse or Circuit Breaker sized per NEC [A] |
| 140MP-A3E-A16           | 100-K05<br>100-K09<br>100-K12 | 30           | 5            | 175                                               |
| 140MP-A3E-A25           |                               | 30           | 5            | 175                                               |
| 140MP-A3E-A40           |                               | 30           | 5            | 175                                               |
| 140MP-A3E-A63           |                               | 30           | 5            | 175                                               |
| 140MP-A3E-B10           |                               | 30           | 5            | 175                                               |
| 140MP-A3E-B16           |                               | 30           | 5            | 175                                               |
| 140MP-A3E-B25           |                               | 30           | 5            | 175                                               |
| 140MP-A3E-B40           |                               | 18           | —            | 175                                               |
| 140MP-A3E-B63           |                               | 18           | —            | 175                                               |
| 140MP-A3E-C10           | 100-K09<br>100-K12            | 18           | —            | 175                                               |
| 140MP-A3E-C12           | 100-K12                       | 18           | —            | 175                                               |
| 140MP-A3E-C16           |                               | 18           | —            | 175                                               |

(1) May be used with 140MP-A-PEK12 connecting module between 140MP-A3E manual motor controller and 100-K contactor.

**Type 1 Coordination**—Specified 100-C contactors (without R suffix) are suitable for motor group applications when they are used on the load side of the specified Manual Motor Controllers.

**Table 16 - Type 1 Application Ratings, 140MP to 100-C IEC Contactors**

| Manual Motor Controller      | Contactor <sup>(1)</sup>                 | SCCR         |              |                                                   |
|------------------------------|------------------------------------------|--------------|--------------|---------------------------------------------------|
|                              |                                          | 480V AC [kA] | 600V AC [kA] | Maximum Fuse or Circuit Breaker sized per NEC [A] |
| 140MP-A3E-A16                | 100-C09<br>100-C12<br>100-C16<br>100-C23 | 30           | 5            | 175                                               |
| 140MP-A3E-A25                |                                          | 30           | 5            | 175                                               |
| 140MP-A3E-A40                |                                          | 30           | 5            | 175                                               |
| 140MP-A3E-A63                |                                          | 30           | 5            | 175                                               |
| 140MP-A3E-B10                |                                          | 30           | 5            | 175                                               |
| 140MP-A3E-B16                |                                          | 30           | 5            | 175                                               |
| 140MP-A3E-B25                |                                          | 30           | 5            | 175                                               |
| 140MP-A3E-B40                |                                          | 18           | 5            | 175                                               |
| 140MP-A3E-B63                |                                          | 18           | 5            | 175                                               |
| 140MP-A3E-C10                |                                          | 18           | 5            | 175                                               |
| 140MP-A3E-C12                | 100-C12<br>100-C16<br>100-C23            | 18           | 5            | 175                                               |
| 140MP-A3E-C16 <sup>(2)</sup> | 100-C16, 100-C23                         | 18           | 5            | 175                                               |
| 140MP-A3E-C20                | 100-C23<br>100-C30<br>100-C37            | 18           | 5            | 400                                               |
| 140MP-A3E-C25 <sup>(3)</sup> | 100-C23                                  | 18           | —            | 400                                               |
| 140MP-A3E-C25 <sup>(3)</sup> | 100-C30, 100-C37                         | 18           | 5            | 400                                               |
| 140MP-A3E-C32 <sup>(4)</sup> | 100-C30, 100-C37                         | 18           | 5            | 400                                               |

(1) 140MP-A-PEC23 connection modules may be used with 100-C09...-C23 up to 24 A.

(2) Limited to 15.5 FLA maximum when used in a 365 x 235 x 140 mm (14.4 x 9.3 x 5.5 in.) (200%) or larger enclosure. Limited to 14.5 FLA maximum when used in 115 x 290 x 180 mm (4.5 x 11.4 x 7.1 in.) (150%) minimum sized enclosure.

(3) Minimum enclosure size is 170 x 670 x 235 mm (6.7 x 26.4 x 9.3 in.) (250%) at full load current. If end use current is 22.5 FLA or less, may be used in an enclosure as small as 115 x 290 x 180 mm (4.5 x 11.4 x 7.1 in.) (150%).

(4) May be used at 30.8 FLA maximum when used ambient temperature of 40 °C (104 °F) maximum. May be used up to 29 FLA when used in a 115 x 290 x 180 mm (4.5 x 11.4 x 7.1 in.) (150%) minimum size enclosure.

Table 17 - Type 2 Coordination Ratings per IEC 60947-4-1, 140MP to 100-C IEC Contactors, Standard Motor Protection

| Cat. No.      | Type 2 Coordination Ratings, IEC 60947-4-1 |                                 |
|---------------|--------------------------------------------|---------------------------------|
|               | 400/415V                                   |                                 |
|               | Max. Short Circuit Current [kA]            | For Use With Contactor Cat. No. |
| 140MP-A3E-A16 | 50                                         | 100-C09                         |
| 140MP-A3E-A25 | 50                                         | 100-C09                         |
| 140MP-A3E-A40 | 50                                         | 100-C09                         |
| 140MP-A3E-A63 | 50                                         | 100-C09                         |
| 140MP-A3E-B10 | 50                                         | 100-C09                         |
| 140MP-A3E-B16 | 50                                         | 100-C09                         |
| 140MP-A3E-B25 | 50                                         | 100-C09                         |
| 140MP-A3E-B40 | 50                                         | 100-C09                         |
| 140MP-A3E-B63 | 50                                         | 100-C09                         |
| 140MP-A3E-C10 | 50                                         | 100-C09                         |
| 140MP-A3E-C12 | 25                                         | 100-C12                         |
| 140MP-A3E-C16 | 10                                         | 100-C23                         |
| 140MP-A3E-C20 | 10                                         | 100-C30                         |
| 140MP-A3E-C25 | 10                                         | 100-C30                         |
| 140MP-A3E-C32 | 10                                         | 100-C30                         |

Table 18 - Type 2 Coordination Ratings per IEC 60947-4-1, 140MP to 100-E IEC Contactors, Standard Motor Protection

| Cat. No.      | Type 2 Coordination Ratings, IEC 60947-4-1 |                        |
|---------------|--------------------------------------------|------------------------|
|               | 400V                                       |                        |
|               | Max. Short Circuit Current [kA]            | Minimum Contactor Size |
| 140MP-A3E-A16 | 50                                         | 100-E09                |
| 140MP-A3E-A25 | 50                                         | 100-E09                |
| 140MP-A3E-A40 | 50                                         | 100-E09                |
| 140MP-A3E-A63 | 50                                         | 100-E09                |
| 140MP-A3E-B10 | 50                                         | 100-E09                |
| 140MP-A3E-B16 | 50                                         | 100-E09                |
| 140MP-A3E-B25 | 50                                         | 100-E09                |
| 140MP-A3E-B40 | 50                                         | 100-E26                |
| 140MP-A3E-B63 | 50                                         | 100-E26                |
| 140MP-A3E-C10 | 50                                         | 100-E26                |
| 140MP-A3E-C12 | 25                                         | 100-E26                |
| 140MP-A3E-C16 | 16                                         | 100-E26                |
| 140MP-A3E-C20 | 10                                         | 100-E30                |
| 140MP-A3E-C25 | 10                                         | 100-E30                |
| 140MP-A3E-C32 | 10                                         | 100-E38                |

**Table 19 - Type 2 Coordination Ratings per UL 60947-4-1, 140MP to 100-C IEC Contactors, Standard Motor Protection**

| Cat. No.                     | Contactor <sup>(1)</sup>                 | Type 2 Coordination Ratings, UL 60947-4-1 |                                 | Max. Fuse or Circuit Breaker Size per NEC [A] |
|------------------------------|------------------------------------------|-------------------------------------------|---------------------------------|-----------------------------------------------|
|                              |                                          | 480V                                      | 600V                            |                                               |
|                              |                                          | Max. Short Circuit Current [kA]           | Max. Short Circuit Current [kA] |                                               |
| 140MP-A3E-A16                | 100-C09<br>100-C12<br>100-C16<br>100-C23 | 30                                        | 5                               | 175                                           |
| 140MP-A3E-A25                |                                          | 30                                        | 5                               | 175                                           |
| 140MP-A3E-A40                |                                          | 30                                        | 5                               | 175                                           |
| 140MP-A3E-A63                |                                          | 30                                        | 5                               | 175                                           |
| 140MP-A3E-B10                |                                          | 30                                        | 5                               | 175                                           |
| 140MP-A3E-B16                |                                          | 30                                        | 5                               | 175                                           |
| 140MP-A3E-B25                | 100-C12<br>100-C16<br>100-C23            | 30                                        | 5                               | 175                                           |
| 140MP-A3E-B40                | 100-C16<br>100-C23                       | 18                                        | 5                               | 175                                           |
| 140MP-A3E-B63                | 100-C23                                  | 18                                        | 5                               | 175                                           |
| 140MP-A3E-C10                | 100-C30<br>100-C37                       | 18                                        | 5                               | 175                                           |
| 140MP-A3E-C12                |                                          | 18                                        | 5                               | 175                                           |
| 140MP-A3E-C16 <sup>(2)</sup> |                                          | 18                                        | 5                               | 175                                           |
| 140MP-A3E-C20                |                                          | 18                                        | 5                               | 400                                           |
| 140MP-A3E-C25 <sup>(3)</sup> |                                          | 18                                        | 5                               | 400                                           |
| 140MP-A3E-C32 <sup>(4)</sup> |                                          | 18                                        | 5                               | 400                                           |

(1) 140MP-A-PEC23 connection modules may be used with 100-C09...-C23 up to 24 A.

(2) Limited to 15.5 FLA maximum when used in a 365 x 235 x 140 mm (14.4 x 9.3 x 5.5 in.) (200%) or larger enclosure.  
Limited to 14.5 FLA maximum when used in 115 x 290 x 180 mm (4.5 x 11.4 x 7.1 in.) (150%) minimum sized enclosure.

(3) Minimum enclosure size is 170 x 670 x 235 mm (6.7 x 26.4 x 9.3 in.) (250%) at full load current.  
If end use current is 22.5 FLA or less, may be used in an enclosure as small as 115 x 290 x 180 mm (4.5 x 11.4 x 7.1 in.) (150%).

(4) May be used at 30.8 FLA maximum when used ambient temperature of 40 °C (104 °F) maximum.  
May be used up to 29 FLA when used in a 115 x 290 x 180 mm (4.5 x 11.4 x 7.1 in.) (150%) minimum size enclosure.

**Table 20 - Type 2 Coordination Ratings per UL 60947-4-1, 140MP to 100-E IEC Contactors, Standard Motor Protection**

| Cat. No.      | Max. Fuse or Circuit Breaker per NEC | Type 2 Coordination Ratings, UL 60947-4-1 |                        |                                 |                        |
|---------------|--------------------------------------|-------------------------------------------|------------------------|---------------------------------|------------------------|
|               |                                      | 480V                                      |                        | 600V                            |                        |
|               |                                      | Max. Short-circuit Current [kA]           | Minimum Contactor Size | Max. Short-circuit Current [kA] | Minimum Contactor Size |
| 140MP-A3E-A16 | 175                                  | 30                                        | 100-E09                | 5                               | 100-E09                |
| 140MP-A3E-A25 | 175                                  | 30                                        | 100-E09                | 5                               | 100-E09                |
| 140MP-A3E-A40 | 175                                  | 30                                        | 100-E09                | 5                               | 100-E09                |
| 140MP-A3E-A63 | 175                                  | 30                                        | 100-E09                | 5                               | 100-E09                |
| 140MP-A3E-B10 | 175                                  | 30                                        | 100-E09                | 5                               | 100-E09                |
| 140MP-A3E-B16 | 175                                  | 30                                        | 100-E09                | 5                               | 100-E09                |
| 140MP-A3E-B25 | 175                                  | 30                                        | 100-E16                | 5                               | 100-E16                |
| 140MP-A3E-B40 | 175                                  | 18                                        | 100-E26                | 5                               | 100-E16                |
| 140MP-A3E-B63 | 175                                  | 18                                        | 100-E26                | 5                               | 100-E26                |
| 140MP-A3E-C10 | 175                                  | 18                                        | 100-E26                | 5                               | 100-E30                |
| 140MP-A3E-C12 | 175                                  | 18                                        | 100-E26                | 5                               | 100-E30                |
| 140MP-A3E-C16 | 175                                  | 18                                        | 100-E26                | 5                               | 100-E40                |
| 140MP-A3E-C20 | 400                                  | 18                                        | 100-E26                | 5                               | 100-E40                |
| 140MP-A3E-C25 | 400                                  | 18                                        | 100-E30                | 5                               | 100-E40                |
| 140MP-A3E-C32 | 400                                  | 18                                        | 100-E38                | 5                               | 100-E40                |

## Accessory Specifications

**Table 21 - Auxiliary Contact, Signaling Contact, and Short-circuit Signaling Contact Specifications**

| Attribute                                                                                       |            | Side-mounted Auxiliary, Signaling, and Short-circuit Signaling Contacts | Front-mounted Auxiliary Contacts        |
|-------------------------------------------------------------------------------------------------|------------|-------------------------------------------------------------------------|-----------------------------------------|
| Standards compliance                                                                            | IEC        | IEC/EN 60947-1, IEC/EN 60947-5-1                                        | IEC/EN 60947-1, IEC/EN 60947-5-1        |
|                                                                                                 | UL/cULus   | UL 60947-4-1, CAN/CSA22.2 No. 60947-4-1                                 | UL 60947-4-1, CAN/CSA22.2 No. 60947-4-1 |
| Rated operating voltage U <sub>e</sub>                                                          |            | 690V AC/600V DC                                                         | 250V AC/250V DC                         |
| Conventional free-air thermal current I <sub>th</sub>                                           |            | 6 A                                                                     | 5 A                                     |
| Rated Frequency                                                                                 |            | 50/60 Hz                                                                | 50/60 Hz                                |
| Rated impulse withstand voltage U <sub>imp</sub>                                                |            | 6 kV                                                                    | 6 kV                                    |
| Rated insulation voltage U <sub>i</sub>                                                         |            | 690V AC                                                                 | 250V AC                                 |
| Pollution Degree                                                                                |            | 3                                                                       | 3                                       |
| Ambient air temperature                                                                         | Operation  | -25 ... +60 °C (-13...+140 °F)                                          | -25 ... +60 °C (-13...+140 °F)          |
|                                                                                                 | Storage    | -50 ... +80 °C (-58...+176 °F)                                          | -50 ... +80 °C (-58...+176 °F)          |
| Resistance to shock per IEC 60068-2-27                                                          |            | 25 G/11 ms                                                              | 25 G/11 ms                              |
| Resistance to vibrations per IEC 60068-2-6                                                      |            | 5 G/3 ... 150 Hz                                                        | 5 G/3 ... 150 Hz                        |
| Rated operational current I <sub>e</sub><br>AC-15 per IEC/EN 60947-5-1 for utilization category | 24V, 120V  | 6 A                                                                     | 3 A                                     |
|                                                                                                 | 240V       | 4 A                                                                     | 1.5 A                                   |
|                                                                                                 | 400V       | 3 A                                                                     | —                                       |
|                                                                                                 | 440V, 690V | 1 A                                                                     | —                                       |
| Rated operational current I <sub>e</sub> DC-13 per IEC/EN 60947-5-1 for utilization category    | 24V        | 2 A                                                                     | 1 A                                     |
|                                                                                                 | 125V       | 0.55 A                                                                  | 0.27 A                                  |
|                                                                                                 | 250V       | 0.27 A                                                                  | 0.11 A                                  |
|                                                                                                 | 440V, 600V | 0.15 A                                                                  | —                                       |
| Minimum switching capacity                                                                      |            | 17V DC/5 mA                                                             | 17V DC/5 mA                             |
| Short-circuit protective device (N.O, N.C)                                                      |            | 10 A Type gG                                                            | 10 A Type gG                            |
| Duty time                                                                                       |            | 100%                                                                    | 100%                                    |
| Mounting                                                                                        |            | Right side                                                              | Front                                   |
| Number of operations                                                                            | Mechanical | 50,000 cycles                                                           | 50,000 cycles                           |
|                                                                                                 | Electrical |                                                                         |                                         |
| Contact utilization characteristics according to UL/CSA                                         |            |                                                                         |                                         |
| Rated operating voltage U <sub>e</sub> per UL/CSA                                               |            | 600V AC/600V DC                                                         | 250V AC/250V DC                         |
| Pilot duty                                                                                      |            | B600, Q600                                                              | B300, R300                              |
| AC thermal rated current                                                                        |            | 5 A                                                                     | 5 A                                     |
| AC maximum volt-ampere                                                                          | making     | 3600                                                                    | 3600 VA                                 |
|                                                                                                 | breaking   | 360                                                                     | 360 VA                                  |
| DC thermal rated current                                                                        |            | 2.5 A                                                                   | 2.5 A                                   |
| DC maximum volt-ampere                                                                          | making     | 69 VA                                                                   | 28 VA                                   |
|                                                                                                 | breaking   |                                                                         |                                         |
| Connecting characteristics                                                                      |            | <a href="#">Table 24</a>                                                | <a href="#">Table 24</a>                |

**Table 22 - Undervoltage Release Specifications**

| Attribute                                        |           | Value                                   |
|--------------------------------------------------|-----------|-----------------------------------------|
| Standards compliance                             | IEC       | IEC/EN 60947-1, IEC/EN 60947-5-1        |
|                                                  | UL/cULus  | UL 60947-4-1, CAN/CSA22.2 No. 60947-4-1 |
| Rated control supply voltage                     |           | See <a href="#">Table 5</a>             |
| Rated frequency                                  |           |                                         |
| Operating voltage                                | Tripping  | 0.35 ... 0.7 x U <sub>s</sub>           |
|                                                  | Coil      | 0.85 ... 1.1 x U <sub>s</sub>           |
| Rated impulse withstand voltage U <sub>imp</sub> |           | 6 kV                                    |
| Rated insulation voltage U <sub>i</sub>          |           | 690V                                    |
| Pollution degree                                 |           | 3                                       |
| Ambient air temperature                          | Operation | -25 ... +60 °C (-13...+140 °F)          |
|                                                  | Storage   | -50 ... +80 °C (-58...+176 °F)          |
| Resistance to shock per IEC 60068-2-27           |           | 25 G/11 ms                              |
| Resistance to vibrations per IEC 60068-2-6       |           | 5 G/3 ... 150 Hz                        |
| Mounting                                         |           | left side of MPCB                       |

**Table 23 - Shunt Trip Specifications**

| Attribute                                        |           | Value                                   |
|--------------------------------------------------|-----------|-----------------------------------------|
| Standards compliance                             | IEC       | IEC/EN 60947-1, IEC/EN 60947-5-1        |
|                                                  | UL/cULus  | UL 60947-4-1, CAN/CSA22.2 No. 60947-4-1 |
| Rated control supply voltage                     |           | See <a href="#">Table 5</a>             |
| Rated frequency                                  |           |                                         |
| Operating voltage                                | Tripping  | 0.7 ... 1.1 x U <sub>s</sub>            |
| Rated impulse withstand voltage U <sub>imp</sub> |           | 6 kV                                    |
| Rated insulation voltage U <sub>i</sub>          |           | 690V                                    |
| Pollution degree                                 |           | 3                                       |
| Ambient air temperature                          | Operation | -25 ... +60 °C (-13...+140 °F)          |
|                                                  | Storage   | -50 ... +80 °C (-58...+176 °F)          |
| Resistance to shock per IEC 60068-2-27           |           | 15 G/11ms                               |
| Resistance to vibrations per IEC 60068-2-6       |           | 5 G/3 ... 150 Hz                        |
| Mounting                                         |           | left side of MPCB                       |

**Table 24 - Auxiliary Contact Connecting Characteristics**

| Connection              |                       |                                                                                     | No. of Conductors | Side Mounted               | Front Mounted           |
|-------------------------|-----------------------|-------------------------------------------------------------------------------------|-------------------|----------------------------|-------------------------|
| Wiring                  | Solid                 |  | 1 or 2            | 1...1.5 mm <sup>2</sup>    | 1...2.5 mm <sup>2</sup> |
|                         | Flexible with ferrule |  | 1 or 2            | 0.75...1.5 mm <sup>2</sup> |                         |
|                         | Flexible              |  | 1 or 2            | 0.75...1.5 mm <sup>2</sup> |                         |
|                         | Stranded per UL/CSA   |  | 1 or 2            | No. 16...14 AWG            |                         |
|                         | Stripping length      |                                                                                     |                   | 8 mm (0.31 in.)            |                         |
| Tightening torques      |                       |                                                                                     |                   | 0.8...1.2 N•m/7 lb•in      |                         |
| Recommended screwdriver |                       |                                                                                     |                   | Pozidriv No.2              |                         |

Table 25 - Feeder Terminal and Bus Bar Current Ratings

| Attribute                                  | 140MP-A-W45..., -W54..., -W63...      | 140MP-A-WT... |
|--------------------------------------------|---------------------------------------|---------------|
| Rated operational voltage $U_e$            | 690V                                  |               |
| Rated operational voltage $U_e$ per UL/CSA | 600V AC                               |               |
| Rated operational current $I_e$            | 65 A                                  |               |
| Rated operational current $I_e$ per UL/CSA | 60 A                                  | 65 A          |
| Suitable for enclosure size (UL)           | 200% of Size of 140MP-A with bus bars |               |
| Rated frequency                            | 50/60 Hz                              |               |
| Rated impulse withstand voltage $U_{imp}$  | 6 kV                                  |               |
| Rated insulation voltage $U_i$             | 690V AC                               |               |

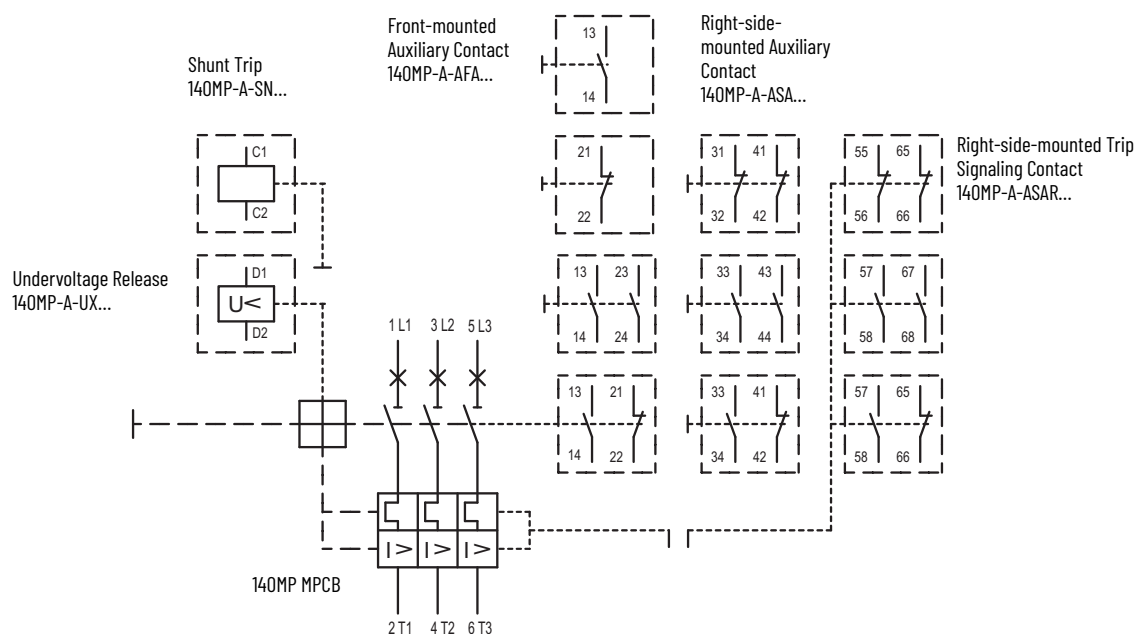
Table 26 - Main Circuit Connecting Characteristics

| Connection              |                                 |                                                                                   | No. of Conductors | Value                  |
|-------------------------|---------------------------------|-----------------------------------------------------------------------------------|-------------------|------------------------|
| Wiring                  | Solid                           |  | 1                 | 6...25 mm <sup>2</sup> |
|                         | Flexible with ferrule           |  | 1                 | 6...16 mm <sup>2</sup> |
|                         | Flexible with insulated ferrule |  | 1                 | 6...16 mm <sup>2</sup> |
|                         | Flexible                        |  | 1                 | 6...16 mm <sup>2</sup> |
|                         | Stranded per UL/CSA             |  | 1                 | No. 10...4 AWG         |
|                         | Stripping length                |                                                                                   |                   | 10 mm (0.39 in.)       |
| Tightening torques      |                                 |                                                                                   |                   | 2.5 N•m/22 lb•in       |
| Recommended screwdriver |                                 |                                                                                   |                   | Pozidriv No.2          |

## Wiring Diagrams

Figure 2 illustrates basic wiring for the 140MP MPCB and accessories.

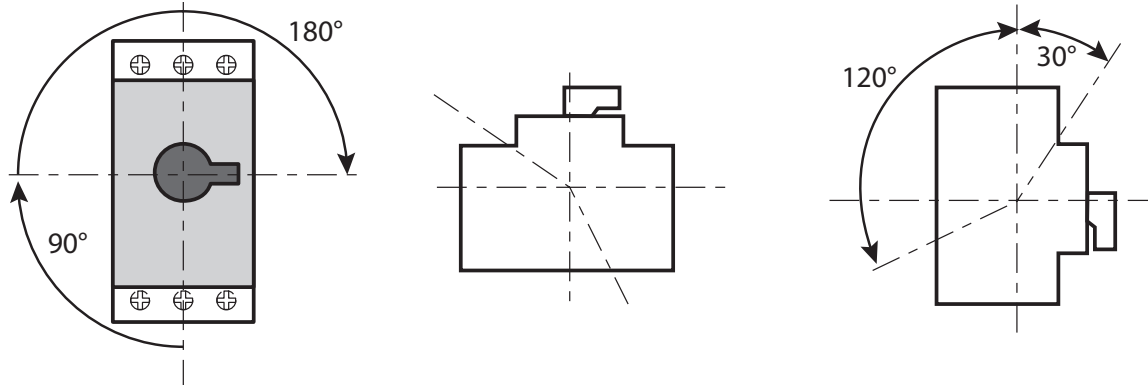
Figure 2 - 140MP Wiring Example



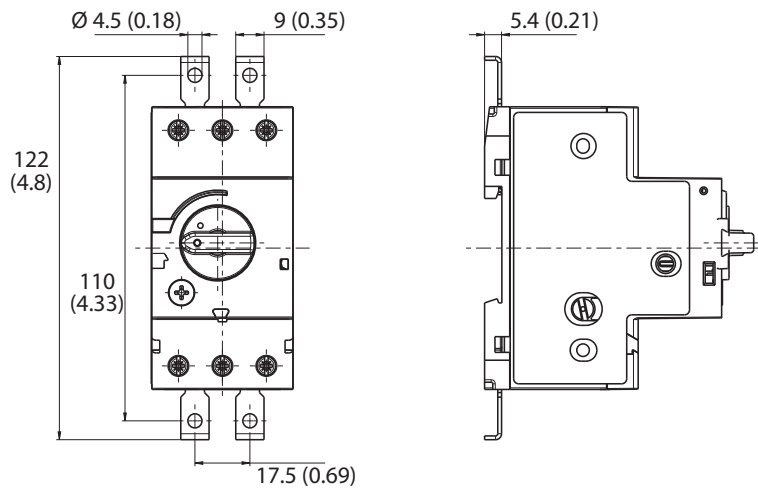
# Approximate Dimensions

Dimensions are in millimeters (inches) and are not intended for manufacturing purposes.

**Figure 3 - Mounting Position**



**Figure 4 - Cat. No. 140MP-A3E..., 140MP-A-N45 ≤16 A**



**Figure 5 - Cat. No. 140MP-A3E..., 140MP-A-N45 ≥20 A**

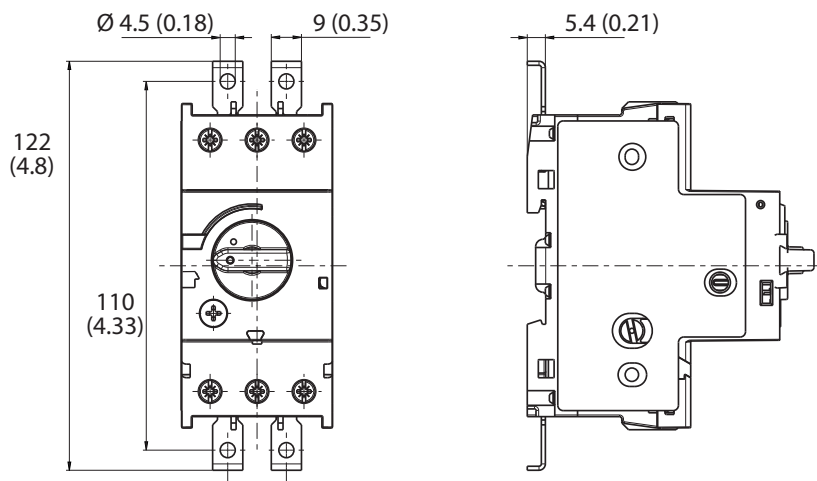


Figure 6 - Cat. No. 140MP-A3E-C16 with Accessories

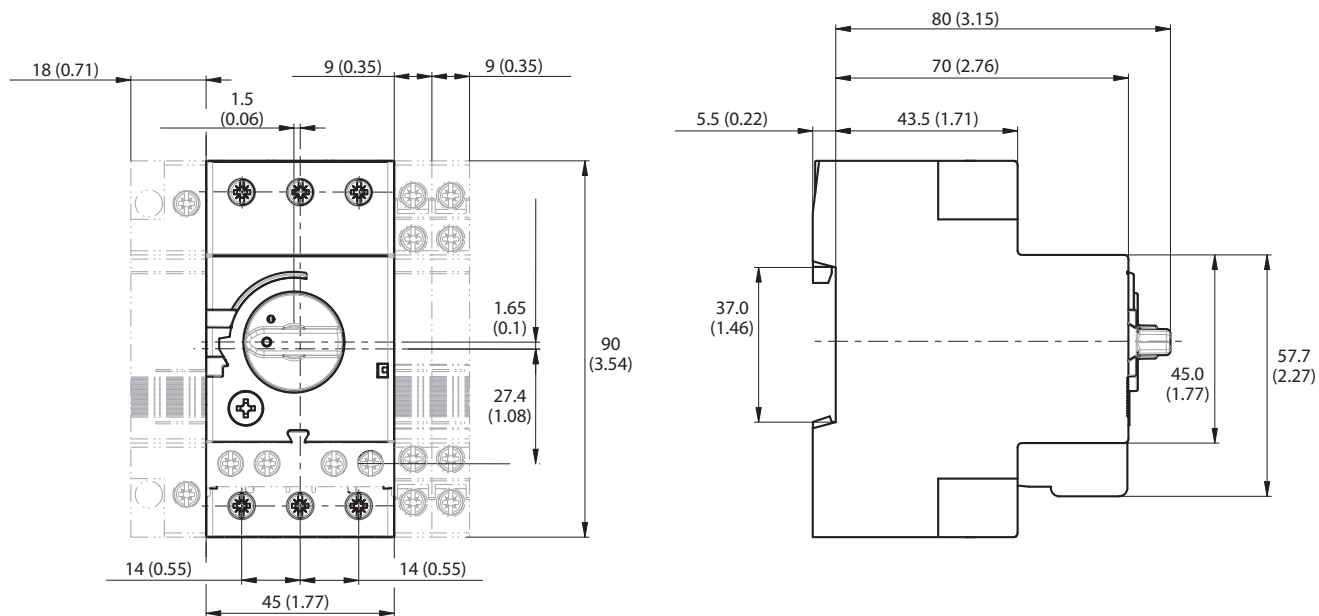
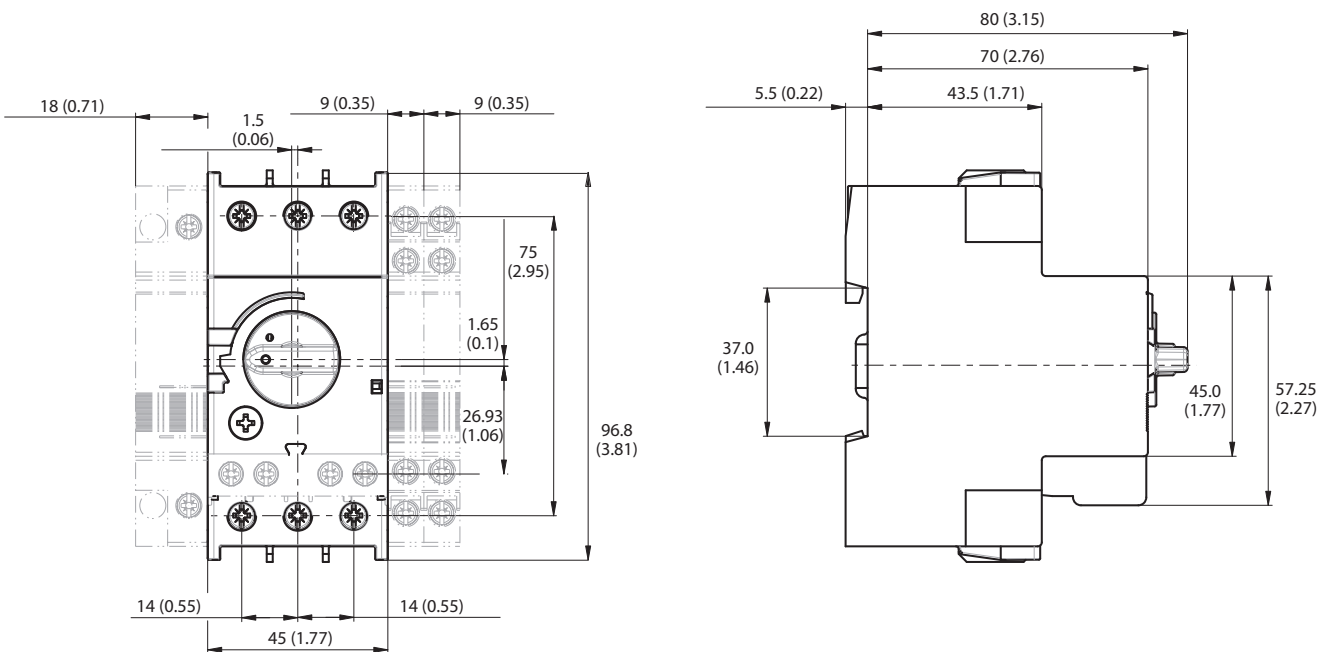


Figure 7 - Cat. No. 140MP-A3E-C32 with Accessories



## Product Overview

Bulletin 140MT Motor Protection Circuit Breakers (MPCBs) or Motor Protective Switching Devices (MPSDs) are UL Listed as Manual, Self-Protected Combination Motor Controllers (Type E) and Manual Motor Controllers (with approvals for Suitable as Motor Disconnect and Suitable for use in Group Installation).

When UL/CSA Listed as Manual, Self-Protected Combination Motor Controllers, the 140MT Motor Protection Circuit Breakers provide all of the necessary NEC/CEC requirements for the protection and control of individual Motor Branch Circuits without additional branch circuit protective devices.



According to UL 60947-4-1, CSA C22.2 No.60947-4-1, these devices may provide the following control and protection functions.

- Disconnect for motor branch circuit
- Short-circuit Protection (magnetic protection)
- Overload protection (thermal protection)
- Manual switching (motor control means)

Group motor installations eliminate the need for individual branch short-circuit protective devices for each motor circuit, reducing panel space, installation and wiring time, and costs. There is only one Branch Circuit Protective Device (BCPD) for the "Group". Bulletin 140MT devices are also UL Listed for Tap Conductor protection in group installations, which helps reduce conductor sizing.

According to UL 60947-4-1, CSA C22.2 No.60947-4-1, these devices these devices certified for group motor installation may provide the following control and protection functions.

- Disconnect for motor branch circuit
- Overload protection (thermal protection)
- Manual switching (motor control means)

Bulletin 140MT devices meet requirement of Motor Protective Switching Devices (MPSD) according to IEC 60947-4-1 and Circuit Breaker according to IEC 60947-2 standard for application outside of North America. These devices provide the following functions.

- Disconnect for motor branch circuit
- Short-circuit Protection (magnetic protection)
- Overload protection (thermal protection)
- Manual switching (motor control means)

Bulletin 140MT devices provide Trip Class 10 overload protection and phase loss sensitivity protection. These are suitable for single- and three- phase applications.

Cat. No. 140MT-D9V devices can also be applied at the output of a variable frequency drive (VFD) in multi-motor applications.

## Application Diagrams

### Group Installation with MPCBs

There is only one Branch Circuit Protective Device (BCPD) for the "Group".

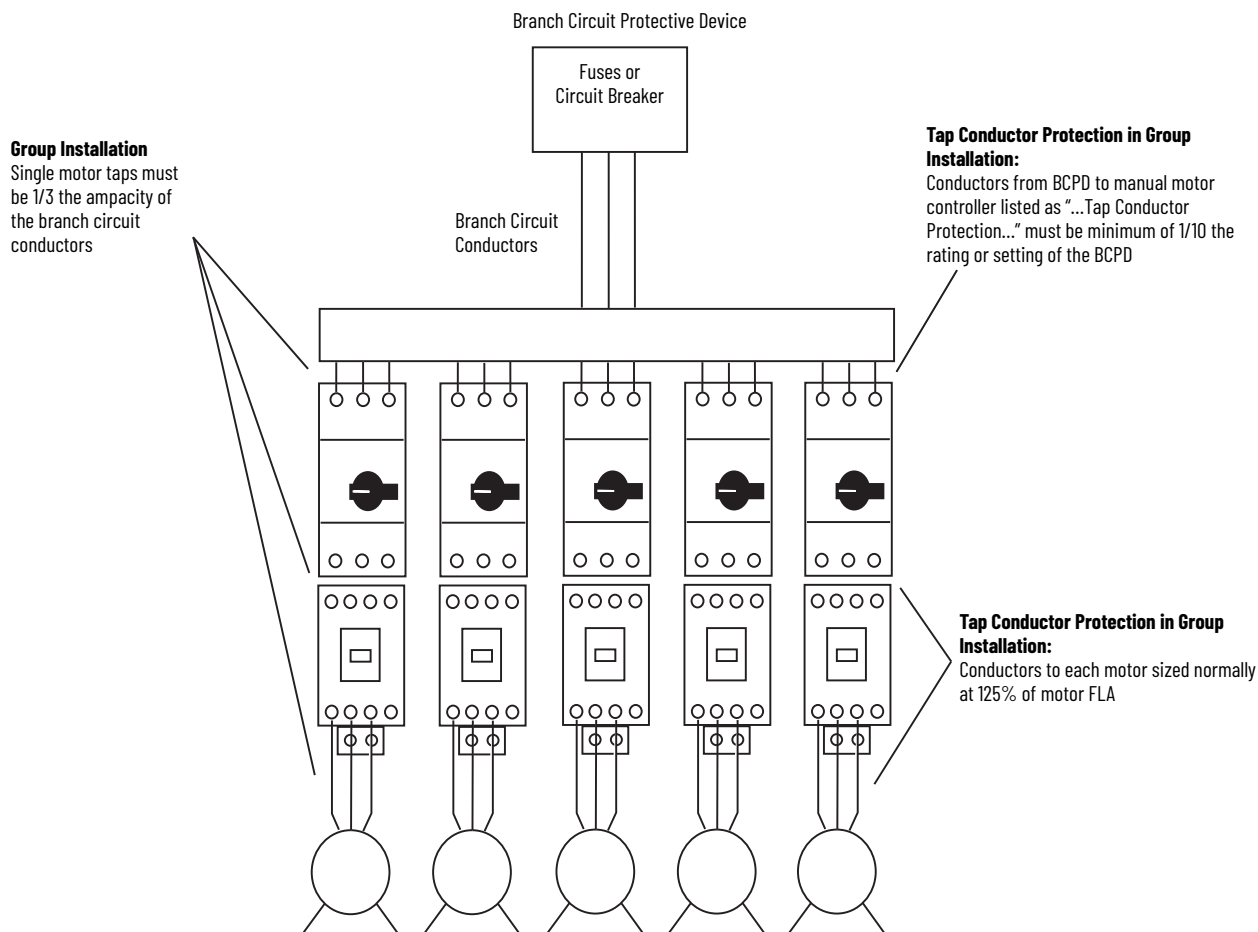
Group installation has been successfully used for many years in the U.S. and Canada. It allows "two or motors or one or more motors and other loads to be connected to the same branch-circuit...". The most restrictive part of the conditions specified for Group Installation is the requirement for the protection of the conductors for each motor circuit. In the U.S. NEC for 2002, a new rule for the conductor sizing was added for devices that are listed and marked "Suitable for use as Tap Conductor Protection".

[Figure 8](#) shows an example that illustrates installations involving multiple motors with a single BCPD protecting the entire "Group".

Bulletin 140MT Motor Protection Circuit Breakers UL/CSA Listed for Group Installation: conductors from the BCPD to each motor must be a minimum of 1/3 the ampacity of the Branch Circuit conductors.

Bulletin 140MT Motor Protection Circuit Breakers UL/CSA Listed for Tap conductor Protection in Group Installations: conductors from the BCPD to manual motor controller listed as "...Tap Conductor Protection..." must be minimum of 1/10 the rating or setting of the BCPD. Conductors from the controller to the motor must be 125% of the motor FLA.

**Figure 8 - Group Installation with MPCBs**

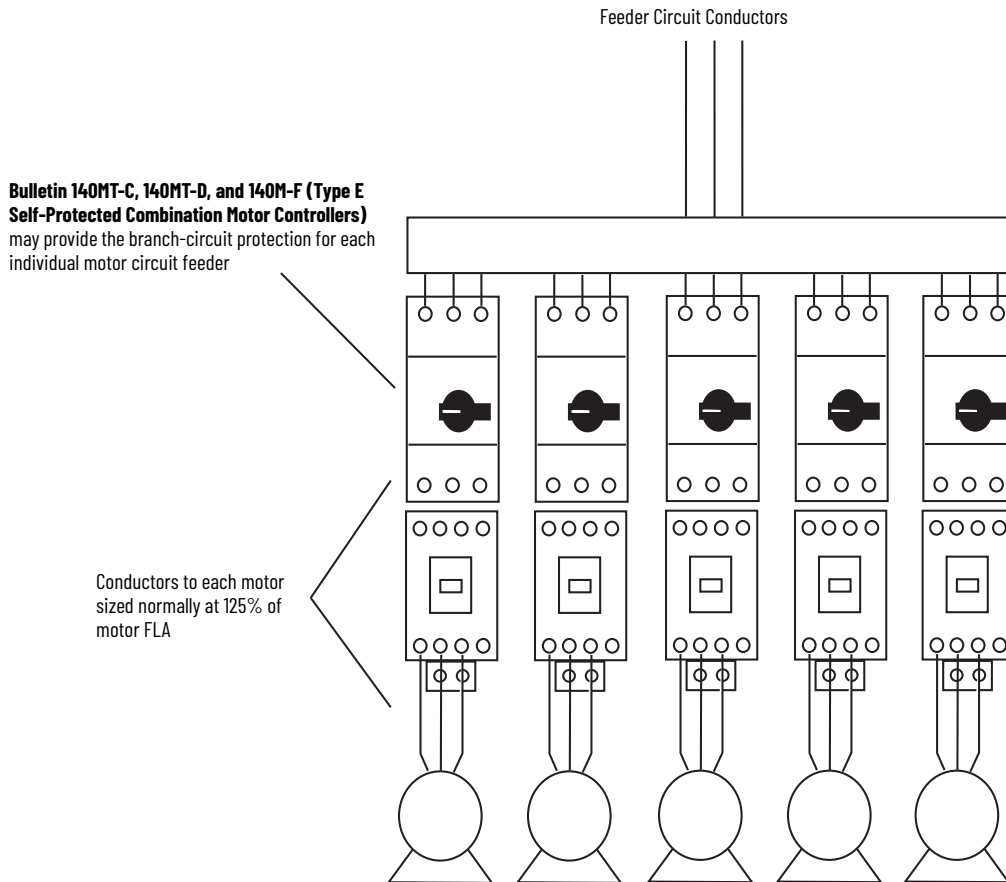


## Multiple Motor Installation with MPCBs

Each Motor has an Individual Branch Circuit Protective Device.

Bulletin 140MT Motor Protection Circuit Breakers (MPCBs) are UL/CSA Listed as Type E Manual Self-Protected Combination Motor Controllers or UL/CSA Listed as Circuit Breakers. These UL/CSA Listings allow the Bulletin 140MT MPCBs to provide the branch-circuit, short-circuit protection (as well as overload protection) for each individual motor circuit. Additional short-circuit protection is not required for the protection of the individual motor circuits, leaving only the requirement for protection of the feeder circuit conductors by an upstream protective device. [Figure 9](#) shows an example that illustrates installations involving multiple motors, each with its own branch-circuit protection (BCPD).

**Figure 9 - Multiple Motor Installation with MPCBs**



# Catalog Number Explanation

## C- and D-Frame Devices

$\frac{140MT}{a} - \frac{C}{b} \frac{3}{c} \frac{E}{d} - \frac{B63}{e}$

| a               |                                                   | b                             |               | c                                         |              | d        |                                                                 | e             |                              |
|-----------------|---------------------------------------------------|-------------------------------|---------------|-------------------------------------------|--------------|----------|-----------------------------------------------------------------|---------------|------------------------------|
| Bulletin Number |                                                   | Current Rating/<br>Frame Size |               | Interrupting Rating/<br>Breaking Capacity |              | Function |                                                                 | Current Range |                              |
| Code            | Description                                       | Code                          | Description   | Code                                      | Description  | Code     | Description                                                     | Code          | Description                  |
| 140MT           | 140MT Motor Protective Switching Device (Thermal) | C                             | 32 A, Frame C | 3                                         | Normal break | E        | Adjustable Thermal/Fixed Magnetic ( $14 \times I_n$ ) MPCB      | A             | 0.10 (example: A16 = 0.16 A) |
|                 |                                                   | D                             | 40 A, Frame D | 9                                         | High break   | N        | Fixed Magnetic ( $14 \times I_n$ ) MCP                          | B             | 1.0 (example: B16 = 1.6 A)   |
|                 |                                                   |                               |               |                                           |              | T        | Adjustable Thermal/Fixed Magnetic ( $18...22 \times I_n$ ) MPCB | C             | 10 (example: C16 = 16 A)     |
|                 |                                                   |                               |               |                                           |              | V        | Fixed Magnetic (application at output of VFD multi-motor)       |               |                              |

## F-Frame Devices

$\frac{140M}{a} - \frac{F}{b} \frac{8}{c} \frac{E}{d} - \frac{C10}{e}$

| a               |                                        | b                             |               | c                                         |             | d        |                                                                 | e             |                          |
|-----------------|----------------------------------------|-------------------------------|---------------|-------------------------------------------|-------------|----------|-----------------------------------------------------------------|---------------|--------------------------|
| Bulletin Number |                                        | Current Rating/<br>Frame Size |               | Interrupting Rating/<br>Breaking Capacity |             | Function |                                                                 | Current Range |                          |
| Code            | Description                            | Code                          | Description   | Code                                      | Description | Code     | Description                                                     | Code          | Description              |
| 140M            | 140M Motor Protection Circuit Breaker) | F                             | 45 A, Frame F | 8                                         | High break  | E        | Adjustable Thermal/Fixed Magnetic ( $14 \times I_n$ ) MPCB      | C             | 10 (example: C16 = 16 A) |
|                 |                                        |                               |               |                                           |             | N        | Fixed Magnetic ( $14 \times I_n$ ) MCP                          |               |                          |
|                 |                                        |                               |               |                                           |             | T        | Adjustable Thermal/Fixed Magnetic ( $18...22 \times I_n$ ) MPCB |               |                          |

# Product Selection

## Selection Using Current and Hp/kW Ratings

Table 27 - Motor Protective Switching Devices

| Rated<br>Operational<br>Current ( $I_p$ ) [A]                      | Motor Current<br>Adjustment<br>Range [A] | Nominal<br>Magnetic Trip<br>Current [A] | Max Short-circuit<br>Current [kA] |                       | Max. 3-phase Hp Ratings <sup>(1)</sup> |      |      |      | Max. kW, 3-Phase – AC-3 <sup>(1)</sup> |          |      |      | Cat. No.                     |
|--------------------------------------------------------------------|------------------------------------------|-----------------------------------------|-----------------------------------|-----------------------|----------------------------------------|------|------|------|----------------------------------------|----------|------|------|------------------------------|
|                                                                    |                                          |                                         | 400V<br>( $I_{cu}$ )              | 480V<br>(group motor) | 200V                                   | 230V | 460V | 575V | 230V                                   | 400/415V | 500V | 690V |                              |
| C-Frame, Adjustable Thermal/Fixed Magnetic (14 x $I_n$ )           |                                          |                                         |                                   |                       |                                        |      |      |      |                                        |          |      |      |                              |
| 0.16                                                               | 0.10...0.16                              | 2.2                                     | 100                               | 65                    | —                                      | —    | —    | —    | —                                      | 0.02     | 0.06 | 0.06 | 140MT-C3E-A16                |
| 0.25                                                               | 0.16...0.25                              | 3.5                                     | 100                               | 65                    | —                                      | —    | —    | —    | —                                      | 0.04     | 0.09 | 0.09 | 140MT-C3E-A25                |
| 0.4                                                                | 0.25...0.40                              | 5.6                                     | 100                               | 65                    | —                                      | —    | —    | —    | 0.06                                   | 0.09     | 0.12 | 0.18 | 140MT-C3E-A40                |
| 0.63                                                               | 0.40...0.63                              | 8.8                                     | 100                               | 65                    | —                                      | —    | —    | —    | 0.09                                   | 0.18     | 0.18 | 0.25 | 140MT-C3E-A63                |
| 1                                                                  | 0.63...1.0                               | 14                                      | 100                               | 65                    | —                                      | —    | 0.5  | 0.5  | 0.18                                   | 0.25     | 0.37 | 0.55 | 140MT-C3E-B10                |
| 1.6                                                                | 1.0...1.6                                | 22                                      | 100                               | 65                    | —                                      | —    | 0.75 | —    | 0.25                                   | 0.55     | 0.75 | 1.1  | 140MT-C3E-B16                |
| 2.5                                                                | 1.6...2.5                                | 35                                      | 100                               | 65                    | 0.5                                    | 0.5  | 1    | 1.5  | 0.37                                   | 0.75     | 1.1  | 1.8  | 140MT-C3E-B25                |
| 4                                                                  | 2.5...4.0                                | 56                                      | 100                               | 65                    | 0.75                                   | 0.75 | 2    | 3    | 0.75                                   | 1.5      | 2.2  | 3    | 140MT-C3E-B40                |
| 6.3                                                                | 4.0...6.3                                | 88                                      | 100                               | 65                    | 1                                      | 1.5  | 3    | 5    | 1.5                                    | 2.2      | 3    | 4    | 140MT-C3E-B63                |
| 10                                                                 | 6.3...10                                 | 140                                     | 100                               | 65                    | 2                                      | 2    | 5    | 7.5  | 2.2                                    | 4        | 6.3  | 7.5  | 140MT-C3E-C10                |
| 16                                                                 | 10...16                                  | 224                                     | 65                                | 30                    | 3                                      | 5    | 10   | 10   | 4                                      | 7.5      | 10   | 13   | 140MT-C3E-C16                |
| 20                                                                 | 14.5...20                                | 280                                     | 50                                | 30                    | 5                                      | 5    | 10   | 15   | 5.5                                    | 10       | 11   | 17   | 140MT-C3E-C20                |
| 25                                                                 | 18...25                                  | 350                                     | 15                                | 30                    | 5                                      | 7.5  | 15   | 20   | 5.5                                    | 11       | 15   | 22   | 140MT-C3E-C25                |
| 29                                                                 | 23...29                                  | 406                                     | 15                                | 30                    | 7.5                                    | 10   | 20   | 25   | 7.5                                    | 13       | 18.5 | 25   | 140MT-C3E-C29                |
| 32                                                                 | 26.5...32                                | 448                                     | 15                                | 30                    | 7.5                                    | 10   | 20   | 30   | 7.5                                    | 15       | 20   | 25   | 140MT-C3E-C32                |
| D-Frame, Adjustable Thermal/Fixed Magnetic (14 x $I_n$ )           |                                          |                                         |                                   |                       |                                        |      |      |      |                                        |          |      |      |                              |
| 0.63                                                               | 0.40...0.63                              | 8.8                                     | 100                               | 65                    | —                                      | —    | —    | —    | 0.09                                   | 0.18     | 0.18 | 0.25 | 140MT-D9E-A63                |
| 1                                                                  | 0.63...1.0                               | 14                                      | 100                               | 65                    | —                                      | —    | 0.5  | 0.5  | 0.18                                   | 0.25     | 0.37 | 0.55 | 140MT-D9E-B10                |
| 1.6                                                                | 1.0...1.6                                | 22                                      | 100                               | 65                    | —                                      | —    | 0.75 | —    | 0.25                                   | 0.55     | 0.75 | 1.1  | 140MT-D9E-B16                |
| 2.5                                                                | 1.6...2.5                                | 35                                      | 100                               | 65                    | 0.5                                    | 0.5  | 1    | 1.5  | 0.37                                   | 0.75     | 1.1  | 1.8  | 140MT-D9E-B25                |
| 4                                                                  | 2.5...4.0                                | 56                                      | 100                               | 65                    | 0.75                                   | 0.75 | 2    | 3    | 0.75                                   | 1.5      | 2.2  | 3    | 140MT-D9E-B40                |
| 6.3                                                                | 4.0...6.3                                | 88                                      | 100                               | 65                    | 1                                      | 1.5  | 3    | 5    | 1.5                                    | 2.2      | 3    | 4    | 140MT-D9E-B63                |
| 10                                                                 | 6.3...10                                 | 140                                     | 100                               | 65                    | 2                                      | 2    | 5    | 7.5  | 2.2                                    | 4        | 6.3  | 7.5  | 140MT-D9E-C10                |
| 16                                                                 | 10...16                                  | 224                                     | 100                               | 65                    | 3                                      | 5    | 10   | 10   | 4                                      | 7.5      | 10   | 13   | 140MT-D9E-C16                |
| 20                                                                 | 14.5...20                                | 280                                     | 100                               | 65                    | 5                                      | 5    | 10   | 15   | 5.5                                    | 10       | 11   | 17   | 140MT-D9E-C20                |
| 25                                                                 | 18...25                                  | 350                                     | 65                                | 50                    | 5                                      | 7.5  | 15   | 20   | 5.5                                    | 11       | 15   | 22   | 140MT-D9E-C25                |
| 29                                                                 | 23...29                                  | 406                                     | 50                                | 50                    | 7.5                                    | 10   | 20   | 25   | 7.5                                    | 13       | 18.5 | 25   | 140MT-D9E-C29                |
| 32                                                                 | 26.5...32                                | 448                                     | 50                                | 50                    | 7.5                                    | 10   | 20   | 30   | 7.5                                    | 15       | 20   | 25   | 140MT-D9E-C32                |
| 36                                                                 | 30...36                                  | 432                                     | 50                                | 30                    | 10                                     | 10   | 25   | 30   |                                        | 18.5     | 20   | 25   | 140MT-D9E-C36 <sup>(2)</sup> |
| 40                                                                 | 34...40                                  | 480                                     | 50                                | 30                    | 10                                     | 10   | 30   | 30   | 11                                     | 20       | 24   | 30   | 140MT-D9E-C40 <sup>(2)</sup> |
| D-Frame, Fixed Magnetic (application at output of VFD multi-motor) |                                          |                                         |                                   |                       |                                        |      |      |      |                                        |          |      |      |                              |
| 1.6                                                                | 1.0...1.6                                | 88                                      | 100                               | 65                    | —                                      | —    | 0.75 | —    | 0.25                                   | 0.55     | 0.75 | —    | 140MT-D9V-B16                |
| 2.5                                                                | 1.6...2.5                                | 88                                      | 100                               | 65                    | 0.5                                    | 0.5  | 1    | —    | 0.37                                   | 0.75     | 1.1  | —    | 140MT-D9V-B25                |
| 4                                                                  | 2.5...4.0                                | 88                                      | 100                               | 65                    | 0.75                                   | 0.75 | 2    | —    | 0.75                                   | 1.5      | 2.2  | —    | 140MT-D9V-B40                |
| 6.3                                                                | 4.0...6.3                                | 88                                      | 100                               | 65                    | 1                                      | 1.5  | 3    | —    | 1.5                                    | 2.2      | 3    | —    | 140MT-D9V-B63                |
| 10                                                                 | 6.3...10                                 | 140                                     | 100                               | 65                    | 2                                      | 2    | 5    | —    | 2.2                                    | 4        | 6.3  | —    | 140MT-D9V-C10                |
| 16                                                                 | 10...16                                  | 224                                     | 100                               | 65                    | 3                                      | 5    | 10   | —    | 4                                      | 7.5      | 10   | —    | 140MT-D9V-C16                |
| 20                                                                 | 14.5...20                                | 280                                     | 100                               | 65                    | 5                                      | 5    | 10   | —    | 5.5                                    | 10       | 11   | —    | 140MT-D9V-C20                |
| 25                                                                 | 18...25                                  | 350                                     | 65                                | 50                    | 5                                      | 7.5  | 15   | —    | 5.5                                    | 11       | 15   | —    | 140MT-D9V-C25                |
| 29                                                                 | 23...29                                  | 406                                     | 50                                | 50                    | 7.5                                    | 10   | 20   | —    | 7.5                                    | 13       | 18.5 | —    | 140MT-D9V-C29                |
| 32                                                                 | 26.5...32                                | 448                                     | 50                                | 50                    | 7.5                                    | 10   | 20   | —    | 7.5                                    | 15       | 20   | —    | 140MT-D9V-C32                |
| 36                                                                 | 30...36                                  | 432                                     | 50                                | 30                    | 10                                     | 10   | 25   | —    | —                                      | 18.5     | 20   | —    | 140MT-D9V-C36 <sup>(2)</sup> |
| 40                                                                 | 34...40                                  | 480                                     | 50                                | 30                    | 10                                     | 10   | 30   | —    | 11                                     | 20       | 24   | —    | 140MT-D9V-C40 <sup>(2)</sup> |

Table 27 - Motor Protective Switching Devices (Continued)

| Rated<br>Operational<br>Current ( $I_e$ ) [A]            | Motor Current<br>Adjustment<br>Range [A] | Nominal<br>Magnetic Trip<br>Current [A] | Max Short-circuit<br>Current [kA] |                       | Max. 3-phase Hp Ratings <sup>(1)</sup> |      |      |      | Max. kW, 3-Phase – AC-3 <sup>(1)</sup> |          |      |      | Cat. No.     |
|----------------------------------------------------------|------------------------------------------|-----------------------------------------|-----------------------------------|-----------------------|----------------------------------------|------|------|------|----------------------------------------|----------|------|------|--------------|
|                                                          |                                          |                                         | 400V<br>( $I_{cu}$ )              | 480V<br>(group motor) | 200V                                   | 230V | 460V | 575V | 230V                                   | 400/415V | 500V | 690V |              |
| F-Frame, Adjustable Thermal/Fixed Magnetic (13 x $I_n$ ) |                                          |                                         |                                   |                       |                                        |      |      |      |                                        |          |      |      |              |
| 10                                                       | 6.3...10                                 | 130                                     | 100                               | 65                    | 2                                      | 3    | 5    | 7.5  | 2.2                                    | 4        | 6.3  | 7.5  | 140M-F8E-C10 |
| 16                                                       | 10...16                                  | 208                                     | 100                               | 65                    | 3                                      | 5    | 10   | 10   | 4                                      | 7.5      | 10   | 13   | 140M-F8E-C16 |
| 20                                                       | 14.5...20                                | 260                                     | 100                               | 65                    | 5                                      | 5    | 10   | 15   | 5.5                                    | 10       | 11   | 17   | 140M-F8E-C20 |
| 25                                                       | 18...25                                  | 325                                     | 100                               | 65                    | 7.5                                    | 7.5  | 15   | 20   | 5.5                                    | 11       | 15   | 22   | 140M-F8E-C25 |
| 32                                                       | 23...32                                  | 416                                     | 65                                | 65                    | 7.5                                    | 10   | 20   | 30   | 7.5                                    | 15       | 20   | 25   | 140M-F8E-C32 |
| 45                                                       | 32...45                                  | 585                                     | 65                                | 65                    | 10                                     | 15   | 30   | 40   | 13                                     | 22       | 30   | 40   | 140M-F8E-C45 |
| 25                                                       | 18...25                                  | 416                                     | 65                                | 65                    | 7.5                                    | 7.5  | 15   | 20   | 5.5                                    | 11       | 15   | 22   | 140M-F8T-C25 |
| 32                                                       | 23...32                                  | 585                                     | 65                                | 65                    | 7.5                                    | 10   | 20   | 30   | 7.5                                    | 15       | 20   | 25   | 140M-F8T-C32 |

(1) Horsepower/kW ratings shown are for reference. The final selection of the MPCB/MPSD depends on the actual motor full load current.

(2) Suitable for continuous operation at 90% current rating at 480V only if used in a minimum enclosure size of 250 x 175 x 150 mm (10 x 7 x 6 in).

Table 28 - High Inrush Motor Protection Switching Devices

| Rated<br>Operational<br>Current ( $I_e$ ) [A]                 | Motor Current<br>Adjustment<br>Range [A] | Nominal<br>Magnetic Trip<br>Current [A] | Max Short-circuit<br>Current [kA] |               | Max. 3-phase Hp Ratings <sup>(1)</sup> |      |      |      | Max. kW, 3-Phase – AC-3 <sup>(1)</sup> |          |      |      | Cat. No.      |
|---------------------------------------------------------------|------------------------------------------|-----------------------------------------|-----------------------------------|---------------|----------------------------------------|------|------|------|----------------------------------------|----------|------|------|---------------|
|                                                               |                                          |                                         | 400V                              | 480V          | 200V                                   | 230V | 460V | 575V | 230V                                   | 400/415V | 500V | 690V |               |
|                                                               |                                          |                                         | ( $I_{cu}$ )                      | (group motor) |                                        |      |      |      |                                        |          |      |      |               |
| D-Frame, Adjustable Thermal/Fixed Magnetic (18...22 x $I_n$ ) |                                          |                                         |                                   |               |                                        |      |      |      |                                        |          |      |      |               |
| 0.16                                                          | 0.10...0.16                              | 3.5                                     | 100                               | 65            | —                                      | —    | —    | —    | —                                      | 0.02     | 0.06 | 0.06 | 140MT-D9T-A16 |
| 0.25                                                          | 0.16...0.25                              | 5.5                                     | 100                               | 65            | —                                      | —    | —    | —    | —                                      | 0.04     | 0.09 | 0.09 | 140MT-D9T-A25 |
| 0.4                                                           | 0.25...0.40                              | 8.8                                     | 100                               | 65            | —                                      | —    | —    | —    | 0.06                                   | 0.09     | 0.12 | 0.18 | 140MT-D9T-A40 |
| 0.63                                                          | 0.40...0.63                              | 14                                      | 100                               | 65            | —                                      | —    | —    | —    | 0.09                                   | 0.18     | 0.18 | 0.25 | 140MT-D9T-A63 |
| 1                                                             | 0.63...1.0                               | 22                                      | 100                               | 65            | —                                      | —    | 0.5  | 0.5  | 0.18                                   | 0.25     | 0.37 | 0.55 | 140MT-D9T-B10 |
| 1.6                                                           | 1.0...1.6                                | 35                                      | 100                               | 65            | —                                      | —    | 0.75 | —    | 0.25                                   | 0.55     | 0.75 | 1.1  | 140MT-D9T-B16 |
| 2.5                                                           | 1.6...2.5                                | 55                                      | 100                               | 65            | 0.5                                    | 0.5  | 1    | 1.5  | 0.37                                   | 0.75     | 1.1  | 1.8  | 140MT-D9T-B25 |
| 4                                                             | 2.5...4.0                                | 88                                      | 100                               | 65            | 0.75                                   | 0.75 | 2    | 3    | 0.75                                   | 1.5      | 2.2  | 3    | 140MT-D9T-B40 |
| 6.3                                                           | 4.0...6.3                                | 139                                     | 100                               | 65            | 1                                      | 1.5  | 3    | 5    | 1.5                                    | 2.2      | 3    | 4    | 140MT-D9T-B63 |
| 10                                                            | 6.3...10                                 | 220                                     | 100                               | 65            | 2                                      | 2    | 5    | 7.5  | 2.2                                    | 4        | 6.3  | 7.5  | 140MT-D9T-C10 |
| 16                                                            | 10...16                                  | 320                                     | 100                               | 65            | 3                                      | 5    | 10   | 10   | 4                                      | 7.5      | 10   | 13   | 140MT-D9T-C16 |
| 20                                                            | 14.5...20                                | 400                                     | 100                               | 65            | 5                                      | 5    | 10   | 15   | 5.5                                    | 10       | 11   | 17   | 140MT-D9T-C20 |
| 25                                                            | 18...25                                  | 450                                     | 65                                | 50            | 5                                      | 7.5  | 15   | 20   | 5.5                                    | 11       | 15   | 22   | 140MT-D9T-C25 |
| F-Frame, Adjustable Thermal/Fixed Magnetic (16...22 x $I_n$ ) |                                          |                                         |                                   |               |                                        |      |      |      |                                        |          |      |      |               |
| 25                                                            | 18...25                                  | 416                                     | 65                                | 65            | 7.5                                    | 7.5  | 15   | 20   | 5.5                                    | 11       | 15   | 22   | 140M-F8T-C25  |
| 32                                                            | 23...32                                  | 585                                     | 65                                | 65            | 7.5                                    | 10   | 20   | 30   | 7.5                                    | 15       | 20   | 25   | 140M-F8T-C32  |

(1) Horsepower/kW ratings shown are for reference. The final selection of the MPCB/MPSD depends on the actual motor full load current.

Table 29 - Motor Circuit Protectors

| Rated<br>Operational<br>Current ( $I_e$ ) [A] | Motor Current<br>Adjustment<br>Range [A] | Nominal<br>Magnetic Trip<br>Current [A] | Max. Short Circuit<br>Current [kA] |               | Max. 3-phase Hp Ratings <sup>(1)</sup> |      |      |      | Max. kW, 3-Phase – AC-3 <sup>(1)</sup> |          |      |      | Cat. No.                     |
|-----------------------------------------------|------------------------------------------|-----------------------------------------|------------------------------------|---------------|----------------------------------------|------|------|------|----------------------------------------|----------|------|------|------------------------------|
|                                               |                                          |                                         | 400V                               | 480V          | 200V                                   | 230V | 460V | 575V | 230V                                   | 400/415V | 500V | 690V |                              |
|                                               |                                          |                                         | ( $I_{cu}$ )                       | (group motor) |                                        |      |      |      |                                        |          |      |      |                              |
| D-Frame, Fixed Magnetic (14 x $I_n$ )         |                                          |                                         |                                    |               |                                        |      |      |      |                                        |          |      |      |                              |
| 0.16                                          | —                                        | 2.2                                     | 100                                | 65            | —                                      | —    | —    | —    | —                                      | 0.02     | 0.06 | 0.06 | 140MT-D9N-A16                |
| 0.25                                          | —                                        | 3.5                                     | 100                                | 65            | —                                      | —    | —    | —    | —                                      | 0.04     | 0.09 | 0.09 | 140MT-D9N-A25                |
| 0.4                                           | —                                        | 5.6                                     | 100                                | 65            | —                                      | —    | —    | —    | 0.06                                   | 0.09     | 0.12 | 0.18 | 140MT-D9N-A40                |
| 0.63                                          | —                                        | 8.8                                     | 100                                | 65            | —                                      | —    | —    | —    | 0.09                                   | 0.18     | 0.18 | 0.25 | 140MT-D9N-A63                |
| 1                                             | —                                        | 14                                      | 100                                | 65            | —                                      | —    | 0.5  | 0.5  | 0.18                                   | 0.25     | 0.37 | 0.55 | 140MT-D9N-B10                |
| 1.6                                           | —                                        | 22                                      | 100                                | 65            | —                                      | —    | 0.75 | —    | 0.25                                   | 0.55     | 0.75 | 1.1  | 140MT-D9N-B16                |
| 2.5                                           | —                                        | 35                                      | 100                                | 65            | 0.5                                    | 0.5  | 1    | 1.5  | 0.37                                   | 0.75     | 1.1  | 1.8  | 140MT-D9N-B25                |
| 4                                             | —                                        | 56                                      | 100                                | 65            | 0.75                                   | 0.75 | 2    | 3    | 0.75                                   | 1.5      | 2.2  | 3    | 140MT-D9N-B40                |
| 6.3                                           | —                                        | 88                                      | 100                                | 65            | 1                                      | 1.5  | 3    | 5    | 1.5                                    | 2.2      | 3    | 4    | 140MT-D9N-B63                |
| 10                                            | —                                        | 140                                     | 100                                | 65            | 2                                      | 2    | 5    | 7.5  | 2.2                                    | 4        | 6.3  | 7.5  | 140MT-D9N-C10                |
| 16                                            | —                                        | 224                                     | 100                                | 65            | 3                                      | 5    | 10   | 10   | 4                                      | 7.5      | 10   | 13   | 140MT-D9N-C16                |
| 20                                            | —                                        | 280                                     | 100                                | 65            | 5                                      | 5    | 10   | 15   | 5.5                                    | 10       | 11   | 17   | 140MT-D9N-C20                |
| 25                                            | —                                        | 350                                     | 65                                 | 50            | 5                                      | 7.5  | 15   | 20   | 5.5                                    | 11       | 15   | 22   | 140MT-D9N-C25                |
| 29                                            | —                                        | 406                                     | 50                                 | 50            | 7.5                                    | 10   | 20   | 25   | 7.5                                    | 13       | 18.5 | 25   | 140MT-D9N-C29                |
| 32                                            | —                                        | 448                                     | 50                                 | 50            | 7.5                                    | 10   | 20   | 30   | 7.5                                    | 15       | 20   | 25   | 140MT-D9N-C32                |
| 36                                            | —                                        | 432                                     | 50                                 | 30            | 10                                     | 10   | 25   | 30   | —                                      | 18.5     | 20   | 25   | 140MT-D9N-C36 <sup>(2)</sup> |
| 40                                            | —                                        | 480                                     | 50                                 | 30            | 10                                     | 10   | 30   | 30   | 11                                     | 20       | 24   | 30   | 140MT-D9N-C40 <sup>(2)</sup> |
| F-Frame, Fixed Magnetic (13 x $I_n$ )         |                                          |                                         |                                    |               |                                        |      |      |      |                                        |          |      |      |                              |
| 25                                            | —                                        | 325                                     | 100                                | 65            | 7.5                                    | 10   | 20   | 25   | 6.3                                    | 11       | 15   | 22   | 140M-F8N-C25                 |
| 32                                            | —                                        | 416                                     | 65                                 | 65            | 7.5                                    | 10   | 25   | 30   | 7.5                                    | 15       | 20   | 30   | 140M-F8N-C32                 |
| 45                                            | —                                        | 585                                     | 65                                 | 65            | 10                                     | 15   | 30   | 40   | 13                                     | 22       | 30   | 40   | 140M-F8N-C45                 |

(1) Horsepower/kW ratings shown are for reference. The final selection of the MCP depends on the actual motor full load current.

(2) Suitable for continuous operation at 90% current rating at 480V only if used in a minimum enclosure size of 250 x 175 x 150 mm (10 x 7 x 6 in).



Motor Circuit Protectors (Cat. No. 140MT-D9N, 140M-F8N) do not provide thermal protection for themselves nor for downstream components. You must install a separate protective device against thermal overload, such as an overload relay as part of a starter combination. In applications that use these devices as the short-circuit protection device of heavy-duty starting motors, the rated operational current  $I_e$  of the devices must be over-sized using the factors in [Table 30](#).

Table 30 - Oversizing for Heavy-duty Starting

| Current Range [A] | Device Type | Class 10 | Class 20 | Class 30 |
|-------------------|-------------|----------|----------|----------|
| 0.16...10         | 140MT-D9N   | —        | —        | —        |
| 16...29           |             | —        | —        | 1.41     |
| 32...40           |             | —        | 1.41     | 1.73     |
| 25...45           | 140M-F8N    | —        | 1.41     | 1.73     |

## Selection Using Application Ratings

See [page 42](#) for combination ratings.

Table 31 - UL/CSA Listed Application Ratings, Motor Protective Switching Devices

| UL 60947-4-1 – Manual Motor Controller                                                |                                |      |                  |      |                          |                          | UL 60947-4-1 Self-Protected (Type E) Combination Motor Controller |                          | Cat. No.                     |
|---------------------------------------------------------------------------------------|--------------------------------|------|------------------|------|--------------------------|--------------------------|-------------------------------------------------------------------|--------------------------|------------------------------|
| Max. Fuse or Circuit Breaker per NEC [A]                                              | Max Short-circuit Current [kA] |      |                  |      |                          |                          | Max Short-circuit Current [kA]                                    |                          |                              |
|                                                                                       | Group Motor Installation       |      | Motor Disconnect |      | Tap Conductor Protection |                          |                                                                   |                          |                              |
|                                                                                       | 480V                           | 600V | 480V             | 600V | 480Y/277V <sup>(1)</sup> | 600Y/347V <sup>(1)</sup> | 480Y/277V <sup>(1)</sup>                                          | 600Y/347V <sup>(1)</sup> |                              |
| C-Frame, Adjustable Thermal/Fixed Magnetic (14 x I <sub>n</sub> )                     |                                |      |                  |      |                          |                          |                                                                   |                          |                              |
| 450                                                                                   | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                | 50                       | 140MT-C3E-A16                |
| 450                                                                                   | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                | 50                       | 140MT-C3E-A25                |
| 450                                                                                   | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                | 50                       | 140MT-C3E-A40                |
| 450                                                                                   | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                | 50                       | 140MT-C3E-A63                |
| 450                                                                                   | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                | 50                       | 140MT-C3E-B10                |
| 450                                                                                   | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                | 50                       | 140MT-C3E-B16                |
| 450                                                                                   | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                | 30                       | 140MT-C3E-B25                |
| 450                                                                                   | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                | 30                       | 140MT-C3E-B40                |
| 450                                                                                   | 65                             | 30   | 65               | 30   | 65                       | —                        | 65                                                                | —                        | 140MT-C3E-B63                |
| 450                                                                                   | 65                             | 30   | 65               | 30   | 65                       | —                        | 65                                                                | —                        | 140MT-C3E-C10                |
| 450                                                                                   | 30                             | 30   | 30               | 30   | 30                       | —                        | 30                                                                | —                        | 140MT-C3E-C16                |
| 450                                                                                   | 30                             | 30   | 30               | 10   | —                        | —                        | —                                                                 | —                        | 140MT-C3E-C20                |
| 450                                                                                   | 30                             | 18   | 30               | 5    | —                        | —                        | —                                                                 | —                        | 140MT-C3E-C25                |
| 450                                                                                   | 30                             | 10   | 10               | --   | —                        | —                        | —                                                                 | —                        | 140MT-C3E-C29                |
| 450                                                                                   | 30                             | 10   | 10               | --   | —                        | —                        | —                                                                 | —                        | 140MT-C3E-C32                |
| D-Frame, Adjustable Thermal/Fixed Magnetic (14 x I <sub>n</sub> )                     |                                |      |                  |      |                          |                          |                                                                   |                          |                              |
| 450                                                                                   | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                | 50                       | 140MT-D9E-A63                |
| 450                                                                                   | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                | 50                       | 140MT-D9E-B10                |
| 450                                                                                   | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                | 50                       | 140MT-D9E-B16                |
| 450                                                                                   | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                | 30                       | 140MT-D9E-B25                |
| 450                                                                                   | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                | 30                       | 140MT-D9E-B40                |
| 450                                                                                   | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                | 30                       | 140MT-D9E-B63                |
| 450                                                                                   | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                | 30                       | 140MT-D9E-C10                |
| 450                                                                                   | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                | 30                       | 140MT-D9E-C16                |
| 450                                                                                   | 65                             | 30   | 65               | 30   | 65                       | —                        | 65                                                                | —                        | 140MT-D9E-C20                |
| 450                                                                                   | 50                             | 30   | 50               | 30   | 50                       | —                        | 50                                                                | —                        | 140MT-D9E-C25                |
| 450                                                                                   | 50                             | 30   | 50               | 30   | 50                       | —                        | 50                                                                | —                        | 140MT-D9E-C29                |
| 450                                                                                   | 50                             | 30   | 30               | 18   | 30                       | —                        | 30                                                                | —                        | 140MT-D9E-C32                |
| 450                                                                                   | 30                             | 30   | 30               | 18   | 30                       | —                        | 30                                                                | —                        | 140MT-D9E-C36 <sup>(2)</sup> |
| 450                                                                                   | 30                             | 30   | 30               | 18   | 30                       | —                        | 30                                                                | —                        | 140MT-D9E-C40 <sup>(2)</sup> |
| D-Frame, Adjustable Thermal/Fixed Magnetic (application at output of VFD multi-motor) |                                |      |                  |      |                          |                          |                                                                   |                          |                              |
| 450                                                                                   | 65                             | —    | 65               | —    | 65                       | —                        | 65                                                                | —                        | 140MT-D9V-B16                |
| 450                                                                                   | 65                             | —    | 65               | —    | 65                       | —                        | 65                                                                | —                        | 140MT-D9V-B25                |
| 450                                                                                   | 65                             | —    | 65               | —    | 65                       | —                        | 65                                                                | —                        | 140MT-D9V-B40                |
| 450                                                                                   | 65                             | —    | 65               | —    | 65                       | —                        | 65                                                                | —                        | 140MT-D9V-B63                |
| 450                                                                                   | 65                             | —    | 65               | —    | 65                       | —                        | 65                                                                | —                        | 140MT-D9V-C10                |
| 450                                                                                   | 65                             | —    | 65               | —    | 65                       | —                        | 65                                                                | —                        | 140MT-D9V-C16                |
| 450                                                                                   | 65                             | —    | 65               | —    | 65                       | —                        | 65                                                                | —                        | 140MT-D9V-C20                |
| 450                                                                                   | 50                             | —    | 50               | —    | 50                       | —                        | 50                                                                | —                        | 140MT-D9V-C25                |
| 450                                                                                   | 50                             | —    | 50               | —    | 50                       | —                        | 50                                                                | —                        | 140MT-D9V-C29                |
| 450                                                                                   | 50                             | —    | 30               | —    | 30                       | —                        | 30                                                                | —                        | 140MT-D9V-C32                |
| 450                                                                                   | 30                             | —    | 30               | —    | 30                       | —                        | 30                                                                | —                        | 140MT-D9V-C36 <sup>(2)</sup> |

Table 31 - UL/CSA Listed Application Ratings, Motor Protective Switching Devices (Continued)

| UL 60947-4-1 – Manual Motor Controller                                 |                                |      |                  |      |                          |                          | UL 60947-4-1 Self-Protected (Type E)<br>Combination Motor Controller |                          | Cat. No.                     |
|------------------------------------------------------------------------|--------------------------------|------|------------------|------|--------------------------|--------------------------|----------------------------------------------------------------------|--------------------------|------------------------------|
| Max. Fuse or<br>Circuit<br>Breaker per<br>NEC [A]                      | Max Short-circuit Current [kA] |      |                  |      |                          |                          | Max Short-circuit Current [kA]                                       |                          |                              |
|                                                                        | Group Motor Installation       |      | Motor Disconnect |      | Tap Conductor Protection |                          |                                                                      |                          |                              |
|                                                                        | 480V                           | 600V | 480V             | 600V | 480Y/277V <sup>(1)</sup> | 600Y/347V <sup>(1)</sup> | 480Y/277V <sup>(1)</sup>                                             | 600Y/347V <sup>(1)</sup> |                              |
| 450                                                                    | 30                             | —    | 30               | —    | 30                       | —                        | 30                                                                   | —                        | 140MT-D9V-C40 <sup>(2)</sup> |
| D-Frame, Adjustable Thermal/Fixed Magnetic (18...22 x I <sub>n</sub> ) |                                |      |                  |      |                          |                          |                                                                      |                          |                              |
| 450                                                                    | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                   | 50                       | 140MT-D9T-A16                |
| 450                                                                    | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                   | 50                       | 140MT-D9T-A25                |
| 450                                                                    | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                   | 50                       | 140MT-D9T-A40                |
| 450                                                                    | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                   | 50                       | 140MT-D9T-A63                |
| 450                                                                    | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                   | 50                       | 140MT-D9T-B10                |
| 450                                                                    | 65                             | 50   | 65               | 50   | 65                       | 50                       | 65                                                                   | 50                       | 140MT-D9T-B16                |
| 450                                                                    | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                   | 30                       | 140MT-D9T-B25                |
| 450                                                                    | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                   | 30                       | 140MT-D9T-B40                |
| 450                                                                    | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                   | 30                       | 140MT-D9T-B63                |
| 450                                                                    | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                   | 30                       | 140MT-D9T-C10                |
| 450                                                                    | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                   | —                        | 140MT-D9T-C16                |
| 450                                                                    | 65                             | 30   | 65               | 30   | 65                       | —                        | 65                                                                   | —                        | 140MT-D9T-C20                |
| 450                                                                    | 50                             | 30   | 50               | 18   | 50                       | —                        | 50                                                                   | —                        | 140MT-D9T-C25                |
| F-Frame, Adjustable Thermal/Fixed Magnetic (13 x I <sub>n</sub> )      |                                |      |                  |      |                          |                          |                                                                      |                          |                              |
| 600                                                                    | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                   | 30                       | 140M-F8E-C10                 |
| 600                                                                    | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                   | 30                       | 140M-F8E-C16                 |
| 600                                                                    | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                   | 30                       | 140M-F8E-C20                 |
| 600                                                                    | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                   | 30                       | 140M-F8E-C25                 |
| 600                                                                    | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                   | 30                       | 140M-F8E-C32                 |
| 600                                                                    | 65                             | 18   | 65               | 18   | 65                       | —                        | 65                                                                   | —                        | 140M-F8E-C45                 |
| F-Frame, Adjustable Thermal/Fixed Magnetic (16...22 x I <sub>n</sub> ) |                                |      |                  |      |                          |                          |                                                                      |                          |                              |
| 600                                                                    | 65                             | 30   | 65               | 30   | 65                       | 30                       | 65                                                                   | 30                       | 140M-F8T-C25                 |
| 600                                                                    | 65                             | 18   | 65               | 18   | 65                       | 18                       | 65                                                                   | 18                       | 140M-F8T-C32                 |

(1) For full voltage (delta) ratings above 277V or 347V, follow the NEC or CEC rules for group motor applications.

(2) Suitable for continuous operation at 90% current rating at 480V only if used in a minimum enclosure size of 250 x 175 x 150 mm (10 x 7 x 6 in).

Table 32 - UL/CSA Listed Application Ratings, Motor Circuit Protectors

| UL 60947-4-1 – Manual Motor Controller         |                                 |      |                  |      |                          |                          | Cat. No.                     |
|------------------------------------------------|---------------------------------|------|------------------|------|--------------------------|--------------------------|------------------------------|
| Max. Fuse or Circuit Breaker per NEC [A]       | Max. Short Circuit Current [kA] |      |                  |      |                          |                          |                              |
|                                                | Group Motor Installation        |      | Motor Disconnect |      | Tap Conductor Protection |                          |                              |
|                                                | 480V                            | 600V | 480V             | 600V | 480Y/277V <sup>(1)</sup> | 600Y/347V <sup>(1)</sup> |                              |
| D-Frame, Fixed Magnetic (14 x I <sub>n</sub> ) |                                 |      |                  |      |                          |                          |                              |
| 450                                            | 65                              | 50   | 65               | 50   | 65                       | 50                       | 140MT-D9N-A16                |
| 450                                            | 65                              | 50   | 65               | 50   | 65                       | 50                       | 140MT-D9N-A25                |
| 450                                            | 65                              | 50   | 65               | 50   | 65                       | 50                       | 140MT-D9N-A40                |
| 450                                            | 65                              | 50   | 65               | 50   | 65                       | 50                       | 140MT-D9N-A63                |
| 450                                            | 65                              | 50   | 65               | 50   | 65                       | 50                       | 140MT-D9N-B10                |
| 450                                            | 65                              | 50   | 65               | 50   | 65                       | 50                       | 140MT-D9N-B16                |
| 450                                            | 65                              | 30   | 65               | 30   | 65                       | 30                       | 140MT-D9N-B25                |
| 450                                            | 65                              | 30   | 65               | 30   | 65                       | 30                       | 140MT-D9N-B40                |
| 450                                            | 65                              | 30   | 65               | 30   | 65                       | 30                       | 140MT-D9N-B63                |
| 450                                            | 65                              | 30   | 65               | 30   | 65                       | 30                       | 140MT-D9N-C10                |
| 450                                            | 65                              | 30   | 65               | 30   | 65                       | 30                       | 140MT-D9N-C16                |
| 450                                            | 65                              | 30   | 65               | 30   | 65                       | —                        | 140MT-D9N-C20                |
| 450                                            | 50                              | 30   | 50               | 30   | 50                       | —                        | 140MT-D9N-C25                |
| 450                                            | 50                              | 30   | 50               | 30   | 50                       | —                        | 140MT-D9N-C29                |
| 450                                            | 50                              | 30   | 30               | 18   | 30                       | —                        | 140MT-D9N-C32                |
| 450                                            | 30                              | 30   | 30               | 18   | 30                       | —                        | 140MT-D9N-C36 <sup>(2)</sup> |
| 450                                            | 30                              | 30   | 30               | 18   | 30                       | —                        | 140MT-D9N-C40 <sup>(2)</sup> |
| F-Frame, Fixed Magnetic (13 x I <sub>n</sub> ) |                                 |      |                  |      |                          |                          |                              |
| 600                                            | 65                              | 30   | 65               | 30   | —                        | —                        | 140M-F8N-C25                 |
| 600                                            | 65                              | 30   | 65               | 30   | —                        | —                        | 140M-F8N-C32                 |
| 600                                            | 65                              | 18   | 65               | 18   | —                        | —                        | 140M-F8N-C45                 |

(1) For full voltage (delta) ratings above 277V or 347V, follow the NEC or CEC rules for group motor applications.

(2) Suitable for continuous operation at 90% current rating at 480V only if used in a minimum enclosure size of 250 x 175 x 150 mm (10 x 7 x 6 in).

Table 33 - IEC Application Ratings, Interrupting Rating/Breaking Capacity

| Breaking Capacity, IEC 60947-2                           |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           | Cat. No.      |
|----------------------------------------------------------|------------------|-------------------------------------------|------------------|------------------|-------------------------------------------|------------------|------------------|-------------------------------------------|------------------|------------------|-------------------------------------------|------------------|------------------|-------------------------------------------|---------------|
| 230/240V AC                                              |                  |                                           | 400/415V AC      |                  |                                           | 440/460V AC      |                  |                                           | 500/525V AC      |                  |                                           | 690V AC          |                  |                                           |               |
| $I_{cu}$<br>[kA]                                         | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cu}$<br>[kA] | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cu}$<br>[kA] | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cu}$<br>[kA] | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cu}$<br>[kA] | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] |               |
| C-Frame, Adjustable Thermal/Fixed Magnetic (14 x $I_n$ ) |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |               |
| 100                                                      | 100              | — <sup>(2)</sup>                          | 100              | 100              | — <sup>(2)</sup>                          | 100              | 100              | — <sup>(2)</sup>                          | 100              | 100              | — <sup>(2)</sup>                          | 100              | 100              | — <sup>(2)</sup>                          | 140MT-C3E-A16 |
| 100                                                      | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 140MT-C3E-A25 |
| 100                                                      | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 140MT-C3E-A40 |
| 100                                                      | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 140MT-C3E-A63 |
| 100                                                      | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 140MT-C3E-B10 |
| 100                                                      | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 4                | 4                | 16                                        | 140MT-C3E-B16 |
| 100                                                      | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 4                | 4                | 20                                        | 140MT-C3E-B25 |
| 100                                                      | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 4                | 4                | 35                                        | 140MT-C3E-B40 |
| 100                                                      | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 3                | 3                | 50                                        | 140MT-C3E-B63 |
| 100                                                      | 100              |                                           | 100              | 100              | 50                                        | 80               | 50               | 50                                        | 80               | 50               | 50                                        | 63               | 3                | 3                                         | 50            |
| 100                                                      | 100              | 100                                       | 65               | 50               | 80                                        | 10               | 6                | 80                                        | 10               | 6                | 80                                        | 3                | 3                | 63                                        | 140MT-C3E-C16 |
| 65                                                       | 50               | 100                                       | 50               | 15               | 100                                       | 6                | 6                | 80                                        | 6                | 6                | 80                                        | 3                | 2                | 63                                        | 140MT-C3E-C20 |
| 65                                                       | 50               | 100                                       | 15               | 15               | 100                                       | 6                | 4                | 80                                        | 6                | 4                | 80                                        | 3                | 2                | 63                                        | 140MT-C3E-C25 |
| 50                                                       | 25               | 125                                       | 15               | 10               | 125                                       | 6                | 4                | 100                                       | 6                | 4                | 100                                       | 3                | 2                | 80                                        | 140MT-C3E-C29 |
| 50                                                       | 25               | 125                                       | 15               | 10               | 125                                       | 6                | 4                | 100                                       | 6                | 4                | 100                                       | 3                | 2                | 80                                        | 140MT-C3E-C32 |

Table 33 - IEC Application Ratings, Interrupting Rating/Breaking Capacity (Continued)

| Breaking Capacity, IEC 60947-2                                     |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           | Cat. No.                     |               |
|--------------------------------------------------------------------|------------------|-------------------------------------------|------------------|------------------|-------------------------------------------|------------------|------------------|-------------------------------------------|------------------|------------------|-------------------------------------------|------------------|------------------|-------------------------------------------|------------------------------|---------------|
| 230/240V AC                                                        |                  |                                           | 400/415V AC      |                  |                                           | 440/460V AC      |                  |                                           | 500/525V AC      |                  |                                           | 690V AC          |                  |                                           |                              |               |
| $I_{cu}$<br>[kA]                                                   | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cu}$<br>[kA] | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cu}$<br>[kA] | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cu}$<br>[kA] | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cu}$<br>[kA] | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] |                              |               |
| D-Frame, Adjustable Thermal/Fixed Magnetic (14 x $I_n$ )           |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                              |               |
| 100                                                                | 100              | _(2)                                      | 100              | 100              | _(2)                                      | 100              | 100              | _(2)                                      | 100              | 100              | _(2)                                      | 100              | 100              | _(2)                                      | 140MT-D9E-A63                |               |
| 100                                                                | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 140MT-D9E-B10                |               |
| 100                                                                | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 140MT-D9E-B16                |               |
| 100                                                                | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 6                | 4                | 20                                        | 140MT-D9E-B25                |               |
| 100                                                                | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 6                | 4                | 35                                        | 140MT-D9E-B40                |               |
| 100                                                                | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 6                | 4                | 50                                        | 140MT-D9E-B63                |               |
| 100                                                                | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 6                | 3                | 50                                        | 140MT-D9E-C10                |               |
| 100                                                                | 100              |                                           | 100              | 50               | 80                                        | 50               | 25               | 80                                        | 50               | 25               | 80                                        | 4                | 3                | 63                                        | 140MT-D9E-C16                |               |
| 100                                                                | 100              |                                           | 100              | 25               | 100                                       | 50               | 25               | 100                                       | 50               | 25               | 80                                        | 4                | 3                | 63                                        | 140MT-D9E-C20                |               |
| 100                                                                | 100              |                                           | 65               | 25               | 100                                       | 35               | 20               | 100                                       | 35               | 20               | 80                                        | 4                | 3                | 63                                        | 140MT-D9E-C25                |               |
| 65                                                                 | 50               | 125                                       | 50               | 25               | 125                                       | 25               | 15               | 125                                       | 25               | 15               | 100                                       | 4                | 3                | 80                                        | 140MT-D9E-C29                |               |
| 65                                                                 | 50               | 125                                       | 50               | 25               | 125                                       | 25               | 15               | 125                                       | 25               | 15               | 100                                       | 4                | 3                | 80                                        | 140MT-D9E-C32                |               |
| 50                                                                 | 35               | 125                                       | 50               | 25               | 125                                       | 12               | 6                | 125                                       | 12               | 6                | 100                                       | 3                | 2                | 100                                       | 140MT-D9E-C36 <sup>(3)</sup> |               |
| 50                                                                 | 35               | 125                                       | 50               | 25               | 125                                       | 12               | 6                | 125                                       | 12               | 6                | 100                                       | 3                | 2                | 100                                       | 140MT-D9E-C40 <sup>(3)</sup> |               |
| D-Frame, Fixed Magnetic (application at output of VFD multi-motor) |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                              |               |
| 100                                                                | 100              | _(2)                                      | 100              | 100              | _(2)                                      | 100              | 100              | _(2)                                      | 100              | 100              | _(2)                                      | —                | —                | _(2)                                      | 140MT-D9V-B16                |               |
| 100                                                                | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | —                | —                |                                           | 140MT-D9V-B25                |               |
| 100                                                                | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | —                | —                |                                           | 140MT-D9V-B40                |               |
| 100                                                                | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | —                | —                |                                           | 140MT-D9V-B63                |               |
| 100                                                                | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | —                | —                |                                           | 140MT-D9V-C10                |               |
| 100                                                                | 100              |                                           | 100              | 50               | 80                                        | 50               | 25               | 80                                        | 50               | 25               | 80                                        | —                | —                |                                           | 140MT-D9V-C16                |               |
| 100                                                                | 100              |                                           | 100              | 25               | 100                                       | 50               | 25               | 100                                       | 50               | 25               | 80                                        | —                | —                |                                           | 140MT-D9V-C20                |               |
| 100                                                                | 100              |                                           | 65               | 25               | 100                                       | 35               | 20               | 100                                       | 35               | 20               | 80                                        | —                | —                |                                           | 140MT-D9V-C25                |               |
| 65                                                                 | 50               |                                           | 125              | 50               | 25                                        | 125              | 25               | 15                                        | 125              | 25               | 15                                        | 100              | —                |                                           | —                            | 140MT-D9V-C29 |
| 65                                                                 | 50               |                                           | 125              | 50               | 25                                        | 125              | 25               | 15                                        | 125              | 25               | 15                                        | 100              | —                |                                           | —                            | 140MT-D9V-C32 |
| 50                                                                 | 35               | 125                                       | 50               | 25               | 125                                       | 12               | 6                | 125                                       | 12               | 6                | 100                                       | —                | —                | 140MT-D9V-C36 <sup>(3)</sup>              |                              |               |
| 50                                                                 | 35               | 125                                       | 50               | 25               | 125                                       | 12               | 6                | 125                                       | 12               | 6                | 100                                       | —                | —                | 140MT-D9V-C40 <sup>(3)</sup>              |                              |               |
| F-Frame, Adjustable Thermal/Fixed Magnetic (13 x $I_n$ )           |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                              |               |
| 100                                                                | 100              | _(2)                                      | 100              | 50               | 80                                        | 65               | 50               | 80                                        | 50               | 50               | 80                                        | 10               | 10               | 63                                        | 140M-F8E-C10                 |               |
| 100                                                                | 100              |                                           | 100              | 50               | 100                                       | 65               | 50               | 100                                       | 50               | 50               | 100                                       | 10               | 10               | 80                                        | 140M-F8E-C16                 |               |
| 100                                                                | 100              |                                           | 100              | 50               | 100                                       | 65               | 50               | 100                                       | 50               | 50               | 100                                       | 10               | 10               | 80                                        | 140M-F8E-C20                 |               |
| 100                                                                | 100              |                                           | 100              | 50               | 100                                       | 65               | 50               | 100                                       | 50               | 50               | 100                                       | 10               | 10               | 80                                        | 140M-F8E-C25                 |               |
| 100                                                                | 100              |                                           | 65               | 50               | 125                                       | 65               | 50               | 125                                       | 50               | 50               | 125                                       | 10               | 6                | 100                                       | 140M-F8E-C32                 |               |
| 100                                                                | 100              |                                           | 65               | 50               | 125                                       | 50               | 50               | 125                                       | 50               | 50               | 125                                       | 10               | 6                | 100                                       | 140M-F8E-C45                 |               |

Table 33 - IEC Application Ratings, Interrupting Rating/Breaking Capacity (Continued)

| Breaking Capacity, IEC 60947-2                                             |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           | Cat. No.                     |               |               |               |
|----------------------------------------------------------------------------|------------------|-------------------------------------------|------------------|------------------|-------------------------------------------|------------------|------------------|-------------------------------------------|------------------|------------------|-------------------------------------------|------------------|------------------|-------------------------------------------|------------------------------|---------------|---------------|---------------|
| 230/240V AC                                                                |                  |                                           | 400/415V AC      |                  |                                           | 440/460V AC      |                  |                                           | 500/525V AC      |                  |                                           | 690V AC          |                  |                                           |                              |               |               |               |
| $I_{cu}$<br>[kA]                                                           | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cu}$<br>[kA] | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cu}$<br>[kA] | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cu}$<br>[kA] | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] | $I_{cu}$<br>[kA] | $I_{cs}$<br>[kA] | Back-up Fuse<br>Rating <sup>(1)</sup> [A] |                              |               |               |               |
| D-Frame, High Inrush, Adjustable Thermal/Fixed Magnetic (18...22 x $I_n$ ) |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                              |               |               |               |
| 100                                                                        | 100              | _(2)                                      | 100              | 100              | _(2)                                      | 100              | 100              | _(2)                                      | 100              | 100              | _(2)                                      | 100              | 100              | _(2)                                      | 140MT-D9T-A16                |               |               |               |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 140MT-D9T-A25                |               |               |               |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 140MT-D9T-A40                |               |               |               |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 140MT-D9T-A63                |               |               |               |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 140MT-D9T-B10                |               |               |               |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 140MT-D9T-B16                |               |               |               |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              | 100                                       | 6                            | 4             | 20            | 140MT-D9T-B25 |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              | 100                                       | 6                            | 4             | 35            | 140MT-D9T-B40 |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              | 100                                       | 6                            | 4             | 50            | 140MT-D9T-B63 |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              | 100                                       | 6                            | 3             | 50            | 140MT-D9T-C10 |
| 100                                                                        | 100              |                                           | 100              | 50               | 80                                        | 50               | 25               | 80                                        | 50               | 25               | 80                                        | 4                | 3                | 63                                        | 140MT-D9T-C16                |               |               |               |
| 100                                                                        | 100              |                                           | 100              | 25               | 100                                       | 50               | 25               | 100                                       | 50               | 25               | 80                                        | 4                | 2                | 63                                        | 140MT-D9T-C20                |               |               |               |
| 100                                                                        | 100              |                                           | 65               | 25               | 100                                       | 50               | 12               | 100                                       | 50               | 12               | 80                                        | 4                | 2                | 63                                        | 140MT-D9T-C25                |               |               |               |
| F-Frame, High Inrush, Adjustable Thermal/Fixed Magnetic (16...22 x $I_n$ ) |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                              |               |               |               |
| 100                                                                        | 100              | _(2)                                      | 65               | 50               | 100                                       | 65               | 50               | 100                                       | 50               | 50               | 100                                       | 10               | 6                | 80                                        | 140M-F8T-C25                 |               |               |               |
| 100                                                                        | 100              |                                           | 65               | 50               | 125                                       | 65               | 50               | 125                                       | 50               | 50               | 125                                       | 10               | 6                | 100                                       | 140M-F8T-C32                 |               |               |               |
| D-Frame, Motor Circuit Protectors, Fixed Magnetic (14 x $I_n$ )            |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                              |               |               |               |
| 100                                                                        | 100              | _(2)                                      | 100              | 100              | _(2)                                      | 100              | 100              | _(2)                                      | 100              | 100              | _(2)                                      | 100              | 100              | _(2)                                      | 140MT-D9N-A16                |               |               |               |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100                          | 100           | 140MT-D9N-A25 |               |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100                          | 100           | 140MT-D9N-A40 |               |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100                          | 100           | 140MT-D9N-A63 |               |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100                          | 100           | 140MT-D9N-B10 |               |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100                          | 100           | 140MT-D9N-B16 |               |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              | 100                                       | 6                            | 4             | 20            | 140MT-D9N-B25 |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              | 100                                       | 6                            | 4             | 35            | 140MT-D9N-B40 |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              | 100                                       | 6                            | 4             | 50            | 140MT-D9N-B63 |
| 100                                                                        | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              |                                           | 100              | 100              | 100                                       | 6                            | 3             | 50            | 140MT-D9N-C10 |
| 100                                                                        | 100              |                                           | 100              | 50               | 80                                        | 50               | 25               | 80                                        | 50               | 25               | 80                                        | 4                | 3                | 63                                        | 140MT-D9N-C16                |               |               |               |
| 100                                                                        | 100              |                                           | 100              | 25               | 100                                       | 50               | 25               | 100                                       | 50               | 25               | 80                                        | 4                | 3                | 63                                        | 140MT-D9N-C20                |               |               |               |
| 100                                                                        | 100              |                                           | 65               | 25               | 100                                       | 35               | 20               | 100                                       | 35               | 20               | 80                                        | 4                | 3                | 63                                        | 140MT-D9N-C25                |               |               |               |
| 65                                                                         | 50               |                                           | 125              | 50               | 25                                        | 125              | 25               | 15                                        | 125              | 25               | 15                                        | 100              | 4                | 3                                         | 80                           | 140MT-D9N-C29 |               |               |
| 65                                                                         | 50               | 125                                       | 50               | 25               | 125                                       | 25               | 15               | 125                                       | 25               | 15               | 100                                       | 4                | 3                | 80                                        | 140MT-D9N-C32                |               |               |               |
| 50                                                                         | 35               | 125                                       | 50               | 25               | 125                                       | 12               | 6                | 125                                       | 12               | 6                | 100                                       | 3                | 2                | 100                                       | 140MT-D9N-C36 <sup>(3)</sup> |               |               |               |
| 50                                                                         | 35               | 125                                       | 50               | 25               | 125                                       | 12               | 6                | 125                                       | 12               | 6                | 100                                       | 3                | 2                | 100                                       | 140MT-D9N-C40 <sup>(3)</sup> |               |               |               |
| F-Frame, Motor Circuit Protectors, Fixed Magnetic (13 x $I_n$ )            |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                  |                  |                                           |                              |               |               |               |
| 100                                                                        | 100              | 100                                       | 100              | 50               | 100                                       | 65               | 50               | 100                                       | 50               | 50               | 100                                       | 10               | 10               | 80                                        | 140M-F8N-C25                 |               |               |               |
| 100                                                                        | 100              | 125                                       | 65               | 50               | 125                                       | 65               | 50               | 125                                       | 50               | 50               | 125                                       | 10               | 6                | 100                                       | 140M-F8N-C32                 |               |               |               |
| 100                                                                        | 100              | 125                                       | 65               | 50               | 125                                       | 50               | 50               | 125                                       | 50               | 50               | 125                                       | 10               | 6                | 100                                       | 140M-F8N-C45                 |               |               |               |

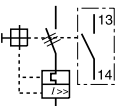
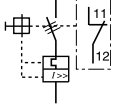
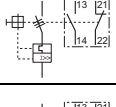
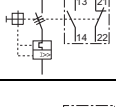
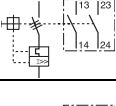
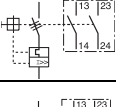
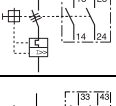
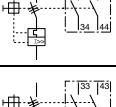
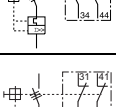
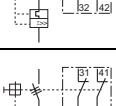
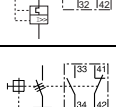
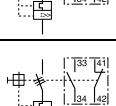
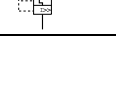
(1) Back-up fuses are type gG, aM.

(2) No Back-up fuse required if  $I_{cc} < I_{cs}$ .

(3) Suitable for continuous operation at 90% current rating at 480V only if used in a minimum enclosure size of 250 x 175 x 150 mm (10 x 7 x 6 in).

# Accessories

Table 34 - Auxiliary Contacts

| Description                                                                                                                                                                                                                                     | Operator Position <sup>(1)</sup>                                                  |                                                                                   |                                                                                   | Term. No. | Contact Description | Connection Diagram <sup>(2)</sup>                                                    | For Use With          | Cat. No.      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------|---------------------|--------------------------------------------------------------------------------------|-----------------------|---------------|
|                                                                                                                                                                                                                                                 | OFF                                                                               | ON                                                                                | Tripped                                                                           |           |                     |                                                                                      |                       |               |
|                                                                                                                                                                                                                                                 |  |  |  |           |                     |                                                                                      |                       |               |
|                                                                                                                                                                | 0                                                                                 | X                                                                                 | 0                                                                                 | 13-14     | N.O. Aux            |    | 140MT-C, D<br>140UT-D | 140MT-C-AFA10 |
|                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   |                                                                                   |           |                     |                                                                                      | 140M-F                | 140M-C-AFA10  |
| <br>Front-Mounted Auxiliary Contact<br>• 1-pole or 2-pole<br>• No additional space required<br>• Only one per device                                           | X                                                                                 | 0                                                                                 | X                                                                                 | 11-12     | N.C. Aux            |    | 140M-F                | 140M-C-AFA01  |
|                                                                                                                                                                                                                                                 | 0                                                                                 | X                                                                                 | 0                                                                                 | 13-14     | N.O. Aux            |    | 140MT-C, D<br>140UT-D | 140MT-C-AFA11 |
|                                                                                                                                                                                                                                                 | X                                                                                 | 0                                                                                 | X                                                                                 | 21-22     | N.C. Aux            |                                                                                      |                       |               |
|                                                                                                                                                                                                                                                 | 0                                                                                 | X                                                                                 | 0                                                                                 | 13-14     | N.O. Aux            |    | 140M-F                | 140M-C-AFA11  |
|                                                                                                                                                                                                                                                 | X                                                                                 | 0                                                                                 | X                                                                                 | 21-22     | N.C. Aux            |                                                                                      |                       |               |
|                                                                                                                                                                                                                                                 | 0                                                                                 | X                                                                                 | 0                                                                                 | 13-14     | N.O. Aux            |   | 140MT-C, D<br>140UT-D | 140MT-C-AFA20 |
|                                                                                                                                                                                                                                                 | 0                                                                                 | X                                                                                 | 0                                                                                 | 23-24     | N.O. Aux            |                                                                                      |                       |               |
|                                                                                                                                                                                                                                                 | 0                                                                                 | X                                                                                 | 0                                                                                 | 13-14     | N.O. Aux            |  | 140M-F                | 140M-C-AFA20  |
|                                                                                                                                                                                                                                                 | 0                                                                                 | X                                                                                 | 0                                                                                 | 23-24     | N.O. Aux            |                                                                                      |                       |               |
|                                                                                                                                                                                                                                                 | X                                                                                 | 0                                                                                 | X                                                                                 | 11-12     | N.C. Aux            |  | 140M-F                | 140M-C-AFA02  |
|                                                                                                                                                                                                                                                 | X                                                                                 | 0                                                                                 | X                                                                                 | 21-22     | N.C. Aux            |                                                                                      |                       |               |
| <br>Right Side-Mounted Auxiliary Contact<br>• 2-pole<br>• Adds 9 mm to the width of the device<br>• One per device<br>• Not suitable for UL 489 applications | 0                                                                                 | X                                                                                 | 0                                                                                 | 33-34     | N.O. Aux            |  | 140MT-C, D<br>140UT-D | 140MT-C-ASA20 |
|                                                                                                                                                                                                                                                 | 0                                                                                 | X                                                                                 | 0                                                                                 | 43-44     | N.O. Aux            |                                                                                      |                       |               |
|                                                                                                                                                                                                                                                 | 0                                                                                 | X                                                                                 | 0                                                                                 | 33-34     | N.O. Aux            |  | 140M-F                | 140M-C-ASA20  |
|                                                                                                                                                                                                                                                 | 0                                                                                 | X                                                                                 | 0                                                                                 | 43-44     | N.O. Aux            |                                                                                      |                       |               |
|                                                                                                                                                                                                                                                 | X                                                                                 | 0                                                                                 | X                                                                                 | 31-32     | N.C. Aux            |  | 140MT-C, D<br>140UT-D | 140MT-C-ASA02 |
|                                                                                                                                                                                                                                                 | X                                                                                 | 0                                                                                 | X                                                                                 | 41-42     | N.C. Aux            |                                                                                      |                       |               |
|                                                                                                                                                                                                                                                 | X                                                                                 | 0                                                                                 | X                                                                                 | 31-32     | N.C. Aux            |  | 140M-F                | 140M-C-ASA02  |
|                                                                                                                                                                                                                                                 | X                                                                                 | 0                                                                                 | X                                                                                 | 41-42     | N.C. Aux            |                                                                                      |                       |               |
|                                                                                                                                                                                                                                                 | 0                                                                                 | X                                                                                 | 0                                                                                 | 33-34     | N.O. Aux            |  | 140MT-C, D<br>140UT-D | 140MT-C-ASA11 |
|                                                                                                                                                                                                                                                 | X                                                                                 | 0                                                                                 | X                                                                                 | 43-44     | N.O. Aux            |                                                                                      |                       |               |
|                                                                                                                                                                                                                                                 | 0                                                                                 | X                                                                                 | 0                                                                                 | 33-34     | N.O. Aux            |  | 140M-F                | 140M-C-ASA11  |
|                                                                                                                                                                                                                                                 | X                                                                                 | 0                                                                                 | X                                                                                 | 43-44     | N.O. Aux            |                                                                                      |                       |               |

(1) X = Contact Closed; 0 = Contact Open

(2) Connection Diagram Reference:

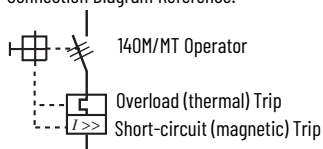
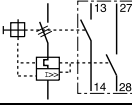
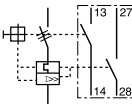
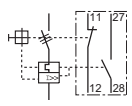
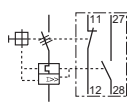
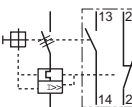
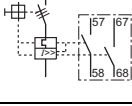
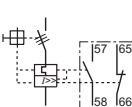
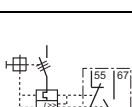
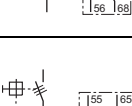
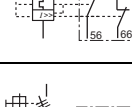


Table 35 - Trip Contacts

| Description                                                                                                                                                                                                                                                                                                                                                                                                | Operator Position <sup>(1)</sup> |    |         | Term. No. | Contact Description                    | Connection Diagram <sup>(2)</sup>                                                    | For Use With          | Cat. No.          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----|---------|-----------|----------------------------------------|--------------------------------------------------------------------------------------|-----------------------|-------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                            | OFF                              | ON | Tripped |           |                                        |                                                                                      |                       |                   |
|  <p>Front-Mounted Trip Contact</p> <ul style="list-style-type: none"> <li>2-pole</li> <li>Indicates tripping of device</li> <li>No additional space required</li> </ul>                                                                                                                                                   | 0                                | X  | 0       | 13-14     | N.O. Aux                               |    | 140MT-C, D<br>140UT-D | 140MT-C-AFAR10A10 |
|                                                                                                                                                                                                                                                                                                                                                                                                            | 0                                | 0  | X       | 27-28     | N.O. Trip (short-circuit and overload) |                                                                                      |                       |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                            | 0                                | X  | 0       | 13-14     | N.O. Aux                               |    | 140M-F                | 140M-C-AFAR10A10  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | 0                                | 0  | X       | 27-28     | N.O. Trip (short-circuit and overload) |                                                                                      |                       |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                            | X                                | 0  | X       | 11-12     | N.C. Aux                               |    | 140MT-C, D<br>140UT-D | 140MT-C-AFAR10A01 |
|                                                                                                                                                                                                                                                                                                                                                                                                            | 0                                | 0  | X       | 27-28     | N.O. Trip (short-circuit and overload) |                                                                                      |                       |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                            | X                                | 0  | X       | 11-12     | N.C. Aux                               |    | 140M-F                | 140M-C-AFAR10A01  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | 0                                | 0  | X       | 27-28     | N.O. Trip (short-circuit and overload) |                                                                                      |                       |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                            | 0                                | X  | 0       | 13-14     | N.O. Aux                               |    | 140MT-C, D<br>140UT-D | 140MT-C-AFAR01A10 |
|                                                                                                                                                                                                                                                                                                                                                                                                            | X                                | X  | 0       | 25-26     | N.C. Trip (short-circuit and overload) |                                                                                      |                       |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                            | 0                                | 0  | X       | 17-18     | N.O. Trip (short-circuit and overload) |                                                                                      |                       | 140MT-C-AFAR01M10 |
|                                                                                                                                                                                                                                                                                                                                                                                                            | 0                                | 0  | X       | 27-28     | N.O. Trip (short-circuit)              |                                                                                      |                       |                   |
|  <p>Right-Side Mounted Trip Contact</p> <ul style="list-style-type: none"> <li>2-pole</li> <li>Indicates tripping of the device</li> <li>Adds 9 mm to the width of the device</li> <li>One only per device</li> <li>A right-side mounted auxiliary contact may be tandem mounted on top of this trip contact</li> </ul> | 0                                | 0  | X       | 57-58     | N.O. Trip (short-circuit and overload) |  | 140M-C-ASAR01M10      |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                            | 0                                | 0  | X       | 67-68     | N.O. Trip (short-circuit)              |                                                                                      |                       |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                            | 0                                | 0  | X       | 57-58     | N.O. Trip (short-circuit and overload) |  | 140M-C-ASAR01M01      |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                            | X                                | X  | 0       | 65-66     | N.C. Trip (short-circuit)              |                                                                                      |                       |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                            | X                                | X  | 0       | 55-56     | N.C. Trip (short-circuit and overload) |  | 140M-F                | 140M-C-ASAR01M10  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | 0                                | 0  | X       | 67-68     | N.O. Trip (short-circuit)              |                                                                                      |                       |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                            | X                                | X  | 0       | 55-56     | N.C. Trip (short-circuit and overload) |  | 140M-C-ASAR01M01      |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                            | X                                | X  | 0       | 65-66     | N.C. Trip (short-circuit)              |                                                                                      |                       |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                            | 0                                | 0  | X       | 77-78     | N.O. Trip (short-circuit)              |  | 140M-C-ASAM11         |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                            | X                                | X  | 0       | 65-66     | N.C. Trip (short-circuit)              |                                                                                      |                       |                   |

(1) X = Contact Closed; 0 = Contact Open

(2) Connection Diagram Reference:

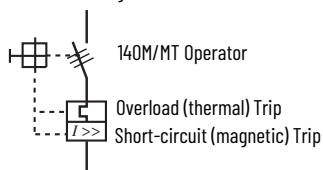
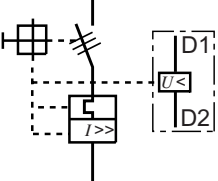
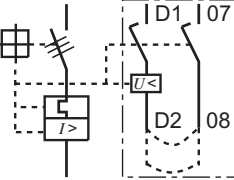


Table 36 - Undervoltage Trip Units

| Description                                                                                                                                                                                                                                                                                                 | Connection Diagram <sup>(1)</sup>                                                                                                                                                                                                                                     | Trip Rating                                                                                                                                                                                                              | For Use With          | Cat. No.                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>Undervoltage Trip</p> <ul style="list-style-type: none"> <li>• Left-side mounted</li> <li>• Adds 18 mm to the width of the device</li> <li>• Automatically trips MPCB/MCP when voltage falls below 35...70%</li> </ul> |                                                                                                                                                                                      | 24V, 50 Hz/24...28V, 60 Hz<br>120V, 60 Hz<br>220...230V, 50 Hz<br>240...260V, 60 Hz<br>380...400V, 50 Hz<br>480V, 60 Hz/415V, 50 Hz                                                                                      | 140MT-C, D<br>140UT-D | 140MT-C-UXK<br>140MT-C-UXD<br>140MT-C-UXF<br>140MT-C-UXA<br>140MT-C-UXN<br>140MT-C-UXB                                                                                |
|                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       | 24V, 60 Hz<br>24V, 50 Hz<br>120V, 60 Hz<br>110V, 50 Hz<br>208V, 60 Hz<br>220...230V, 50 Hz<br>240...260V, 60 Hz<br>277V, 60 Hz<br>380...400V, 50 Hz<br>480V, 60 Hz/415V, 50 Hz<br>575V, 60 Hz/500V, 50 Hz<br>600V, 60 Hz |                       | 140M-C-UXJ<br>140M-C-UXK<br>140M-C-UXD<br>140M-C-UXC<br>140M-C-UXH<br>140M-C-UXF<br>140M-C-UXA<br>140M-C-UXT<br>140M-C-UXN<br>140M-C-UXB<br>140M-C-UXM<br>140M-C-UXVC |
|                                                                                                                                                                                                                                                                                                             | <p>Undervoltage Trip</p> <ul style="list-style-type: none"> <li>• Left-side mounted</li> <li>• 2 early make contacts integrated</li> <li>• Adds 18 mm to the width of the device</li> <li>• Automatically trips MPCB/MCP when voltage falls below 35...70%</li> </ul> |                                                                                                                                        | 140M-F                | 140M-C-UCJ<br>140M-C-UCK<br>140M-C-UCD<br>140M-C-UCC<br>140M-C-UCH<br>140M-C-UCF<br>140M-C-UCA<br>140M-C-UCT<br>140M-C-UCN<br>140M-C-UCB<br>140M-C-UCM<br>140M-C-UCVC |
|                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       | 24V, 60 Hz                                                                                                                                                                                                               |                       |                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       | 24V, 50 Hz                                                                                                                                                                                                               |                       |                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       | 120V, 60 Hz                                                                                                                                                                                                              |                       |                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       | 110V, 50 Hz                                                                                                                                                                                                              |                       |                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       | 208V, 60 Hz                                                                                                                                                                                                              |                       |                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       | 220...230V, 50 Hz                                                                                                                                                                                                        |                       |                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       | 240...260V, 60 Hz                                                                                                                                                                                                        |                       |                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       | 277V, 60 Hz                                                                                                                                                                                                              |                       |                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       | 380...400V, 50 Hz                                                                                                                                                                                                        |                       |                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       | 480V, 60 Hz/415V, 50 Hz                                                                                                                                                                                                  |                       |                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       | 575V, 60 Hz/500V, 50 Hz                                                                                                                                                                                                  |                       |                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       | 600V, 60 Hz                                                                                                                                                                                                              |                       |                                                                                                                                                                       |

(1) Connection Diagram Reference:

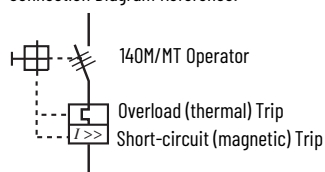
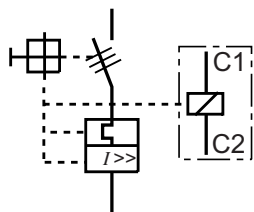


Table 37 - Shunt Trip Units

| Description                                                                                                                                                                                                                                                                                                                           |                                                                                   | Connection Diagram <sup>(1)</sup> | Trip Rating           | For Use With | Cat. No. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------|-----------------------|--------------|----------|
|  <p>Shunt Trip</p> <ul style="list-style-type: none"><li>• Left-side mounted</li><li>• Adds 18 mm to the width of the device</li><li>• Provides remote tripping of the MPCB/ MCP</li><li>• Maximum on time for DC operated devices: 5 sec.</li></ul> |  | 24V, 50 Hz/24...28V, 60 Hz        | 140MT-C, D<br>140UT-D | 140MT-C-SNK  |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 110V, 50 Hz/120V, 60 Hz           |                       | 140MT-C-SND  |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 220...230V, 50 Hz                 |                       | 140MT-C-SNF  |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 240...260V, 60 Hz                 |                       | 140MT-C-SNA  |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 277V, 60 Hz                       |                       | 140MT-C-SNT  |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 380...400V, 50 Hz                 |                       | 140MT-C-SNN  |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 480V, 60 Hz/415V, 50 Hz           |                       | 140MT-C-SNB  |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 24V DC                            |                       | 140MT-C-SNZJ |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 24V, 60 Hz                        | 140M-F                | 140M-C-SNJ   |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 24V, 50 Hz                        |                       | 140M-C-SNK   |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 110V, 50 Hz/120V, 60 Hz           |                       | 140M-C-SND   |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 208V, 60 Hz                       |                       | 140M-C-SNH   |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 220...230V, 50 Hz                 |                       | 140M-C-SNF   |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 240...260V, 60 Hz                 |                       | 140M-C-SNA   |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 277V, 60 Hz                       |                       | 140M-C-SNT   |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 380...400V, 50 Hz                 |                       | 140M-C-SNN   |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 480V, 60 Hz/415V, 50 Hz           |                       | 140M-C-SNB   |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 575V, 60 Hz/500V, 50 Hz           |                       | 140M-C-SNM   |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 600V, 60 Hz                       |                       | 140M-C-SNVC  |          |
|                                                                                                                                                                                                                                                                                                                                       |                                                                                   | 24V DC                            |                       | 140M-C-SNZJ  |          |

(1) Connection Diagram Reference:

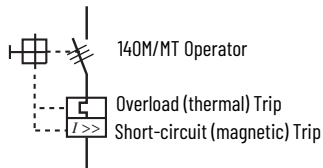


Table 38 - Additional Accessories

| Description                                                                                                                                                                                                                                                                                                   |  | For Use With                            | Cat. No.    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------|-------------|
|  <p>Anti-Tamper Shield</p> <ul style="list-style-type: none"> <li>• Provides protection against inadvertent adjustment of the current setting</li> <li>• Must be ordered in multiples of 10 (10 pieces/package)</li> </ul> |  | 140MT-C, D                              | 140MT-C-CA  |
|                                                                                                                                                                                                                                                                                                               |  | 140M-F                                  | 140M-C-CA   |
|  <p>Lockable Twist Knob</p> <ul style="list-style-type: none"> <li>• For one padlock 4...6 mm (3/16 in.) diameter shackle</li> <li>• Can be locked in OFF position</li> </ul>                                              |  | Blue                                    | 140MT-C-KB  |
|                                                                                                                                                                                                                                                                                                               |  | Black                                   | 140MT-C-KN  |
|                                                                                                                                                                                                                                                                                                               |  | Red/Yellow                              | 140MT-C-KRY |
|  <p>Lockable Twist Knob</p> <ul style="list-style-type: none"> <li>• For one padlock 5 mm (3/16 in.) diameter shackle</li> <li>• Can be locked in OFF position</li> </ul>                                                  |  | Black                                   | 140M-C-KN1  |
|                                                                                                                                                                                                                                                                                                               |  | Red/Yellow                              | 140M-C-KRY1 |
|  <p>Locking Tag</p> <ul style="list-style-type: none"> <li>• Padlock attachment to the lockable handles</li> <li>• Up to three padlocks 4...8 mm (5/16 in.) diameter shackle</li> </ul>                                    |  | 140MT-C-KB<br>140MT-C-KN<br>140MT-C-KRY | 140MT-C-M3  |
|                                                                                                                                                                                                                                                                                                               |  | 140M-C-KN1<br>140M-C-KRY1               | 140M-C-M3   |

Table 38 - Additional Accessories (Continued)

|                                                                                     | Description                                                                                                                                                                                                                                                                                                                           |                   | For Use With           | Cat. No.      |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------|---------------|
|    | <p>Door Coupling Handle</p> <ul style="list-style-type: none"><li>For 3 padlocks 4...8 mm (5/16 in.) in diameter</li><li>IP66 Protection/Type 1, 4, 4X, 12 Interlock override capability</li><li>Can be modified for locking in ON position</li><li>Ships with coupling — order extension shaft and legend plate separately</li></ul> | Black             | 140MT-C, D<br>140UT- D | 140MT-C-DN66  |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                       |                   | 140M-F                 | 140M-C-DN66   |
|    |                                                                                                                                                                                                                                                                                                                                       | Red/Yellow        | 140MT-C, D<br>140UT- D | 140MT-C-DRY66 |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                       |                   | 140M-F                 | 140M-C-DRY66  |
|    | Extension Shaft (Short length)                                                                                                                                                                                                                                                                                                        |                   | 140MT-C, D<br>140UT- D | 140MT-C-DSS   |
|                                                                                     | Extension Shaft (Standard length)                                                                                                                                                                                                                                                                                                     |                   |                        | 140MT-C-DS    |
|                                                                                     | Extension Shaft (Extended length)                                                                                                                                                                                                                                                                                                     |                   |                        | 140MT-C-DSL   |
|                                                                                     | Extension Shaft                                                                                                                                                                                                                                                                                                                       |                   | 140M-F                 | 140M-C-DS     |
|                                                                                     | Standard Length                                                                                                                                                                                                                                                                                                                       |                   |                        | 140M-C-DSL    |
|  | <p>Door Coupling Handle</p> <ul style="list-style-type: none"><li>Type 3, 3R, 4, 4X, 12 (IP66)</li><li>For up to 2 padlocks</li><li>Fits in 30.5 mm cutout</li><li>Requires 140MT-C-DNC (140MT-C, 140MT-D, 140UT-D) or 140M-C-DNC (140M-F) coupler</li></ul>                                                                          | Black             | 140MT-C, D<br>140UT- D | 140MT-SB      |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                       |                   | 140M-F                 | 140M-SB       |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                       | Red/Yellow        | 140MT-C, D<br>140UT- D | 140MT-SY      |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                       |                   | 140M-F                 | 140M-SY       |
|  | <p>Extension Shaft</p> <ul style="list-style-type: none"><li>Cut to required length for mounting depth (front of DIN Rail to front of enclosure door)</li></ul>                                                                                                                                                                       | 12 in. (30.48 cm) | 140MT-SB,<br>140MT-SY  | 140MT-S1      |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                       |                   | 140M-SB,<br>140M-SY    | 140M-S1       |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                       | 21 in. (53.34 cm) | 140MT-SB,<br>140MT-SY  | 140MT-S2      |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                       |                   | 140M-SB,<br>140M-SY    | 140M-S2       |
|  | <p>Coupler</p> <ul style="list-style-type: none"><li>Included with Cat. Nos. 140MT-C-DN66 and 140MT-C-DRY66</li></ul>                                                                                                                                                                                                                 |                   | 140MT-C, D<br>140UT- D | 140MT-C-DNC   |
|  | <p>Coupler</p> <ul style="list-style-type: none"><li>Included with Cat. Nos. 140M-C-DN66 and 140M-C-DRY66</li></ul>                                                                                                                                                                                                                   |                   | 140M-F                 | 140M-C-DNC    |

Table 38 - Additional Accessories (Continued)

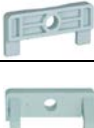
|                                                                                   | Description                                                                                                                                                                                                                                                                   | For Use With                                                                                                                                         | Cat. No.                                                     |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
|  | Extension Shaft Support <ul style="list-style-type: none"> <li>Provides consistent alignment of the 140M/MT-C-DS and 140M/MT-C-DSL shafts with the 140M/MT-C-DN66 or 140M/MT-C-DRY66 door coupling handles</li> <li>Recommended for shaft lengths &gt;200 mm</li> </ul>       | 140MT-C, D<br>140UT-D                                                                                                                                | 140MT-C-SHS                                                  |
|  | <ul style="list-style-type: none"> <li>Snaps on the right side of the 140MT-C, -D, 140M-F, or 140UT-D device and allows the addition of one side-mounted auxiliary contact.</li> <li>Width: 9 mm.</li> <li>For use with screw-mounted or hat rail mounted devices.</li> </ul> | 140M-F                                                                                                                                               | 140M-C-SHS                                                   |
|  | Legend Plate                                                                                                                                                                                                                                                                  | Marking: "Hauptschalter" and "Main Switch"<br>140MT-C-DN66<br>140M-C-DN66<br>Marking: "Not-Aus" and "Emergency Off"<br>140MT-C-DRY66<br>140M-C-DRY66 | 140MT-C-DFCN<br>140M-C-DFCN<br>140MT-C-DFCRY<br>140M-C-DFCRY |
|  | Screw Adapter <ul style="list-style-type: none"> <li>For screw arrangement of a motor protection circuit breaker</li> <li>Must be ordered in multiples of 10 (10 pieces/pkg)</li> </ul>                                                                                       | 140MT-C, D<br>140UT-D                                                                                                                                | 140MT-C-N45                                                  |
|  |                                                                                                                                                                                                                                                                               | 140M-F                                                                                                                                               | 140M-C-N45                                                   |

Table 39 - Modules and Adapters

|                                                                                     | Description                                                                                                                                                                                                                                                                        | For Use With                              | Cat. No.      |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------|
|  | ECO Connecting Module — 12 A (IEC), 11 A (UL) <ul style="list-style-type: none"> <li>For DOL and reversing starters</li> <li>Eco-starters mount on single DIN Rail (140MT on DIN Rail)</li> <li>Electrical and mechanical interconnection of 140MT and 100-K contactors</li> </ul> | 140MT-C to 100-K                          | 140MT-C-PEK12 |
|                                                                                     | ECO Connecting Modules — 18 A (IEC), 17 A (UL) <ul style="list-style-type: none"> <li>Eco-starters mount on single DIN Rail (140MT on DIN Rail)</li> <li>Electrical and mechanical interconnection of 140MT MPCB and 100-E contactors</li> </ul>                                   | 140MT-C to 100(S)-E09...16 <sup>(1)</sup> | 140MT-C-PE16  |
|                                                                                     |                                                                                                                                                                                                                                                                                    | 140MT-C to 100(S)-E09QJ...16QJ            | 140MT-C-PSE16 |
|                                                                                     |                                                                                                                                                                                                                                                                                    | 140MT-D to 100(S)-E09...16 <sup>(1)</sup> | 140MT-D-PE16  |
|                                                                                     |                                                                                                                                                                                                                                                                                    | 140MT-D to 100(S)-E09QJ...16QJ            | 140MT-D-PSE16 |
|                                                                                     | ECO Connecting Modules — 23 A (IEC), 22 A (UL) <ul style="list-style-type: none"> <li>Eco-starters mount on single DIN Rail (140MT on DIN Rail)</li> <li>Electrical and mechanical interconnection of 140MT MPCB and 100-C contactors</li> </ul>                                   | 140MT-C to 100-C09...C23                  | 140MT-C-PEC23 |
|                                                                                     |                                                                                                                                                                                                                                                                                    | 140MT-D to 100-C09...C23                  | 140MT-D-PEC23 |
|                                                                                     | ECO Connecting Modules — 30 A (IEC), 30 A (UL) <ul style="list-style-type: none"> <li>Eco-starters mount on single DIN Rail (140MT on DIN Rail)</li> <li>Electrical and mechanical interconnection of 140MT MPCB and 100-C contactors</li> </ul>                                   | 140MT-D to 100-C30...C37                  | 140MT-D-PEC37 |
|                                                                                     |                                                                                                                                                                                                                                                                                    |                                           |               |
|                                                                                     | ECO Connecting Modules — 40 A (IEC), 34 A (UL) <ul style="list-style-type: none"> <li>Eco-starters mount on single DIN Rail (140MT on DIN Rail)</li> <li>Electrical and mechanical interconnection of 140MT MPCB and 100-E contactors</li> </ul>                                   | 140MT-C to 100(S)-E26...38 <sup>(1)</sup> | 140MT-C-PE38  |
|                                                                                     |                                                                                                                                                                                                                                                                                    | 140MT-C to 100(S)-E26QJ...38QJ            | 140MT-C-PSE38 |
|                                                                                     |                                                                                                                                                                                                                                                                                    | 140MT-D to 100(S)-E26...38 <sup>(1)</sup> | 140MT-D-PE38  |
|                                                                                     |                                                                                                                                                                                                                                                                                    | 140MT-D to 100(S)-E26QJ...38QJ            | 140MT-D-PSE38 |
|  | Connecting Modules — 23 A (IEC), 30 A (UL) and 30 A (IEC), 30 A (UL) <ul style="list-style-type: none"> <li>Contactor and MPCB MUST BE mounted separately on (2) DIN Rails Electrical interconnection of 140MT and 100-C (with AC coils)</li> </ul>                                | 140MT-C to 100-C09...C23                  | 140MT-C-PNC23 |
|                                                                                     |                                                                                                                                                                                                                                                                                    | 140MT-D to 100-C09...C23                  | 140MT-D-PNC23 |
|                                                                                     |                                                                                                                                                                                                                                                                                    | 140MT-D to 100-C30...C37                  | 140MT-D-PNC37 |
|                                                                                     | Connecting Modules — 25 and 45 A <ul style="list-style-type: none"> <li>Contactor and MPCB MUST BE mounted separately on (2) DIN Rails Electrical interconnection of 140M-F and 100-C (with AC coils)</li> </ul>                                                                   | 140M-F to 100-C30...C37                   | 140M-F-PNC37  |
|                                                                                     |                                                                                                                                                                                                                                                                                    | 140M-F to 100-C43                         | 140M-F-PNC43  |
|                                                                                     |                                                                                                                                                                                                                                                                                    | 140M-F to 100-C30...C43                   | 140M-F-PSC43  |
|  | Spacing Adapter <ul style="list-style-type: none"> <li>Required for self-protected combination motor controller (Type E) applications of Bul. 140MT-C, -D, and 140M-F MPCBs. Not for use with bus bars.</li> </ul>                                                                 | 140MT-C, -D                               | 140MT-C-TE    |
|                                                                                     |                                                                                                                                                                                                                                                                                    | 140M-F                                    | 140M-F-TE     |

(1) Not suitable for 100(S)-E09...38QJ or 300(S)-T0...80QJ contactors.

Table 40 - Other Accessories

|                                                                                     | Description                                                                                                                                                                                                 | For Use With                     | Cat. No.     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------|
|    | Feeder Block for Compact Busbar<br>• Supply of compact busbars<br>• Increases terminal capacity                                                                                                             | 140MT-C                          | 140MT-C-WBE  |
|                                                                                     |                                                                                                                                                                                                             | 140M-F                           | 140M-F-WBE   |
|    | Feeder Terminal for Compact Busbar<br>• For supply of compact busbars<br>• Top feed — overlaps compact busbar<br>• Meets UL Type E spacing requirements                                                     | 140MT-C, -D                      | 140MT-C-WTEN |
|                                                                                     |                                                                                                                                                                                                             | 140M-F                           | 140M-F-WTE   |
|    | Three-phase Compact Busbar for MPCBs — 64 A Max Continuous Current<br>• 45 mm (1.77 in.) spacing<br>• For use with front-mounted auxiliary contact                                                          | 2 connections                    | 140MT-C-W452 |
|                                                                                     |                                                                                                                                                                                                             | 3 connections                    | 140MT-C-W453 |
|                                                                                     |                                                                                                                                                                                                             | 4 connections                    | 140MT-C-W454 |
|                                                                                     |                                                                                                                                                                                                             | 5 connections                    | 140MT-C-W455 |
|    | Three-phase Compact Busbar for MPCBs — 64 A Max Continuous Current<br>• 54 mm (2.13 in.) spacing<br>• For use with side-mounted auxiliary contact                                                           | 2 connections                    | 140MT-C-W542 |
|                                                                                     |                                                                                                                                                                                                             | 3 connections                    | 140MT-C-W543 |
|                                                                                     |                                                                                                                                                                                                             | 4 connections                    | 140MT-C-W544 |
|                                                                                     |                                                                                                                                                                                                             | 5 connections                    | 140MT-C-W545 |
|    | Three-phase Compact Busbar for 45 A Motor Protection Circuit Breakers — 115 A Max. Continuous Current<br>• 54 mm (2.13 in.) spacing<br>• For use with front-mounted auxiliary contact                       | 2 connections                    | 140M-F-W542  |
|                                                                                     |                                                                                                                                                                                                             | 3 connections                    | 140M-F-W543  |
|                                                                                     |                                                                                                                                                                                                             | 4 connections                    | 140M-F-W544  |
|                                                                                     | Three-phase Compact Busbar for 45 A Motor Protection Circuit Breakers — 115 A Max. Continuous Current<br>• 63 mm spacing<br>• For use with side-mounted auxiliary contact                                   | 2 connections                    | 140M-F-W632  |
|                                                                                     |                                                                                                                                                                                                             | 3 connections                    | 140M-F-W633  |
|                                                                                     |                                                                                                                                                                                                             | 4 connections                    | 140M-F-W634  |
|   | Terminal Cover<br>• For covering of unused compact bus bar terminals IP2X finger protection<br>• Must be ordered in multiples of 10<br>• 10 pieces/pkg                                                      | 140MT-C, -D                      | 140MT-C-WSN  |
|  |                                                                                                                                                                                                             | 140M-F                           | 140M-F-WS    |
|  | Top Hat Rail Adapter — 10 mm<br>• Adjusts the depth of the 140MT-C to the 140MT-D<br>• Allows the use of compact busbars across both frame sizes<br>• Must be ordered in multiples of 10<br>• 10 pieces/pkg | 140MT-C                          | 140MT-KBH    |
|  | DIN (#3) symmetrical hat rail<br>• 35 mm x 7.5 mm x 1 m (1.4 x 0.3 x 39 in.) long<br>• 10 pieces/package                                                                                                    | 140MT-C, -D<br>140UT-D<br>140M-F | 199-DR1      |
|  | DIN (#3) Symmetrical Rail<br>• 35 mm x 15 mm x 1 m (1.4 x 0.6 x 39 in.) long<br>• Top Hat Rail (DIN #3 Symmetrical Rail)<br>• 5 pieces/package                                                              | 140MT-C, -D<br>140UT-D<br>140M-F | 1492-DR9     |

# Specifications

Table 41 - General Data

| Attribute                                      |                                                                                                                                                                                                                                                              |                   | 140MT-C                                                               | 140MT-D                                    | 140M-F         |                            |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------|--------------------------------------------|----------------|----------------------------|
| Standards compliance                           |                                                                                                                                                                                                                                                              |                   | IEC                                                                   | IEC/EN 60947-2, IEC/EN 60947-4-1           |                |                            |
|                                                |                                                                                                                                                                                                                                                              |                   | cULus                                                                 | UL 60947-4-1, CSA C22.2, No. 60947-4-1     |                |                            |
| Certifications                                 |                                                                                                                                                                                                                                                              |                   | Regional                                                              | CCC, EAC, CE, cULus Listed, IEC, CB Scheme |                | cULus Listed, CCC, EAC, CE |
| Rated Insulation Voltage $U_i$                 | IEC                                                                                                                                                                                                                                                          | [V]               | 690                                                                   |                                            |                |                            |
|                                                | UL/CSA                                                                                                                                                                                                                                                       | [V]               | 600                                                                   |                                            |                |                            |
| Rated Impulse Withstand Voltage $U_{imp}$      | Pollution degree                                                                                                                                                                                                                                             |                   | 3                                                                     |                                            |                |                            |
|                                                | Main circuits $U_{imp}$ /Overvoltage Category                                                                                                                                                                                                                |                   | 6 kV/III, 8 kV (Disconnect)                                           |                                            |                |                            |
|                                                | Auxiliary circuits $U_{imp}$ /Overvoltage Category                                                                                                                                                                                                           |                   | 6 kV/III                                                              |                                            |                |                            |
| Rated Frequency                                |                                                                                                                                                                                                                                                              | [Hz]              | 45-65                                                                 |                                            |                |                            |
| Utilization Category                           | IEC 60947-2 (Circuit breaker)                                                                                                                                                                                                                                |                   | A                                                                     |                                            |                |                            |
|                                                | IEC 60947-4-1 (Motor starter)                                                                                                                                                                                                                                |                   | AC-3                                                                  |                                            |                |                            |
| Life Span                                      | Mechanical                                                                                                                                                                                                                                                   | [operations]      | 100,000                                                               |                                            | 30,000         |                            |
|                                                | Electrical ( $I_e$ max.)                                                                                                                                                                                                                                     | [operations]      | 100,000                                                               |                                            | 30,000         |                            |
| Switching Frequency                            |                                                                                                                                                                                                                                                              | [operations/hour] | max. 25                                                               |                                            |                |                            |
| Ambient Temperature                            | Storage                                                                                                                                                                                                                                                      | [ °C ( °F)]       | -40...+85 (-40...185)                                                 |                                            |                |                            |
|                                                | Operation                                                                                                                                                                                                                                                    | [ °C ( °F)]       | -25...+70 (-13...158)                                                 |                                            |                |                            |
| Climatic resistance                            | Operating Humidity/Moisture heat (60068-2-3)                                                                                                                                                                                                                 |                   | 5...95% Non-condensing                                                |                                            |                |                            |
| Site Altitude                                  |                                                                                                                                                                                                                                                              | [m]               | to 2000 N.N. (6561 ft)                                                |                                            |                |                            |
| Protection Class                               |                                                                                                                                                                                                                                                              |                   | IP2X from all directions                                              |                                            |                |                            |
| Resistance to Shock, Transport (60068-2-27)    |                                                                                                                                                                                                                                                              | ON                | 15 G/11 ms                                                            |                                            |                |                            |
|                                                |                                                                                                                                                                                                                                                              | OFF               | 30 G/11 ms                                                            |                                            |                |                            |
| Resistance to Vibration, Operation (60068-2-6) |                                                                                                                                                                                                                                                              |                   | 5 G                                                                   |                                            |                |                            |
| Rated Thermal Current $I_{th}$                 | up to 40 °C (104 °F) ambient temperature                                                                                                                                                                                                                     | [A]               | 0.1...32                                                              | 0.63...40                                  | 6.3...45       |                            |
|                                                | up to 60 °C (140 °F) ambient temperature                                                                                                                                                                                                                     | [A]               | 0.1...32                                                              | 0.63...40                                  | 6.3...45       |                            |
| Rated Supply Current $I_e$                     |                                                                                                                                                                                                                                                              | [A]               | 0.1...32                                                              | 0.63...40                                  | 6.3...45       |                            |
| Dependence on Temperature                      | 40 °C (104 °F)                                                                                                                                                                                                                                               | [A]               | no reduction                                                          |                                            |                |                            |
|                                                | 50 °C (122 °F)                                                                                                                                                                                                                                               | [A]               | no reduction                                                          |                                            |                |                            |
|                                                | 60 °C (140 °F)                                                                                                                                                                                                                                               | [A]               | no reduction                                                          |                                            |                |                            |
|                                                | 70 °C (158 °F)                                                                                                                                                                                                                                               | [A]               | 15% current reduction of the upper rated current $I_e$                |                                            |                |                            |
| Overload Protection Characteristics            |                                                                                                                                                                                                                                                              |                   | IEC 60947-4-1 Motor protection (except Cat. Nos. 140MT-D9N, 140M-F9N) |                                            |                |                            |
| Ambient Temperature Compensation               |                                                                                                                                                                                                                                                              | [ °C ( °F)]       | -25...+60 (-13...+140)                                                |                                            |                |                            |
| Phase-loss Protection                          |                                                                                                                                                                                                                                                              |                   | Differential release                                                  |                                            |                |                            |
| Trip class                                     |                                                                                                                                                                                                                                                              |                   | 10 (except Cat. Nos. 140MT-D9N, 140M-F8N) fixed setting               |                                            |                |                            |
| Magnetic Release                               |                                                                                                                                                                                                                                                              |                   | fixed setting                                                         |                                            |                |                            |
| Release current (±20%)                         | for E, N Version                                                                                                                                                                                                                                             | [A]               | 14 x $I_e$ max. <sup>(1)</sup>                                        |                                            | 13 x $I_e$ max |                            |
|                                                | for E, N Version C36, C40                                                                                                                                                                                                                                    | [A]               | 12 x $I_e$ max. <sup>(1)</sup>                                        |                                            | —              |                            |
|                                                | for T Version                                                                                                                                                                                                                                                | [A]               | 18...22 x $I_e$ max. <sup>(2)</sup>                                   |                                            |                |                            |
| Total Power loss $P_v$                         | Circuit Breaker at rated load/ operating temp.                                                                                                                                                                                                               | [W]               | 4...11                                                                | 4...14                                     | 7...22         |                            |
| Main Disconnect Switch Application             |                                                                                                                                                                                                                                                              |                   | Yes, with accessories                                                 |                                            |                |                            |
| Application Conditions                         | 140MT-D...C36, -C40: Suitable for continuous operation at 90% current rating at 480V only if used in a minimum enclosure size of 250 x 175 x 150 mm (10 x 7 x 6 in).                                                                                         |                   |                                                                       |                                            |                |                            |
|                                                | For utilization outside North America, assemblies (of products) shall comply to the IEC 61439-1 requirements                                                                                                                                                 |                   |                                                                       |                                            |                |                            |
|                                                | 140M and 140MT manual motor starters are intended for use in closed areas without hazardous operating conditions such as dust or explosive or corrosive gases. Enclosures of appropriate manner need to be in place to protect devices in such environments. |                   |                                                                       |                                            |                |                            |

(1)  $I_e$  max. = maximum values of setting ranges fixed magnetic setting for 140MT-D9V; see ratings.(2)  $I_e$  max. = maximum values of setting ranges; see ratings.

Table 42 - MPCB Connecting Characteristics

| Connection        |                                                                                                                            | No. of Conductors | 140MT-C, 140MT-D ≤ 16 A                                                           | 140MT-C, 140MT-D > 16 A                                                             | 140M-F                                                                              |
|-------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Type of terminals |                                                                                                                            |                   |  |  |  |
| Connection Screw  |                                                                                                                            |                   | Screw Clamp up to 16 A, M4<br>Pozidriv No.2/Blade No.3                            | Screw Clamp greater than 16 A, M4<br>Pozidriv No.2/Blade No.3                       | Pozidriv No.2/Blade No.3                                                            |
| Wiring            | Solid or stranded                         | 1                 | 1...6 mm <sup>2</sup>                                                             | 1.5...10 mm <sup>2</sup>                                                            | 2.5...25 mm <sup>2</sup>                                                            |
|                   |                                                                                                                            | 2                 | 1...2.5 mm <sup>2</sup><br>2.5...6 mm <sup>2</sup>                                | 1.5...4 mm <sup>2</sup><br>4...10 mm <sup>2</sup>                                   | 2.5...25 mm <sup>2</sup>                                                            |
|                   | Flexible with ferrule (end sleeve)        | 1                 | 1...6 mm <sup>2</sup>                                                             | 1.5...10 mm <sup>2</sup>                                                            | 2.5...25 mm <sup>2</sup>                                                            |
|                   |                                                                                                                            | 2                 | 1...2.5 mm <sup>2</sup><br>2.5...4 mm <sup>2</sup>                                | 1.5...4 mm <sup>2</sup><br>4...10 mm <sup>2</sup>                                   | 2.5...25 mm <sup>2</sup>                                                            |
|                   | Finely stranded                           | 1                 | 1.5...6 mm <sup>2</sup>                                                           | 2.5...10 mm <sup>2</sup>                                                            | 16...25 mm <sup>2</sup>                                                             |
|                   |                                                                                                                            | 2                 | 1.5...4 mm <sup>2</sup><br>2.5...6 mm <sup>2</sup>                                | 2.5...6 mm <sup>2</sup><br>4...10 mm <sup>2</sup>                                   | 16...25 mm <sup>2</sup>                                                             |
|                   | Cross section per UL/CSA solid, stranded  | 1                 | No. 14...10 AWG                                                                   | No. 14...8 AWG                                                                      | No.14...8                                                                           |
|                   |                                                                                                                            | 2                 | No. 14...10 AWG                                                                   | No. 14...10 AWG<br>No. 12...8 AWG                                                   | No.14...8                                                                           |
|                   | Stripping length                                                                                                           |                   | 10 mm (0.39 in.)                                                                  | 10 mm (0.39 in.)                                                                    | 10 mm (0.39 in.)                                                                    |
|                   | Tightening torques                                                                                                         |                   | [N•m]/[lb•in.]                                                                    | 2...2.5/18...22                                                                     | 3...3.5/27...30                                                                     |

## Combination Ratings

### Bulletin 140MT Devices with Bulletin 100-K Miniature IEC Contactors

Table 43 - UL 60947 Application Ratings, MPSDs and MCPs with Bulletin 100-K Miniature IEC Contactors

| Cat. No.                                                          | UL 60947-4-1 Manual Motor Controller           |                           |                                   |      |                                   |      | UL 60947-4-1 Type F          |                                |                          |
|-------------------------------------------------------------------|------------------------------------------------|---------------------------|-----------------------------------|------|-----------------------------------|------|------------------------------|--------------------------------|--------------------------|
|                                                                   | Max. Fuse or<br>Circuit Breaker<br>per NEC [A] | Minimum<br>Contactor Size | Group Motor Installation          |      | Motor Disconnect                  |      | Combination Motor Controller |                                |                          |
|                                                                   |                                                |                           | Max Short-circuit Current<br>[kA] |      | Max Short-circuit Current<br>[kA] |      | Minimum<br>Contactor Size    | Max Short-circuit Current [kA] |                          |
|                                                                   |                                                |                           | 480V                              | 600V | 480V                              | 600V |                              | 480Y/277V <sup>(1)</sup>       | 600Y/347V <sup>(1)</sup> |
| C-Frame, Adjustable Thermal/Fixed Magnetic (14 x I <sub>n</sub> ) |                                                |                           |                                   |      |                                   |      |                              |                                |                          |
| 140MT-C3E-A16                                                     | 450                                            | 100-K05                   | 65                                | 50   | 65                                | 50   | 100-K05                      | 65                             | 50                       |
| 140MT-C3E-A25                                                     | 450                                            | 100-K05                   | 65                                | 50   | 65                                | 50   | 100-K05                      | 65                             | 50                       |
| 140MT-C3E-A40                                                     | 450                                            | 100-K05                   | 65                                | 50   | 65                                | 50   | 100-K05                      | 65                             | 50                       |
| 140MT-C3E-A63                                                     | 450                                            | 100-K05                   | 65                                | 50   | 65                                | 50   | 100-K05                      | 65                             | 50                       |
| 140MT-C3E-B10                                                     | 450                                            | 100-K05                   | 65                                | 50   | 65                                | 50   | 100-K05                      | 65                             | 50                       |
| 140MT-C3E-B16                                                     | 450                                            | 100-K05                   | 65                                | 50   | 65                                | 50   | 100-K05                      | 65                             | 50                       |
| 140MT-C3E-B25                                                     | 450                                            | 100-K05                   | 65                                | 30   | 65                                | 30   | 100-K05                      | 65                             | 30                       |
| 140MT-C3E-B40                                                     | 450                                            | 100-K05                   | 65                                | 30   | 65                                | 30   | 100-K05                      | 65                             | 30                       |
| 140MT-C3E-B63                                                     | 450                                            | 100-K05                   | 65                                | 30   | 65                                | 30   | 100-K05                      | 65                             | —                        |
| 140MT-C3E-C10                                                     | 450                                            | 100-K09                   | 65                                | 30   | 65                                | 30   | 100-K09                      | 65                             | —                        |
| 140MT-C3E-C16                                                     | 450                                            | 100-K12                   | 30                                | 30   | 30                                | 30   | 100-K12                      | 30                             | —                        |
| D-Frame, Adjustable Thermal/Fixed Magnetic (14 x I <sub>n</sub> ) |                                                |                           |                                   |      |                                   |      |                              |                                |                          |
| 140MT-D9E-A63                                                     | 450                                            | 100-K05                   | 65                                | 50   | 65                                | 50   | 100-K05                      | 65                             | 50                       |
| 140MT-D9E-B10                                                     | 450                                            | 100-K05                   | 65                                | 50   | 65                                | 50   | 100-K05                      | 65                             | 50                       |
| 140MT-D9E-B16                                                     | 450                                            | 100-K05                   | 65                                | 50   | 65                                | 50   | 100-K05                      | 65                             | 50                       |
| 140MT-D9E-B25                                                     | 450                                            | 100-K05                   | 65                                | 30   | 65                                | 30   | 100-K05                      | 65                             | 30                       |
| 140MT-D9E-B40                                                     | 450                                            | 100-K05                   | 65                                | 30   | 65                                | 30   | 100-K05                      | 65                             | 30                       |
| 140MT-D9E-B63                                                     | 450                                            | 100-K05                   | 65                                | 30   | 65                                | 30   | 100-K05                      | 65                             | 30                       |
| 140MT-D9E-C10                                                     | 450                                            | 100-K09                   | 65                                | 30   | 65                                | 30   | 100-K09                      | 65                             | 30                       |
| 140MT-D9E-C16                                                     | 450                                            | 100-K12                   | 65                                | 30   | 65                                | 30   | 100-K12                      | 65                             | 30                       |

(1) For full voltage (delta) ratings above 277V or 347V, follow the NEC or CEC rules for group motor applications.

## Bulletin 140MT/M Devices with Bulletin 100-C IEC Contactors

Table 44 - UL 60947 Application Ratings, MPSDs with Bulletin 100-C IEC Contactors

| Cat. No.                                                          | UL 60947-4-1 Manual Motor Controller           |                              |                                   |      |                                   |      | UL 60947-4-1 Type F          |                                |                          |
|-------------------------------------------------------------------|------------------------------------------------|------------------------------|-----------------------------------|------|-----------------------------------|------|------------------------------|--------------------------------|--------------------------|
|                                                                   | Max. Fuse or<br>Circuit Breaker<br>per NEC [A] | Minimum<br>Contactor<br>Size | Group Motor Installation          |      | Motor Disconnect                  |      | Combination Motor Controller |                                |                          |
|                                                                   |                                                |                              | Max Short-circuit<br>Current [kA] |      | Max Short-circuit<br>Current [kA] |      | Minimum<br>Contactor<br>Size | Max Short-circuit Current [kA] |                          |
|                                                                   |                                                |                              | 480V                              | 600V | 480V                              | 600V |                              | 480Y/277V <sup>(1)</sup>       | 600Y/347V <sup>(1)</sup> |
| C-Frame, Adjustable Thermal/Fixed Magnetic (14 x I <sub>n</sub> ) |                                                |                              |                                   |      |                                   |      |                              |                                |                          |
| 140MT-C3E-A16                                                     | 450                                            | 100-C09                      | 65                                | 50   | 65                                | 50   | 100-C09                      | 65                             | 50                       |
| 140MT-C3E-A25                                                     | 450                                            | 100-C09                      | 65                                | 50   | 65                                | 50   | 100-C09                      | 65                             | 50                       |
| 140MT-C3E-A40                                                     | 450                                            | 100-C09                      | 65                                | 50   | 65                                | 50   | 100-C09                      | 65                             | 50                       |
| 140MT-C3E-A63                                                     | 450                                            | 100-C09                      | 65                                | 50   | 65                                | 50   | 100-C09                      | 65                             | 50                       |
| 140MT-C3E-B10                                                     | 450                                            | 100-C09                      | 65                                | 50   | 65                                | 50   | 100-C09                      | 65                             | 50                       |
| 140MT-C3E-B16                                                     | 450                                            | 100-C09                      | 65                                | 50   | 65                                | 50   | 100-C09                      | 65                             | 50                       |
| 140MT-C3E-B25                                                     | 450                                            | 100-C09                      | 65                                | 30   | 65                                | 30   | 100-C09                      | 65                             | 30                       |
| 140MT-C3E-B40                                                     | 450                                            | 100-C09                      | 65                                | 30   | 65                                | 30   | 100-C09                      | 65                             | 30                       |
| 140MT-C3E-B63                                                     | 450                                            | 100-C09                      | 65                                | 30   | 65                                | 30   | 100-C09                      | 65                             | —                        |
| 140MT-C3E-C10                                                     | 450                                            | 100-C09                      | 65                                | 30   | 65                                | 30   | 100-C09                      | 65                             | —                        |
| 140MT-C3E-C16                                                     | 450                                            | 100-C12                      | 30                                | 30   | 30                                | 30   | 100-C12                      | 30                             | —                        |
| 140MT-C3E-C20                                                     | 450                                            | 100-C16                      | 30                                | 30   | 30                                | 10   | —                            | —                              | —                        |
| 140MT-C3E-C25                                                     | 450                                            | 100-C23                      | 30                                | 18   | 10                                | 5    | —                            | —                              | —                        |
|                                                                   | 450                                            | 100-C30                      | 30                                | 18   | 30                                | 5    | —                            | —                              | —                        |
| 140MT-C3E-C29                                                     | 450                                            | 100-C30                      | 30                                | 10   | 10                                | —    | —                            | —                              | —                        |
| 140MT-C3E-C32                                                     | 450                                            | 100-C37                      | 30                                | 10   | 10                                | —    | —                            | —                              | —                        |
| D-Frame, Adjustable Thermal/Fixed Magnetic (14 x I <sub>n</sub> ) |                                                |                              |                                   |      |                                   |      |                              |                                |                          |
| 140MT-D9E-A63                                                     | 450                                            | 100-C09                      | 65                                | 50   | 65                                | 50   | 100-C09                      | 65                             | 50                       |
| 140MT-D9E-B10                                                     | 450                                            | 100-C09                      | 65                                | 50   | 65                                | 50   | 100-C09                      | 65                             | 50                       |
| 140MT-D9E-B16                                                     | 450                                            | 100-C09                      | 65                                | 50   | 65                                | 50   | 100-C09                      | 65                             | 50                       |
| 140MT-D9E-B25                                                     | 450                                            | 100-C09                      | 65                                | 30   | 65                                | 30   | 100-C09                      | 65                             | 30                       |
| 140MT-D9E-B40                                                     | 450                                            | 100-C09                      | 65                                | 30   | 65                                | 30   | 100-C09                      | 65                             | 30                       |
| 140MT-D9E-B63                                                     | 450                                            | 100-C09                      | 65                                | 30   | 65                                | 30   | 100-C09                      | 65                             | 30                       |
| 140MT-D9E-C10                                                     | 450                                            | 100-C09                      | 65                                | 30   | 65                                | 30   | 100-C09                      | 65                             | 30                       |
| 140MT-D9E-C16                                                     | 450                                            | 100-C12                      | 65                                | 30   | 65                                | 30   | 100-C12                      | 65                             | 30                       |
| 140MT-D9E-C20                                                     | 450                                            | 100-C23                      | 65                                | 30   | 65                                | 30   | 100-C23                      | 65                             | —                        |
| 140MT-D9E-C25                                                     | 450                                            | 100-C23                      | 50                                | 30   | 50                                | 30   | 100-C23                      | 50                             | —                        |
| 140MT-D9E-C29                                                     | 450                                            | 100-C30                      | 50                                | 30   | 50                                | 30   | 100-C30                      | 50                             | —                        |
| 140MT-D9E-C32                                                     | 450                                            | 100-C37                      | 50                                | 30   | 30                                | 18   | 100-C37                      | 30                             | —                        |
| 140MT-D9E-C36                                                     | 450                                            | 100-C37                      | 30                                | 30   | 30                                | 18   | 100-C37                      | 30                             | —                        |
| 140MT-D9E-C40                                                     | 450                                            | 100-C37                      | 30                                | 30   | 30                                | 18   | 100-C37                      | 30                             | —                        |
| F-Frame, Adjustable Thermal/Fixed Magnetic (13 x I <sub>n</sub> ) |                                                |                              |                                   |      |                                   |      |                              |                                |                          |
| 140M-F8E-C10                                                      | 600                                            | 100-C30                      | 65                                | 30   | 65                                | 30   | 100-C30                      | 65                             | 30                       |
| 140M-F8E-C16                                                      | 600                                            | 100-C30                      | 65                                | 30   | 65                                | 30   | 100-C30                      | 65                             | 30                       |
| 140M-F8E-C20                                                      | 600                                            | 100-C30                      | 65                                | 30   | 65                                | 30   | 100-C30                      | 65                             | 30                       |
| 140M-F8E-C25                                                      | 600                                            | 100-C30                      | 65                                | 30   | 65                                | 30   | 100-C30                      | 65                             | 30                       |
| 140M-F8E-C32                                                      | 600                                            | 100-C30                      | 65                                | 30   | 65                                | 30   | 100-C30                      | 65                             | 30                       |
| 140M-F8E-C45                                                      | 600                                            | 100-C37                      | 65                                | 18   | 65                                | 18   | 100-C37                      | 65                             | —                        |

(1) For full-voltage (delta) ratings above 277V or 347V, follow the NEC or CEC rules for group motor applications.

Table 45 - UL 60947 Application Ratings, MCPs with Bulletin 100-C IEC Contactors

| Cat. No.                                                                 | UL 60947-4-1 Manual Motor Controller     |                        |                                |      |                                |      |
|--------------------------------------------------------------------------|------------------------------------------|------------------------|--------------------------------|------|--------------------------------|------|
|                                                                          | Max. Fuse or Circuit Breaker per NEC [A] | Minimum Contactor Size | Group Motor Installation       |      | Motor Disconnect               |      |
|                                                                          |                                          |                        | Max Short-circuit Current [kA] |      | Max Short-circuit Current [kA] |      |
|                                                                          |                                          |                        | 480V                           | 600V | 480V                           | 600V |
| D-Frame, Motor Circuit Protectors, Fixed Magnetic (14 x I <sub>n</sub> ) |                                          |                        |                                |      |                                |      |
| 140MT-D9N-A16                                                            | 450                                      | 100-C09                | 65                             | 50   | 65                             | 50   |
| 140MT-D9N-A25                                                            | 450                                      | 100-C09                | 65                             | 50   | 65                             | 50   |
| 140MT-D9N-A40                                                            | 450                                      | 100-C09                | 65                             | 50   | 65                             | 50   |
| 140MT-D9N-A63                                                            | 450                                      | 100-C09                | 65                             | 50   | 65                             | 50   |
| 140MT-D9N-B10                                                            | 450                                      | 100-C09                | 65                             | 50   | 65                             | 50   |
| 140MT-D9N-B16                                                            | 450                                      | 100-C09                | 65                             | 50   | 65                             | 50   |
| 140MT-D9N-B25                                                            | 450                                      | 100-C09                | 65                             | 30   | 65                             | 30   |
| 140MT-D9N-B40                                                            | 450                                      | 100-C09                | 65                             | 30   | 65                             | 30   |
| 140MT-D9N-B63                                                            | 450                                      | 100-C09                | 65                             | 30   | 65                             | 30   |
| 140MT-D9N-C10                                                            | 450                                      | 100-C09                | 65                             | 30   | 65                             | 30   |
| 140MT-D9N-C16                                                            | 450                                      | 100-C12                | 65                             | 30   | 65                             | 30   |
| 140MT-D9N-C20                                                            | 450                                      | 100-C23                | 65                             | 30   | 65                             | 30   |
| 140MT-D9N-C25                                                            | 450                                      | 100-C23                | 50                             | 30   | 50                             | 30   |
| 140MT-D9N-C29                                                            | 450                                      | 100-C30                | 50                             | 30   | 50                             | 30   |
| 140MT-D9N-C32                                                            | 450                                      | 100-C37                | 50                             | 30   | 30                             | 18   |
| 140MT-D9N-C36                                                            | 450                                      | 100-C37                | 30                             | 30   | 30                             | 18   |
| 140MT-D9N-C40                                                            | 450                                      | 100-C37                | 30                             | 30   | 30                             | 18   |
| F-Frame, Motor Circuit Protectors, Fixed Magnetic (13 x I <sub>n</sub> ) |                                          |                        |                                |      |                                |      |
| 140M-F8N-C25                                                             | 600                                      | 100-C23                | 65                             | 30   | 65                             | 30   |
| 140M-F8N-C32                                                             | 600                                      | 100-C30                | 65                             | 30   | 65                             | 30   |
| 140M-F8N-C45                                                             | 600                                      | 100-C37                | 65                             | 18   | 65                             | 18   |

Table 46 - Type 2 Coordination Ratings, MPSDs with Bulletin 100-C IEC Contactors

| Cat. No.                                                                       |                              |                          | 400V                           |                        | 480V                           |                        | 600V                           |                        |
|--------------------------------------------------------------------------------|------------------------------|--------------------------|--------------------------------|------------------------|--------------------------------|------------------------|--------------------------------|------------------------|
| Standard Motor Protection                                                      | High Inrush Motor Protection | Motor Circuit Protection | Max Short-circuit Current [kA] | Minimum Contactor Size | Max Short-circuit Current [kA] | Minimum Contactor Size | Max Short-circuit Current [kA] | Minimum Contactor Size |
| <b>C-Frame, Adjustable Thermal/Fixed Magnetic (<math>14 \times I_n</math>)</b> |                              |                          |                                |                        |                                |                        |                                |                        |
| 140MT-C3E-A16                                                                  | —                            | —                        | 100                            | 100-C09                | —                              | —                      | —                              | —                      |
| 140MT-C3E-A25                                                                  | —                            | —                        | 100                            | 100-C09                | —                              | —                      | —                              | —                      |
| 140MT-C3E-A40                                                                  | —                            | —                        | 100                            | 100-C09                | —                              | —                      | —                              | —                      |
| 140MT-C3E-A63                                                                  | —                            | —                        | 100                            | 100-C09                | —                              | —                      | —                              | —                      |
| 140MT-C3E-B10                                                                  | —                            | —                        | 100                            | 100-C09                | —                              | —                      | —                              | —                      |
| 140MT-C3E-B16                                                                  | —                            | —                        | 100                            | 100-C09                | —                              | —                      | —                              | —                      |
| 140MT-C3E-B25                                                                  | —                            | —                        | 65                             | 100-C23                | —                              | —                      | —                              | —                      |
| 140MT-C3E-B40                                                                  | —                            | —                        | 65                             | 100-C23                | —                              | —                      | —                              | —                      |
| 140MT-C3E-B63                                                                  | —                            | —                        | 65                             | 100-C23                | —                              | —                      | —                              | —                      |
| 140MT-C3E-C10                                                                  | —                            | —                        | 65                             | 100-C23                | —                              | —                      | —                              | —                      |
| 140MT-C3E-C16                                                                  | —                            | —                        | 50                             | 100-C30                | —                              | —                      | —                              | —                      |
| 140MT-C3E-C20                                                                  | —                            | —                        | 50                             | 100-C30                | —                              | —                      | —                              | —                      |
| 140MT-C3E-C25                                                                  | —                            | —                        | 15                             | 100-C30                | —                              | —                      | —                              | —                      |
| 140MT-C3E-C29                                                                  | —                            | —                        | 15                             | 100-C30                | —                              | —                      | —                              | —                      |
| 140MT-C3E-C32                                                                  | —                            | —                        | 15                             | 100-C30                | —                              | —                      | —                              | —                      |
| <b>D-Frame, Adjustable Thermal/Fixed Magnetic (<math>14 \times I_n</math>)</b> |                              |                          |                                |                        |                                |                        |                                |                        |
| 140MT-D9E-A63                                                                  | —                            | —                        | 100                            | 100-C09                | —                              | —                      | —                              | —                      |
| 140MT-D9E-B10                                                                  | 140MT-D9T-A63                | 140MT-D9N-B10            | 100                            | 100-C09                | —                              | —                      | —                              | —                      |
| 140MT-D9E-B16                                                                  | 140MT-D9T-B10                | 140MT-D9N-B16            | 100                            | 100-C09                | —                              | —                      | —                              | —                      |
| 140MT-D9E-B25                                                                  | 140MT-D9T-B16                | 140MT-D9N-B25            | 100                            | 100-C09                | —                              | —                      | —                              | —                      |
| 140MT-D9E-B40                                                                  | 140MT-D9T-B25                | 140MT-D9N-B40            | 65                             | 100-C09                | —                              | —                      | —                              | —                      |
| 140MT-D9E-B63                                                                  | 140MT-D9T-B40                | 140MT-D9N-B63            | 65                             | 100-C09                | —                              | —                      | —                              | —                      |
| 140MT-D9E-C10                                                                  | 140MT-D9T-B63                | 140MT-D9N-C10            | 65                             | 100-C09                | —                              | —                      | —                              | —                      |
| 140MT-D9E-C16                                                                  | 140MT-D9T-C10                | 140MT-D9N-C16            | 65                             | 100-C23                | —                              | —                      | —                              | —                      |
| 140MT-D9E-C20                                                                  | 140MT-D9T-C16                | 140MT-D9N-C20            | 65                             | 100-C23                | —                              | —                      | —                              | —                      |
| 140MT-D9E-C25                                                                  | 140MT-D9T-C20                | 140MT-D9N-C25            | 65                             | 100-C23                | —                              | —                      | —                              | —                      |
| 140MT-D9E-C29                                                                  | 140MT-D9T-C25                | 140MT-D9N-C29            | 65                             | 100-C30                | —                              | —                      | —                              | —                      |
| 140MT-D9E-C32                                                                  | 140MT-D9T-C29                | 140MT-D9N-C32            | 65                             | 100-C30/C37            | —                              | —                      | —                              | —                      |
| 140MT-D9E-C36                                                                  | 140MT-D9T-C32                | —                        | 65                             | 100-C30/C37            | —                              | —                      | —                              | —                      |
| 140MT-D9E-C40                                                                  | 140MT-D9T-C36                | 140MT-D9N-C40            | 65                             | 100-C30/C37            | —                              | —                      | —                              | —                      |
| <b>F-Frame, Adjustable Thermal/Fixed Magnetic (<math>13 \times I_n</math>)</b> |                              |                          |                                |                        |                                |                        |                                |                        |
| 140M-F8E-C10                                                                   | —                            | —                        | 100                            | 100-C09                | 65                             | 100-C09                | 30                             | 100-C30                |
| 140M-F8E-C16                                                                   | —                            | —                        | 100                            | 100-C12                | 65                             | 100-C12                | 30                             | 100-C30                |
| 140M-F8E-C20                                                                   | —                            | —                        | 100                            | 100-C23                | 65                             | 100-C23                | 30                             | 100-C30                |
| 140M-F8E-C25                                                                   | —                            | 140M-F8N-C25             | 100                            | 100-C30                | 65                             | 100-C30                | 30                             | 100-C30                |
| 140M-F8E-C32                                                                   | 140M-F8T-C25                 | 140M-F8N-C32             | 100                            | 100-C30                | 65                             | 100-C30                | 30                             | 100-C30                |
| 140M-F8E-C45                                                                   | 140M-F8T-C32                 | 140M-F8N-C45             | 100                            | 100-C37                | 65                             | 100-C37                | 10                             | 100-C37                |

## Bulletin 140MT/M Devices with Bulletin 100-E IEC Contactors

Table 47 - UL 60947 Application Ratings, MPSDs with Bulletin 100-E IEC Contactors

| Cat. No.                                                          | UL 60947-4-1 Manual Motor Controller           |                              |                                   |      |                                   |      | UL 60947-4-1 Type F          |                                |                          |
|-------------------------------------------------------------------|------------------------------------------------|------------------------------|-----------------------------------|------|-----------------------------------|------|------------------------------|--------------------------------|--------------------------|
|                                                                   | Max. Fuse or<br>Circuit Breaker<br>per NEC [A] | Minimum<br>Contactor<br>Size | Group Motor Installation          |      | Motor Disconnect                  |      | Combination Motor Controller |                                |                          |
|                                                                   |                                                |                              | Max Short-circuit<br>Current [kA] |      | Max Short-circuit<br>Current [kA] |      | Minimum<br>Contactor<br>Size | Max Short-circuit Current [kA] |                          |
|                                                                   |                                                |                              | 480V                              | 600V | 480V                              | 600V |                              | 480Y/277V <sup>(1)</sup>       | 600Y/347V <sup>(1)</sup> |
| C-Frame, Adjustable Thermal/Fixed Magnetic (14 x I <sub>N</sub> ) |                                                |                              |                                   |      |                                   |      |                              |                                |                          |
| 140MT-C3E-A16                                                     | 450                                            | 100-E09                      | 65                                | 50   | 65                                | 50   | 100-E09                      | 65                             | 50                       |
| 140MT-C3E-A25                                                     | 450                                            | 100-E09                      | 65                                | 50   | 65                                | 50   | 100-E09                      | 65                             | 50                       |
| 140MT-C3E-A40                                                     | 450                                            | 100-E09                      | 65                                | 50   | 65                                | 50   | 100-E09                      | 65                             | 50                       |
| 140MT-C3E-A63                                                     | 450                                            | 100-E09                      | 65                                | 50   | 65                                | 50   | 100-E09                      | 65                             | 50                       |
| 140MT-C3E-B10                                                     | 450                                            | 100-E09                      | 65                                | 50   | 65                                | 50   | 100-E09                      | 65                             | 50                       |
| 140MT-C3E-B16                                                     | 450                                            | 100-E09                      | 65                                | 50   | 65                                | 50   | 100-E09                      | 65                             | 50                       |
| 140MT-C3E-B25                                                     | 450                                            | 100-E09                      | 65                                | 30   | 65                                | 30   | 100-E09                      | 65                             | 30                       |
| 140MT-C3E-B40                                                     | 450                                            | 100-E09                      | 65                                | 30   | 65                                | 30   | 100-E09                      | 65                             | 30                       |
| 140MT-C3E-B63                                                     | 450                                            | 100-E09                      | 65                                | 30   | 65                                | 30   | 100-E09                      | 65                             | —                        |
| 140MT-C3E-C10                                                     | 450                                            | 100-E09                      | 65                                | 30   | 65                                | 30   | 100-E09                      | 65                             | —                        |
| 140MT-C3E-C16                                                     | 450                                            | 100-E12                      | 30                                | 30   | 30                                | 30   | 100-E12                      | 30                             | —                        |
| 140MT-C3E-C20                                                     | 450                                            | 100-E16                      | 30                                | 30   | 30                                | 10   | —                            | —                              | —                        |
| 140MT-C3E-C25                                                     | 450                                            | 100-E26                      | 30                                | 18   | 10                                | 5    | —                            | —                              | —                        |
|                                                                   | 450                                            | 100-E30                      | 30                                | 18   | 30                                | 5    | —                            | —                              | —                        |
| 140MT-C3E-C29                                                     | 450                                            | 100-E30                      | 30                                | 10   | 10                                | —    | —                            | —                              | —                        |
| 140MT-C3E-C32                                                     | 450                                            | 100-E38                      | 30                                | 10   | 10                                | —    | —                            | —                              | —                        |
| D-Frame, Adjustable Thermal/Fixed Magnetic (14 x I <sub>N</sub> ) |                                                |                              |                                   |      |                                   |      |                              |                                |                          |
| 140MT-D9E-A63                                                     | 450                                            | 100-E09                      | 65                                | 50   | 65                                | 50   | 100-E09                      | 65                             | 50                       |
| 140MT-D9E-B10                                                     | 450                                            | 100-E09                      | 65                                | 50   | 65                                | 50   | 100-E09                      | 65                             | 50                       |
| 140MT-D9E-B16                                                     | 450                                            | 100-E09                      | 65                                | 50   | 65                                | 50   | 100-E09                      | 65                             | 50                       |
| 140MT-D9E-B25                                                     | 450                                            | 100-E09                      | 65                                | 30   | 65                                | 30   | 100-E09                      | 65                             | 30                       |
| 140MT-D9E-B40                                                     | 450                                            | 100-E09                      | 65                                | 30   | 65                                | 30   | 100-E09                      | 65                             | 30                       |
| 140MT-D9E-B63                                                     | 450                                            | 100-E09                      | 65                                | 30   | 65                                | 30   | 100-E09                      | 65                             | 30                       |
| 140MT-D9E-C10                                                     | 450                                            | 100-E09                      | 65                                | 30   | 65                                | 30   | 100-E09                      | 65                             | 30                       |
| 140MT-D9E-C16                                                     | 450                                            | 100-E12                      | 65                                | 30   | 65                                | 30   | 100-E12                      | 65                             | 30                       |
| 140MT-D9E-C20                                                     | 450                                            | 100-E26                      | 65                                | 30   | 65                                | 30   | 100-E26                      | 65                             | —                        |
| 140MT-D9E-C25                                                     | 450                                            | 100-E26                      | 50                                | 30   | 50                                | 30   | 100-E26                      | 50                             | —                        |
| 140MT-D9E-C29                                                     | 450                                            | 100-E30                      | 50                                | 30   | 50                                | 30   | 100-E30                      | 50                             | —                        |
| 140MT-D9E-C32                                                     | 450                                            | 100-E38                      | 50                                | 30   | 30                                | 18   | 100-E38                      | 30                             | —                        |
| 140MT-D9E-C36                                                     | 450                                            | 100-E38                      | 30                                | 30   | 30                                | 18   | 100-E38                      | 30                             | —                        |
| 140MT-D9E-C40                                                     | 450                                            | 100-E38                      | 30                                | 30   | 30                                | 18   | 100-E38                      | 30                             | —                        |
| 140MT-D9E-C40                                                     | 450                                            | 100-E40                      | 30                                | 30   | 30                                | 18   | 100-E40                      | 30                             | —                        |

(1) For full-voltage (delta) ratings above 277V or 347V, follow the NEC or CEC rules for group motor applications.

## Accessory Specifications

Table 48 - Auxiliary Contact Specifications—For 140MT-C... and 140MT-D... Devices

| Attribute                                                                                                           |                                       |      | Front-mounted Auxiliary Contacts<br>Cat. Nos. 140MT-C-AFA, -AFAR/ -AFAR10M10      | Right Side-mounted Auxiliary Contacts<br>Cat. No. 140MT-C-ASA                       |      |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------|------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|
| Rated Thermal Current $I_{th}$                                                                                      | at 40 °C (104 °F) ambient temperature |      | [A]                                                                               | 5                                                                                   | 10   |
|                                                                                                                     | at 60 °C (140 °F) ambient temperature |      | [A]                                                                               | 4                                                                                   | 6    |
| Back-up Fuses gG, gL                                                                                                |                                       |      | [A]                                                                               | 10                                                                                  | 10   |
| General Use current                                                                                                 |                                       |      | [A]                                                                               | 5                                                                                   | 10   |
| Rated insulation voltage $U_i$                                                                                      | IEC                                   |      | [V]                                                                               | 250                                                                                 | 690  |
|                                                                                                                     | UL/CSA                                |      | [V]                                                                               | 240                                                                                 | 600  |
| Contact rating code designation (UL/CSA)                                                                            |                                       |      | AC                                                                                | B300                                                                                | A600 |
|                                                                                                                     |                                       |      | DC                                                                                | R300                                                                                | Q600 |
| Rated Supply Current $I_e$                                                                                          | AC-15                                 | 24V  | [A]                                                                               | 4                                                                                   | 6    |
|                                                                                                                     |                                       | 120V | [A]                                                                               | 3                                                                                   | 5    |
|                                                                                                                     |                                       | 240V | [A]                                                                               | 1.5                                                                                 | 3    |
|                                                                                                                     |                                       | 415V | [A]                                                                               | —                                                                                   | 2    |
|                                                                                                                     |                                       | 690V | [A]                                                                               | —                                                                                   | 1    |
|                                                                                                                     | DC-13                                 | 24V  | [A]                                                                               | 1.2                                                                                 | 2    |
|                                                                                                                     |                                       | 125V | [A]                                                                               | 0.22                                                                                | 0.55 |
|                                                                                                                     |                                       | 250V | [A]                                                                               | 0.11                                                                                | 0.27 |
|                                                                                                                     |                                       | 400V | [A]                                                                               | —                                                                                   | 0.15 |
|                                                                                                                     |                                       | 500V | [A]                                                                               | —                                                                                   | 0.13 |
| Type of Terminals                                                                                                   |                                       |      |  |  |      |
| Recommended screwdriver                                                                                             |                                       |      | Pozidriv No. 2/Blade No.3                                                         | Pozidriv No. 2/Blade No.3                                                           |      |
| Flexible with insulated ferrule  | 1 or 2 conductors                     |      | 0.5...1.5 mm <sup>2</sup> /No. 18...14 AWG                                        | 0.5...2.5 mm <sup>2</sup> /No. 18...14 AWG                                          |      |
| Flexible                         | 1 or 2 conductors                     |      | 0.5...1.5 mm <sup>2</sup> /No. 18...14 AWG                                        | 0.75...2.5 mm <sup>2</sup> /No. 18...14 AWG                                         |      |
| Stranded per UL/CSA              | 1 or 2 conductors                     |      | 0.5...1.5 mm <sup>2</sup> /No. 18...14 AWG                                        | 0.75...2.5 mm <sup>2</sup> /No. 18...14 AWG                                         |      |
| Solid                            | 1 or 2 conductors                     |      | 0.5...1.5 mm <sup>2</sup> /No. 18...14 AWG                                        | 0.5...2.5 mm <sup>2</sup> /No. 18...14 AWG                                          |      |
| Conductor steps                                                                                                     |                                       |      | Max 2 conductor steps allowed                                                     | Max 2 conductor steps allowed                                                       |      |
| Tightening torque                                                                                                   |                                       |      | 1...1.2 N•m/8.9...10.6 lb•in                                                      | 1...1.2 N•m/8.9...10.6 lb•in1...1.2                                                 |      |

Table 49 - Auxiliary Contact Specifications—For 140M-F... Devices

| Attribute                                                                                                         |                                       |      |                                                                                   | Front-mounted Auxiliary Contacts<br>Cat. Nos. 140M-C-AFA..., 140M-C-AFAR...         | Right Side-mounted Auxiliary Contacts<br>Cat. Nos. 140M-C-ASA..., 140M-C-ASAR... |
|-------------------------------------------------------------------------------------------------------------------|---------------------------------------|------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Rated Thermal Current $I_{th}$                                                                                    | at 40 °C (104 °F) ambient temperature |      | [A]                                                                               | 5                                                                                   | 10                                                                               |
|                                                                                                                   | at 60 °C (140 °F) ambient temperature |      | [A]                                                                               | 4                                                                                   | 6                                                                                |
| Back-up Fuses gG, gL                                                                                              |                                       |      | [A]                                                                               | 10                                                                                  | 10                                                                               |
| Contact rating code designation (UL/CSA)                                                                          |                                       |      | AC                                                                                | B300                                                                                | B600                                                                             |
|                                                                                                                   |                                       |      | DC                                                                                | Q300                                                                                | Q600                                                                             |
| Rated Supply Current $I_e$                                                                                        | AC-15                                 | 24V  | [A]                                                                               | 4                                                                                   | 6                                                                                |
|                                                                                                                   |                                       | 120V | [A]                                                                               | 3                                                                                   | 5                                                                                |
|                                                                                                                   |                                       | 240V | [A]                                                                               | 1.5                                                                                 | 3                                                                                |
|                                                                                                                   |                                       | 415V | [A]                                                                               | —                                                                                   | 2                                                                                |
|                                                                                                                   |                                       | 690V | [A]                                                                               | —                                                                                   | 0.7                                                                              |
|                                                                                                                   | DC-13                                 | 24V  | [A]                                                                               | 2                                                                                   | 2                                                                                |
|                                                                                                                   |                                       | 120V | [A]                                                                               | 0.5                                                                                 | 0.5                                                                              |
|                                                                                                                   |                                       | 240V | [A]                                                                               | 0.25                                                                                | 0.25                                                                             |
|                                                                                                                   |                                       | 415V | [A]                                                                               | —                                                                                   | 0.15                                                                             |
| Type of Terminals                                                                                                 |                                       |      |  |  |                                                                                  |
| Recommended screwdriver                                                                                           |                                       |      | Pozidriv No. 2/Blade No.3                                                         | Pozidriv No. 2/Blade No.3                                                           |                                                                                  |
| Flexible with insulated ferrule  | 1 conductor                           |      | 0.5...1.5 mm <sup>2</sup>                                                         | 0.5...2.5 mm <sup>2</sup>                                                           |                                                                                  |
|                                                                                                                   | 2 conductors                          |      | 0.75...1.5 mm <sup>2</sup>                                                        | 0.75...2.5 mm <sup>2</sup>                                                          |                                                                                  |
| Stranded per UL/CSA              | 1 or 2 conductors                     |      | 0.75...1.5 mm <sup>2</sup> /No. 18...14 AWG                                       | 0.75...2.5 mm <sup>2</sup> /No. 18...14 AWG                                         |                                                                                  |
| Solid                          | 1 or 2 conductors                     |      | 0.75...1.5 mm <sup>2</sup> /No. 18...14 AWG                                       | 0.75...2.5 mm <sup>2</sup> /No. 18...14 AWG                                         |                                                                                  |
| Tightening torque                                                                                                 |                                       |      | 1.2...1.5 N•m/10.6...13 lb•in                                                     | 1.2...1.5 N•m/10.6...13 lb•in                                                       |                                                                                  |

Table 50 - Undervoltage and Shunt Trip Specifications—For 140MT-C... and 140MT-D... Devices

| Attribute                       |                                                                                     |                   |        | Undervoltage Trip for Left-side Mounting<br>Cat. No. 140MT-C-UX                     | Shunt Trip for Left-side Mounting<br>Cat. No. 140MT-C-SN                              |
|---------------------------------|-------------------------------------------------------------------------------------|-------------------|--------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Actuating Voltage               | Pick-up                                                                             |                   | [V]    | $0.85...1.1 \times U_s$                                                             | $0.7...1.1 \times U_s$                                                                |
|                                 | Drop-out                                                                            |                   | [V]    | $0.7...0.35 \times U_s$                                                             | $0.7...1.1 \times U_s$                                                                |
| Rated AC Control Voltage        | 140MT-C-UXK                                                                         | 50 Hz             | [V AC] | 24                                                                                  | —                                                                                     |
|                                 |                                                                                     | 60 Hz             | [V AC] | 28                                                                                  | —                                                                                     |
|                                 | 140MT-C-UXD                                                                         | 50 Hz             | [V AC] | 110                                                                                 | —                                                                                     |
|                                 |                                                                                     | 60 Hz             | [V AC] | 120                                                                                 | —                                                                                     |
|                                 | 140MT-C-UXF                                                                         | 50 Hz             | [V AC] | 220...230                                                                           | —                                                                                     |
|                                 |                                                                                     | 60 Hz             | [V AC] | —                                                                                   | —                                                                                     |
|                                 | 140MT-C-UXA                                                                         | 50 Hz             | [V AC] | —                                                                                   | —                                                                                     |
|                                 |                                                                                     | 60 Hz             | [V AC] | 240...260                                                                           | —                                                                                     |
|                                 | 140MT-C-UXN                                                                         | 50 Hz             | [V AC] | 380...400                                                                           | —                                                                                     |
|                                 |                                                                                     | 60 Hz             | [V AC] | 440...460                                                                           | —                                                                                     |
|                                 | 140MT-C-UXB                                                                         | 50 Hz             | [V AC] | 415                                                                                 | —                                                                                     |
|                                 |                                                                                     | 60 Hz             | [V AC] | 480                                                                                 | —                                                                                     |
|                                 | 140MT-C-SNK                                                                         | 50 Hz             | [V AC] | —                                                                                   | 24                                                                                    |
|                                 |                                                                                     | 60 Hz             | [V AC] | —                                                                                   | 24...28                                                                               |
|                                 | 140MT-C-SND                                                                         | 50 Hz             | [V AC] | —                                                                                   | 110                                                                                   |
|                                 |                                                                                     | 60 Hz             | [V AC] | —                                                                                   | 120                                                                                   |
|                                 | 140MT-C-SNF                                                                         | 50 Hz             | [V AC] | —                                                                                   | 220...230                                                                             |
|                                 |                                                                                     | 60 Hz             | [V AC] | —                                                                                   | —                                                                                     |
|                                 | 140MT-C-SNA                                                                         | 50 Hz             | [V AC] | —                                                                                   | —                                                                                     |
|                                 |                                                                                     | 60 Hz             | [V AC] | —                                                                                   | 240...260                                                                             |
|                                 | 140MT-C-SNT                                                                         | 50 Hz             | [V AC] | —                                                                                   | 240                                                                                   |
|                                 |                                                                                     | 60 Hz             | [V AC] | —                                                                                   | 277                                                                                   |
|                                 | 140MT-C-SNN                                                                         | 50 Hz             | [V AC] | —                                                                                   | 380...400                                                                             |
|                                 |                                                                                     | 60 Hz             | [V AC] | —                                                                                   | 440...460                                                                             |
|                                 | 140MT-C-SNB                                                                         | 50 Hz             | [V AC] | —                                                                                   | 415                                                                                   |
|                                 |                                                                                     | 60 Hz             | [V AC] | —                                                                                   | 480                                                                                   |
|                                 | On-time                                                                             |                   |        | Continuous duty                                                                     | Continuous duty                                                                       |
|                                 | Coil consumption                                                                    | Pick-up           | [VA/W] | 8.5/8                                                                               | 8.5/8                                                                                 |
|                                 |                                                                                     | Hold-in           | [VA/W] | 4/2                                                                                 | 4/2                                                                                   |
| Rated DC Control Voltage        | 140MT-C-SNZJ                                                                        |                   | [V DC] | —                                                                                   | 24                                                                                    |
|                                 | On-time                                                                             |                   |        |                                                                                     | Max 5 s                                                                               |
|                                 | Coil consumption                                                                    | Pick-up           | [W]    |                                                                                     | 50                                                                                    |
| Type of Terminals               |                                                                                     |                   |        |  |  |
| Recommended screwdriver         |                                                                                     |                   |        | Pozidriv No. 2/Blade No.3                                                           | Pozidriv No. 2/Blade No.3                                                             |
| Flexible with insulated ferrule |  | 1 or 2 conductors |        | 0.5...2.5 mm <sup>2</sup> / No. 18...14 AWG                                         | 0.5...2.5 mm <sup>2</sup> / No. 18...14 AWG                                           |
| Flexible                        |  | 1 or 2 conductors |        | 0.75...2.5 mm <sup>2</sup> / No. 18...14 AWG                                        | 0.75...2.5 mm <sup>2</sup> / No. 18...14 AWG                                          |
| Stranded per UL/CSA             |  | 1 or 2 conductors |        | 0.75...2.5 mm <sup>2</sup> / No. 18...14 AWG                                        | 0.75...2.5 mm <sup>2</sup> / No. 18...14 AWG                                          |
| Solid                           |  | 1 or 2 conductors |        | 0.5...2.5 mm <sup>2</sup> / No. 18...14 AWG                                         | 0.5...2.5 mm <sup>2</sup> / No. 18...14 AWG                                           |
| Conductor steps                 |                                                                                     |                   |        | Max 2 conductor steps allowed                                                       | Max 2 conductor steps allowed                                                         |
| Tightening torque               |                                                                                     |                   |        | 1...1.2 N•m/8.9...10.6 lb•in                                                        | 1...1.2 N•m/8.9...10.6 lb•in1...1.2                                                   |

Table 51 - Undervoltage and Shunt Trip Specifications—For 140M-F... Devices

| Attribute                       |                  |                   |        | Undervoltage Trip for Left-side Mounting<br>Cat. No. 140M-C-UX..., -UC... | Shunt Trip for Left-side Mounting<br>Cat. No. 140M-C-SN... |
|---------------------------------|------------------|-------------------|--------|---------------------------------------------------------------------------|------------------------------------------------------------|
| Actuating Voltage               | Pick-up          |                   | [V]    | 0.85...1.1 x U <sub>s</sub>                                               | 0.7...1.1 x U <sub>s</sub>                                 |
|                                 | Drop-out         |                   | [V]    | 0.7...0.35 x U <sub>s</sub>                                               | 0.7...1.1 x U <sub>s</sub>                                 |
| Rated AC Control Voltage        | Min              | 50 Hz             | [V AC] | 21                                                                        | 21                                                         |
|                                 |                  | 60 Hz             | [V AC] | 24                                                                        | 24                                                         |
|                                 | Max              | 60 Hz             | [V AC] | 600                                                                       | 600                                                        |
|                                 | On-time          |                   |        | Continuous duty                                                           | Continuous duty                                            |
|                                 | Coil consumption | Pick-up           | [VA/W] | 8.5/8                                                                     | 8.5/8                                                      |
|                                 |                  | Hold-in           | [VA/W] | 4/2                                                                       | 4/2                                                        |
| Type of Terminals               |                  |                   |        |                                                                           |                                                            |
| Recommended screwdriver         |                  |                   |        | Pozidriv No. 2/Blade No.3                                                 | Pozidriv No. 2/Blade No.3                                  |
| Flexible with insulated ferrule |                  | 1 conductor       |        | 0.5...2.5 mm <sup>2</sup>                                                 | 0.5...2.5 mm <sup>2</sup>                                  |
|                                 |                  | 2 conductors      |        | 0.75...2.5 mm <sup>2</sup>                                                | 0.75...2.5 mm <sup>2</sup>                                 |
| Stranded per UL/CSA             |                  | 1 or 2 conductors |        | 0.75...2.5 mm <sup>2</sup> /No. 18...14 AWG                               | 0.75...2.5 mm <sup>2</sup> /No. 18...14 AWG                |
| Solid                           |                  | 1 or 2 conductors |        | 0.75...2.5 mm <sup>2</sup> /No. 18...14 AWG                               | 0.75...2.5 mm <sup>2</sup> /No. 18...14 AWG                |
| Tightening torque               |                  |                   |        | 1.2...1.5 N•m/10.6...13.3 lb•in                                           | 1.2...1.5 N•m/10.6...13.3 lb•in                            |

Table 52 - Feeder Terminals

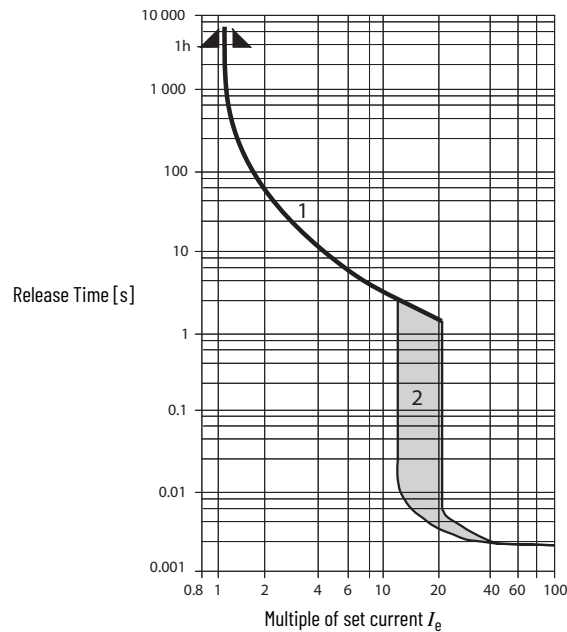
|                                                                         |             | Compact Busbar Feeder Terminal           |                                            | Compact Busbar |             |
|-------------------------------------------------------------------------|-------------|------------------------------------------|--------------------------------------------|----------------|-------------|
|                                                                         |             | 140MT-C-WTEN                             | 140M-F-WTE                                 | 140MT-C-W...   | 140M-F-W... |
| Rated Thermal Current $I_{th}$<br>at 60 °C (140 °F) ambient temperature | [A]         | 64                                       | 120                                        | 64             | 120         |
| Flexible with insulated ferrule                                         | 1 conductor | 2.5...25 mm <sup>2</sup> /No. 14...4 AWG | —                                          | —              | —           |
| Stranded per UL/CSA                                                     | 1 conductor | 2.5...25 mm <sup>2</sup> /No. 14...4 AWG | 4...50 mm <sup>2</sup> /No. 12...1/0 MCM   | —              | —           |
| Solid                                                                   | 1 conductor | 2.5...25 mm <sup>2</sup> /No. 14...4 AWG | 2.5...50 mm <sup>2</sup> /No. 12...1/0 MCM | —              | —           |
| De-isolation (stripping) length                                         | [mm (in)]   | 14 (0.55)                                | —                                          | —              | —           |
| Tightening torque                                                       |             | 3...3.5 N•m/27...31 lb•in                | 5...6 N•m/45...54 lb•in                    | —              | —           |

Table 53 - Feeder Blocks for Compact Busbars

|                                                                         |             | IEC 60947                |                           | UL 60947/CAN/CSA-C22.2 No. 60947 |                           |                                              |                          |
|-------------------------------------------------------------------------|-------------|--------------------------|---------------------------|----------------------------------|---------------------------|----------------------------------------------|--------------------------|
|                                                                         |             | 140MT-C-WBE<br>1, 3, 5   | 140MT-C-WBE<br>2, 4, 6    | 140MT-C-WBE<br>L1, L2, L3        | 140MT-C-WBE<br>T1, T2, T3 | 140M-F-WBE L1,<br>L2, L3                     | 140M-F-WBE T1,<br>T2, T3 |
| Rated Thermal Current $I_{th}$<br>at 60 °C (140 °F) ambient temperature | [A]         | 64                       |                           | 64                               |                           | IEC120/UL115                                 |                          |
| Flexible with insulated ferrule                                         | 1 conductor | 4...25 mm <sup>2</sup>   | for use with<br>140MT-C-W | No. 10...4 AWG                   | for use with<br>140MT-C-W | 4...50 mm <sup>2</sup> /<br>No. 10...4 AWG   | for use with<br>140M-F-W |
| Flexible                                                                | 1 conductor | 4...25 mm <sup>2</sup>   | for use with<br>140MT-C-W | No. 10...4 AWG                   | for use with<br>140MT-C-W | —                                            | —                        |
| Stranded per UL/CSA                                                     | 1 conductor | 4...25 mm <sup>2</sup>   | for use with<br>140MT-C-W | No. 10...4 AWG                   | for use with<br>140MT-C-W | 4...25 mm <sup>2</sup> /<br>No. 10...4 AWG   | for use with<br>140M-F-W |
| Solid                                                                   | 1 conductor | 2.5...25 mm <sup>2</sup> | for use with<br>140MT-C-W | No. 14...4 AWG                   | for use with<br>140MT-C-W | 2.5...25 mm <sup>2</sup> /<br>No. 14...4 AWG | for use with<br>140M-F-W |
| Tightening torque                                                       |             | 3...3.5 N•m              | 2...2.5 N•m               | 27...31 lb•in                    | 18...22 lb•in             | 5...6 N•m/45...54 lb•in                      |                          |

## Time-Current Characteristic

Figure 10 - Motor Protection Circuit Breakers Time-Current Characteristic



140MT-C, -D, 140M-F Motor Protection Circuit Breakers (for 140MT-D9V, see ratings)

### Thermal Release Trip Current

The adjustable current-dependent delayed bimetal release protects motors against overload. The curve shows the mean operating current at an ambient temperature of 20 °C (68 °F) starting from the cold state. Careful testing and setting ensures effective motor protection even in the case of single phasing. The overload characteristic is also valid for transformer protection.

### Magnetic Release Trip Current

The instantaneous magnetic trip has a fixed operating current setting. This corresponds to 13...14 times the maximum value of the setting range. (Transformer protection up to 20 x  $I_e$  max.) At a lower setting, it is correspondingly higher.

### Current Setting $I_e F$

The overload trip corresponds to a thermal overload relay in a motor starter conforming to IEC 60947-4-1. If a different value is prescribed (for example, reduced  $I_e$  for cooling medium having a temperature higher than 40 °C (104 °F) or a place of installation higher than 2000 m (6561 ft) above sea level), the setting current is equal to the reduced rated current  $I_e$  of the motor.

# Approximate Dimensions

Dimensions are in millimeters (inches) and are not intended for manufacturing purposes.

## 140MT-C, 140MT-D Devices and Accessories

Figure 11 - Mounting Position

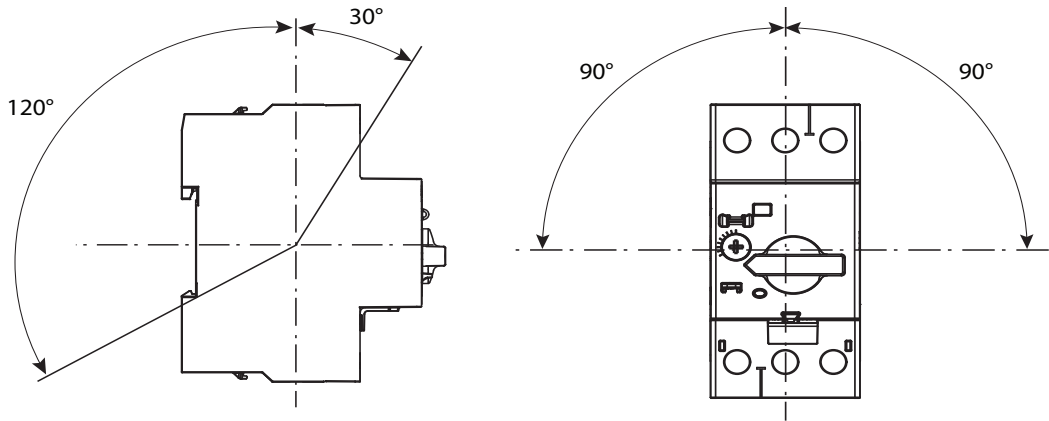
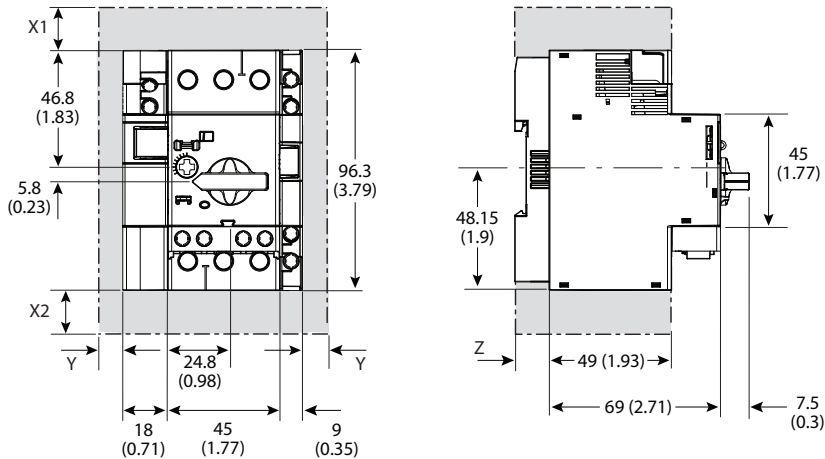


Figure 12 - Spacing Requirements



| Frame Size | Voltage [V AC] | Minimum Distance to Grounded Parts or Walls [mm (in)] |              |             | Z            |
|------------|----------------|-------------------------------------------------------|--------------|-------------|--------------|
|            |                | X1                                                    | X2           | Y           |              |
| C-Frame    | 400            | 30 (1-3/16)                                           | 30 (1-3/16)  | 9 (23/64)   | 7.5 (19/64)  |
|            | 500            | 30 (1-3/16)                                           | 30 (1-3/16)  | 9 (23/64)   |              |
|            | 690            | 50 (1-31/32)                                          | 50 (1-31/32) | 30 (1-3/16) |              |
| D-Frame    | 400            | 30 (1-3/16)                                           | 30 (1-3/16)  | 9 (23/64)   | 13.5 (17/32) |
|            | 500            | 30 (1-3/16)                                           | 30 (1-3/16)  | 9 (23/64)   |              |
|            | 690            | 50 (1-31/32)                                          | 50 (1-31/32) | 30 (1-3/16) |              |



Figure 15 - Feeder Terminal for Compact Busbar, Cat. No. 140MT-C-WTEN

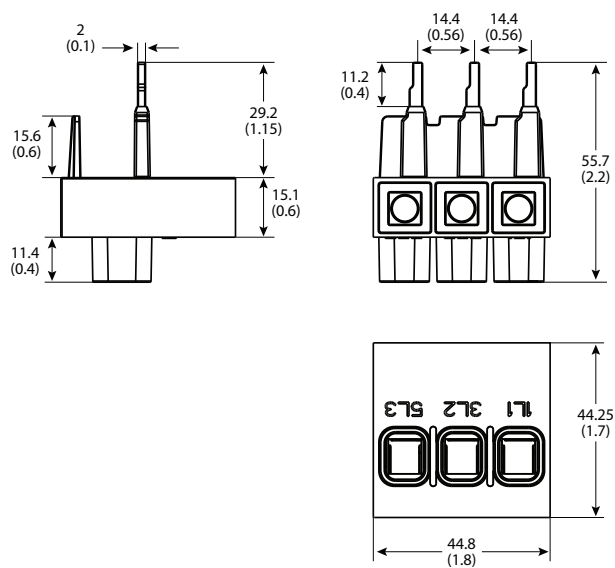


Figure 16 - Terminal Cover, Cat. No. 140MT-C-WSN

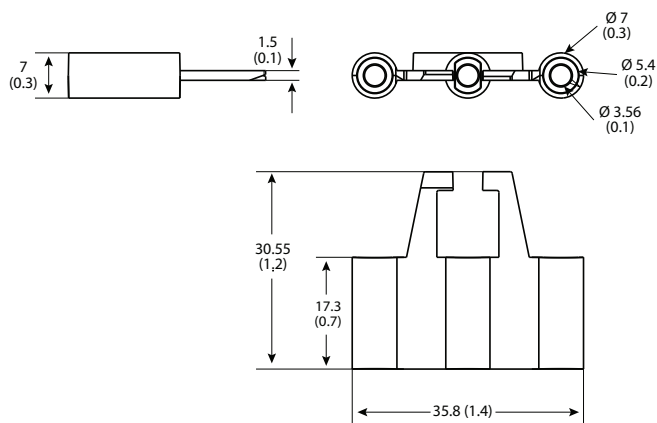
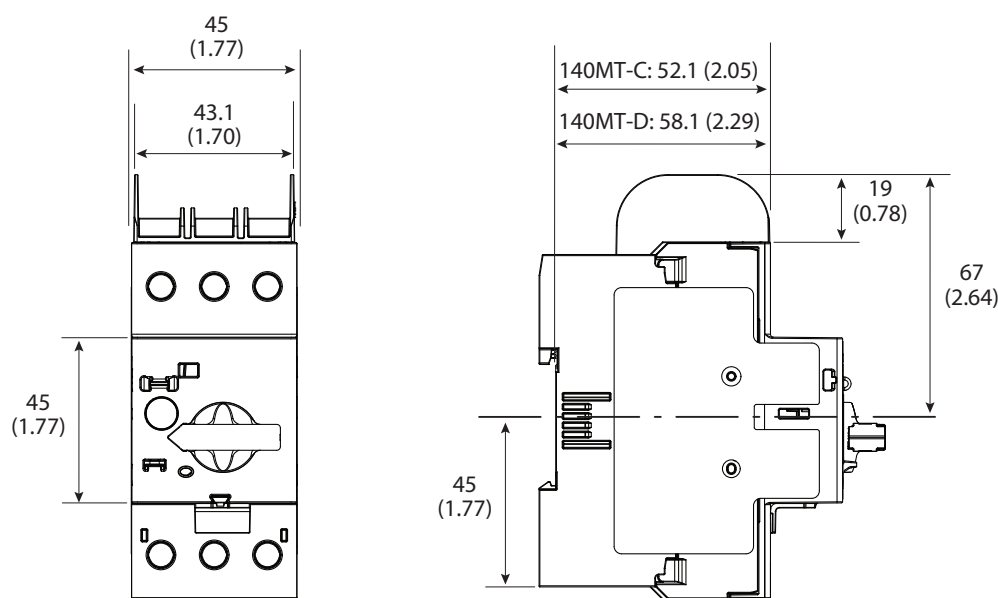
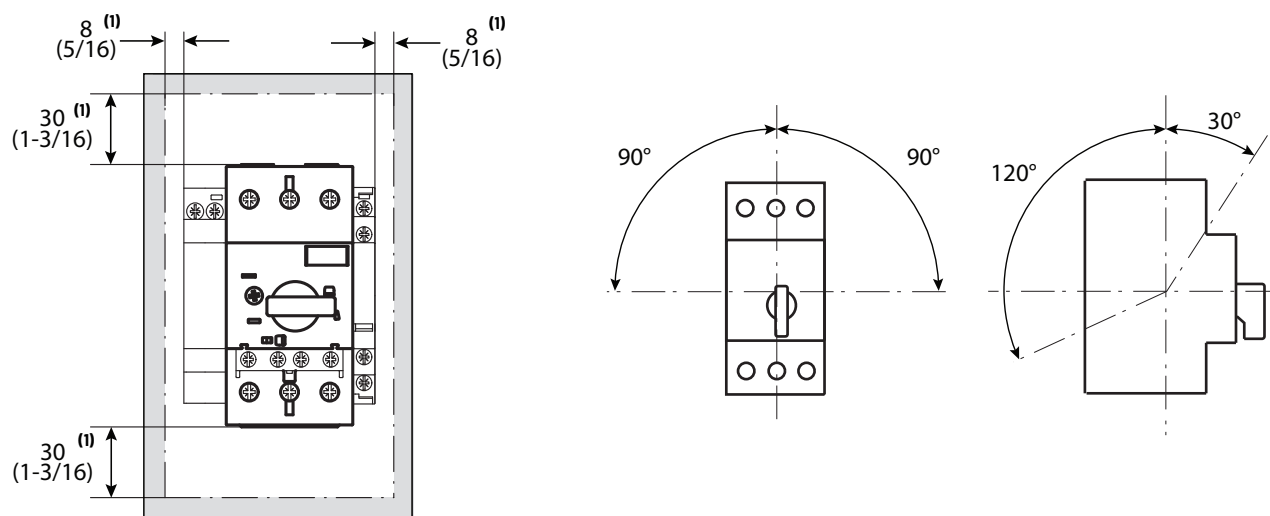


Figure 17 - 140MT-C and 140MT-D with Cat. No. 140MT-C-TE Type E Adapter



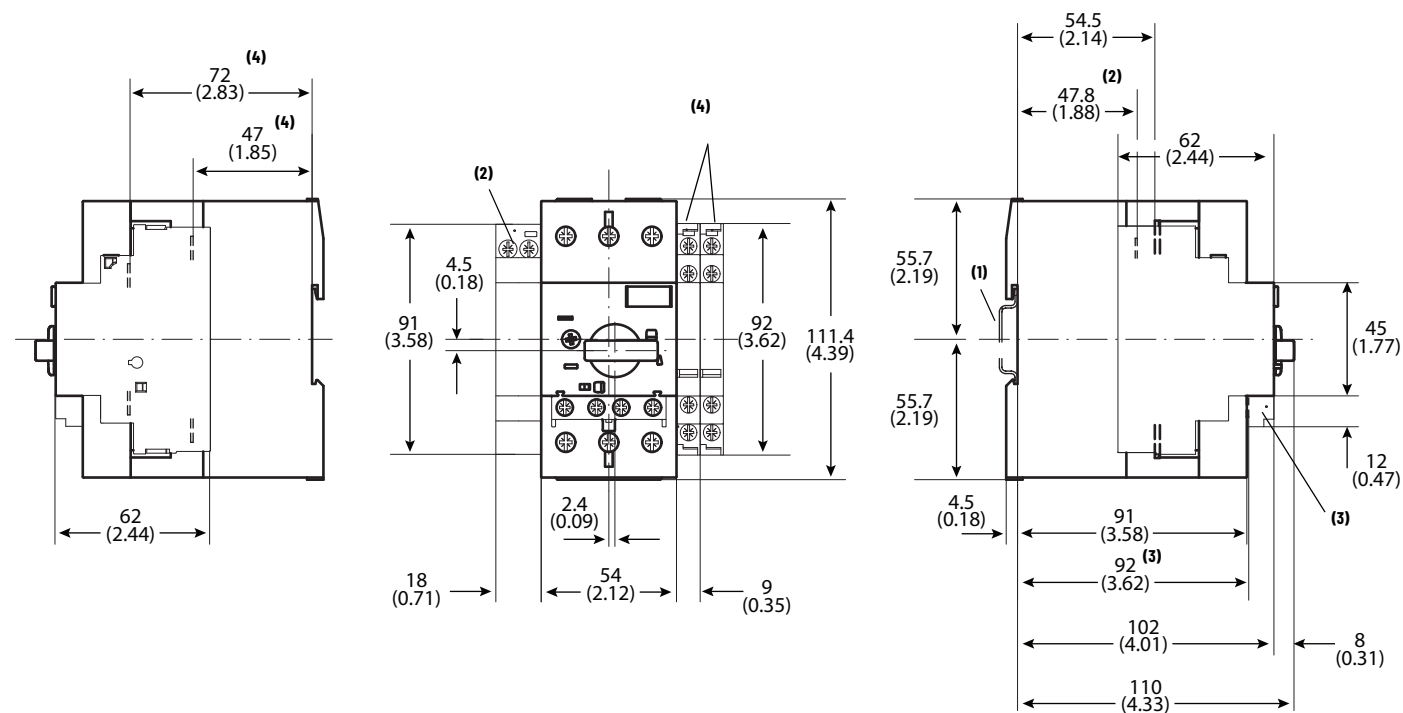
## 140M-F Devices and Accessories

Figure 18 - Mounting Position/Safety Clearance



| Note | Information                                 |
|------|---------------------------------------------|
| 1    | Minimum distance to grounded parts or walls |

Figure 19 - Motor Protection Circuit Breaker (F-Frame), Cat. No. 140M-F8...



| Note | Information                       |
|------|-----------------------------------|
| 1    | Mounting on 35 mm DIN Rail        |
| 2    | Undervoltage/shunt trip           |
| 3    | Auxiliary contact (front mounted) |
| 4    | Auxiliary contact (side mounted)  |

Figure 20 - Cat. No. 140M-F-TE Type E adapter on Cat. No. 140M-F8E...

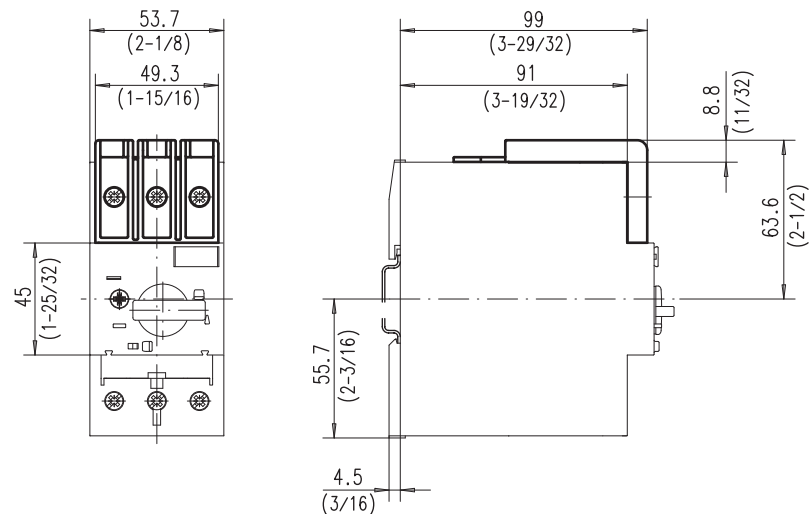


Figure 21 - Screw Adapter, Cat. No. 140M-C-N45

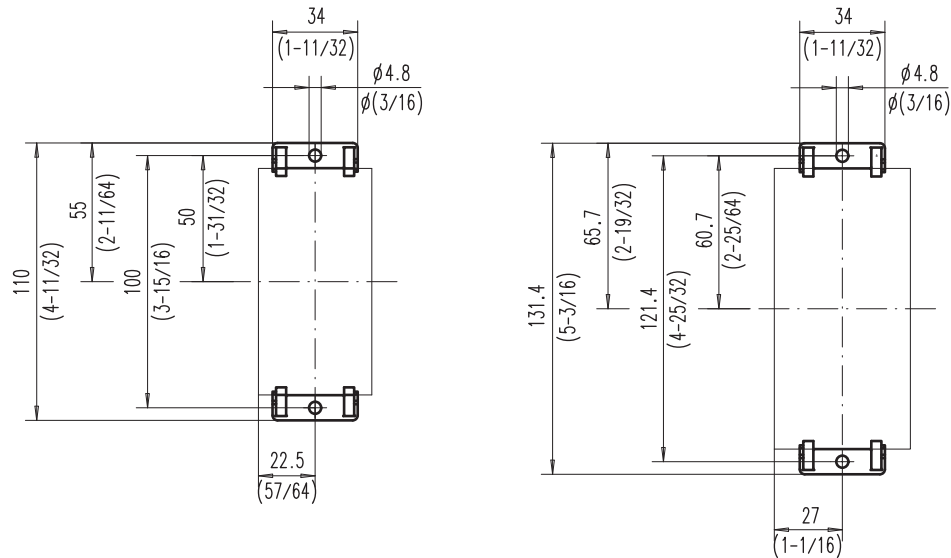
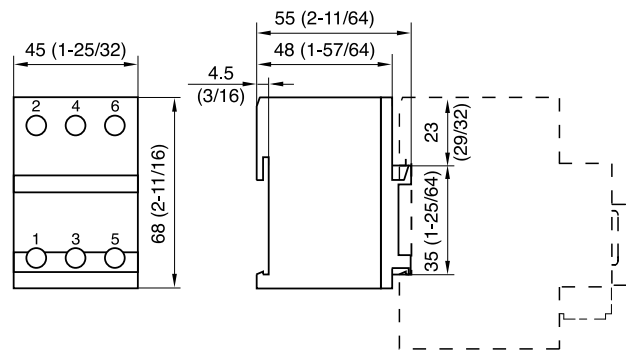


Figure 22 - 140M-C-WBE



## Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

| Resource                                                                                                                           | Description                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Molded Case Circuit Breaker Specifications, publication <a href="#">140UT-TD001</a>                                                | Provides product selection and specification information for Bulletin 140UT molded case circuit breakers.                                                                                                                                                                       |
| Short-circuit Current Ratings and Your Industrial Control Panel, publication <a href="#">SCCR-AT002</a>                            | Provides examples for short-circuit current ratings of panels based on the methods stated in UL 508A Supplement B                                                                                                                                                               |
| Rockwell Automation Global SCCR tool, <a href="#">rok.auto/sccr</a>                                                                | Provides coordinated high-fault branch circuit solutions for motor starters, soft starters, and component drives.                                                                                                                                                               |
| IEC Contactor Specifications, publication <a href="#">100-TD013</a>                                                                | Provides product selection and specification information for IEC contactors.                                                                                                                                                                                                    |
| American Standards, Configurations, and Ratings: Introduction to Motor Circuit Design, publication <a href="#">IC-AT001</a>        | Provides an overview of American motor circuit design based on methods that are outlined in the NEC.                                                                                                                                                                            |
| Industrial Components Preventive Maintenance, Enclosures, and Contact Ratings Specifications, publication <a href="#">IC-TD002</a> | Provides a quick reference tool for Allen-Bradley industrial automation controls and assemblies.                                                                                                                                                                                |
| Safety Guidelines for the Application, Installation, and Maintenance of Solid-state Control, publication <a href="#">SGI-1.1</a>   | Designed to harmonize with NEMA Standards Publication No. ICS 1.1-1987 and provides general guidelines for the application, installation, and maintenance of solid-state control in the form of individual devices or packaged assemblies incorporating solid-state components. |
| Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a>                                        | Provides general guidelines for installing a Rockwell Automation industrial system.                                                                                                                                                                                             |
| Product Certifications website, <a href="#">rok.auto/certifications</a>                                                            | Provides declarations of conformity, certificates, and other certification details.                                                                                                                                                                                             |

You can view or download publications at [rok.auto/literature](#).

# Rockwell Automation Support

Use these resources to access support information.

|                                                         |                                                                                                    |                                                                    |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| <b>Technical Support Center</b>                         | Find help with how-to videos, FAQs, chat, user forums, and product notification updates.           | <a href="http://rok.auto/support">rok.auto/support</a>             |
| <b>Knowledgebase</b>                                    | Access Knowledgebase articles.                                                                     | <a href="http://rok.auto/knowledgebase">rok.auto/knowledgebase</a> |
| <b>Local Technical Support Phone Numbers</b>            | Locate the telephone number for your country.                                                      | <a href="http://rok.auto/phonesupport">rok.auto/phonesupport</a>   |
| <b>Literature Library</b>                               | Find installation instructions, manuals, brochures, and technical data publications.               | <a href="http://rok.auto/literature">rok.auto/literature</a>       |
| <b>Product Compatibility and Download Center (PCDC)</b> | Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes. | <a href="http://rok.auto/pcdc">rok.auto/pcdc</a>                   |

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