

Installation Instructions

MiniSight™ Photoelectric Sensors

	AC/DC Sensors	Retroreflective	Diffuse	Wide Angle Diffuse	Polarized Retroreflective	Large Aperture Fiber Optic	Small Aperture Fiber Optic	Visible Red Fixed Focus		Transmitted Beam			
										Receiver	Source		
1	Catalog Number	42KL-U2TC-XX	42KL-D1TC-XX	42KL-W1TC-XX	42KL-P2TC-XX	42KL-G1TC-XX	42KL-L2TC-XX	42KL-F2TCS-XX	42KL-F2TCL-XX	42KL-RTCV-XX	42KL-RTC-XX	42KL-E1QZB-XX	
2	Sensing Distance	5m (16.4ft)	380mm (15in)	180mm (7in)	2m (6.6ft)	Depends on Fiber	Depends on Fiber	16mm (0.63in)	43mm (1.7in)	4m (13ft)	30m (98ft)		
3	Outputs	Two Wire Light/Dark Selectable										—	
4	Supply Voltage	21.6-250V AC/DC											
5	Load Current	100mA max											
6	Leakage Current	1.7mA rms max											
7	Power Consumption	4VA max											
8	Response Time	8.3ms								16.6ms max			
9	Approvals	UL recognized, CSA, CE marked for all applicable directives											
10	Protections	Short Circuit, Reverse Polarity, False Pulse											
11	Indicators	Green = Power			Yellow = Output		Orange = 2.5X Margin, Flashing for Short Circuit Protection						
12	Field of View	1.5°	5°	18°	1.5°	Depends on Fiber	Depends on Fiber	—	—	7°			
13	Transmitting LED	Visible Red 660nm	Infrared 880nm		Visible Red 660nm	Infrared 880nm	Visible Red 660nm			—	Infrared 880nm		
14	Sensitivity Adjustment	Yes: 11 turn, clutch protected											
15	Operating Temperature	-4°F to +158°F (-20°C to +70°C)											
16	Housing—Cover—Lens Material	Noryl N190—Radel R5000—Acrylic											
17	Operating Environment	NEMA 4X, 6P, IP67, withstands 8270kPa (1200 psi) washdown											
Catalog Number Key—XX could equal		A2 = 2m, 300V cable Not all variations available. Contact factory for availability.		F4 = pigtail w/4-pin DC micro QD		G3 = pigtail w/3-pin AC micro QD		Y4 = pigtail w/4-pin DC pico QD		X4 = custom 4-pin connector			

	DC Sensors	Retroreflective	Diffuse	Wide Angle Diffuse	Polarized Retroreflective	Large Aperture Fiber Optic	Small Aperture Fiber Optic	Visible Red Fixed Focus		Visible Green Fixed Focus	Transmitted Beam		
											Receiver	Source	
1	Catalog Number	42KL-U2LB-XX	42KL-D1LB-XX	42KL-W1LB-XX	42KL-P2LB-XX	42KL-G1LB-XX	42KL-L2LB-XX	42KL-F2LBS-XX	42KL-F2LBL-XX	42KL-F3LBS-XX	42KL-RLBV-XX	42KL-RLB-XX	42KL-E1EZB-XX
2	Sensing Distance	5m (16.4ft)	380mm (15in)	180mm (7in)	2m (6.6ft)	Depends on Fiber	Depends on Fiber	16mm (0.63in)	43mm (1.7in)	16mm (0.63in)	4m (13ft)	30m (98ft)	
3	Outputs	NPN/PNP Light/Dark Selectable											—
4	Supply Voltage	10.8-30V DC											
5	Load Current	100mA max											
6	Leakage Current	0.1mA max											
7	Power Consumption	1.5W max											
8	Response Time	1ms max								15ms max			
9	Approvals	UL, CSA, CE marked for all applicable directives											
10	Protections	Short Circuit, Reverse Polarity, False Pulse											
11	Indicators	Green = Power			Yellow = Output		Orange = 2.5X Margin, Flashing for Short Circuit Protection						Green = Power
12	Field of View	1.5°	5°	18°	1.5°	Depends on Fiber	Depends on Fiber	—	—	—	7°		
13	Transmitting LED	Visible Red 660nm	Infrared 880nm		Visible Red 660nm	Infrared 880nm	Visible Red 660nm			Visible Green 525nm	—	Infrared 880nm	
14	Sensitivity Adjustment	Yes: 5 turn, clutch protected											
15	Operating Temperature	-4°F to +158°F (-20°C to +70°C)											
16	Housing—Cover—Lens Material	Noryl N190—Radel R5000—Acrylic											
17	Operating Environment	NEMA 4X, 6P, IP67, withstands 8270kPa (1200 psi) washdown											
Catalog Number Key—XX could equal		A2 = 2m, 300V cable Not all variations available. Contact factory for availability.		F4 = pigtail w/4-pin DC micro QD		G3 = pigtail w/3-pin AC micro QD		Y4 = pigtail w/4-pin DC pico QD		X4 = custom 4-pin connector			

① When using the transmitted beam sensing mode in high noise (EMF) applications, it is recommended that the 42KL-RxxV receiver be used whenever possible. This will prevent the sensor from “locking on” due to high line voltage spikes.

	High Speed DC Sensors	Retroreflective	Diffuse	Wide Angle Diffuse	Polarized Retroreflective	Large Aperture Fiber Optic	Small Aperture Fiber Optic	Visible Red Fixed Focus		Visible Green Fixed Focus	Transmitted Beam		
											Receiver	Source	
1	Catalog Number	42KL-U2LBQ-XX	42KL-D1LBQ-XX	42KL-W1LBQ-XX	42KL-P2LBQ-XX	42KL-G1LBQ-XX	42KL-L2LBQ-XX	42KL-F2LBSQ-XX	F2LBLQ-XX	42KL-F3LBSQ-XX	42KL-RLBQ-XX	42KL-E1EZBQ-XX	
2	Sensing Distance	2.5m (8.2ft)	190mm (7.5in)	90mm (3.5in)	1m (3.3ft)	Depends on Fiber	Depends on Fiber	16mm (0.63in)	43mm (1.7in)	16mm (0.63in)	15m (49ft) ①		
3	Outputs	NPN/PNP Light/Dark Selectable										—	
4	Supply Voltage	10.8-30V DC											
5	Load Current	100mA max										—	
6	Leakage Current	0.1mA max										—	
7	Power Consumption	1.5W max											
8	Response Time	300µs max									8ms max ①		
9	Approvals	UL recognized, CSA, CE marked for all applicable directives											
10	Protections	Short Circuit, Reverse Polarity, False Pulse											
11	Indicators	Green = Power Yellow = Output Orange = 2.5X Margin, Flashing for Short Circuit Protection									Green = Power		
12	Field of View	1.5°	5°	18°	1.5°	Depends on Fiber	Depends on Fiber	—	—	—	7° —		
13	Transmitting LED	Visible Red 660nm	Infrared 880nm		Visible Red 660nm	Infrared 880nm	Visible Red 660nm			Visible Green 525nm	—	Infrared 880nm	
14	Sensitivity Adjustment	Yes: 11 turn, clutch protected											—
15	Operating Temperature	-4°F to +158°F (-20°C to +70°C)											
16	Housing—Cover—Lens Material	Noryl N190—Radel R5000—Acrylic											
17	Operating Environment	NEMA 4X, 6P, IP67 withstands 8270kPa (1200 psi) washdown											
Catalog Number Key—XX could equal		A2 = 2m, 300V cable		F4 = pigtail w/4-pin DC micro QD		G3 = pigtail w/3-pin AC micro QD		Y4 = pigtail w/4-pin DC pico QD		X4 = custom 4-pin connector			
		Not all variations available. Contact factory for availability.											

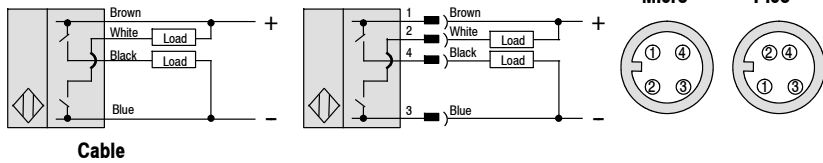
English	Deutsch	Français	Italiano	Español	Português
Operating Distance Selection The maximum operating distance is based on installing the sensor in a relatively clean environment. Normal industrial environments actually range from moderately dusty to extremely dirty. Greater operating margin may be required which can be obtained by reducing the operating distance of the control.	Wahl der Reichweite Die maximale Reichweite basiert auf einer Installation des Sensors in einer relativ sauberen Umgebung. Normale industrielle Umgebungen sind zumeist jedoch relativ staubig bis äußerst verschmutzt. In diesem Fall ist eine größere Betriebsmarge erforderlich, die durch einen geringeren Abstand erzielt werden kann.	Choix de la Distance de Fonctionnement La distance maximale de fonctionnement dépend de la propreté relative de l'environnement d'installation de la cellule. A vrai dire, les environnements industriels normaux vont de modérément poussiéreux à extrêmement sales. Une marge d'opération plus grande peut être nécessaire et s'obtient en réduisant la distance opérationnelle du contrôle.	Selezione Distanza Operativa La massima distanza di funzionamento si basa sull'installazione del sensore in un ambiente relativamente pulito. Gli ambienti industriali normali vanno in verità da moderatamente polverosi a estremamente sporchi. Potrebbe essere necessario un margine di funzionamento superiore che si può ottenere riducendo la distanza operativa del controllo.	Selección de Distancia de Operación La distancia máxima de operación se basa en la instalación del sensor en un ambiente relativamente limpio. Los ambientes industriales normales fluctúan entre moderadamente polvorosos a extremadamente sucios. Es posible que se requiera un margen de operación mayor, el cual puede obtenerse reduciendo la distancia operativa del control.	Seleção da Distância de Operação A distância máxima de operação é baseada na instalação do sensor em ambiente relativamente limpo. Os ambientes industriais normais efetivamente apresentam condições entre moderadamente poeirentos e extremamente sujos. Poderá ser exigida uma maior margem de operação, podendo ser realizada pela redução da distância de operação do controle.
Indicators Green on indicates power on. Yellow on indicates output is energized. Orange on indicates 2.5X margin. Orange flashing indicates short circuit or overload.	Leuchtanzeigen Grünes Dauerlicht: Spannung eingeschaltet. Gelbes Dauerlicht: Ausgang aktiviert. Oranges Dauerlicht: 2,5fache Marge. Oranges Blinklicht: Kurzschluß oder Überlast.	Indicateurs Vert allumé indique : sous tension. Jaune allumé indique : sortie activée. Orange allumé indique : marge de 2,5 X. Orange clignotant indique : court-circuit ou surcharge.	Indicatori Verde acceso indica alimentazione. Giallo acceso indica uscita energizzata. Arancio acceso indica margine 2,5X. Arancio lampeggiante indica cortocircuito o sovraccarico.	Indicadores El indicador verde encendido indica que la alimentación eléctrica está conectada. El indicador amarillo encendido indica que la salida está activada. El indicador anaranjado encendido indica un margen de 2.5X. El indicador anaranjado parpadeando indica cortocircuito o sobrecarga.	Indicadores Verde iluminado indica alimentação ligada. Amarelo iluminado indica saída energizada. Laranja iluminado indica margem de 2,5X. Laranja iluminado indica curto circuito ou sobrecarga.
Red Orange Black White Green Brown Blue D.O. = Dark Operate L.O. = Light Operate	Rot Orange Schwarz Weiß Grün Braun Blau D.O. = dunkelschaltend L.O. = hellerschaltend	Rouge Orange Noir Blanc Vert Brun Bleu D.O. = Déséclairement L.O. = Eclairment	Rosso Arancio Nero Bianco Verde Marrone Azul D.O.=Azione su buio L.O.=Azione su luce	Rojo Anaranjado Negro Blanco Verde Marrón Azul D.O. = Operación oscura L.O. = Operación clara	Vermelho Laranja Preto Branco Verde Marrom Azul D.O. = Operado pela Escuridão L.O. = Operado pela Luz
Polarized Retroreflective Diffuse Glass Fiber Optic Plastic Fiber Optic Fixed Focus Diffuse Transmitted Beam Receiver Transmitted Beam Source	Reflexionslichtschranke, polarisiert Lichttaster Glaslichtleiter Kunststofflichtleiter Lichttaster mit fester Fokussierung Einweglichtschranke, Empfänger Einweglichtschranke, Sender	Réflexe polarisé Proximité Fibre optique de verre Fibre optique en plastique Proximité à focale fixe Récepteur de faisceaux transmis Émetteur de transmission de faisceaux	Retroreflessivo polarizzato Diffuso Fibra ottica in vetro Fibra ottica in plastica Taster focalizzato Ricevitore raggio trasmesso Sorgenti raggi trasmessi	retro-reflector polarizado Difuso Receptor de rayos transmitidos Fuentes de rayos transmitidos	Retrorefletivo Polarizado Difuso Fibra Ótica de Vidro Fibra Ótica Plástica Feixe Difuso-Reflexivo, com Foco Fixo Receptor de Feixe Transmitida Fontes de Feixe Transmitida
Operating Distance Operating Margin Load	Reichweite Betriebsmarge Last	Distance de fonctionnement Marge de fonctionnement Charge	Distanza operativa Margine operativo Carico	Distanza operativa Margen de operación Carga	Distância de Operação Margem de Operação Carga
ATTENTION Always remove power from the sensor before removing short circuit.	ACHTUNG Vor dem Beheben eines Kurzschlusses immer die Stromzufuhr zum Sensor aus-schalten	ATTENTION Toujours mettre la cellule hors tension avant de supprimer un court-circuit.	ATTENZIONE Prima di togliere il cortocircuito rimuovere sempre la corrente dal sensore.	ATENCIÓN Siempre desconecte la alimentación eléctrica del sensor antes de retirar el cortocircuito.	ATENÇÃO Sempre remova a alimentação do sensor antes de remover um curto circuito.

	English	Deutsch	Français	Italiano	Español	Português
1	Catalog Number	Bestellnummer	Référence de Commande	Numero di Catalogo	Número de Catálogo	Número do Catálogo
2	Sensing Distance	Reichweite	Distance de Détection	Distanza di Rilevamento	Dispositivo Sensor	Distância de Sensoriamento
3	Outputs	Ausgang	Sortie	Uscita	Salida	Saída
4	Supply Voltage	Versorgungsspannung	Tension d'Alimentation	Tensione di Alimentazione	Voltaje de Alimentación	Voltagem de Alimentação
5	Load Current	Laststrom	Courant de Charge	Corrente di Carico	Corriente de Carga	Corrente de Carga
6	Leakage Current	Ruhestrom	Courant de Fuite	Corrente di Dispersione	Corriente de Fuga	Corrente de Dispersão
7	Power Consumption	Leistungsaufnahme	Consommation	Consumo Potenza	Consumo de Alimentación eléctrica	Consumo de Energia
8	Response Time	Ansprechzeit	Temps de Réponse	Tempo di Risposta	Tiempo de Respuesta	Tempo de Resposta
9	Approvals	Approbation	Homologations	Approvazioni	Aprobaciones	Aprovações
10	Protections	Schutzart	Protections	Protezioni	Protecciones	Proteções
11	Indicators	Anzeigen	Indicateurs	Indicatori	Indicadores	Indicadores
12	Field of View	Sichtbereich	Angle de Visée	Campo di Visione	Campo de Visión	Campo de Visão
13	Transmitting LED	Lichtquelle (LED)	LED de Transmission	LED di Trasmissione	LED de Transmisión	LED de Transmissão
14	Sensitivity Adjustment	Empfindlichkeitseinstellung	Réglage de Sensibilité	Regolazione di Sensibilità	Ajuste de Sensibilidad	Ajuste de Sensibilidade
15	Operating Temperature	Betriebstemperatur	Température de Fonctionnement	Temperatura di Funzionamento	Temperatura de Operación	Temperatura de Operação
16	Housing—Cover—Lens Material	Gehäusematerial/Werkstoff der Abdeckung/Linsenmaterial	Matériaux du Boîtier/du Couvercle/des Lentilles	Materiale dell'Involucro/per la Copertura/delle Lenti	Material del Alojamiento/de la Cubierta/del Lente	Material da Caixa/Tampa/Lente
17	Operating Environment	Betriebsumgebung	Environnement Opérationnel	Ambiente Operativo	Ambiente de Operación	Ambiente de Operação

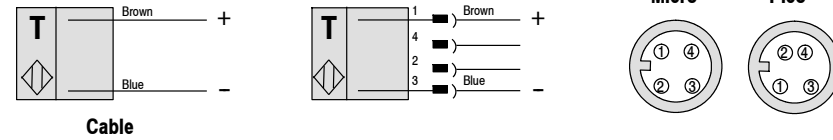
Sensor Wiring Diagrams

11-30V DC Sensors

NPN/PNP

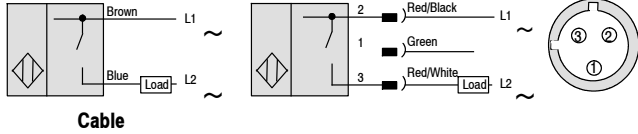


Transmitted Beam Source

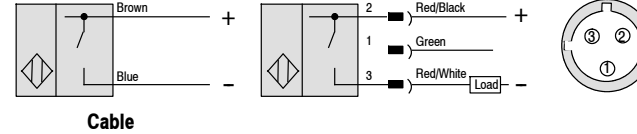


22-250V AC/DC Sensors

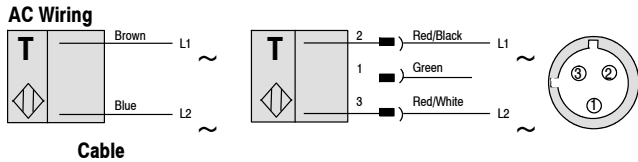
AC Wiring



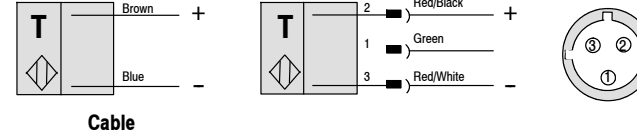
DC Wiring



Transmitted Beam Source

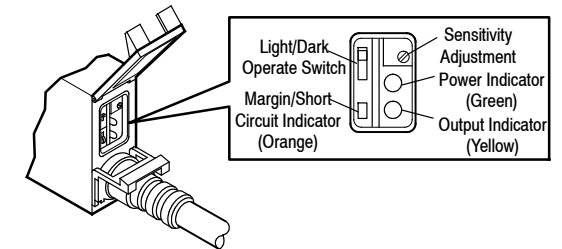
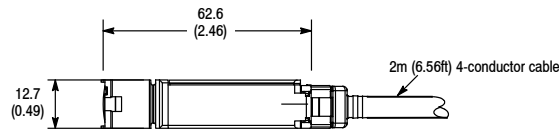
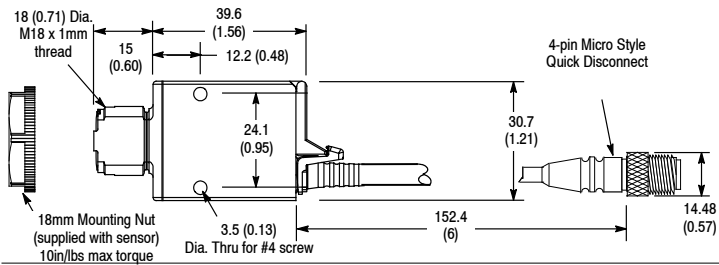


DC Wiring

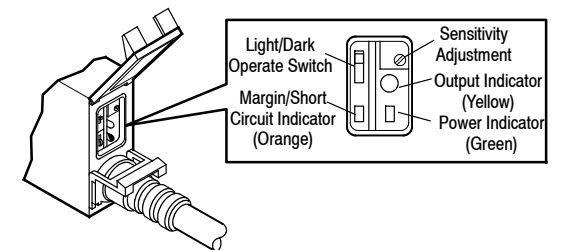
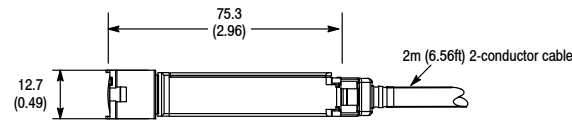
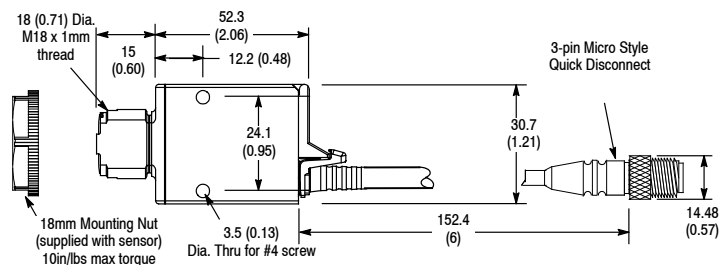


Sensor Dimensions—mm (inches)

DC Sensors



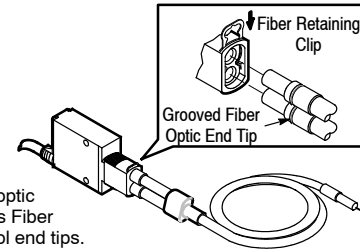
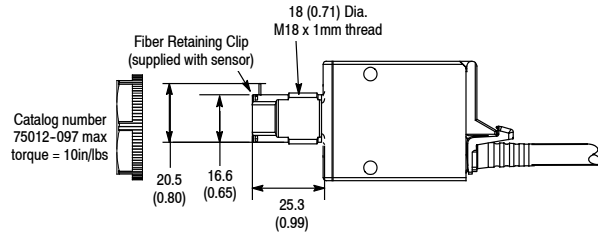
AC/DC Sensors



Note: All sensors supplied with an 18mm mounting nut (catalog number 75012-097) except fiber optic sensors 42KL-G1xxx and 42KL-L2xxx. They will use an 18mm mounting nut (catalog number 75012-025).

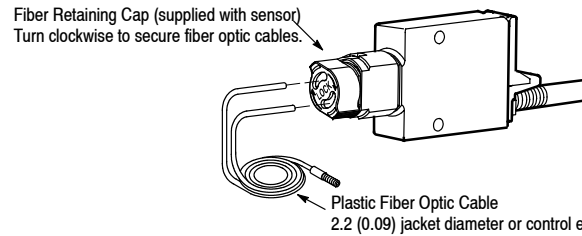
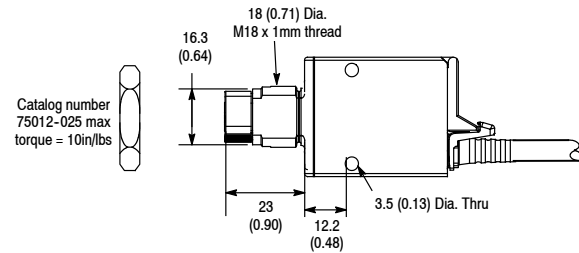
Sensor Dimensions—mm (inches) (continued)

Large Aperture Fiber Optic Sensors



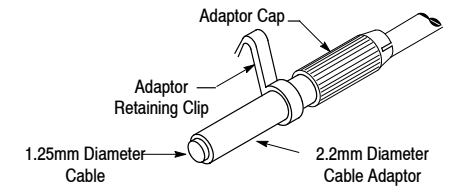
NOTE: MiniSight™ large aperture fiber optic sensors require Series “C” Glass Fiber Optic cables with grooved control end tips.

Small Aperture Fiber Optic Sensors



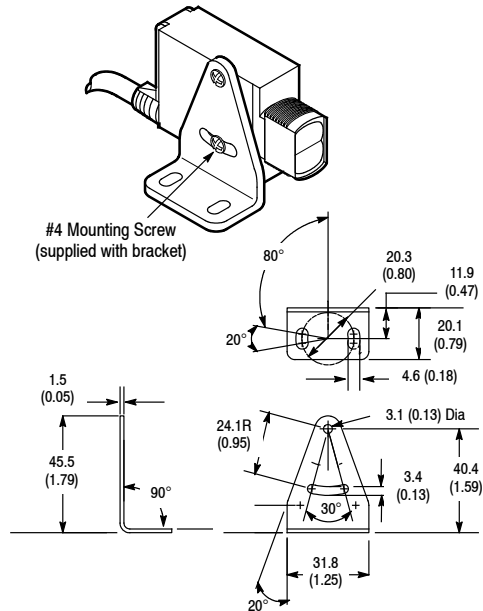
NOTE: Small aperture fiber optic cables are also available with 2.2mm (0.09in) diameter control end tips for use with these small aperture sensors. Refer to the Allen-Bradley *Sensor* catalog.

NOTE: For smaller fiber optic cables with jacket diameters of 1.0/1.25mm (0.04/0.05in), catalog number 61-6731 adaptors are required, sold separately.

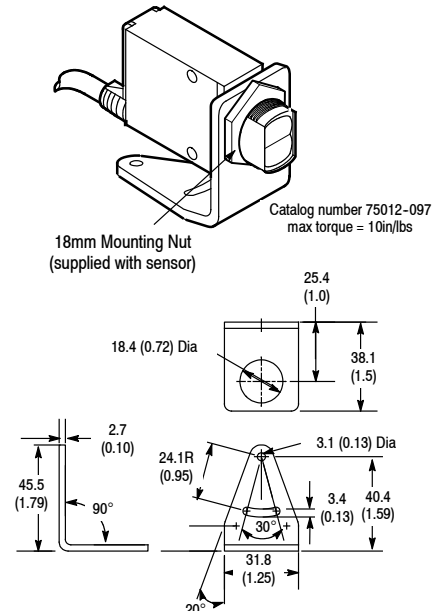


Accessories—mm (inches)

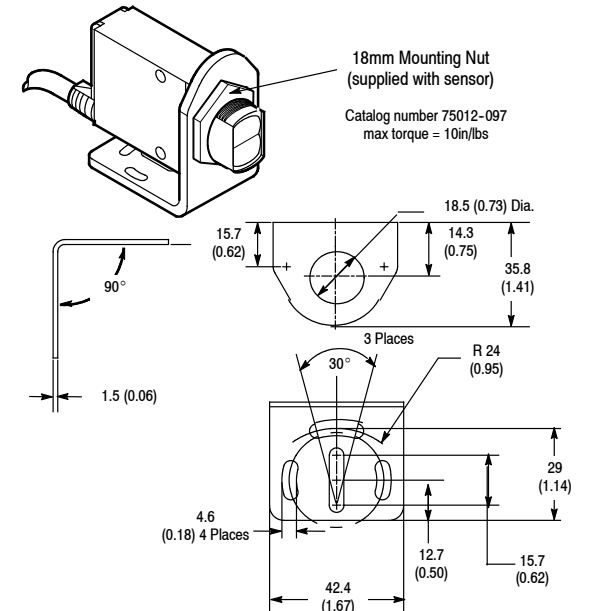
Right Angle Side Mounting Bracket #60-2663



Right Angle Mounting Bracket #60-2664

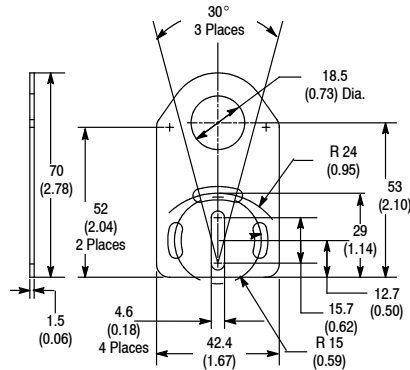
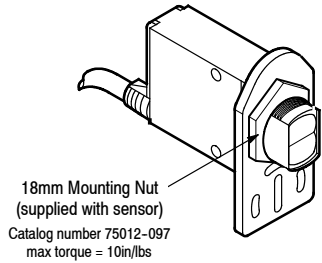


Right Angle Mounting Bracket #60-2657



Accessories—mm (inches) (continued)

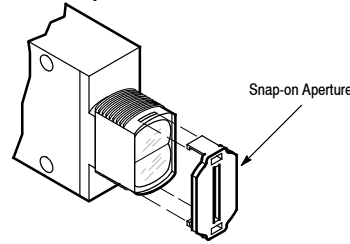
Straight Mounting Bracket #60-2656



Apertures

Snap-on apertures for Transmitted Beam applications are available for MiniSight sensors to detect small objects. Select an aperture slot size that will be blocked by the object being detected for best results. An aperture should be placed on both the source and receiver units for proper operation.

1mm slotted aperture, Qty. 20: #60-2673
 2mm slotted aperture, Qty. 20: #60-2674
 4mm slotted aperture, Qty. 20: #60-2675
 Aperture assortment, Qty. 4 each—1mm, 2mm, 4mm: #60-2676



Quick-Disconnect Cordsets

DC MiniSight Sensors

All quick-disconnect versions of DC MiniSight sensors use 4-conductor micro or pico style quick-disconnect cables. These cables are PVC insulated and are supplied with gold-plated female contacts and nickel-plated brass hardware.

Catalog Number	DC Quick-Disconnect Cable Description
889D-F4EC-2	Heavy duty 2m (6.6ft) with protective shield
889D-F4EC-5	Heavy duty 5m (16.4ft) with protective shield
889D-F4AC-2	General purpose 2m (6.6ft) nonshielded
889D-F4AC-5	General purpose 5m (16.4ft) nonshielded

AC/DC MiniSight Sensors

AC/DC MiniSight sensors with quick-disconnect use 3-conductor micro style quick-disconnect cables. These cables are PVC insulated and are supplied with gold-plated female contacts and nickel-plated brass hardware.

Catalog Number	DC Quick-Disconnect Cable Description
889R-F3AEA-2	Heavy duty 1.8m (6ft) with protective shield
889R-F3AEA-5	Heavy duty 3.6m (12ft) with protective shield
889R-F3AEA-10	Heavy duty 6m (20ft) with protective shield

Fiber Optic Cable Selection ❶

Glass Fiber Optic Cables

Sensing Mode	Glass Fiber Diameter	Typical Fiber Model	Maximum Range
Diffuse	3.1 (0.125)	43GR-TBB25SL	38 (1.5)
	1.1 (0.046)	43GR-TFS10ML	21 (0.8)
Transmitted Beam	3.1 (0.125)	43GT-TBB25SL	457 (18)
	1.1 (0.046)	43GT-TFS-10ML	152 (6)

Plastic Fiber Optic Cables

Sensing Mode	Glass Fiber Diameter	Typical Fiber Model	Maximum Range
Diffuse	1 (0.040)	43PR-NES57ZS	31 (1.2)
	0.5 (0.020)	43PR-NGS53ZM	12.7 (0.5)
Transmitted Beam	1 (0.040)	43PT-NJS56FS	127 (5)
	0.5 (0.020)	43PT-NBS52FM	38 (1.5)

❶ Hundreds of other fiber optic cables are available. Consult the Allen-Bradley *Fiber Optic Cable* addendum catalog, publication C114-CA004A-EN-P.