

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	
1	Catalog Number	42KL-U2TC-XX	42KL-D1TC-XX	42KL-W1TC-XX	42KL-P2TC-XX	42KL-G1TC-XX	42KL-L2TC-XX	42KL-F2TC-XX	42KL-RTC-XX	Source
2	Sensing Distance	5m (16.4ft)	380mm (15in)	180mm (7in)	2m (6.6ft)	Depends on Fiber	Depends on Fiber	16mm (0.63in)	4m (13ft)	42KL-E10ZB-XX
3	Outputs							43mm (1.7in)	30m (98ft)	
4	Supply Voltage									
5	Load Current									
6	Leakage Current									
7	Power Consumption									
8	Response Time									
9	Approvals									
10	Protections									
11	Indicators									
12	Field of View	15°	5°	18°	15°	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									
15	Operating Temperature									
16	Housing—Cover—Lens Material									
17	Operating Environment									
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

UL recognized, CSA, CE marked for all applicable directives
 Short Circuit, Reverse Polarity, False Pulse
 Orange = 2.5X Margin, Flashing for Short Circuit Protection
 Green = Power
 Yellow = Output
 Depends on Fiber
 Infrared 880nm
 Visible Red 660nm
 Yes: 11 turn, clutch protected
 -4°F to +158°F (-20°C to +70°C)
 Noryl N190—Radel R5000—Acrylic
 NEMA 4X, 6P, IP67, withstands 8270kPa (1200 psi) washdown

	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	
1	Catalog Number	42KL-U2LB-XX	42KL-D1LB-XX	42KL-W1LB-XX	42KL-P2LB-XX	42KL-G1LB-XX	42KL-L2LB-XX	42KL-F2LB-XX	42KL-F3LB-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)	16mm (0.63in)	4m (13ft)	30m (98ft)
3	Outputs										
4	Supply Voltage										
5	Load Current										
6	Leakage Current										
7	Power Consumption										
8	Response Time										
9	Approvals										
10	Protections										
11	Indicators										
12	Field of View	15°	5°	18°	15°	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										
15	Operating Temperature										
16	Housing—Cover—Lens Material										
17	Operating Environment										
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

UL, CSA, CE marked for all applicable directives
 Short Circuit, Reverse Polarity, False Pulse
 Orange = 2.5X Margin, Flashing for Short Circuit Protection
 Green = Power
 Yellow = Output
 Depends on Fiber
 Infrared 880nm
 Visible Red 660nm
 Visible Green 525nm
 Yes: 5 turn, clutch protected
 -4°F to +158°F (-20°C to +70°C)
 Noryl N190—Radel R5000—Acrylic
 NEMA 4X, 6P, IP67, withstands 8270kPa (1200 psi) washdown

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-U2LBO-XX	42KL-D1LBO-XX	42KL-W1LBO-XX	42KL-P2LBO-XX	42KL-G1LBO-XX	42KL-L2LBO-XX	42KL-F2LBSQ-XX	42KL-F3LBSQ-XX	42KL-RLBO-XX	42KL-E1EZBO-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)	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									
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 = 25X 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	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—Over—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	F4 = pigtail w/4-pin DC micro QD Contact factory for availability	G3 = pigtail w/3-pin AC micro QD	Y4 = pigtail w/4-pin DC pico QD	X4 = custom 4-pin connector					

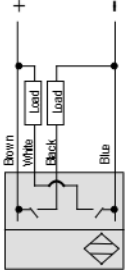
English	Deutsch	Français	Italiano	Español	Português
Operating Distance Selection The maximum operating distance is based on installing the sensor in a relatively clean environment. Normal industrial environments actually range from moderately dusty to extremely dirty. Greater operating margin may be 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 Betriebsreichweite erforderlich, die durch einen geringeren Abstand erzielt werden kann.	Choix de la Distance de Fonctionnement La distance maximale de fonctionnement dépend de la propriété 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'obtenir 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 polvorientos 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 apresentam condições entre moderadamente poluentes 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 25X margin. Orange flashing indicates short circuit or overload.	Leuchtschaltzen Grünes Dauerlicht: Spannung eingeschaltet. Gelbes Dauerlicht: Ausgang aktiviert. Oranges Dauerlicht: 25fache Marge. Oranges Blinklicht: Kurzschluß oder Überlast.	Indicateurs Vert <i>allumé</i> indique : sous tension. Jaune <i>allumé</i> indique : sortie activée. Orange <i>allumé</i> indique : marge de 25 X. Orange <i>clignotant</i> indique : court-circuit ou surcharge.	Indicatori Verde acceso indica alimentazione. Giallo acceso indica uscita energizzata. Arancio acceso indica margine 25X. Arancio lampeggiante indica cortocircuito o sovraccarico.	Indicadores Verde iluminado indica alimentación ligada. Amarillo iluminado indica salida energizada. Laranja iluminado indica margen de 25X. Laranja iluminado indica corto circuito ou sobrecarga.	Indicadores Verde iluminado indica alimentação ligada. Amarêlo iluminado indica saída energizada. Laranja iluminado indica margem de 25X. 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. = Éclairement	Rosso Arancio Nero Bianco Verde Marrone Azzul 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 Lichtstreuer Glasfaserleiter Kunststoffleiter Lichtstreuer mit fester Fokussierung Einweglichtschranke, Empfänger Einweglichtschranke, Sender	Réflecte 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 Tastier focalizzato Ricevitore raggi trasmesso Sorgenti raggi trasmessi	Retro-reflector polarizado Difuso Fibra Óptica de Vidrio Fibra Óptica Plástica Fibra Difuso-Reflexivo, con Foco Fijo Receptor de Rayos Transmitidos Fuentes de Rayos Transmitidos	Retro-refletivo Polarizado Difuso Fibra Ótica de Vidro Fibra Ótica Plástica Fibra 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	Distancia de operación 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 Entfernen eines Kurzschlusses immer die Stromzufuhr zum Sensor ausschalten	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	Beste Illuminer	Références de Commande	Numero di Catalogo	Número de Catálogo	Número do Catálogo
2	Sensing Distance	Distance de Détection	Distanza di Rilevamento	Distancia de Sensor	Distância de Sensoramento
3	Outputs	Sortie	Uscita	Salida	Saída
4	Supply Voltage	Tension d'Alimentation	Tensione di Alimentazione	Volaje de Alimentación	Volagem de Alimentação
5	Load Current	Courant de Charge	Corrente di Carico	Corriente de Carga	Corrente de Carga
6	Leakage Current	Courant de Fuite	Corrente di Dispersione	Corriente de Fuga	Corrente de Disparação
7	Power Consumption	Consommation	Consumo Potenza	Consumo de Alimentación eléctrica	Consumo de Energia
8	Response Time	Temps de Réponse	Tempo di Risposta	Tempo de Respuesta	Tempo de Resposta
9	Approvals	Homologations	Approvazioni	Aprovações	Aprovações
10	Protections	Protections	Protezioni	Protecciones	Proteções
11	Indicators	Indicateurs	Indicatori	Indicadores	Indicadores
12	Field of View	Angle de Visée	Campo di Visione	Campo de Visión	Campo de Visão
13	Transmitting LED	LED de Transmission	LED di Trasmissione	LED de Transmisión	LED de Transmissão
14	Sensitivity Adjustment	Réglage de Sensibilité	Regolazione di Sensibilità	Ajuste de Sensibilidad	Ajuste de Sensibilidade
15	Operating Temperature	Température de Fonctionnement	Temperatura di Funzionamento	Temperatura de Operación	Temperatura de Operação
16	Housing—Cover—Lens Material	Matériaux du Boîtier du Couvercle des Lentilles	Materiale dell'Involucro per la Copertura delle Lenti	Material del Alojamiento de la Cubierta de la Lente	Material da Caixa/Tampa/Lente
17	Operating Environment	Environnement Opérationnel	Ambiente Operativo	Ambiente de Operación	Ambiente de Operação

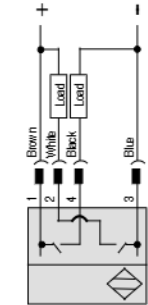
Sensor Wiring Diagrams

11-30V DC Sensors

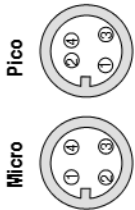
NPN/PNP



Cable



Pico



Transmitted Beam Source



Cable

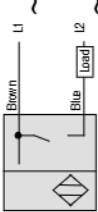


Pico

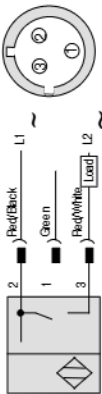


22-250V AC/DC Sensors

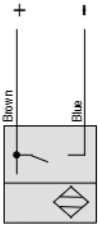
AC Wiring



Cable



DC Wiring



Cable

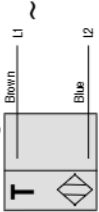


Pico

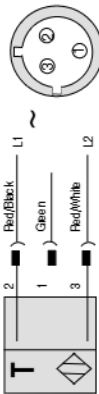


Transmitted Beam Source

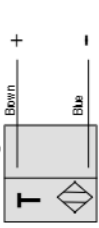
AC Wiring



Cable



DC Wiring



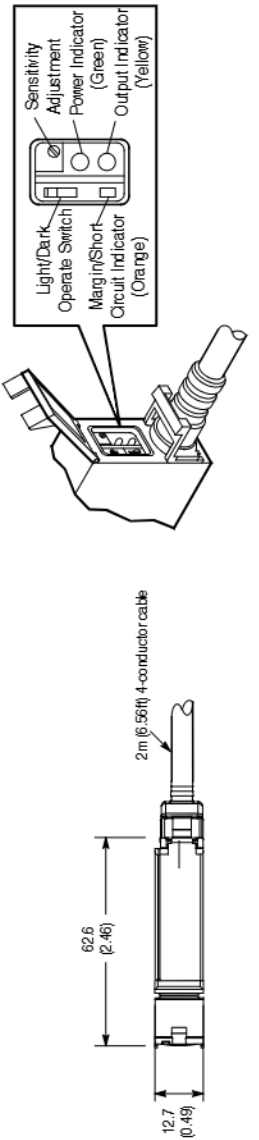
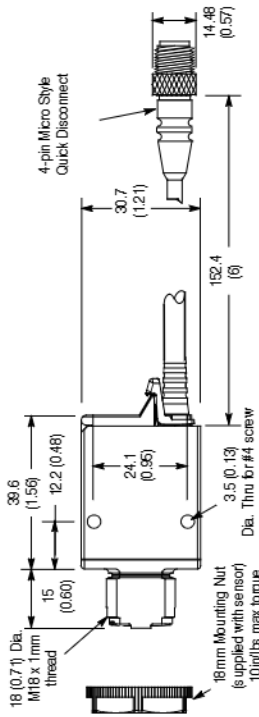
Cable



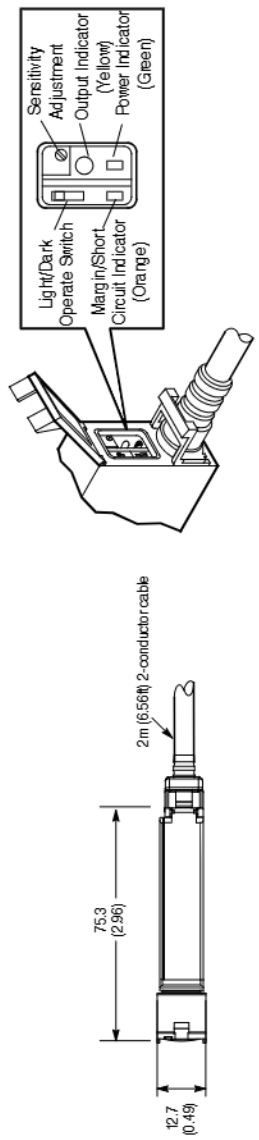
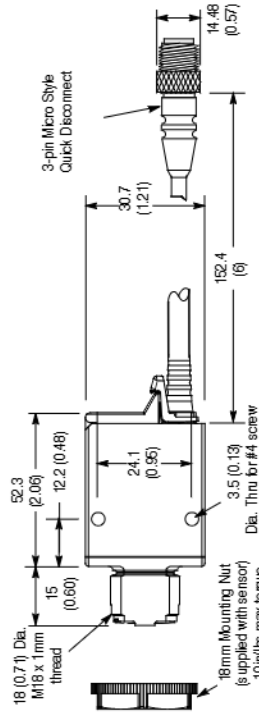
Pico

Sensor Dimensions—mm (inches)

DC Sensors



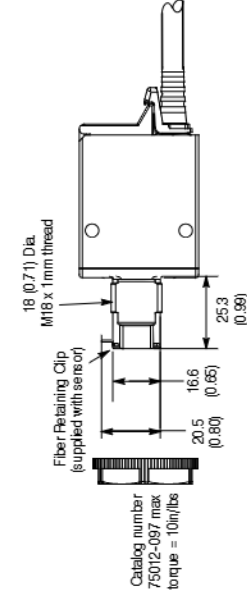
AC/DC Sensors



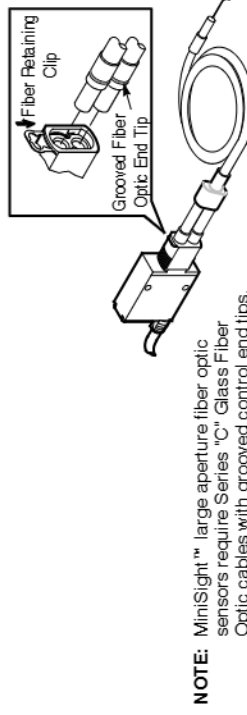
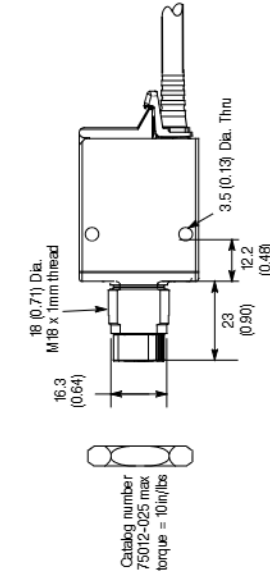
Note: All sensors supplied with an 18mm mounting nut (catalog number 75012-097) except fiber optic sensors 42KL-G1xxx and 42KL-L2xxx. They will use an 18mm mounting nut (catalog number 75012-025).

Sensor Dimensions—mm (inches) (continued)

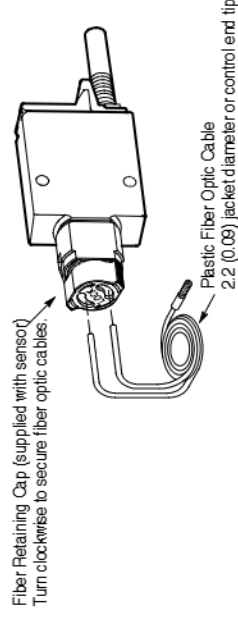
Large Aperture Fiber Optic Sensors



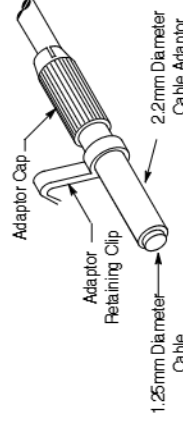
Small Aperture Fiber Optic Sensors



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



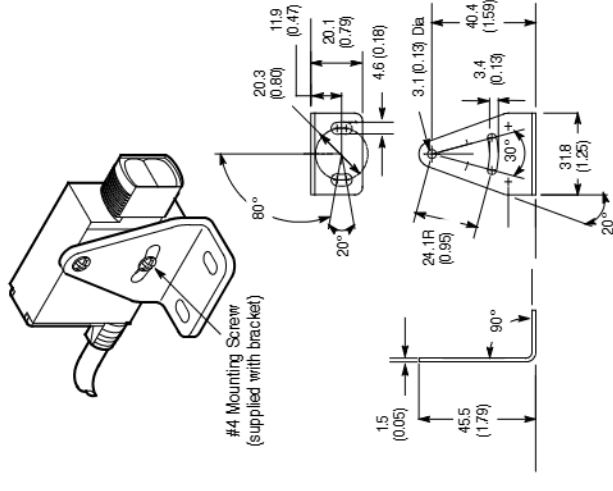
NOTE: For smaller fiber optic cables with jacket diameters of 1.0/1.25mm (0.04/0.05in), catalog number 61-6731 adaptor are required, sold separately.



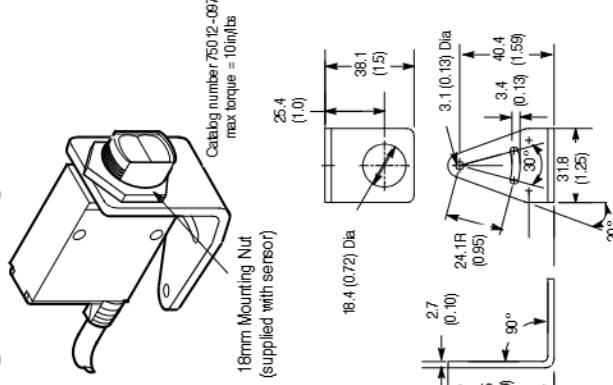
NOTE: Small aperture fiber optic cables are also available with 2.2mm (0.09in) diameter control end tips for use with these small aperture sensors. Refer to the Allen-Bradley Sensor catalog.

Accessories—mm (inches)

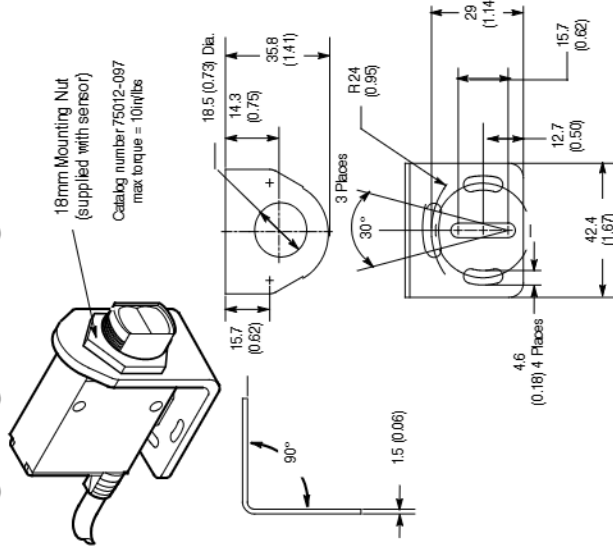
Right Angle Side Mounting Bracket #60-2663



Right Angle Mounting Bracket #60-2664



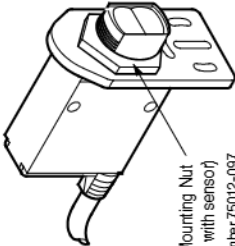
Right Angle Mounting Bracket #60-2657



Accessories—mm (inches) (continued)

Straight Mounting Bracket #60-2656

Apertures



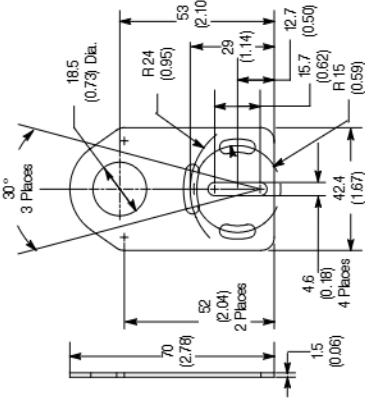
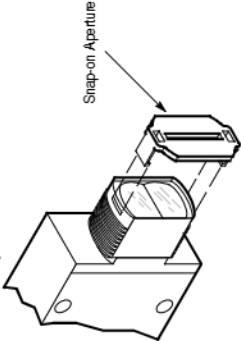
Snap-on apertures for Transmitted Beam applications are available for MiniSight sensors to detect small objects. Select an aperture slot size that will be blocked by the object being detected for best results. An aperture should be placed on both the source and receiver units for proper operation.

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 cordset. 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-NES67ZS	31 (1.2)
	0.5 (0.020)	43PR-NGS63ZM	12.7 (0.5)
Transmitted Beam	1 (0.040)	43PT-NUS66FS	127 (5)
	0.5 (0.020)	43PT-NBS62FM	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.