



Photoelectric Sensor

- Narrow Beam for Small Object Detection
- Input 10-30 VDC, Dual Output (PNP & NPN)
- Separate Power and Signal LED's
- Retroreflective and Diffuse
- PICO Style Quick Disconnect or 6" Pig Tail Available
- Designed for NEMA 6 / IP67

MODEL NUMBER >>>>>>	770	04	N	3	B
Type	Retro Reflective	3AR			
	Polarized Retro Reflective	3BR			
Operation	On/Off	04			
Power Requirements	10-30 VDC	N			
Beam Type	Laser	3			
Output	Bi-Polar (NPN & PNP)	B			
Features	Quick Disconnect Standard (PICO M8 4 PIN)	QP			
	Special	K			
	Pig Tail 6 in. Standard (micro 4 pin)	PT			

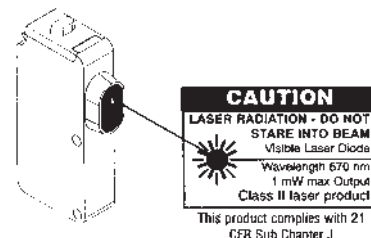
NOTE: 2" Reflector and mounting bracket shipped with unit.

ACCESSORIES	
7700-025-01-00:	Connector/Cable, 4 Pin m8x1 pico/2 meters
7700-025-01-05:	5 meter cable
7700-025-01-10:	10 meter cable
0000-181-61-01:	1 ft. length, 1" reflective tape, high efficiency, exposed lens not protected by plastic film, adhesive backed.
0000-181-62-01:	1 ft. length, 1" reflective tape, medium efficiency, protected with clear plastic film, adhesive backed.
0000-181-63-01:	1 ft. length, 1" reflective tape, low efficiency, exposed lens, high temp., adhesive backed.
7002-210-04-00:	5/8" diameter Retro-reflector
0000-181-64-01:	1 ft. length reflective tape, used with the polarized retroreflective model.

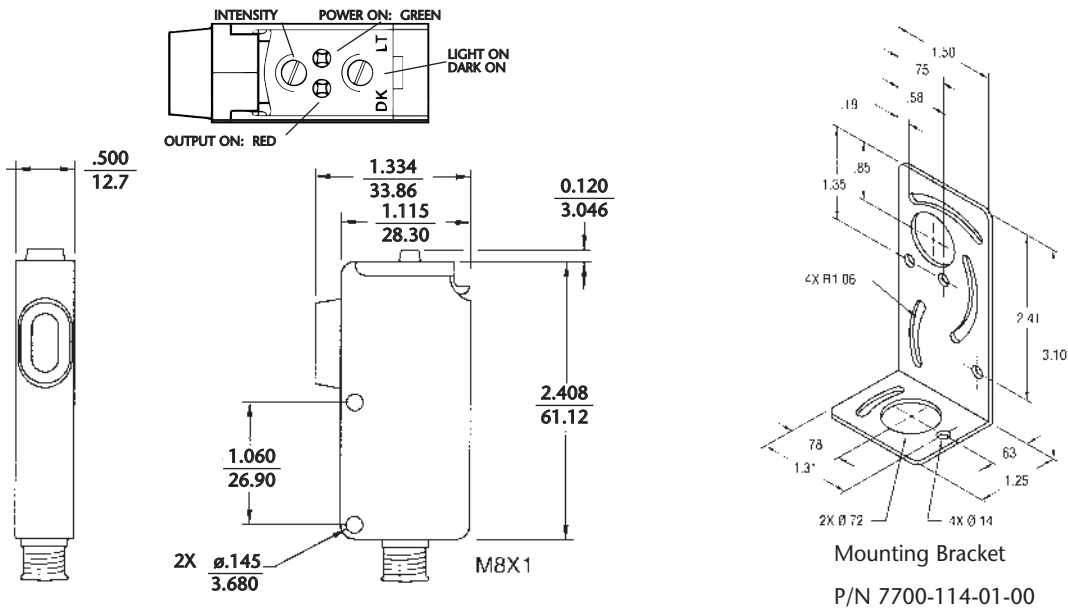
The **7700 Series Laser** provides a method for photoelectric detection of a small object over long distances. The laser-diode sensing device maintains a tiny spot size, with little divergence over distances up to 100 feet using a 2" X 2" retroreflector. This allows for long range detection of small objects. The unit provides precise leading and trailing edge detection of products on conveyors and packaging machinery. Sensing of very tightly spaced small objects is also possible for purposes of counting and batching.

SPECIFICATIONS

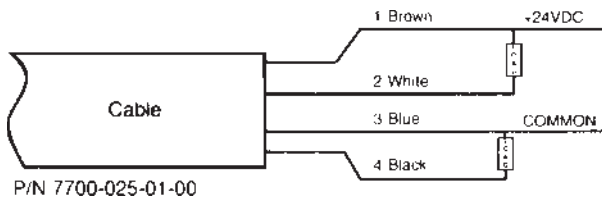
SUPPLY VOLTAGE	10 to 30 VDC	
SUPPLY CURRENT	30 mA maximum	
OUTPUT CONFIGURATION	One current sourcing (PNP) and one current sinking (NPN) open collector transistor	
OUTPUT MODE	Set by "Light ON" / "Dark ON" switch	
OUTPUT RATING	200 mA maximum each output. Output saturation less than 0.2 volts @ 10mA and less than 0.6 volts at 200 mA	
OUTPUT PROTECTION	Protected against current overload, inductive transients, no false pulse on power-up	
RESPONSE TIME	less than 2 ms, >500 Hz	
SENSING RANGE	Retroreflective	100 ft. with 2" X 2" reflector, ATC p/n 0000-181-52-00, Minimum target object size 2" X 2" (At maximum intensity, the unit may prox out to 36")
	Diffuse (proxing)	12 in. with .25" X .25" Kodak 90% white card
INDICATORS	Power	Red
	Output on	Green
ADJUSTMENTS	Single turn intensity control, two position Light operate or Dark operate	
SENSING BEAM	670 nm visible red	
AVERAGE OUTPUT POWER	150 µW	
HOUSING	NEMA 6	
CONNECTOR	4 pin, M8x1, pico style. Pin 1 - power, Pin 2 - NPN output, Pin 3 - common, Pin 4 - PNP output	
PIG TAIL	6" cable PVC .175 dia. micro connector 4 pin	
OPERATING TEMPERATURE	32° to 104°F (0 to 40°C)	
WEIGHT	<2 oz.	



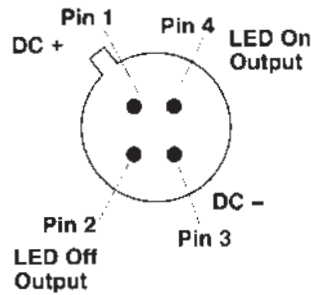
DIMENSIONS (INCHES/MILLIMETERS)



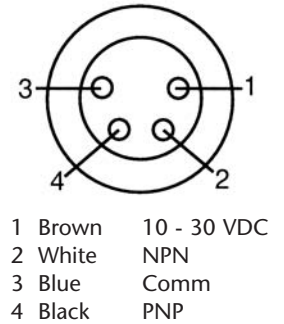
WIRING



CABLE CONNECTOR (MICRO)



HOUSING CONNECTOR (PICO)





Convergent Beam Sensor

- Small Object Detection (<2mm)
- Input 10-30 VDC, Dual Output (PNP & NPN)
- Background Suppression beyond 4-1/2"
- Light-On and Dark-On Operate (switch selectable)
- Highly Visible Power and Output LEDs
- Maximum Sensing Distance: 4", 6" or 8"
- Designed for NEMA 6/IP67

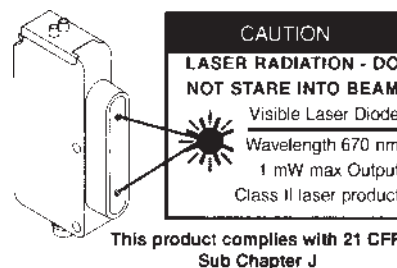
MODEL NUMBER >>>>>>	770	04	N	3	B
Type					
Diffuse 4" Sensing Distance	6AD				
Diffuse 6" Sensing Distance	6AE				
Diffuse 8" Sensing Distance	6AF				
Operation					
Switch Selectable (light-ON/ dark-ON)	04				
Power Requirements					
10-30 VDC	N				
Beam Type					
Visible Red Laser	3				
Output					
Bi-Polar (NPN & PNP)	B				
Features					
Quick Disconnect Standard (PICO M8 4 PIN)	QP				
Special	K				

ACCESSORIES

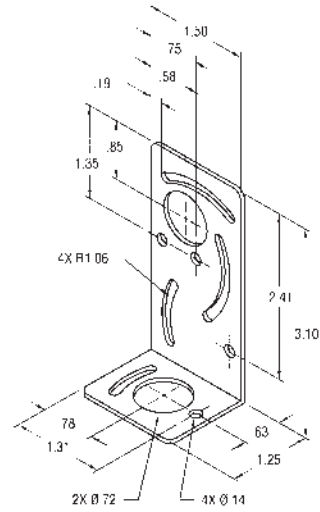
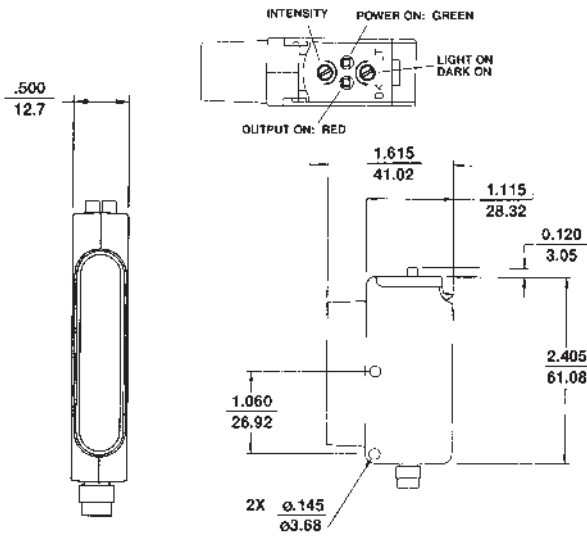
- 7700-025-01-00: Connector/Cable, 4 Pin m8x1 pico/2 meters
- 7700-025-01-05: 5 meter cable
- 7700-025-01-10: 10 meter cable
- 0000-181-61-01: 1 ft. length, 1" reflective tape, high efficiency, exposed lens not protected by plastic film, adhesive backed.
- 0000-181-62-01: 1 ft. length, 1" reflective tape, medium efficiency, protected with clear plastic film, adhesive backed.
- 0000-181-63-01: 1 ft. length, 1" reflective tape, low efficiency, exposed lens, high temp., adhesive backed.
- 7022-210-04-00: 5/8" diameter Retro-reflector

SPECIFICATIONS

SUPPLY VOLTAGE	10 to 30 VDC	
SUPPLY CURRENT	30 mA maximum	
OUTPUT CONFIGURATION	One current sourcing (PNP) and one current sinking (NPN) open collector transistor	
OUTPUT MODE	Set by "Light ON" / "Dark ON" switch	
OUTPUT RATING	200 mA maximum each output. NPN output saturation less than 0.2 volts @ 10 mA and less than 0.8 volts at 200 mA. PNP 0.8 volts @ 10mA and less than 1.5 volts @ 200mA	
OUTPUT PROTECTION	Protected against current overload, inductive transients, no false pulse on power-up	
RESPONSE TIME	less than 2 ms, >500 Hz	
INDICATORS	Power	Red
	Output On	Green
ADJUSTMENTS	Single turn intensity control, two position Light operate or Dark operate	
SENSING BEAM	670 nm visible red	
AVERAGE OUTPUT POWER	<150 nW	
SENSING RANGES	4" Version	2.375 in. min. to 4.0 in. max. Typical to 90% white Kodak card 2.75 in. min. to 3.5 in. max. Typical to 18% gray Kodak card
	6" Version	3.41 in. min. to 6.0 in. max. Typical to 90% white Kodak card 3.44 in. min. to 4.58 in. max. Typical to 18% gray Kodak card
	8" Version:	4.22 in. min. to 8.0 in. max. Typical to 90% white Kodak card 4.60 in. min. to 5.4 in. max. Typical to 18% gray Kodak card
HOUSING	NEMA 6	
CONNECTOR	4 pin, M8x1, pico style. Pin 1 - power, Pin 2 - NPN output, Pin 3 - common, Pin 4 - PNP output	
OPERATING TEMPERATURE	32° to 104°F (0 to 40°C)	
WEIGHT	<1 oz.	

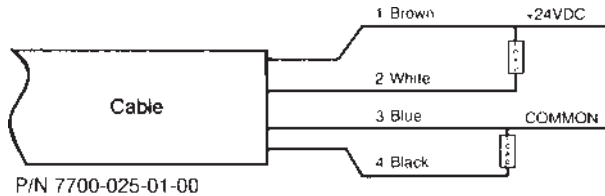


DIMENSIONS (INCHES/MILLIMETERS)

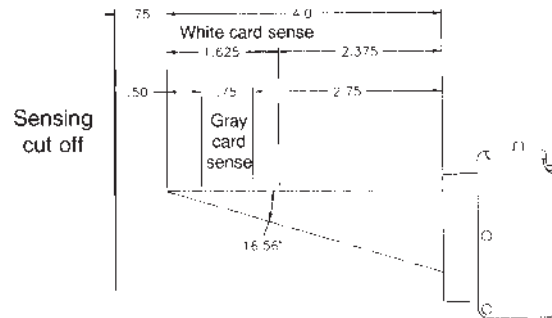


Mounting Bracket
P/N 7700-114-01-00

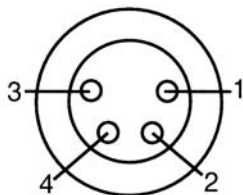
WIRING



SENSING AREAS

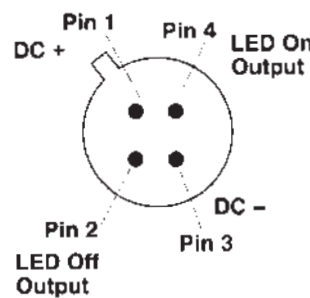


HOUSING CONNECTOR



- 1 Brown 10 - 30 VDC
- 2 White NPN
- 3 Blue Comm
- 4 Black PNP

CABLE CONNECTOR (MICRO)

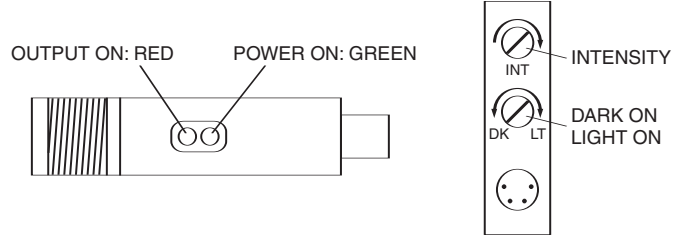




Small Quick Disconnect Laser Sensor

- Small footprint, M18 Compatible Housing
- Visible Narrow Beam for Small Object Detection
- Easy Setup
- 0 to 160 ft. Range
- Retroreflective and Diffuse
- Input 10-30 VDC, Dual Output (PNP & NPN)
- Separate Power and Signal LED's
- PICO Style Quick Disconnect or 6" Pig Tail Available

The **7708 M18 Laser Sensor** provides a method for **photoelectric detection** of *small objects over long distances*. The Class II visible laser-diode sensing device maintains a tiny spot size, with little divergence over distances up to 100 feet using a 2" x 2" retroreflector. The unit provides precise *leading and trailing edge detection* of products on conveyors and packaging machinery. Sensing of very tightly spaced small objects is also possible for purposes of counting and batching.



SPECIFICATIONS

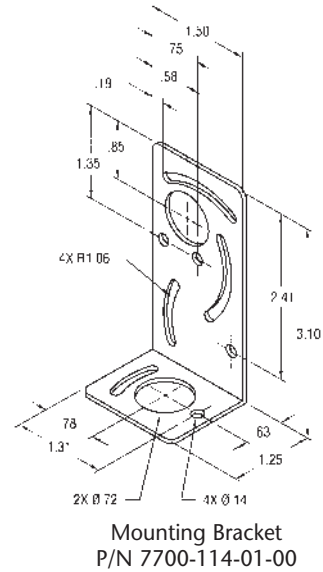
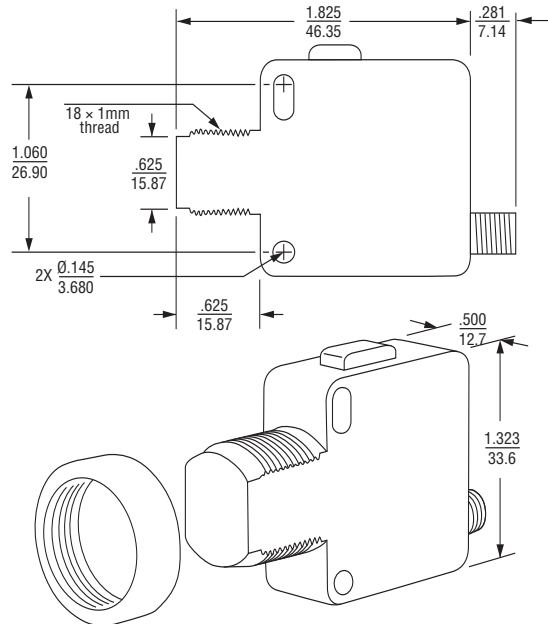
SUPPLY VOLTAGE	10 to 30 VDC	
SUPPLY CURRENT	30 mA maximum	
OUTPUT CONFIGURATION	One current sourcing (PNP) and one current sinking (NPN) open collector transistor	
OUTPUT MODE	Set by "Light ON" / "Dark ON" switch	
OUTPUT RATING	200 mA maximum each output. Output saturation less than 0.2 volts @ 10mA and less than 0.6 volts at 200mA	
OUTPUT PROTECTION	Protected against current overload, inductive transients, no false pulse on power-up	
RESPONSE TIME	Less than 2 ms, >500 Hz	
INDICATORS	Power	green
	Output On	red
ADJUSTMENTS	8 turn intensity control, two position Light operate or Dark operate	
SENSING BEAM	670 nm visible red	
AVERAGE OUTPUT POWER	150 mW	
SENSING RANGES	Retroreflective	100 feet with 2" X 2" reflector, ATC p/n 0000-181-52-00, Minimum target object size 2" X 2" (At maximum intensity, the unit may prox out to 36")
	Diffuse (proxing)	12 in. with .25" X .25" Kodak 90% white card
HOUSING		
PIG TAIL	6" cable PVC .175 dia. micro connector 4 pin	
CONNECTOR	4 pin, M8x1, pico style. Pin 1 - power, Pin 2 - NPN output, Pin 3 - common, Pin 4 - PNP output	
OPERATING TEMPERATURE	32° to 104°F (0 to 40°C)	
WEIGHT	<1 oz.	

MODEL NUMBER >>>>>>	770	04	N	3	B
Type					
Retroreflective	8AR				
Polarized Retroreflective	8BR				
Operation					
Switch Selectable (light-ON/ dark-ON)	04				
Power Requirements					
10-30 VDC		N			
Beam Type					
Laser			3		
Output					
Bi-Polar (NPN & PNP)					B
Features					
Quick Disconnect Standard (PICO M8 4 PIN)					QP
Special					K
Pig Tail 6 in. Standard (micro 4 pin)					PT

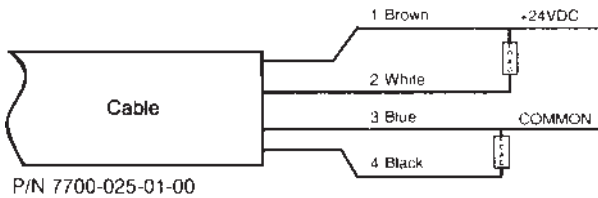
- ACCESSORIES**
- 7700-025-01-00: Connector/Cable, 4 Pin m8x1 pico/2 meters
 - 0000-181-61-01: 1 ft. length, 1" reflective tape, high efficiency, exposed lens not protected by plastic film, adhesive backed.
 - 0000-181-62-01: 1 ft. length, 1" reflective tape, medium efficiency, protected with clear plastic film, adhesive backed.
 - 0000-181-63-01: 1 ft. length, 1" reflective tape, low efficiency, exposed lens, high temp., adhesive backed.
 - 7022-210-04-00: 5/8" diameter retroreflector

Laser Sensor // 7708 Series

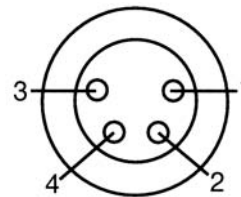
DIMENSIONS (INCHES/MILLIMETERS)



WIRING

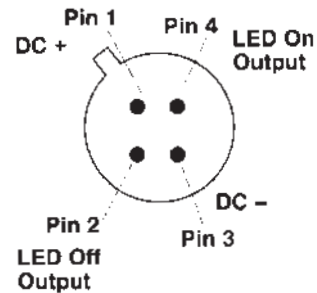


HOUSING CONNECTOR



- 1 Brown 10 - 30 VDC
- 2 White NPN
- 3 Blue Comm
- 4 Black PNP

CABLE CONNECTOR (MICRO)





Snub Nose Photoelectric Sensor

The **7600 Series Delta Snub Nose Photoelectric Sensor** was developed to provide an economical sensor in an easy to mount 18mm compatible housing. Available in four operating modes, these units can handle almost all of your sensing applications. They have a NEMA 4 rating and an operating temperature range from -13° to 140°F, so they can withstand the harshest environments. The 7600's transistor output is ideal for fast response and connection to PLC and other DC inputs.

DC Version

- 10-30 VDC Power Supply
- Compact Size
- Easy to Mount
- NPN or PNP Transistor Output
- NEMA 4 Housing, Potted

AC/DC Version

- Universal AC/DC Power Supply
- Compact Size
- Easy to Mount
- SPDT Relay or FET Output
- NEMA 4 Housing, Potted

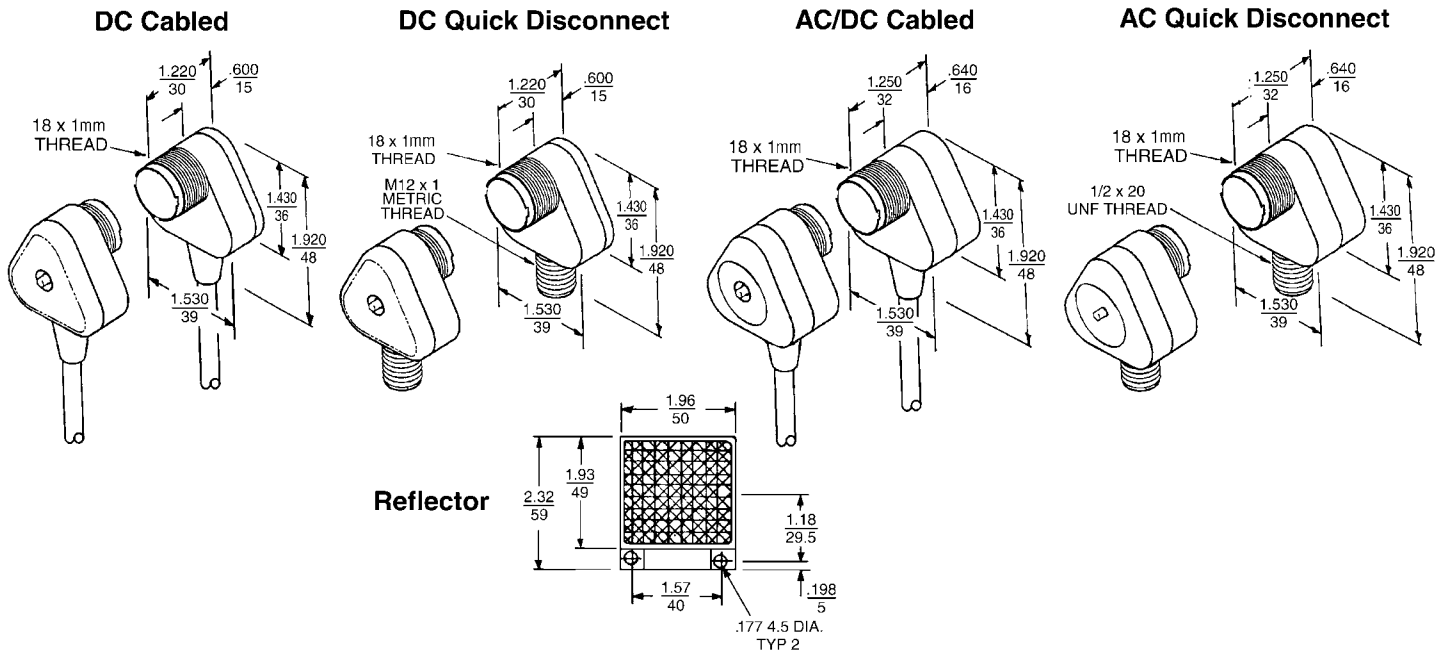
SPECIFICATIONS		DC				AC/DC			
		7602A Short Range Diffused	7603A Retroreflective	7604A Long Range Diffused	7605A Retroreflective Polarized	7602A Short Range Diffused	7603A Retroreflective	7604A Long Range Diffused	7605A Retroreflective Polarized
SENSING	Maximum Distance	4" (10 cm)	12' (3.5 m)*	18" (0.5 m)	12' (3.5 m)*	4" (10 cm)	12' (3.5 m)*	18" (0.5 m)	12' (3.5 m)*
	Minimum Target Size	0.2" (5 mm)	2.0" (5.1 cm)**	0.5" (1.25 cm)	2.0" (5.1 cm)**	0.2" (5 mm)	2.0" (5.1 cm)**	0.5" (1.25 cm)	2.0" (5.1 cm)**
INPUT	Voltage	10 to 30 VDC				10 to 30 VDC/10 to 135 VAC			
	Current (nominal)	30 mA Max.				45 mA Max			
OUTPUT	Type	NPN or PNP Transistor, Short Circuit Protected				SPDT FET: Short Circuit Protected Using 10 to 30 VDC			
	Capacity	200 mA				120 mA			
	Response Time	<2 ms				<3 ms			
	Max. Switching Rate	500 Hz				166 Hz			
	Type					SPDT Relay			
	Capacity					1.0A @ 30 VDC: 0.5A @ 120 VAC (20 cpm)			
	Response Time					<5 ms			
	Max. Switching Rate					100 Hz			
FEATURES	Operating Mode	Light-On / Dark-On				Light-On / Dark-On			
	Status Indicator	Red LED				Light-On / Dark-On			
ENVIRONMENT	Ambient Temperature	-13° to 140° F (-25° to 60° C)				-13° to 140° F (-25° to 60° C)			
	Humidity	Maximum Relative Humidity 85%				Maximum Relative Humidity 85%			

* Using 2 inch square reflector supplied with sensor. See Ordering Codes for other reflectors.

**Object size shown equals reflector size. Detection of smaller objects possible.

NOTE: All diffuse distances are accomplished with a 2 X 2 inch 90% reflective Kodak white card.

DIMENSIONS (INCHES/MILLIMETERS)



MODEL NUMBER >>>>>>	760	04	2	
Type				
Short Range Diffused	2AD			
Retroreflective (IR)	3AR			
Long Range Diffused	4AD			
Polarized Retroreflective (red)	8BR			
Operation				
On/Off	04			
Power Requirements				
10-30 VDC	N			
10-30 VDC/10 tp 135 VAC	F			
Beam Type				
Visible Red Polarized (Basic Model 5AR Only)	1			
Infrared	2			
View				
End View	2			
Output				
Logic NPN (Available with Power Requirement N Only)	N			
Logic PNP (Available with Power Requirement N Only)	P			
Relay SPDT (Available with Power Requirement F Only)	R			
Solid State FET (Available with Power Requirement F Only)	S			
Features				
Standard	X			
Quick Disconnect	Q			
Special	K			

Note: Reflector shipped with Retroreflective units.
18mm mounting nut shipped with units.

ACCESSORIES

- 7650-715-01-00: Mounting Nuts (18mm)
- 7640-260-01-00: Right Angle Adapter
- 7680-025-22-00: Quick-Disconnect mating cable (AC only) 2m
- 7680-025-23-00: Quick-Disconnect mating cable (DC only) 2m
- 7600-260-53-00: Quick-Disconnect mating cable (DC only) 10m

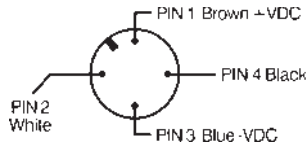
REFLECTORS:

- 7002-210-01-00: 3" Diameter Retroreflective Target
Sensing Distance-9.0 ft.
- 7002-210-02-00: 1 5/8" Diameter Retroreflective Target
Sensing Distance-5.5 ft.
- 7002-210-03-00: 7/8" Diameter Retroreflective Target
Sensing Distance-5.0 ft.
- 7002-210-04-00: 5/8" Diameter Retroreflective Target
Sensing Distance-3.0 ft.
- 0000-181-20-00: 1 1/2" x 3" Adhesive Backed Reflector
Sensing Distance-7.0 ft.
- 0000-181-53-00: 1.4" Square Reflector
Sensing Distance-8.0 ft.
- 0000-181-52-00: 2" Square Reflector*
Sensing Distance-12.0 ft.
*(Supplied with Models 7603 & 7605)

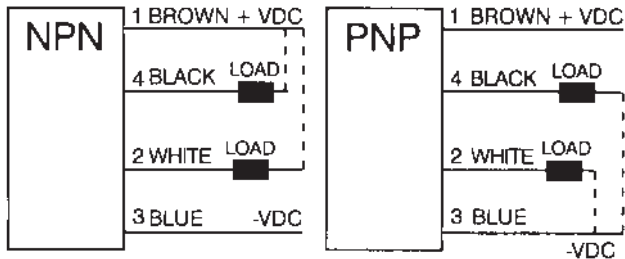
WIRING

DC VERSION

QD VERSION
QUICK DISCONNECT



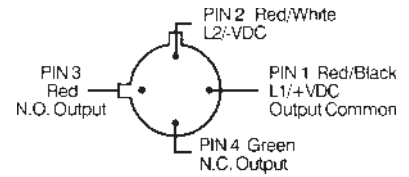
CABLED VERSION



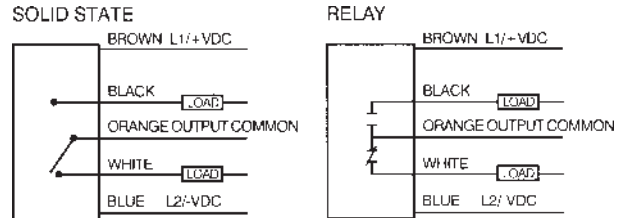
NOTE: The load connected to the black wire is energized when the LED is on.
The load connected to the white wire is energized when the LED is off.

AC/DC VERSION

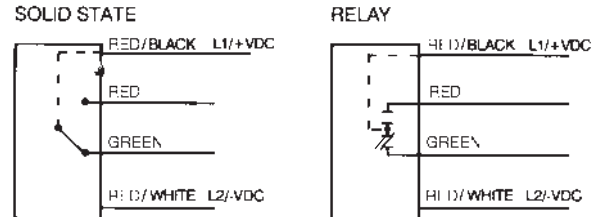
QD VERSION
QUICK DISCONNECT



CABLED VERSION

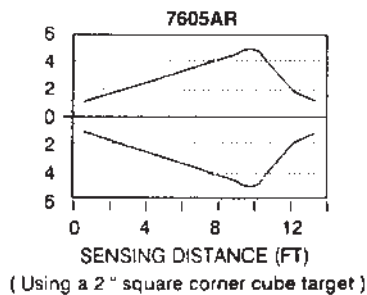
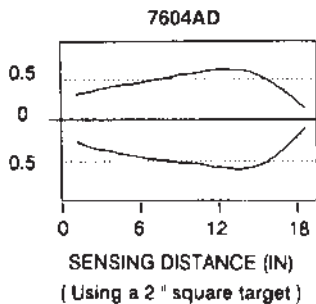
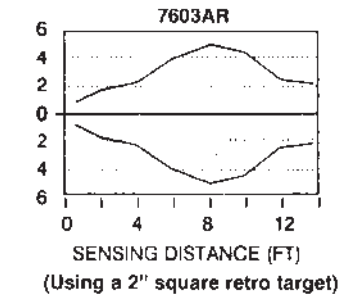
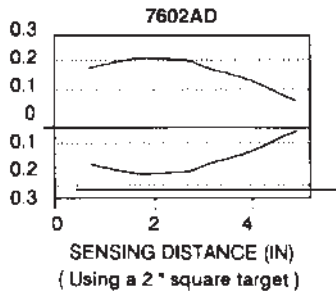


QD VERSION

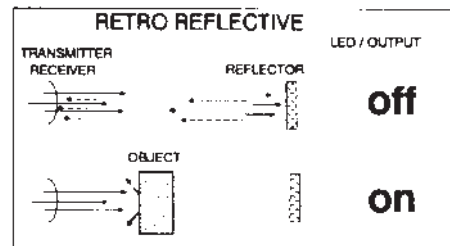
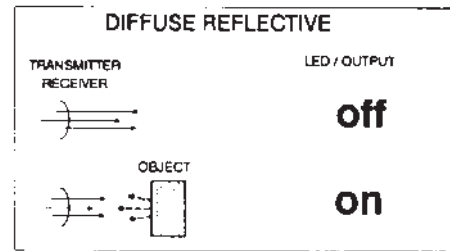


NOTE: The quick disconnect AC/DC units have output common internally wired.
NOTE: The load connected to the red wire is energized when the LED is on.
The load connected to the green wire is energized when the LED is off.

OPERATING CHARACTERISTICS



OPERATING MODES



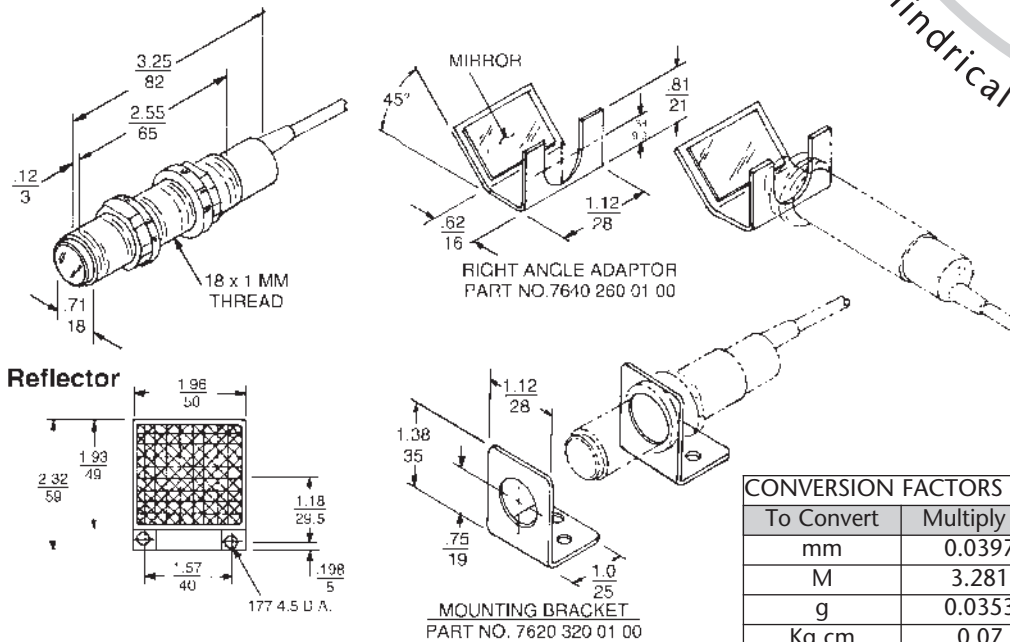
The **7640 Series** was developed to provide an *economical* sensor in an easy to mount **18mm cylindrical housing**. Available in four operating modes, these units can handle almost all of your sensing applications. They have a NEMA 4 rating and an operating temperature range from -13 to 140°F, so they can withstand the harshest environments. The 7640's transistor output is ideal for fast response and connection to PLC and other DC inputs.

- 10-30 VDC Power Supply
- Compact to Mount
- NPN Transistor Output
- NEMA 4 Housing, Potted



Cylindrical Photoelectric Sensor

DIMENSIONS (INCHES/MILLIMETERS)



CONVERSION FACTORS		
To Convert	Multiply By	To Obtain
mm	0.0397	inches
M	3.281	feet
g	0.0353	ounces
Kg cm	0.07	feet, pound

SPECIFICATIONS

		7642A Short Range Diffused	7643A Retroreflective	7644A Long Range Diffused	7645A Retroreflective Polarized
SENSING	Maximum Distance	4" (10 cm)	12' (3.5 m)*	18" (0.5 m)	12' (3.5 m)*
	Minimum Target Size	0.2" (5 mm)	2.0" (5.1 cm)**	0.5" (1.25 cm)	2.0" (5.1 cm)**
INPUT	Voltage	10 to 30 VDC			
	Current (nominal)	30 mA Max.			
OUTPUT	Type	NPN or PNP Transistor, Short Circuit Protected			
	Capacity	200 mA			
	Response Time	<2 ms			
	Max. Switching Rate	500 Hz			
FEATURES	Operating Mode	Light-On / Dark-On			
	Status Indicator	Red LED			
ENVIRONMENT	Ambient Temperature	-13° to 140° F (-25° to 60° C)			
	Humidity	Maximum Relative Humidity 85%			

* Using 2" square reflector supplied with sensor. See Ordering Codes for other reflectors.

** Object size shown equals reflector size. Detection of smaller objects possible.

NOTE: All diffuse distances are accomplished with a 2" X 2" 90% reflective Kodak white card.

MODEL NUMBER >>>>>	764	04	N	2	
Type					
Short Range Diffused	2AD				
Retroreflective (IR)	3AR				
Long Range Diffused	4AD				
Polarized Retroreflective (red)	8BR				
Operation					
On/Off	04				
Power Requirements					
	10-30 VDC	N			
Beam Type					
Visible Red Polarized	1				
Infrared	2				
View					
End View	2				
Output					
Logic (DC) NPN	N				
Logic (DC) PNP	P				
Features					
Standard	X				
Quick Disconnect	Q				
Special	K				

*Note: Mounting nuts (18mm) are shipped with units.
A 2" square reflector shipped with retroreflective units.

ACCESSORIES

- 7650-715-01-00: Mounting Nuts (18mm)
- 7620-320-01-00: Mounting Bracket
- 7640-260-01-00: Right Angle Adapter
- 7680-025-23-00: Quick-Disconnect Mating Cable (DC only)

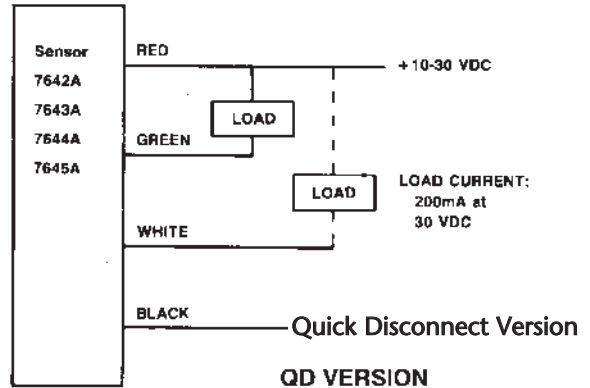
REFLECTORS: 7645A

- 7002-210-01-00: 3" Diameter Retroreflective Target
Sensing Distance-9.0 ft.
- 7002-210-02-00: 1-5/8" Diameter Retroreflective Target
Sensing Distance-5.5 ft.
- 7002-210-03-00: 7/8" Diameter Retroreflective Target
Sensing Distance-5.0 ft.
- 7002-210-04-00: 5/8" Diameter Retroreflective Target
Sensing Distance-3.0 ft.
- 0000-181-20-00: 1-1/2 X 3" Adhesive Backed Reflector
Sensing Distance-7.0 ft.
- 0000-181-53-00: 1.4" Square Reflector
Sensing Distance-8.0 ft.
- 0000-181-52-00: 2" Square Reflector*
Sensing Distance-12.0 ft.

(*Supplied with Models 7643 and 7645)

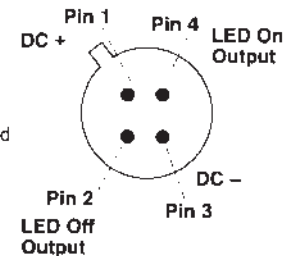
WIRING

TRANSISTOR CABLED VERSION



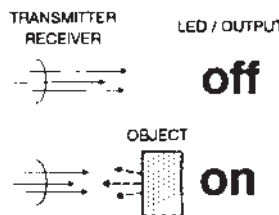
NPN Transistor Output

Note: The load connected to the GREEN wire is energized when the LED is on. The load connected to the WHITE wire is energized when the LED is off.

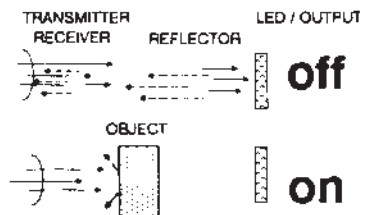


OPERATING MODES

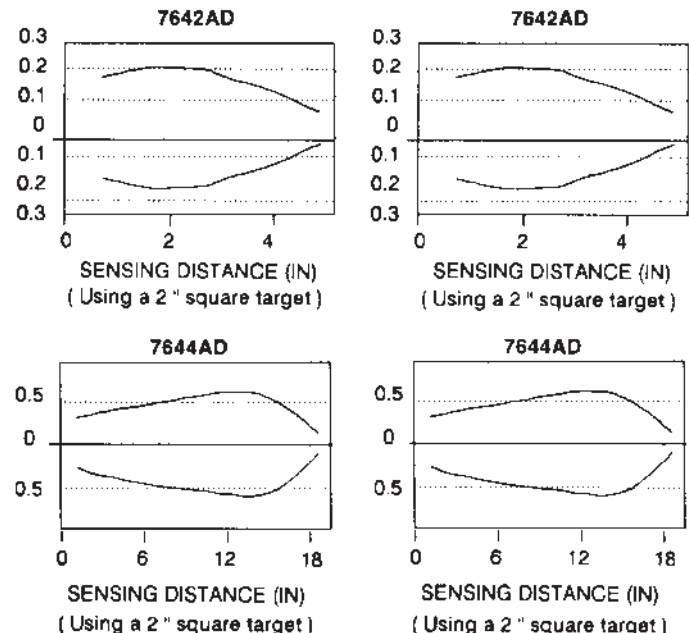
DIFFUSE REFLECTIVE



RETROREFLECTIVE



OPERATING CHARACTERISTICS



18mm Sensors // 7640 Series

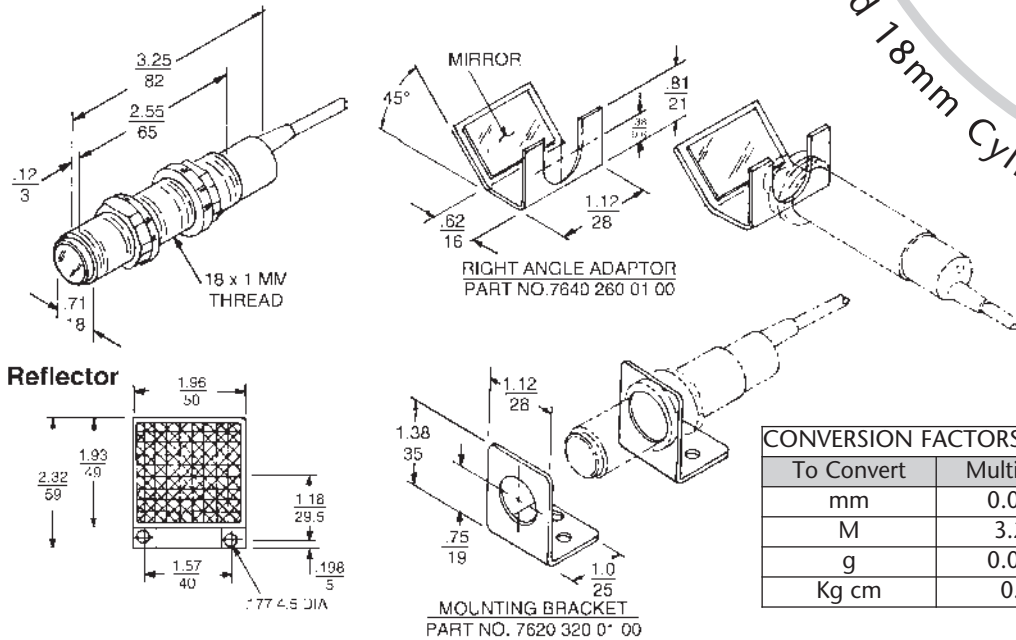
The **7650 Series** was developed for its AC/DC power supply, SPDT output and easy mounting. Available in four operating modes, these units can handle almost all of your sensing applications. They have a NEMA 4 rating and an operating temperature range from -13 to 140°F, so they can withstand the harshest environments. Two output types, relay and FET, make this series ideal for almost any application.

- Universal AC/DC Power Supply
- Easy to mount
- SPDT Relay or FET output
- NEMA 4 Housing, Potted

Self-Contained 18mm Cylindrical Photoelectric



DIMENSIONS (INCHES/MILLIMETERS)



CONVERSION FACTORS		
To Convert	Multiply By	To Obtain
mm	0.0397	inches
M	3.281	feet
g	0.0353	ounces
Kg cm	0.07	feet, pound

SPECIFICATIONS

		7652A Short Range Diffused	7653A Retroreflective	7654A Long Range Diffused	7655A Retroreflective Polarized
SENSING	Maximum Distance	4" (10 cm)	12' (3.5 m)*	18" (0.5 m)	12' (3.5 m)*
	Minimum Target Size	0.2" (5 mm)	2.0" (5.1 cm)**	0.5" (1.25 cm)	2.0" (5.1 cm)**
INPUT	Voltage	10 to 30 VDC/10 to 135 VAC			
	Current (nominal)	45 mA Max.			
OUTPUT	FET	Type	DPST FET: Short Circuit Protected Using 10 to 30 VDC		
		Capacity	120 mA		
		Response Time	<3 ms		
	RELAY	Max. Switching Rate	166 Hz		
		Type	SPDT Relay		
		Capacity	1.0A @ 30 VDC: 0.5A @ 120 VAC (20 cpm)		
FEATURES	Operating Mode	Light-On / Dark-On			
	Status Indicator	Red LED			
ENVIRONMENT	Ambient Temperature	-13° to 140° F (-25° to 60° C)			
	Humidity	Maximum Relative Humidity 85%			

* Using 2" square reflector supplied with sensor. See Ordering Codes for other reflectors.

** Object size shown equals reflector size. Detection of smaller objects possible.

NOTE: All diffuse distances are accomplished with a 2" X 2" 90% reflective Kodak white card.

MODEL NUMBER >>>>>	765	04	F	2
Type				
Short Range Diffused	2AD			
Retroreflective (IR)	3AR			
Long Range Diffused	4AD			
Polarized Retroreflective (red)	5BR			
Operation				
On/Off	04			
Power Requirements				
10-30 VDC/10-135 VAC	F			
Beam Type				
Visible Red Polarized (7655 only)	1			
Infrared	2			
View				
End View	2			
Output				
Relay (SPDT)	R			
Solid State	S			
Features				
Standard	X			
Special	K			

*Note: Mounting nuts (18mm) are shipped with units.
A 2" square reflector shipped with retroreflective units.

ACCESSORIES

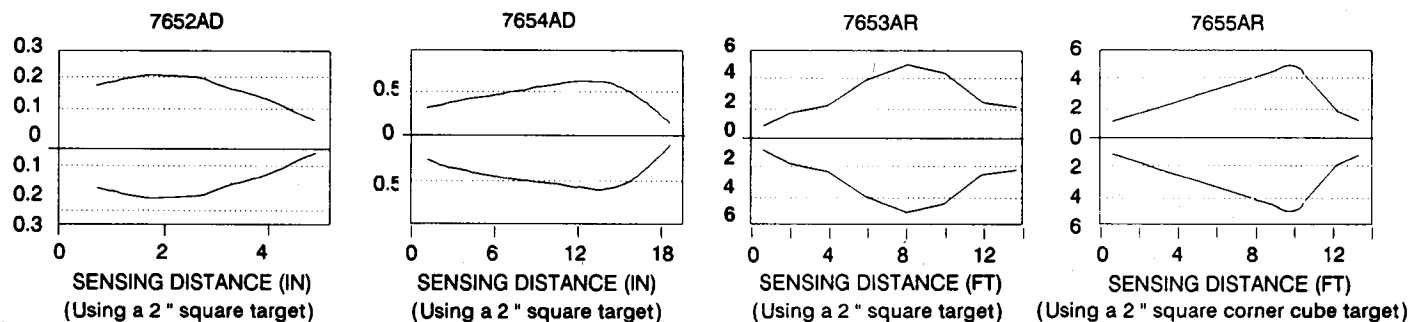
- 7650-715-01-00: Mounting Nuts (18mm)
- 7620-320-01-00: Mounting Bracket
- 7640-260-01-00: Right Angle Adapter

REFLECTORS

- 7002-210-01-00: 3" Diameter Retroreflective Target
Sensing Distance—9.0 ft.
- 7002-210-02-00: 1-5/8" Diameter Retroreflective Target
Sensing Distance—5.5 ft.
- 7002-210-03-00: 7/8" Diameter Retroreflective Target
Sensing Distance—5.0 ft.
- 7002-210-04-00: 5/8" Diameter Retroreflective Target
Sensing Distance—3.0 ft.
- 0000-181-20-00: 1-1/2 X 3" Adhesive Backed Reflector
Sensing Distance—7.0 ft.
- 0000-181-53-00: 1.4" Square Reflector
Sensing Distance—8.0 ft.
- 0000-181-52-00: 2" Square Reflector*
Sensing Distance—12.0 ft.

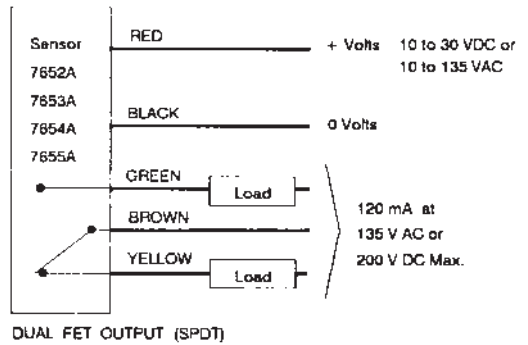
*Note: Mounting nuts (18mm) are shipped with units.
A 2" square reflector shipped with retroreflective units.

OPERATING CHARACTERISTICS

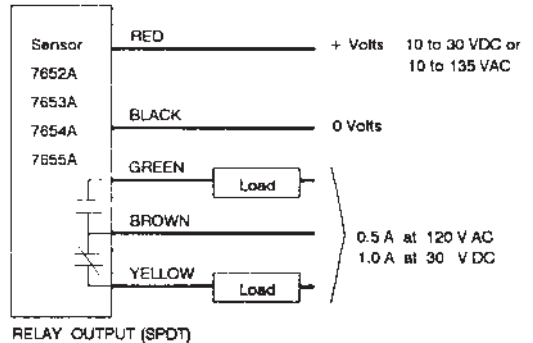


WIRING

SOLID STATE

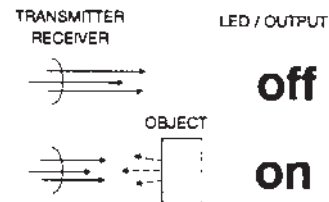


RELAY

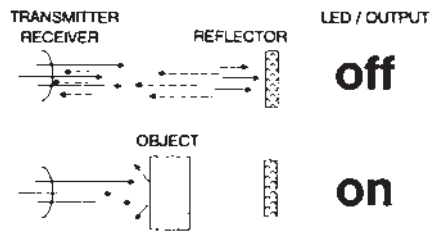


OPERATING MODES

DIFFUSE REFLECTIVE



RETRO-REFLECTIVE



The **7680 Series** was developed for its choice of AC/DC or DC power supply and small inexpensive package. Available in four operating modes. These sensors have a NEMA 4 rating and three output types: (Relay, FET or NPN), making this series ideal for many applications.

- Compact Size
- 10 to 30V DC or 10-135V AC/DC
- NPN, Relay or Solid-State Output
- Short and Long Range Diffuse
- Polarized Retroreflective
- NEMA 4 Housing
- Output LED



Mini Self-Contained Photoelectric Sensor

SPECIFICATIONS

		7682A Short Range Diffused		7683A Retroreflective		7684A Long Range Diffused		7685A Retroreflective Polarized	
SENSING	Maximum Distance	4" (10 cm)		12' (3.5 m)*		18" (0.5 m)		12' (3.5 m)*	
	Minimum Target Size	0.2" (5 mm)		2.0" (5.1 cm)**		0.5" (1.25 cm)		2.0" (5.1 cm)**	
INPUT	Voltage	10-30 VDC	10-30 VDC 10-135 VAC	10-30 VDC	10-30 VDC 10-135 VAC	10-30 VDC	10-30 VDC 10-135 VAC	10-30 VDC	10-30 VDC 10-135 VAC
	Current (nominal)	30 mA	45 mA	30 mA	45 mA	30 mA	45 mA	30 mA	45 mA
OUTPUT	Type	NPN	FET	NPN	FET	NPN	FET	NPN	FET
	Capacity	200 mA	100 mA	200 mA	100 mA	200 mA	100 mA	200 mA	100 mA
	Response Time	<2 ms	<3 ms	<2 ms	<3 ms	<2 ms	<3 ms	<2 ms	<3 ms
	Max. Switching Rate	500 Hz	166 Hz	500 Hz	166 Hz	500 Hz	166 Hz	500 Hz	166 Hz
	Type		SPDT Relay		SPDT Relay		SPDT Relay		SPDT Relay
	Capacity		1.0 @30 VDC 5A@120 VAC		1.0 @30 VDC 5A@120 VAC		1.0 @30 VDC 5A@120 VAC		1.0 @30 VDC 5A@120 VAC
	Response Time		<5 ms		<5 ms		<5 ms		<5 ms
	Max. Switching Rate		100 Hz		100 Hz		100 Hz		100 Hz
ENVIRONMENT	Ambient Temperature	-13° to 131° F (-25° to 55° C)				-13° to 131° F (-25° to 55° C)			
	Humidity	Maximum Relative Humidity 85%				Maximum Relative Humidity 85%			
PHYSICAL	Housing	Non Metallic, NEMA 4				Non Metallic, NEMA 4			
	Light Emitting Element	Infrared				Infrared		Visible Red	
	Weight Shipping/Unit	7.7 oz. /3.5 oz.		8.3 oz. /3.5 oz.		7.7 oz. /3.5 oz.		8.3 oz. /3.5 oz.	

* Using 2 inch square reflector supplied with sensor. See Ordering Codes for other reflectors.

**Object size shown equals reflector size. Detection of smaller objects possible.

*** Based on sensing a 2 X 2" 90% reflective Kodak white card.

#20 CPM at full rated current for relay output models.

MODEL NUMBER >>>>>	768	4	2
Type			
Short Range Diffused	2AD		
Retroreflective (IR)	3AR		
Long Range Diffused	4AD		
Polarized Retroreflective (red)	8BR		
Operation			
On/Off	4		
Power Requirements			
10-30 VDC	N		
10-30 VDC/10-135 VAC	F		
Beam Type			
Visible Red Polarized (7685 only)	1		
Infrared	2		
View			
End View	2		
Output			
Logic (DC) NPN Available with option N only	N		
Relay (SPDT) Available with option F only	R		
Solid State (FET) Available with option F only	S		
Features			
Standard	X		
Special	K		

*NOTE: 2" square reflector shipped with retroreflective units.
One mounting bracket and hardware shipped with units.

ACCESSORIES

7690-105-01-00: Mounting Bracket and Hardware

REFLECTORS

7002-210-01-00: 3" Diameter Retroreflective Target
Sensing Distance-9.0 ft.

7002-210-02-00: 1-5/8" Diameter Retroreflective Target
Sensing Distance-5.5 ft.

7002-210-03-00: 7/8" Diameter Retroreflective Target
Sensing Distance-5.0 ft.

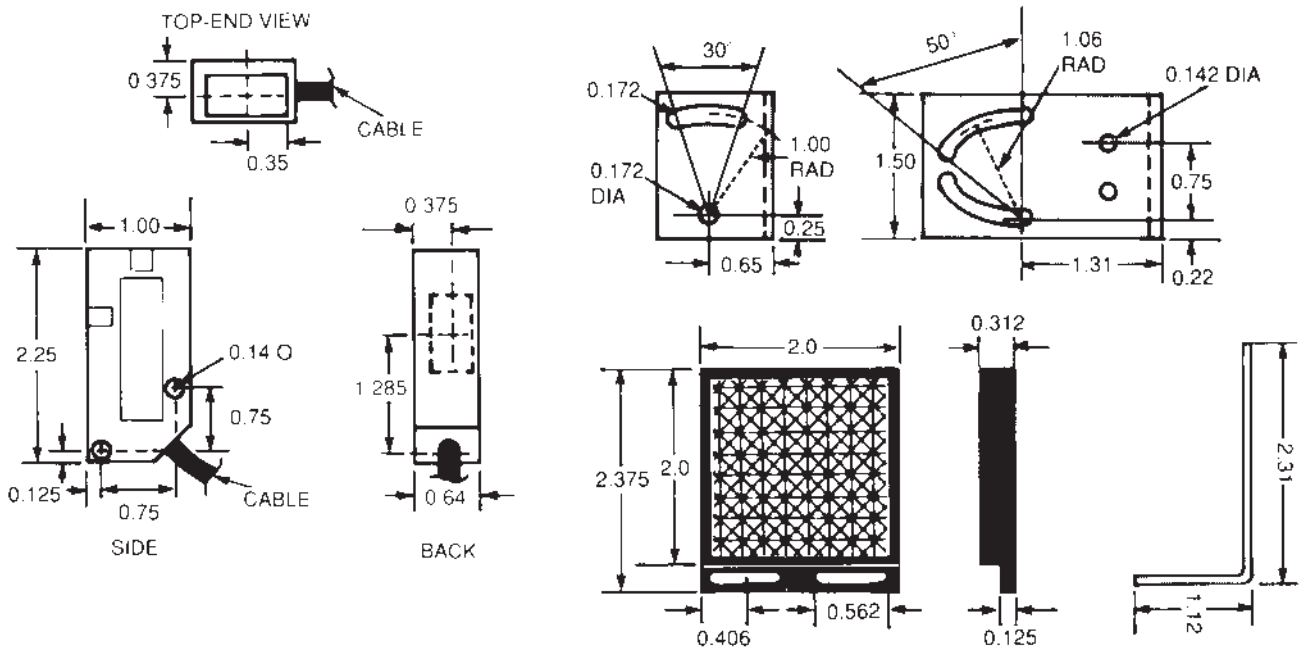
7002-210-04-00: 5/8" Diameter Retroreflective Target
Sensing Distance-3.0 ft.

0000-181-20-00: 1-1/2 X 3" Adhesive Backed Reflector
Sensing Distance-7.0 ft.

0000-181-53-00: 1.4" Square Reflector
Sensing Distance-8.0 ft.

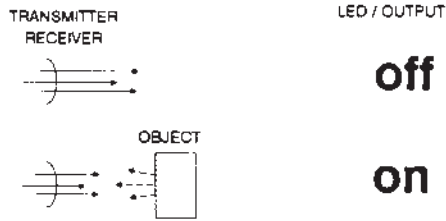
0000-181-52-00: 2" Square Reflector*
Sensing Distance-12.0 ft.

DIMENSIONS (INCHES)

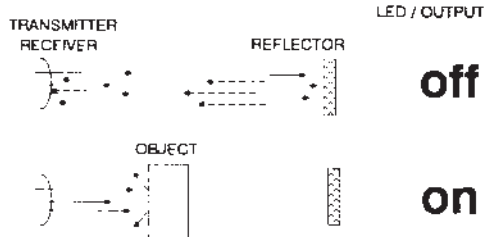


OPERATING MODES

DIFFUSE REFLECTIVE

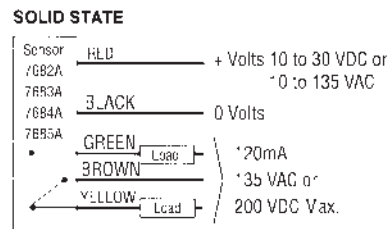


RETRO REFLECTIVE

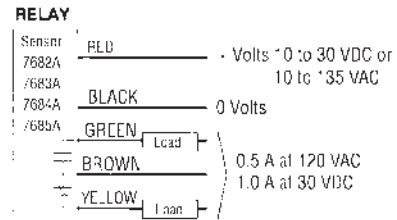


WIRING

AC/DC MODEL

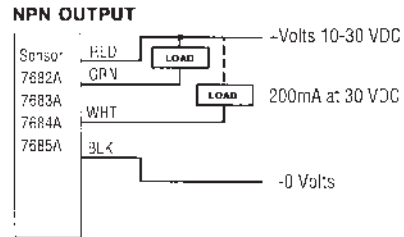


DUAL FET OUTPUT (SPDT)



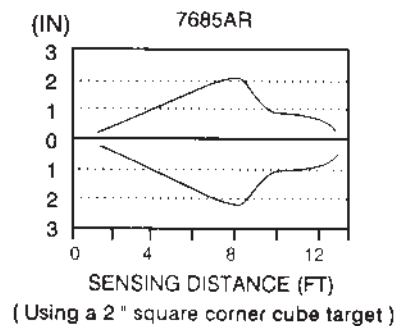
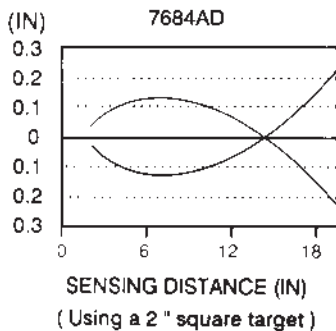
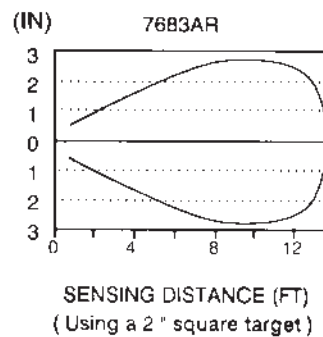
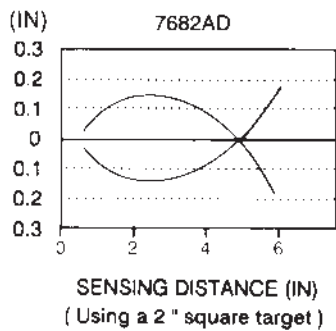
RELAY OUTPUT (SPDT)

DC MODEL



NOTE: The load connected to the green wire is energized when the LED is on. The load connected to the white wire is energized when the LED is off.

OPERATING CHARACTERISTICS

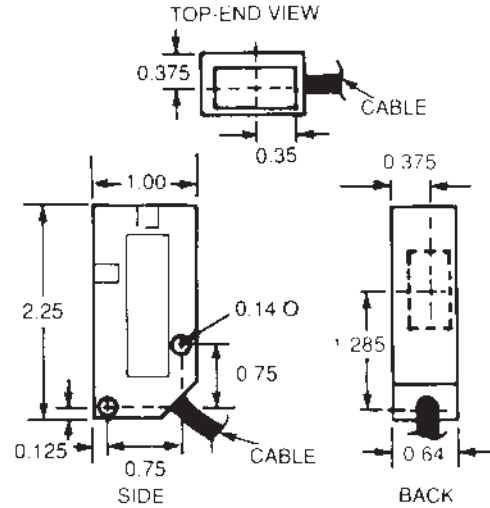
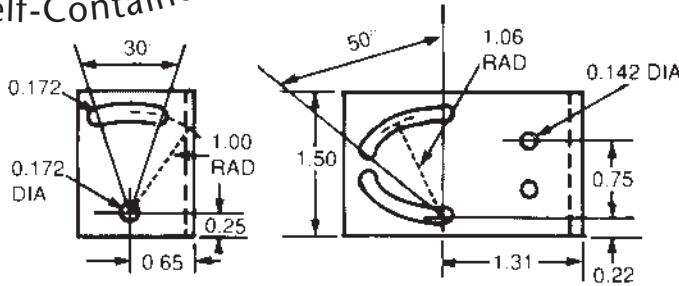


Self-Contained Sensors // 7680 Series



AVAILABLE WITH
END VIEW OR SIDE VIEW

Mini Self-Contained Photoelectric Sensor



DIMENSIONS (INCHES)

SPECIFICATIONS

		7691A Thru-Beam	7692A Short Range Diffused	7693A Retroreflective	7694A Long Range Diffused	7695A Retroreflective Polarized
SENSING	Maximum Distance	32' (10m)	1.5" (40 mm)	12' (3.5 m)*	12" (30 cm)	12' (3.5 m)*
	Minimum Target Size	0.4" (10 mm)	0.1" (2.5 mm)	2.0" (5.1 cm)**	0.5" (1.25 cm)	2.0" (5.1 cm)**
INPUT	Voltage	10 to 30 VDC/Reversed-Polarity Protected				
	Current (nominal)	45 mA Max.	40 mA Max.			
OUTPUT	Type	FET current sinking or sourcing. Short Circuit Protected Using 10 to 30 VDC				
	Capacity	120 mA				
	Response Time	<3 ms				
	Max. Switching Rate	166 Hz				
FEATURES	Operating Mode	Light-On / Dark-On				
	Status Indicator	Red/Green				
	Sensitivity	12 Turn Potentiometer***				
	Timing Mode	On Delay	Off Delay	One-Shot	Under Rate Monitor	Toggle Flop
Ranges	0.25 to 12 sec.	0.25 to 12 sec.	0.1 to 18 sec.	0.1 to 6 sec	N/A	
ENVIRONMENT	Ambient Temperature	-40° to 140° F (-40° to 60° C)				
	Humidity	Maximum Relative Humidity 85%				
PHYSICAL	Housing	Nonmetallic, NEMA 4				
	Light Emitting Element	Infrared	Infrared	Infrared	Infrared	Visible Red
	Weight (shipping/unit)	13.1 oz./7.0 oz.	7.7 oz./3.5 oz.	8.3 oz./3.5 oz.	7.7 oz./3.5 oz.	8.3 oz./3.5 oz.
	Wiring	Wire entrance from wither bottom or back w/mounting bracket.				

* Using 2" square reflector supplied with sensor. See Ordering Codes for other reflectors.

** Object size shown equals reflector size. Detection of smaller objects possible.

*** When the time delay option is offered, no sensitivity adjustment is available. It's replaced by the time delay adjustment.

NOTE: All diffuse distances are accomplished with a 2" X 2" 90% reflective Kodak white card.

MODEL NUMBER >>>>>>	769				D	S
Type						
Thru-Beam	1AS					
Short Range Diffused	2AD					
Retroreflective (IR)	3AR					
Long Range Diffused	4AD					
Polarized Retroreflective (red)	5AR					
View						
Side View	L					
End View	E					
Function						
On/Off	04					
On Delay (End View Only)	05					
Off Delay (End View Only)	06					
One-Shot (End View Only)	07					
Under Rate (End View Only)	08					
Toggle Flop (End View Only)	09					
Input Voltage						
10 to 30 VDC	D					
Output Type						
Solid State	S					
Emitter Type						
Visible Red Polarized	1					
Infrared	2					
Options						
Standard	X					
Special	K					

*NOTE: 2" square reflector shipped with retroreflective units.
One mounting bracket and hardware shipped with units.

REPLACEMENT PARTS

- 7691ARL04DSXX: Receiver Side View
- 7691ARE04DSXX: Receiver End View
- 7691ATLXXDX2X: Transmitter Side View
- 7691ATEXXDX2X: Transmitter End View

ACCESSORIES

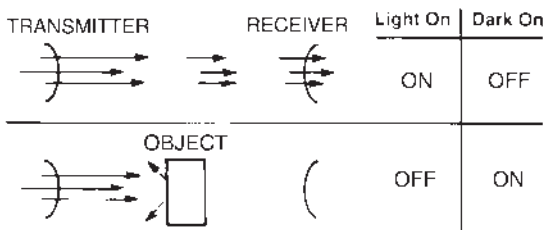
- 7690-105-01-00: Mounting Bracket and Hardware

REFLECTORS

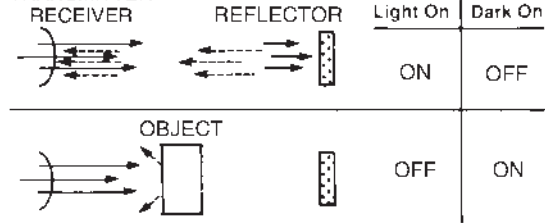
- 7002-210-01-00: 3" Diameter Retroreflective Target Sensing Distance-9.0 ft.
- 7002-210-02-00: 1-5/8" Diameter Retroreflective Target Sensing Distance-5.5 ft.
- 7002-210-03-00: 7/8" Diameter Retroreflective Target Sensing Distance-5.0 ft.
- 7002-210-04-00: 5/8" Diameter Retroreflective Target Sensing Distance-3.0 ft.
- 0000-181-20-00: 1-1/2 X 3" Adhesive Backed Reflector Sensing Distance-7.0 ft.
- 0000-181-53-00: 1.4" Square Reflector Sensing Distance-8.0 ft.
- 0000-181-52-00: 2" Square Reflector* Sensing Distance-12.0 ft.

OPERATING MODES

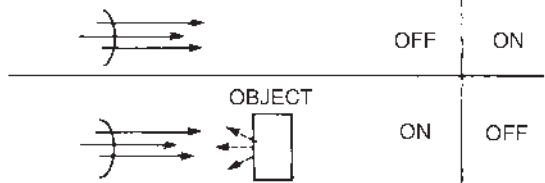
THRU-BEAM



RETROREFLECTIVE



DIFFUSE REFLECTIVE



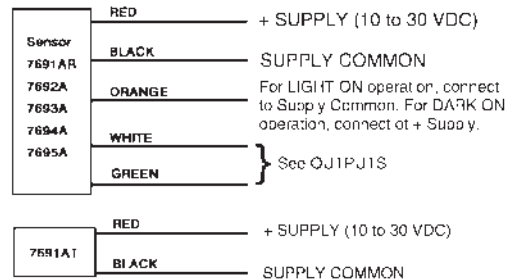
LIGHT/DARK Operation

Light On_Connect the orange wire to 0 voltage.
Dark On_Connect the orange wire to + voltage.

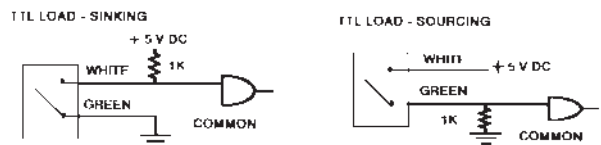
Sold by AA Electric 1-800-237-8274 Lakeland, FL • Lawrenceville, GA • Greensboro, NC • East Rutherford, NJ

Web : www.A-Aelectric.com Email: njsales@a-aelectric.com

WIRING



OUTPUTS





DIMENSIONS (INCHES)

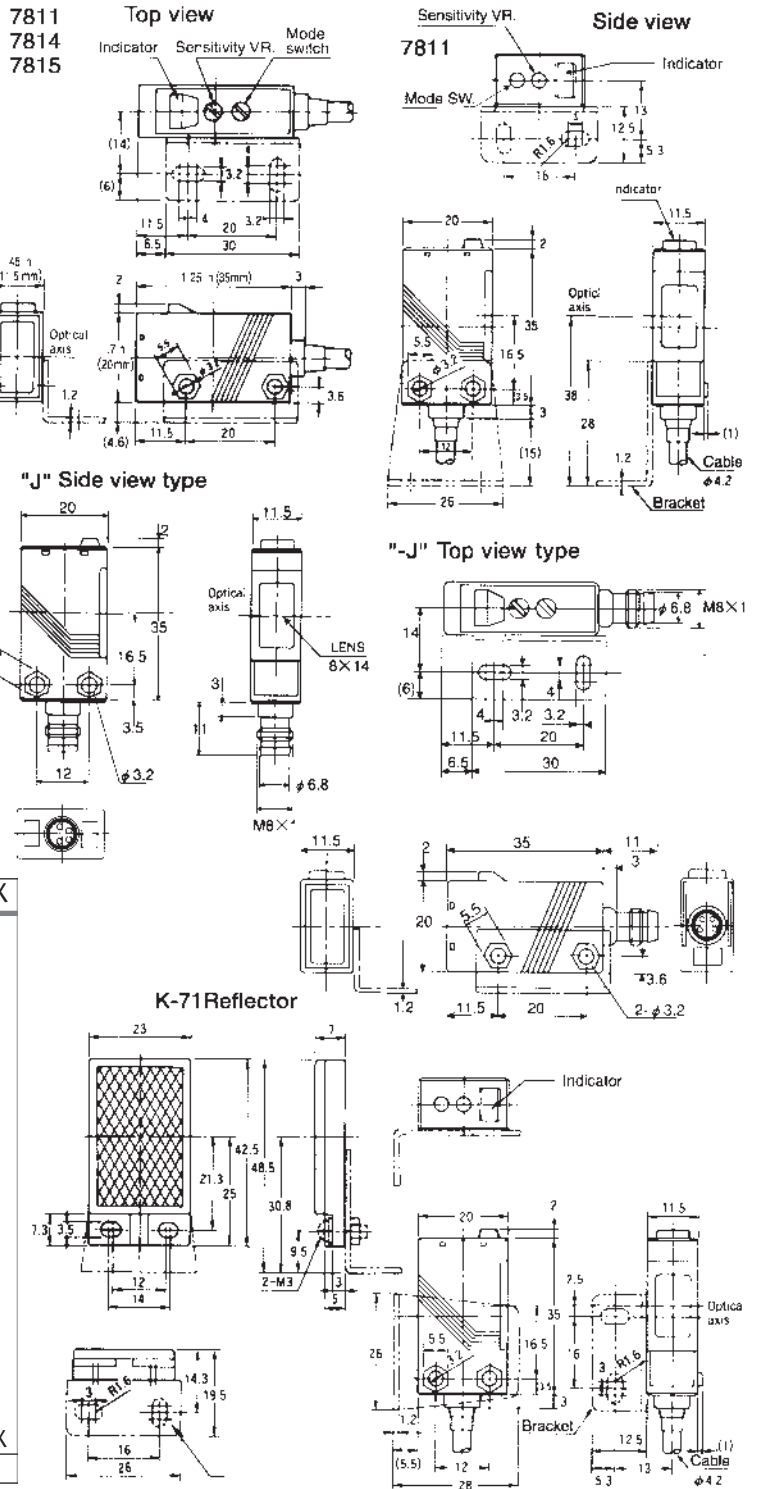


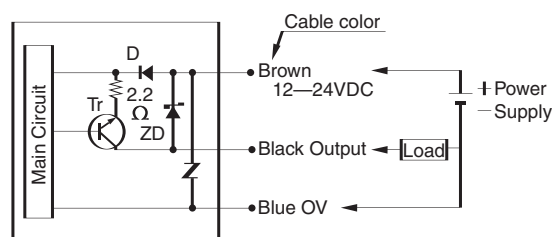
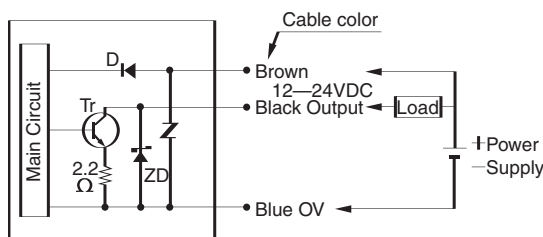
Photo Sensor

- IP67 Washdown Rating
- Compact Size
- Mirrored Objects (Mirrors, Shiny Objects) can be Detected (Polarized Light Reflector Type)
- Operation Mode is Changed by a Switch
- Sensitivity Adjustment for Fine Detection
- Stability Output for Globally Used PNP

MODEL NUMBER >>>>>	7811	04	N	I	X
Type	Through-Beam	1AS			
	Long Range Diffused	4AD			
	Polarized Retroreflective (red)	5AR			
Operation	On/Off	04			
Power Requirements	10-30 VDC	N			
Beam Type	Red LED	I			
View	Side View*	L			
	End View	E			
Output	Logic (DC) NPN	N			
	Logic (DC) PNP	P			
Features	Standard	X			

*Available only in Through-Beam

WIRING



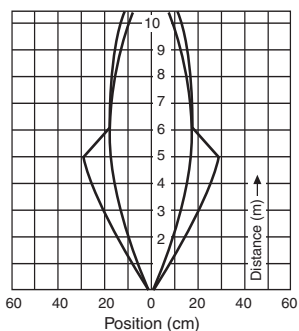
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Web : www.A-Aelectric.com Email : njsales@a-aelectric.com

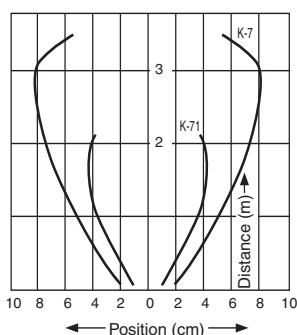
SPECIFICATIONS

		NPN-Output			PNP-Output		
MODELS	Side-On	7811ASO4N1LNX			7811ASO4N1LPX		
	End View	7811ASO4N1ENX	7815AR04N1ENX	7814AD04N1ENX	7811ASO4N1EPX	7815AR04N1EPX	7814AD04N1EPX
DETECTION		Through-beam	Polarized Retroreflection	Diffuse	Through-beam	Polarized Retroreflection	Diffuse
RANGE (MAX.)		23' (7m)	1.2'-5' (0.03-1.5m)	20" (50cm)	23' (7m)	1.2'-5' (0.03-1.5m)	20" (50cm)
OBJECT RESOLUTION		.78" (20mm) dia. (Min) Opaque Object	-	10X10cm White paper	.78" (20mm) dia. (Min) Opaque Object	-	10X10cm White paper
LIGHT SOURCE		Red LED (700nm)					
POWER SUPPLY		12-24 VDC ± 10%, ripple 10% MAX.					
CURRENT CONSUMPTION (MAX.)		Tms.-20mA Rcvr.-20mA	30mA		Tms.-20mA Rcvr.-20mA	30mA	
OPERATING MODE		Light/Dark-ON Selectable					
OUTPUT MODE	Control	NPN Open Collector Rating: Sink current 100mA (DC30V) Max.			NPN Open Collector Rating: Sink current 100mA (DC30V) Max.		
	Stability	NPN Open Collector Rating: Sink current 50mA (DC30V) Max.			NPN Open Collector Rating: Sink current 50mA (DC30V) Max.		
RESIDUAL VOLTAGE		1V (Max.)			2V (Max.)		
RESPONSE TIME		0.5 mSEC (Max.)					
BEAM DEVIATION		10' (Rcvr)	30' (Reflector)	—	10' (Rcvr)	30' (Reflector)	—
HYSTERESIS		—	—	10% (Max.)	—	—	10% (Max.)
LED INDICATOR		Tms: Power-Red Tcvr: Operation-Red Stability-Green	Operation-Red Stability-Green		Tms: Power-Red Tcvr: Operation-Red Stability-Green	Operation-Red Stability-Green	
SENSITIVITY ADJUSTMENT (SENS)		Built-in potentiometer					
CONNECTION		Flying lead 6.5 ft. (2m)					
WEIGHT (MAX.)		Tms: 80g Rcvr. 80g	80g		Tms: 80g Rcvr. 80g	80g	
ENVIRONMENT							
Ambient Light		Withstands 5,000 Lux (Max.)					
Operating Temperature		-25 to +55°C					
Humidity		35 to 85% RH					
Case Protection		IP67					
Vibration		10 to 50Hz, 1.5mm Amplitude 2Hr., 3 directions					
Dielectric Withstanding		AC1000V 1 min.					
Insulation Resistance		DC500V, 20M ohm (min.)					
Shock		500m/S ² (50G) 3 times, 3 directions					

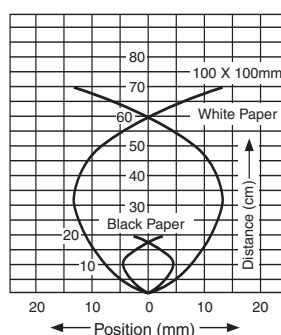
ACTIVE BEAM WIDTH



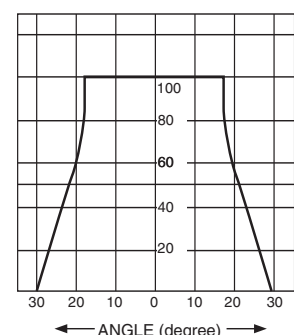
7811



7815



7814



7815

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Web : www.A-Aelectric.com Email : njsales@a-aelectric.com



Ultra-Compact Photo Sensor

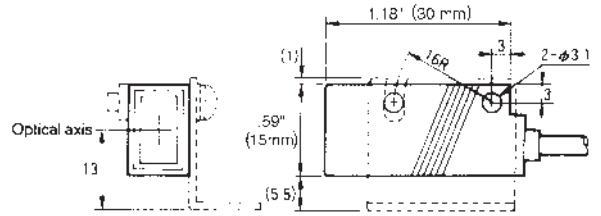
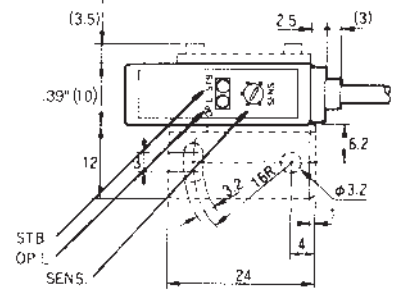
- Ultra Compact, Suitable for Building into a Machine
- Washdown-Proof to IP67
- Stability Output is a Standard Function (NPN output type)
- Fast Response Time 0.35 mSec
- 10m Long Distance Sensing—7821
- Resistant to Background Reflections
- Convergent Beam—7822
- Easy Optical Axis Adjustment with Red LED

Self Contained Sensors // 7820 Series

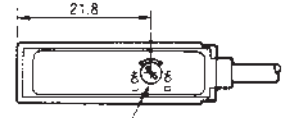
MODEL NUMBER >>>>>>	782	04	N	I		X
Type						
Through-Beam	1AS					
Diffused (Convergent Beam)	2AD					
Retroreflective	3AR					
Long Range Diffused	4AD					
Operation						
On/Off	04					
Power Requirements						
	12-24 VDC	N				
Beam Type						
Red Visible	I					
View						
Side View					L	
Not available w/ 7824 model						
End View						E
Available w/ 7824 model only						
Output						
Logic (DC)	NPN	N				
Logic (DC)	PNP	P				
Features						
Standard	X					

DIMENSIONS (INCHES)

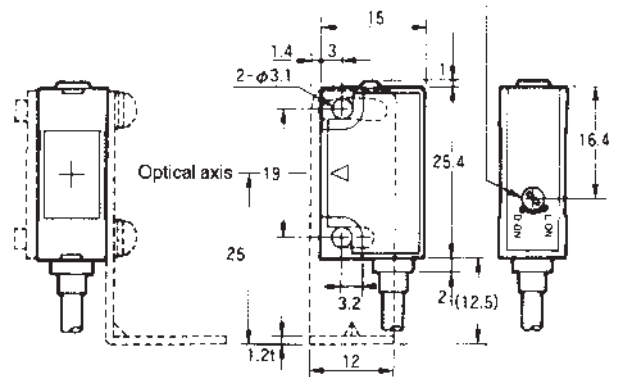
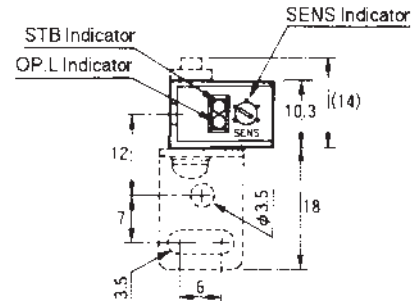
TOP VIEW



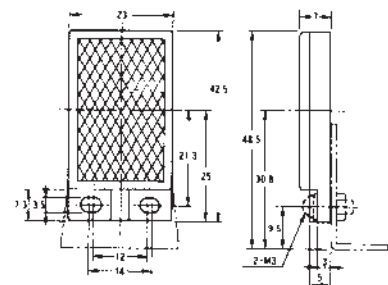
Transmitter has only a power indicator.



SIDE VIEW



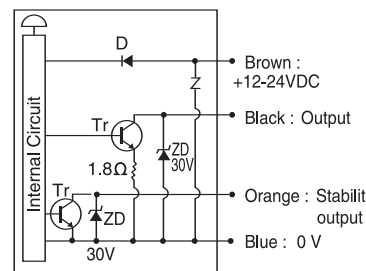
REFLECTOR



SPECIFICATIONS					
MODELS	Side-On	7821	7823	7824	7822
	End View				
DETECTION		Through-beam	Retroreflection	Diffuse	Convergent
RANGE (MAX.)		33' (10m)	0.4"-6.3' (0.01-2m)	12" (30cm)	0.12"-1.2" (3-30mm)
OBJECT RESOLUTION		.24" (6mm) dia. (Min) Opaque Object	-	3.93"x3.93" (10X10cm) White paper	-
POWER SUPPLY		12-24 VDC ± 10%, Ripple 10% Max.			
CURRENT CONSUMPTION		Tr.-20mA Rc.-18mA	20mA	20mA	20mA
OPERATING MODE		Light/Dark-ON Selectable (By exclusive switch)			
OUTPUT MODE	Control	Open Collector, NPN output, Rating: Sink current 100mA (DC30V) Max.Short circuit protection.			
	Stability	Open Collector, NPN output, Rating: Sink current@ 50mA, DC30V (Max.) (except for PNP output)			
RESPONSE TIME		0.35 mSEC (Max.)			
BEAM DEVIATION		10' (Rcvr)	30" (Reflector)	-	
HYSTERESIS		-		10% (Max.)	
LED INDICATOR SENSITIVITY		Tms: Power-Red Rr: Operation L-Red Rcvr: Stability-Green	Operation-Red Stability-Green		
LIGHT SOURCE WAVE LENGTH		Red LED (700nm)			
SWITCH		Light-on/Dark-on Built-in selectable switch L.ON side: Light-on, D.ON side: Dark-on)			
MATERIAL	Case	Polyarylate	Polyarylate	Polyarylate	
	Lens	Polyarylate	Polycarbonate	Polyarylate	Acrylic
CONNECTION		Flying lead (Outer dia 3mm) 2m length Tms: 0.15"X2C Gray Rcvr: 0.15"X4C Black	Flying lead (Outer dia 3mm) 2m length 0.15"X4C Black		
WEIGHT (MAX.)		Tms. Rcvr. 50g each		50g	
ACCESSORIES		Trms: 7821AT04N1LNX Rcvr: 7821AR04N1LNX	Reflector, K-71, K-7:-.1-4m S-25: 5-50cm Option		
EXPLANATION OF PNP OUTPUT		PNP output type has no built in stability output and short circuit protection. The rating of output changes to Source current			

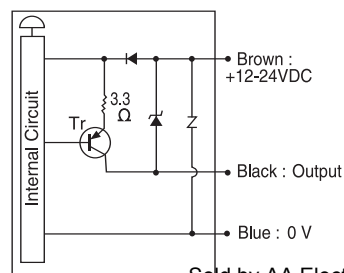
OUTPUT CIRCUIT

NPN OUTPUT



- Built-in short circuit protection
- Stability output is not built with short circuit protection
- Loaded short circuit or overload shuts off the output transistor
- Turn the power back on after checking the loaded condition
- PNP output type has no built in stability output and short circuit protection

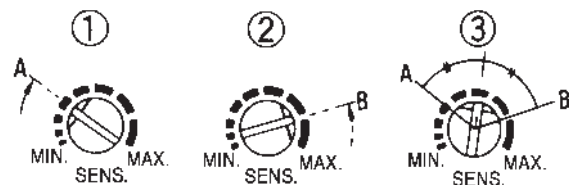
PNP OUTPUT



HOW TO ADJUST SENSITIVITY

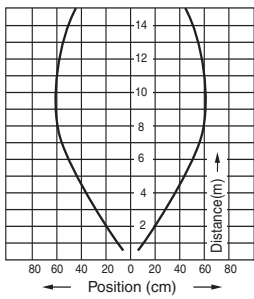
(Adjusted at Light ON operation L.ON)

- Adjustment when there is a reflective object in the background.

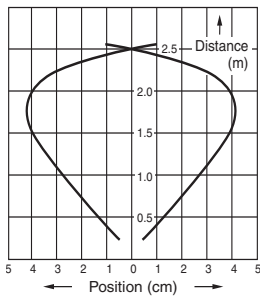


- 1) Set the detection object in the correct position, gradually turn up the sensitivity adjustment (SENS.) from minimum, and make the point at which the operation indicator (red LED) lights up point A.
- 2) Next, gradually turn down the sensitivity adjustment (SENS.) from maximum (MAX.), and make the point at which the operation indicator (red LED) goes off point B. (If the operation indicator does not go off even with the sensitivity set at maximum, this will be point B).
- 3) Set the adjustment between point A and point B, adjustment is now complete.

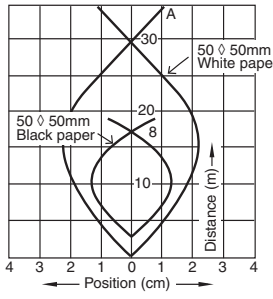
ACTIVE BEAM WIDTH



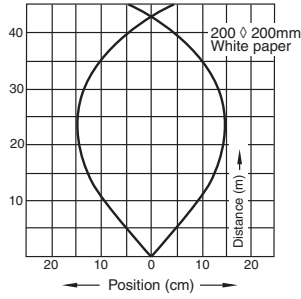
7821



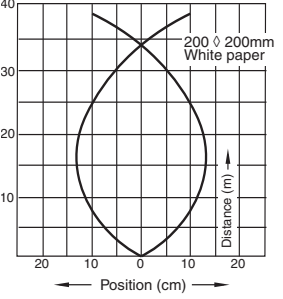
7823



7822

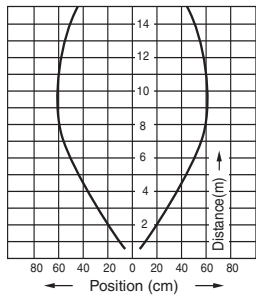


7824

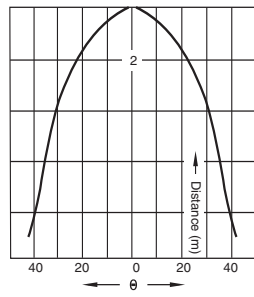


7824 (NPN)

OPERATING ANGLE

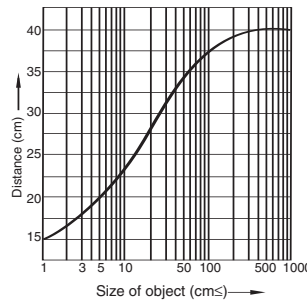


7821

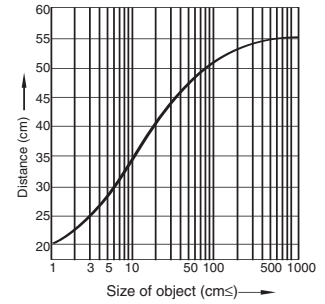


7823

SENSING DISTANCE VS. OBJECT SIZE



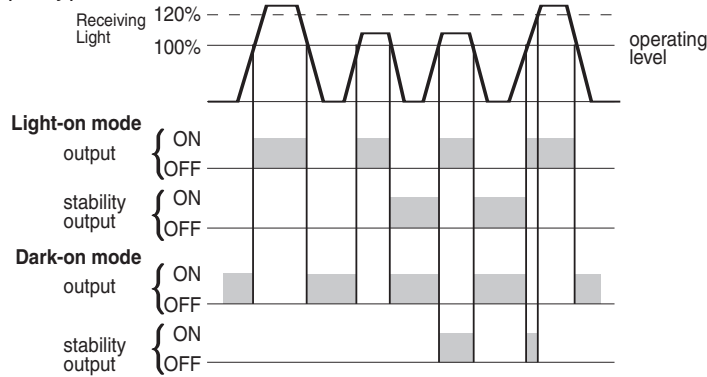
7824 (NPN)



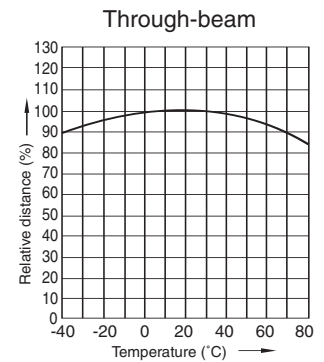
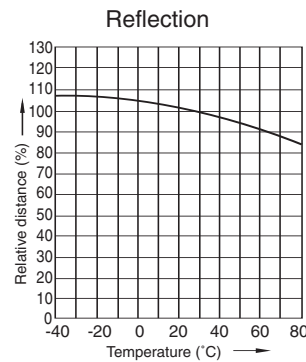
7824

STABILITY OUTPUT

This is used for the initial check for environmental changes after set up, level reduced during operation or the performance of the unit. If the amount of received light is between 100% and 120% of the operation level (in the range of the stability light-ON), the control output is OFF. (This output does not exist in the PNP output type).



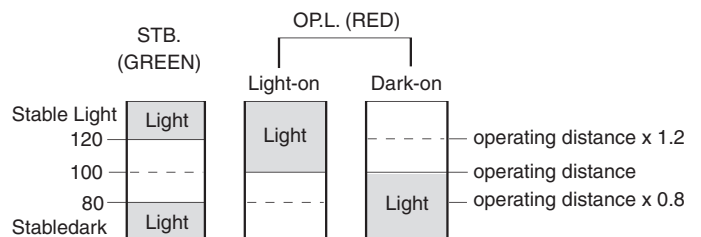
TEMPERATURE CHARACTERISTICS



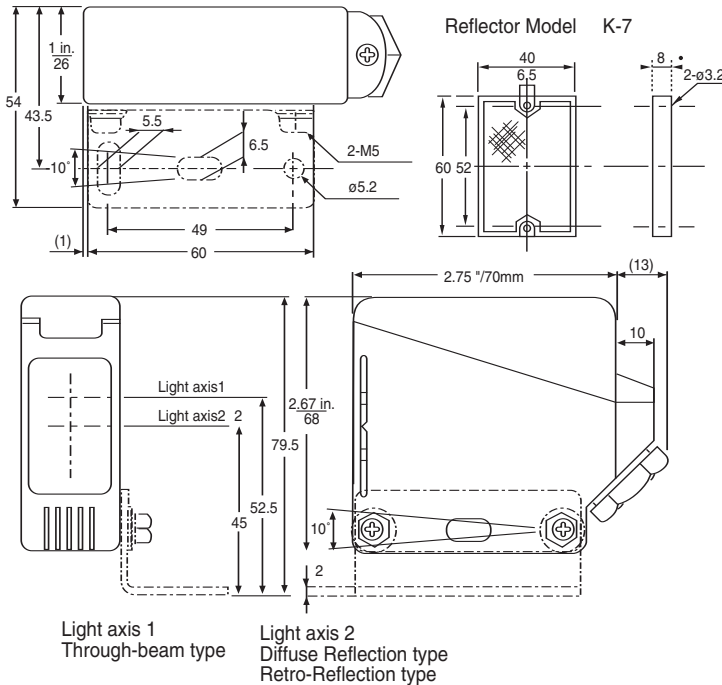
INDICATORS

- The operation indicator (red LED) and the stability indicator (green LED) indicate the levels as shown in the drawing.
- Repeatedly receive/interrupt light with the detection object after the optical axis or sensitivity adjustment has been made, and ensure that it is in the range of stable receiving/interrupting light.
- If set up in the stable range, the reliability will be high despite changes in the environment.

Red LED (OP.L) is an operation indicator. It lights up when receiving light in the L.ON mode (Light ON). It lights up when interrupting light in the D.ON mode (Dark ON).



DIMENSIONS (INCHES)



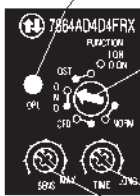
Self-Contained Sensor

- Fully Open Terminal Boards Make Wiring Easier
- Universal Operation Power (24V to 240 VAC/DC)
- The Polarized Light Reflector Detects Mirrored Objects
- Visible Red LED for Easy Adjustment
- Improved Noise Resistance Using Our Uniquely Developed Photo IC
- Sensing Distance to 66 ft. with Through-beam, 3.3 ft. with Diffuse Mode

PANEL DESCRIPTION



WITHOUT DELAY: This is an operation changeover switch for Light ON or Dark ON. When turned to the L.ON position, (used for 7861AR4X4FRX/7864AD4X4FRX). The unit will use L.ON operation, and when in the D.ON position, the unit will use D.ON operation.

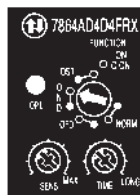


WITH DELAY: OP.L (Operation indicator) It will be on when the output relay operates. A Red LED is used.

FUNCTION: This is a rotary switch for the function selection, used when selecting between the timer function or the operation mode of the output relay.

TIME: This is the time adjustment when operating the timer function. The time is adjustable from 0.1 to 5 seconds.

SENS: This is the sensitivity adjustment. The sensitivity will increase when turned clockwise.



MULTI FUNCTION TYPE: Set with the function changeover SW on the panel.

Unit is set in D.ON mode



One-Shot
Output is on for set time, upon detection



On-Delay
Output is delayed for the set time following detection.



Off-Delay
Holds the output on for the set time



Without Timer

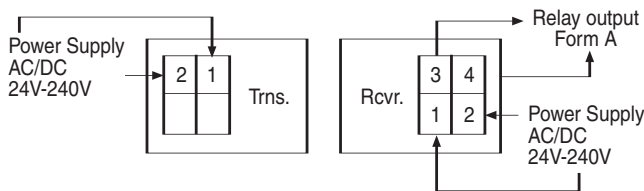
MODEL NUMBER >>>>>>	786	4	4	F	R	X
Type						
Through-Beam	1AS					
Retro-Reflective	3AR					
Long Range Diffused	4AD					
Operation						
On/Off	4					
Time Delay						
No Delay	X					
Switch Selectable (ON-Delay, OFF-Delay, One Shot)	D					
Number of Wires						
Four Wires	4					
Power Requirements						
24 V to 240 VAC/DC	F					
Output						
Relay	R					
Features						
Standard (Prewired)	X					

*Note: Through-Beam not available w/time delay option

SPECIFICATIONS

MODELS	7861	7863	7864	7863	7864
DETECTION	Through-beam	Retroreflection	Diffuse Reflection	Retroreflection	Diffuse Reflection
RANGE	66' (20m) max.	0.1-23' (0.03-7m) max. **	3.3' (1m) max.***	0.1-23' (0.03-7m) max. **	3.3' (1m) max.***
LIGHT SOURCE	Red LED (700nm)		Infrared (800nm)	Red LED (700nm)	Infrared (800nm)
POWER SUPPLY	24V to 240 VAC/DC ±10%, 50/60Hz				
CURRENT CONSUMPTION (MAX.)	Tms.-1.5W Rcvr.-2W	2W		2W	
OPERATING MODE	Light/Dark-ON Selectable			Light/Dark-ON Selectable, timer Selectable	
Timer	—			ON-Delay, OFF-Delay, ONE-Shot, or NO Timer	
Timer Interv.	—			0.1 to 5 sec.	
OUTPUT MODE	Relay, Form 1a				
Rating	3A 250 VAC MAX Resistive Load 3A 30 VDC MAX Resistive Load				
RESPONSE TIME	10 mSEC. (Max.)				
OBJECT RESOLUTION	Min. 22mm Dia	—		—	
VOLUME	—		Sensitivity VR.	Timer Adj. VR	Sensitivity VR Timer Adj. VR
LED INDICATOR	Operation (Red)				
CONNECTION	Terminal(M3.5 Screw)				
WEIGHT (MAX.)	Tms: 150g Rcvr: 170g	170g		170g	
ENVIRONMENT	Withstands 10,000 Lux (Max.)				
Ambient Light	-25 to +55°C				
Operating Temperature	35 to 85% RH				
Humidity	IP66(IEC), Jet-proof				
Case Protection	10 to 55Hz, 1.5mm Amp. 2Hr., 3 Directions				
Vibration					
*7861AS4X4FRX (SET MODEL) Trns. 7861AT4X4FRX Rcvr. 7861AR4X4FRX					
Reflector is included *200 x 200 White Paper					

OUTPUT CIRCUIT



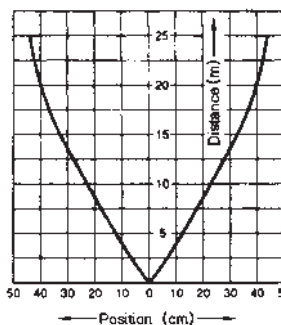
INSTALLATION INSTRUCTIONS

- Use the power voltage within the specifications.
- Do not turn the unit on and off repeatedly.
- Maximum tightening torque of the sensor body and the mounting bracket must be 0.8Nm (8.2kgf cm).
- When a high voltage cable or a power cable passes near the cable of the photoelectric sensor fit it in a conduit to avoid malfunction or damage.
- Incorrect wiring can cause damage. Check the wiring before applying power.
- Although the unit is watertight (IP66), avoid using it in a location where water is always splashing on it or it is underwater. Exposure to corrosive gasses, vibration, shock, oil or chemical splashes may cause the unit to malfunction.
- When wiring with a power conduit, use applicable screws with diameters of RF1/2.
- After wiring to the terminal board, hook the cover onto the front hook and tighten the screws in the rear part, the maximum tightening torque must be 0.6Nm (6kgf/cm).

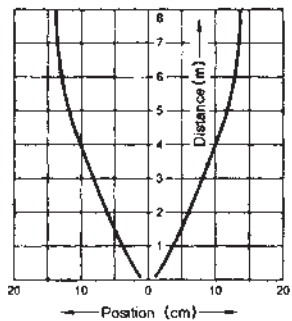
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ACTIVE BEAM WIDTH

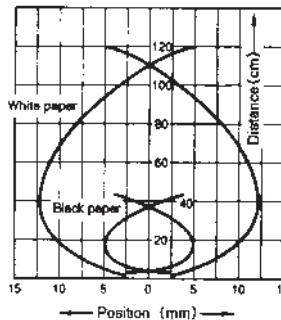
7861



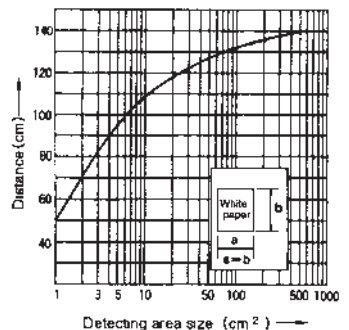
7863



7864



DISTANCE VS AREA CHARACTERISTICS



- 8-Turn Sensitivity Adjustment with Indicator for Fine Sensitivity Adjustment
- High Speed Detection—30 μs Response is now Possible (7086)
- Cross Talk Protection (7086 excluded)—2 Units can be Installed Close to Each Other
- Sensing Range
 Reflective Fibers — Max. 4 in.
 Through-Beam — Max. 10.6 in.



Fiber Optic Sensors

SPECIFICATIONS				
MODELS	7085	7085	7086	7086
DETECTION	Through-beam, Reflection (By fiber unit)			
DETECTION RANGE	Reflective Maximum: 4 in (100mm) * Through-beam Maximum: 10.6 in (270mm)		Reflective Maximum: 4 in (100mm) * Through-beam Maximum: 10.6 in (270mm)	
POWER SUPPLY	12-24 VDC ± 10%, Ripple 10% Max.			
CURRENT CONSUMPTION	30mA (max.)	30mA (max.)	30mA (max.)	30mA (max.)
OPERATING MODE	Light-on/Dark-on Selectable (By SW) Timer function Selectable (By SW), OFF-Delay: 50msec			
OUTPUT MODE	NPN open collector	PNP open collector	NPN open collector	PNP open collector
TIMER	Current 100mA (30 VDC) Max. Residual Voltage 1V (NPN) 1.5V (PNP)**			
INTERFERENCE PROTECTION	Built-In		Built-In	
RESPONSE TIME	A: High Response 300 μs (Max.) B: Other side 500 μs (Max.)		30 μs (Max.)	
SENSITIVITY ADJ.	8 turns VR with indicator			
LIGHT SOURCE	Red LED			
INDICATOR	Operation (Red LED), Stability (Green LED)			
SHORT PROTECTION	Built-In			
MATERIAL	Case: ABS resin Cover: Polycarbonate			
CONNECTION	Flying lead (Outer dia 4.5) 0.3 sq X 3 core 2m			
WEIGHT (MAX.)	90g Max. (Including the code and bracket)			
MODE SETTING WHEN SHIPPING	Sensitivity: Max., Operating mode SW: L. ON (Light-on mode) Interference protect SW: "A" side, Timer SW: "OFF" (NORMAL)		Sensitivity: Max., Operating mode SW: L. ON (Light-on mode) Operating mode SW: L.ON (Light-on mode)	
ENVIRONMENT				
Ambient Light	10,000 1 lux (Max.)			
Operating Temp.	-25 to +55°C (Storage : -40 to +70°C)			
Humidity	35 to 85%RH			
Case Protection	IP65			
Vibration	10 to 55Hz, 1.5mm Amplitude, X, Y, Z, Direction 3 Times			
Impact	100m/s2 (approx10G) X, Y, Z, direction 3 Times			
Dielectric Withstand	AC500V 1 minute			
Insurance Resist	500 VDC mega 20M (Min.)			

* 10cm x 10cm White paper

** NPN Open collector: Sink Current PNP Open collector: source current

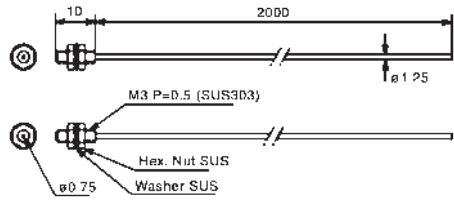
MODEL NUMBER >>>>>>	7085A	F	R	4	D	F	N	X
Type								
Fiber Optic—Cross Talk Protection	F							
Source								
Red LED	R							
Operation								
On/Off	4							
Delay								
Switch Selectable—On Delay, Off Delay, (50mSec)	D							
Number of Wires								
Three Wires	3							
Power Requirements								
12-24 VDC	N							
Output								
Logic NPN	N							
Logic PNP	P							
Features								
Standard	X							

MODEL NUMBER >>>>>>	7086A	F	R	4	D	F	N	X
Type								
Fiber Optic—Cross Talk Protection	F							
Source								
Red LED	R							
Operation								
Light/Dark Operate	4							
Delay								
Switch Selectable—On Delay, Off Delay, (50mSec)	D							
Number of Wires								
Three Wires	3							
Power Requirements								
12-24 VDC	N							
Output								
Logic NPN	N							
Logic PNP	P							
Features								
Standard	X							

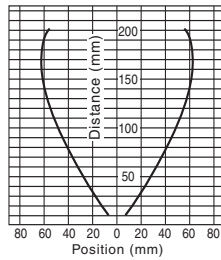
Fiber Optic Sensors // 7085/86 Series

CABLES—THROUGH-BEAM

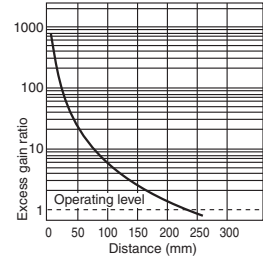
7085-280-01-00



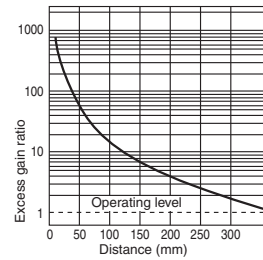
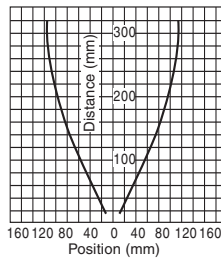
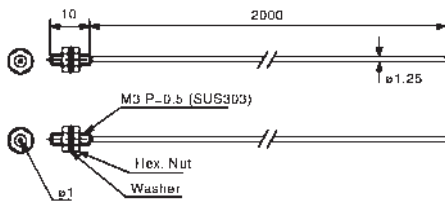
Beam Width



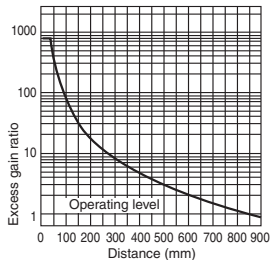
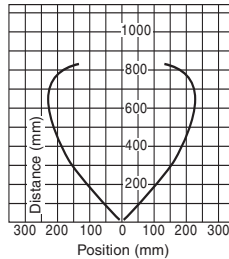
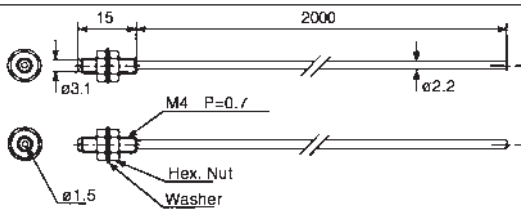
Distance-vs-Output Characteristics



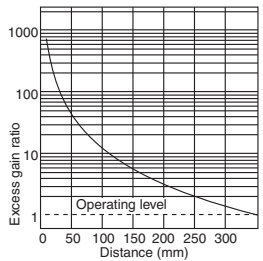
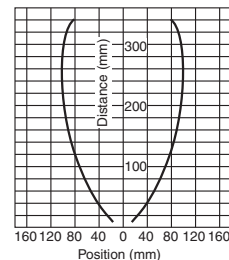
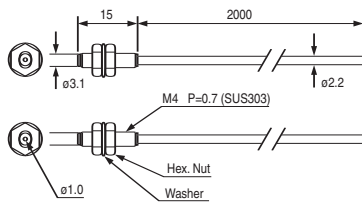
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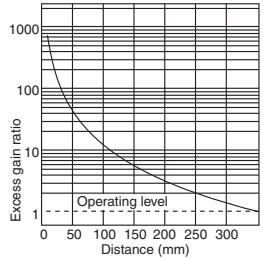
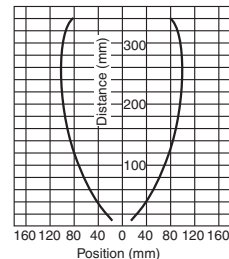
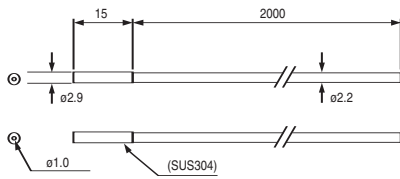
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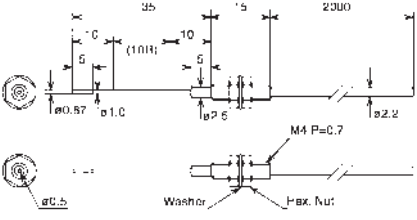
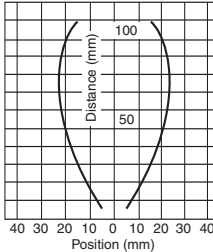
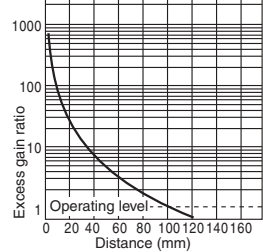
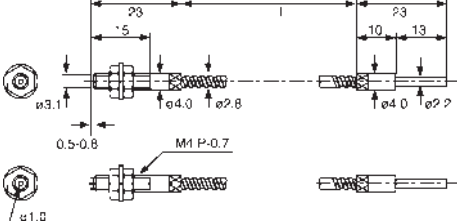
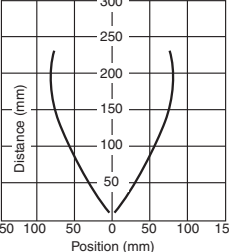
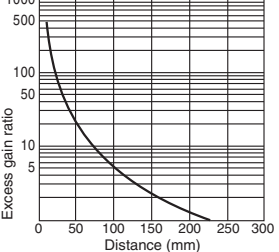
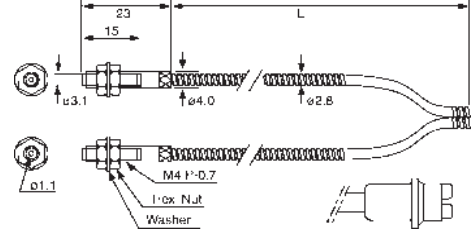
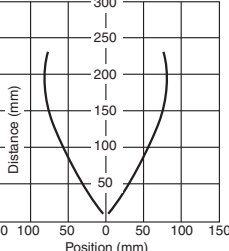
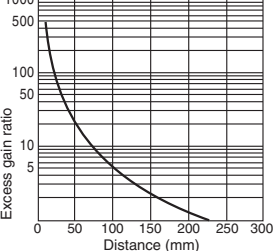
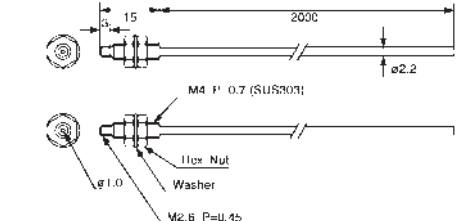
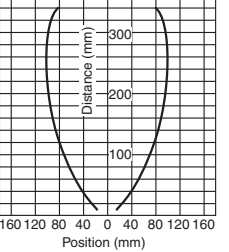
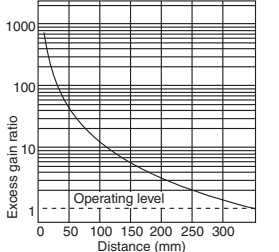
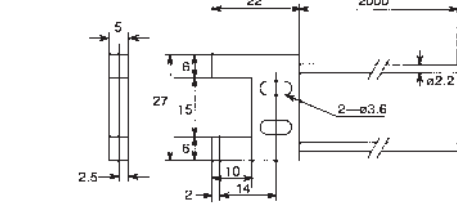
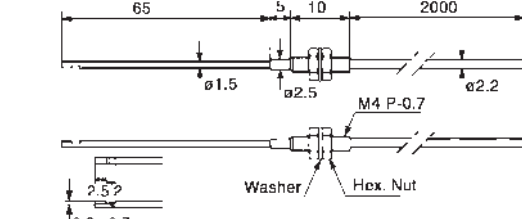
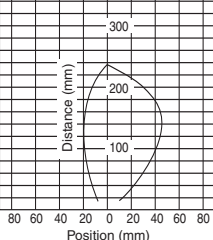
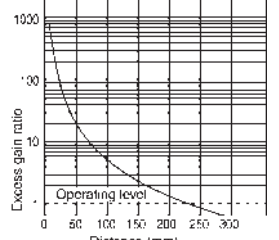


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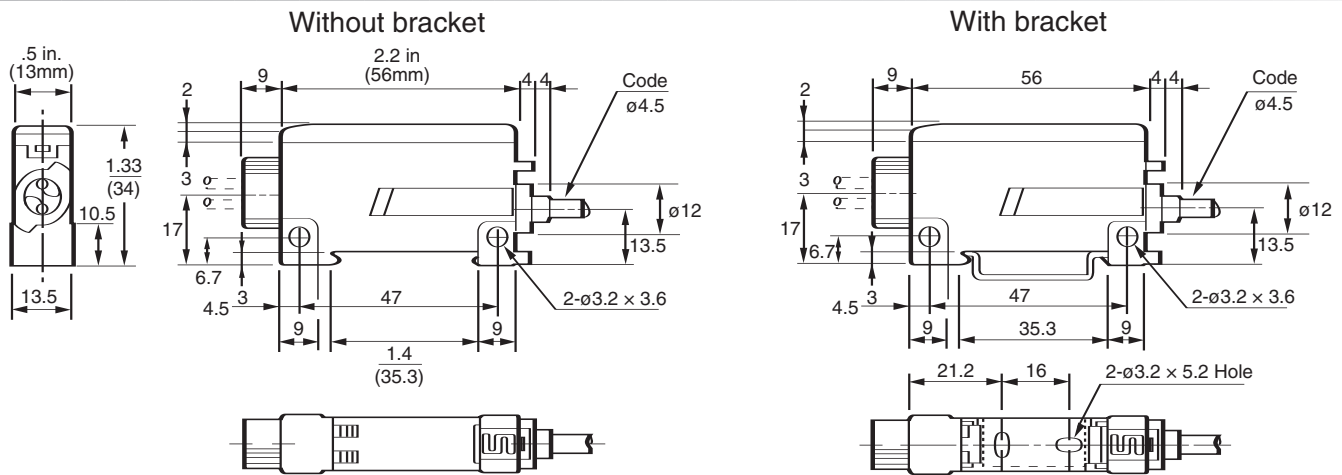


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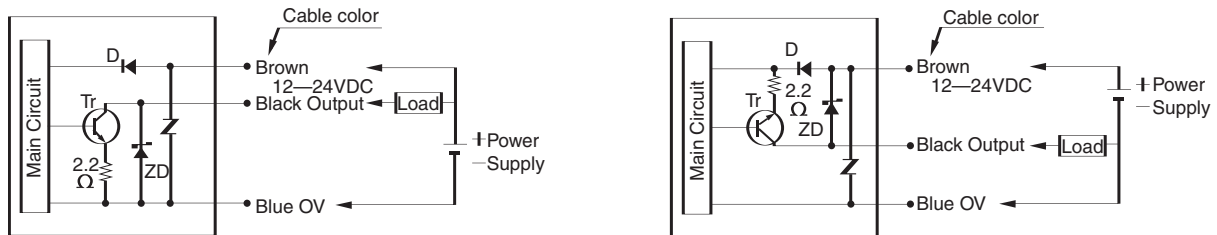


CABLES—THROUGH-BEAM	Beam Width	Distance-vs-Output Characteristics
<p>7085-281-41-00</p> 		
<p>7085-282-01-00</p> 		
<p>7085-282-02-00</p> 		
<p>7085-282-03-00</p> 		
<p>7085-283-10-00</p> 	<p>N/A</p>	<p>N/A</p>
<p>7085-283-20-00</p> 		

DIMENSIONS (INCHES)



WIRING



CABLE SPECIFICATIONS

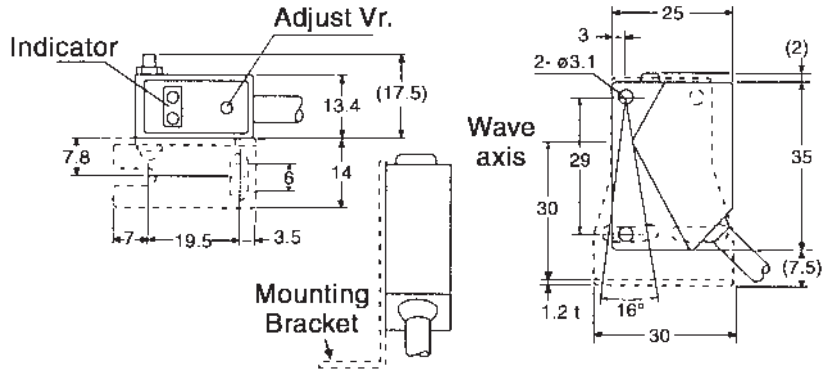
Cable Part Number	Sensing Distance (mm)	Fiber length (m)	Ambient Temp.	Fiber Material		Fiber Diameter (dia.)		Minimum Bending Radius	Minimum Detection Object dia. (mm)
				External Cover	Inside Fiber	Cable (mm)	Inside Fiber (mm)		
THROUGH-BEAM									
7085-280-01-00	150	2	-22-158°F (-30-70°C)	Polyethylene	Plastic	1.25	0.75	20R	.75 (fine adj.)
7085-280-02-00	280						1.0	30R	1.0 (fine adj.)
7085-280-10-00	600					1.5	45R	1.5 (fine adj.)	
7085-280-11-00	270					1.0	30R	1.0 (fine adj.)	
7085-281-31-00	270					0.5	-76-662°F (-60-350°C)	SUS Spiral Tube	Glass
7085-281-41-00	75	2	-22-239°F (-30-15°C)	Heat Proofed	Plastic	2.2	1.0	30R	
7085-282-01-00	195								
7085-282-02-00	—								
7085-282-03-00	270			Polyethylene					
7085-283-10-00	15								
7085-283-20-00	160								
REFLECTIVE									
7085-280-15-00	70	2	-22-158°F (-30-70°C)	Polyethylene	Plastic	2.2	1.0	1R	0.03 (fine adj.)
7085-280-16-00	190						1.5	45R	
7085-281-35-00	120					1.0	30R		
7085-281-42-00	30					0.5	SUS:10R Fiber:15R		
7085-281-43-00	30					1.25			

	Detecting Object	Tube Size	Operating Temp.	Power Supply	Humidity	Bending Radius	Cable Length	Material	Protection	Weight	Adaptable Amplifier
7085-283-30-00	liquid	.23" - 1.02" 6 - 26mm 3mm thick	-40 - +105°C	24 VDC ±10%, Ripple 10% Max.	35 - 85%RH	.39 in. 10mm	.78 in. 2m	Housing: Polycarbonate Fiber: Plastic	IP50	7g	7085 series



- Ultrasonic Sensor with Built-in Amplifier
- Uses Micro Ultrasonic Elements
- Compact Size—.98" x 1.4" x .52"
- 7851—Easily Detect Food Wrapping Cling Film, Plastic Containers, Glass etc.
- 20 Inch Sensing Range
- NPN or PNP Output

DIMENSIONS (INCHES)

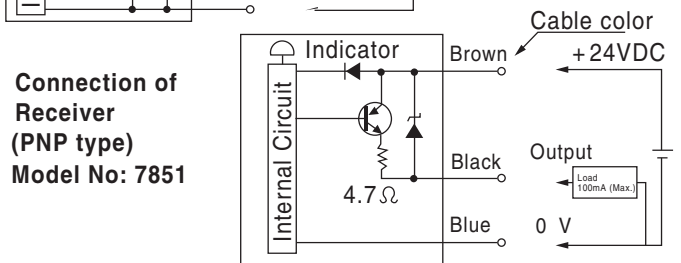
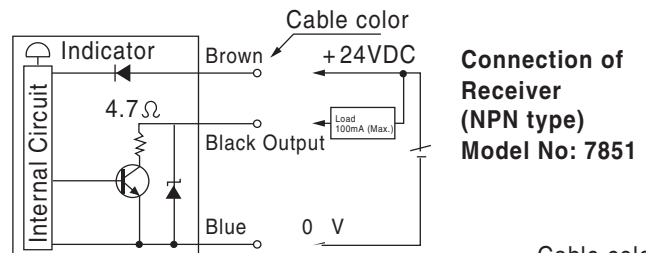
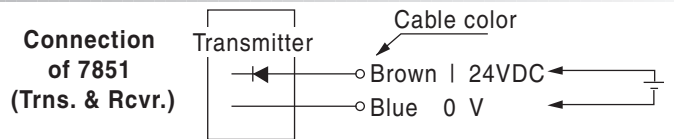


Ultrasonic Sensor

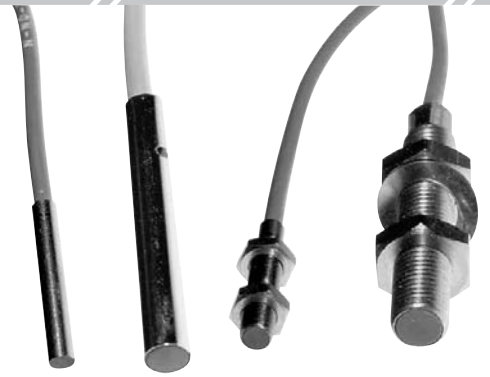
SPECIFICATIONS

MODELS	Set model	7851	7851
	Transmitter	7851AT4X3NNX	7851AT4X3NPX
Receiver	7851AR4X3NNX	7851AR4X3NPX	
DETECTION	Through-beam		
DETECTION RANGE	20 in. (50cm) (Max.)		
OBJECT RESOLUTION	0.4 in. 1.1 in. (10 X 30mm)		
POWER SUPPLY	24 VDC ±10%, Ripple 10% (Max.)		
CURRENT CONSUMPTION	Transmitter	25mA (Max.)	
	Receiver	15mA (Max.)	
OPERATING MODE	Wave-OFF		
OUTPUT MODE	NPN	PNP	
	Open Collector Rating: Sink Current 100mA 30 VDC (Max.)	Open Collector Rating: Source Current 100mA 30 VDC (Max.)	
RESPONSE TIME	10ms (Max.)		
HYSTERESIS	—		
SENSITIVITY ADJ.	Sensing Vr.		
INDICATOR	OP.L: Red LED. Stability: Green LED		
ULTRASONIC WAVE FREQUENCY	360kHz ±15kHz		
WAVE DEVIATION	20°		
CONNECTION	Flying lead	Outer dia.— .15 in. (4mm)	
	Trns.	0.2sq 2 cores 2m	
	Rcvr.	0.2 3 cores 2m	
WEIGHT (MAX.)	80g each		
ENVIRONMENT	-10 to +55°C (Excluding uneven temperature in the air where ultrasonic oscillation transfers)		
Humidity	35 - 85%RH		
Case Protection	IP54 (No condensation on the ultrasonic element)		
Vibration	10 Hz-55Hz. ampl 1.5mm. 2Hr. X,Y,Z Directions		
Operating Velocity of Window	1m/sec. (Max.)		
Shock Resist	490 m/s 2Hr. X.Y.Z directions (excluding the ultrasonic element)		

WIRING



MODEL NUMBER >>>>>>	7851A	S	4	X	3	N	X
Type							
System (Transmitter & Receiver)	S						
Operation							
Wave ON	4						
Delay							
No Delay	X						
Number of Wires							
Three Wire Receiver Two Wire Transmitter	3						
Power Requirements							
24 VDC	N						
Output							
Logic NPN	N						
Logic PNP	P						
Features							
Standard	X						



4mm, 5mm, 6.5mm & 8mm

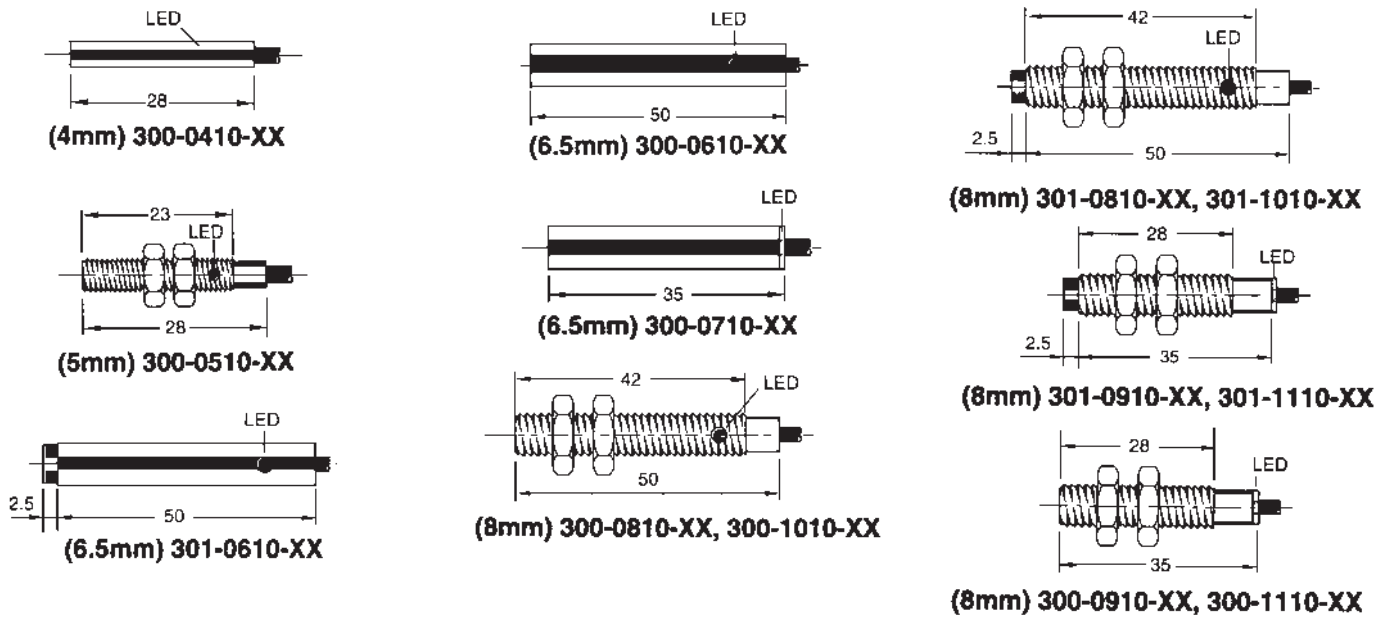


Tubular Inductive Proximity

SPECIFICATIONS

SWITCHING POINT HYSTERESIS	<10% of Max. Sensing Distance
SWITCHING FREQUENCY	2000 Hz.
REPEATABILITY	<0.01mm
SHORT CIRCUIT PROTECTION	Yes
LED INDICATOR	Yes
OPERATING TEMPERATURE	-25° to 70°C
STANDARD TERMINATION	2 Meter Cable or Connector (6.5 & 8mm only)
DEGREE OF PROTECTION	NEMA 1, 4, 6, 12, 13 (IP67)

DIMENSIONS (MILLIMETERS)



SIZE	4mm	5mm	6.5mm		8mm	
TYPE	3 Wire DC	3 Wire DC	3 Wire DC		3 Wire DC	
SHIELDING	N - Non-Shielded	S	S	N	S	N
	S - Shielded					
MAXIMUM SENSING DISTANCE (SN)MM	0.8		1.5	2	1.5	2
DC SUPPLY VOLTAGE (RESIDUAL RIPPLE <10%)	6-35 VDC		10-30 VDC		10-30 VDC	
MAXIMUM OUTPUT CURRENT mA	150		200		200	
NO LOAD CURRENT AT 24 VDC mA	<10		<15		<15	
VOLTAGE DROP (ON STATE)	<1.4 VDC		<1.8 VDC		<1.8 VDC	
OUTPUTS	NPN-N.O. or N.C.	NPN-N.O. or N.C.	NPN-N.O. or N.C.		NPN-N.O. or N.C.	
	PNP-N.O. or N.C.	PNP-N.O. or N.C.	PNP-N.O. or N.C.		NPN-N.O. or N.C.	
HOUSING MATERIAL	Stainless Steel		Stainless Steel		Nicked Brass or Stainless Steel	

Proximity Sensors // 300/301 Series

MODEL NUMBER >>>>>>	30				1
Type					
Shielded	0				
Non-Shielded	1				
Housing					
4mm Stainless Steel Unthreaded	04				
5mm Stainless Steel	05				
6.5mm Stainless Steel Unthreaded	06				
6.5mm Stainless Steel, Short Barrel Unthreaded	07				
8mm Nickel Brass	08				
8mm Nickel Brass, Short Barrel	09				
8mm Stainless Steel	10				
8mm Stainless Steel, Short Barrel	11				
Termination					
2 Meter Cable	10				
K Connector	30				
H (Micro) Connector	40				
H1 Connector	50				
Output					
DC, 3 Wire, NPN, NO	21				
DC, 3 Wire, NPN, NC	22				
DC, 3 Wire, PNP, NO	24				
DC, 3 Wire, PNP, NC	25				
Extended Sensing Range					
Extended Ranges 6.5mm-2mm 8mm-2mm					1

AVAILABILITY GUIDE— For Short Barrel Housing, Extended Sensing Ranges and Connectors

	Shielded	Non-Shielded
Standard Length Sensor With H1 Connector	6.5mm 8mm	6.5mm 8mm
Standard Length Sensor With H (Micro) Connector	8mm	8mm
Short Barrel Housing With H (Micro) Connector	8mm	8mm
Short Barrel Housing With H (Micro) Connector & Extended Sensing Range	8mm	
Short Barrel Housing With 2 Meter Cable & Extended Sensing Range	6.5mm 8mm	
Short Barrel Housing With 2 Meter Cable	6.5mm 8mm	6.5mm 8mm
Short Barrel Housing With H1 Connector	6.5mm 8mm	6.5mm 8mm
Short Barrel Housing With H1 Connector and Extended Sensing Range	6.5mm 8mm	
With Standard Length Housing w/K Connector	8mm	8mm

NOTE: Extended Sensing Range Is Not Available In Standard Length Housing Sensors.

SPECIFICATIONS

SWITCHING POINT HYSTERESIS	<10% of Max. Sensing Distance
SHORT CIRCUIT PROTECTION	Yes, all DC Models
REVERSE POLARITY PROTECTION	Yes, all DC Models
LED INDICATOR	Yes
OPERATING TEMPERATURE	-25° to 70°C
STANDARD TERMINATION	2 Meter Cable or Connector
DEGREE OF PROTECTION	NEMA 1, 4, 6, 12, 13 (IP67)
HOUSING	Nickel Brass, Stainless Steel



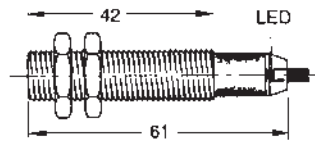
12mm, 18mm & 30mm



Tubular Inductive Proximity

SIZE		12mm						18mm						30mm					
TYPE		2 wire DC		3/4 wire DC		2 wire DC		2 wire DC		3/4 wire DC		2 wire DC		2 wire DC		3/4 wire DC		2 wire DC	
SHIELDING	N - Non-Shielded	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N
	S - Shielded																		
MAXIMUM SENSING DISTANCE (SN)mm		2	4	2	4	2	4	5	8	5	8	5	8	10	15	10	15	10	15
SUPPLY VOLTAGE (RESIDUAL RIPPLE <10%, DC MODELS)		10-30 VDC				20-250 VAC		10-30 VDC		10-30 VDC		20-250 VAC		10-30 VDC		10-30 VDC		20-250 VAC	
MAXIMUM OUTPUT CURRENT mA		100		200		300		100		200		300		100		200		300	
NO LOAD CURRENT AT 24 VDC mA		—		<18		—		—		<18		—		—		<18		—	
VOLTAGE DROP (ON STATE)		<7 VDC		<1.8 VDC		<6 VAC		<7 VDC		<1.8 VDC		<6 VAC		<6.5 VDC		<1.8 VDC		<6 VAC	
OUTPUTS		N.O. or N.C.		NPN-N.O.-N.C. PNP-N.O.-N.C. NPN-N.O. & N.C. PNP-N.O. & N.C.		N.O. or N.C.		N.O. or N.C.		NPN-N.O.-N.C. PNP-N.O.-N.C. NPN-N.O. & N.C. PNP-N.O. & N.C.		N.O. or N.C.		N.O. or N.C.		NPN-N.O.-N.C. PNP-N.O.-N.C. NPN-N.O. & N.C. PNP-N.O. & N.C.		N.O. or N.C.	
SWITCHING FREQUENCY		1000		1000		12		600		600		12		300		300		12	
REPEATABILITY MM		<0.01		<0.01		<0.2		<0.02		<0.02		<0.2		<0.05		<0.05		<0.3	
MINIMUM OUTPUT CURRENT		5		—		5		5		—		5		<1.5		—		5	
MAX. PEAK CURRENT FOR 20mS		—		—		1.5		—		—		1.5		—		—		1.5	
HOUSING MATERIAL		<3		—		<2.5		<3		—		<2.5		<0.6		—		<2.5	

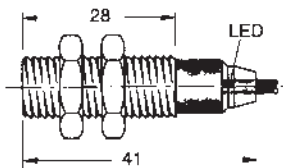
DIMENSIONS (INCHES/MILLIMETERS)



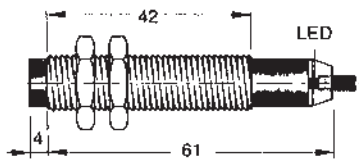
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300-3-1410-XX, 300-3-1510-XX

(12mm, 3 & 4 Wire) 300-3-1210-XX,
300-3-1410-XX, 300-3-1510-XX

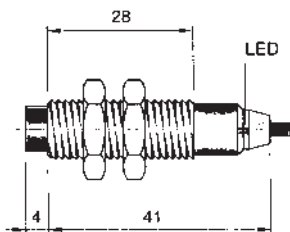
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300-3-1510-XX



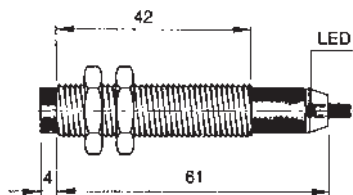
(12mm, 3 & 4 Wire) 300-3-1310-XX



(12mm, 3 & 4 Wire) 301-3-1210-XX,
301-3-1410-XX, 300-3-1510-XX



(12mm, 3 & 4 Wire) 301-3-1310-XX

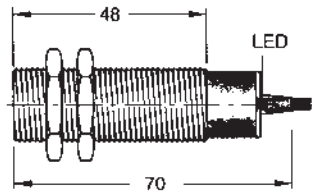


(12mm, 2 Wire AC)
301-3-1210-XX, 301-3-1510-XX

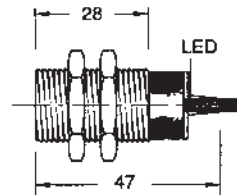
(12mm, 2 Wire DC)
301-3-1210-XX, 301-3-1410-XX,
301-3-1510-XX

Sold by AA Electric 1-800-237-8274 Lakeland, FL • Lawrenceville, GA • Greensboro, NC • East Rutherford, NJ

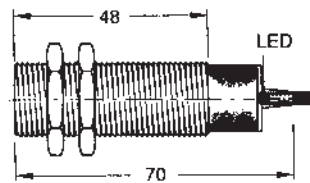
Web : www.A-Aelectric.com Email : njsales@a-aelectric.com



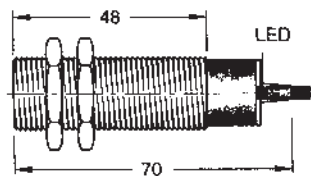
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300-3-1810-XX,
300-3-1910-XX, 300-3-2110-XX



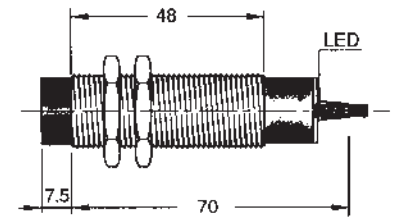
(18mm, 3 & 4 Wire DC)
300-3-2010-XX



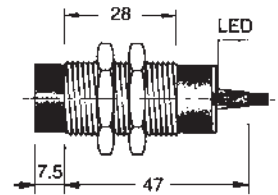
(18mm, 2 Wire DC)
300-3-1810-XX,
300-3-1910-XX,
300-3-2110-XX



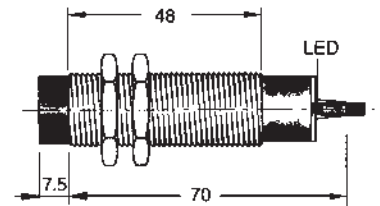
(18mm, 2 Wire AC)
300-3-1810-XX,
300-3-2110-XX



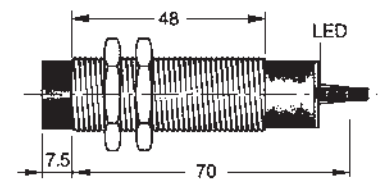
(18mm, 3 & 4 Wire DC)
301-3-1810-XX,
301-3-1910-XX, 301-3-2110-XX



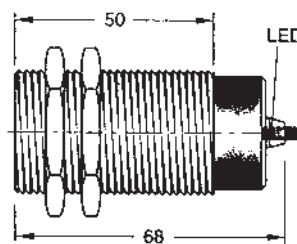
(18mm, 3 & 4 Wire DC)
301-3-2010-XX



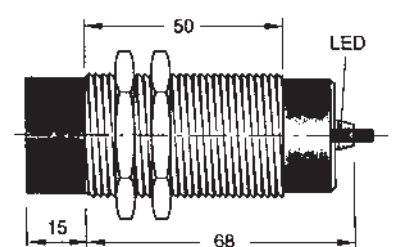
(18mm, 2 Wire DC)
301-3-1810-XX,
301-3-1910-XX,
301-3-2110-XX



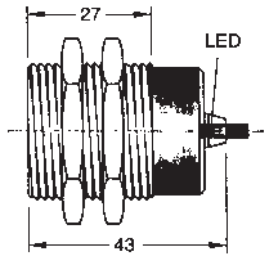
(18mm, 2 Wire AC)
301-3-1810-XX,
301-3-2110-XX



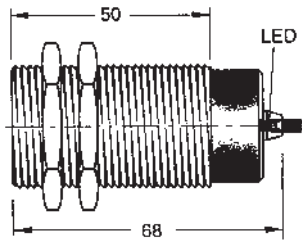
(30mm, 3 & 4 Wire DC)
300-3-3010-XX, 300-3-3310-XX



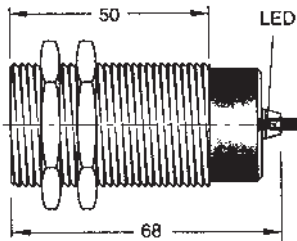
(30mm, 3 & 4 Wire DC)
301-3-3010-XX, 301-3-3310-XX



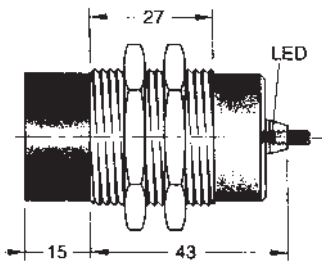
(30mm, 3 & 4 Wire DC)
300-3-3210-XX



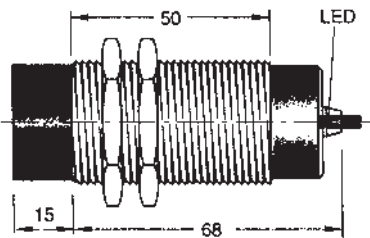
(30mm, 2 Wire AC)
300-3-3010-XX, 300-3-3310-XX



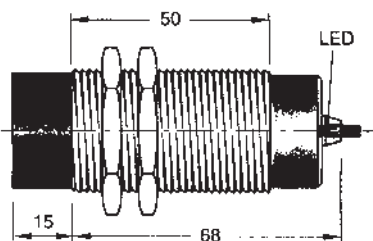
(30mm, 2 Wire DC)
300-3-3010-XX, 300-3-3310-XX



(30mm, 3 & 4 Wire DC)
301-3-3210-XX



(30mm, 2 Wire DC)
301-3-3010-XX, 301-3-3310-XX



(30mm, 2 Wire AC)
301-3-3010-XX, 301-3-3310-XX

MODEL NUMBER >>>>>>	30				1
Type					
Shielded	0				
Non-Shielded	1				
Housing					
12mm Nickel Brass	12				
12mm Nickel Brass, Short Barrel	13				
12mm Plastic	14				
12mm Stainless Steel	15				
18mm Nickel Brass	18				
18mm Plastic	19				
18mm Nickel Brass, Short Barrel	20				
18mm Stainless Steel	21				
30mm Nickel Brass	30				
30mm Round Plastic	31				
30mm Round Nickel Brass, Short Barrel	32				
30mm Round Stainless Steel	33				
Termination					
2 Meter Cable	10				
K Connector	30				
H (Micro) Connector	40				
H1 Connector	50				
Output					
AC, 2 Wire, N.O.	11				
AC, 2 Wire, N.C.	12				
DC, 3 Wire, NPN, NO	21				
DC, 3 Wire, NPN, NC	22				
DC, 4 Wire, NPN, NO & NC	23				
DC, 3 Wire, PNP, NO	24				
DC, 3 Wire, PNP, NC	25				
DC, 4 Wire, PNP, NO & NC	26				
DC, 2 Wire, NO	27				
DC, 2 Wire, NC	28				
Extended Sensing Range					
Extended Ranges-4mm for 12mm; 8mm for 18mm	1				

AVAILABILITY GUIDE— For Short Barrel Housing, Extended Sensing Ranges and Connectors

	Shielded	Non-Shielded
Standard Length Sensor With H (Micro) Connector	All 12mm, 18mm & 30mm	All 12mm, 18mm & 30mm
Short Barrel Housing With H (Micro) Connector	12mm, 18mm & 30mm 3 or 4 wire	12mm, 18mm & 30mm 3 or 4 wire
Short Barrel Housing With H (Micro) Connector & Extended Sensing Range	12mm, 18mm & 30mm, 3 wire	
Short Barrel Housing With 2 Meter Cable & Extended Sensing Range	12mm, 18mm & 30mm 3 wire	
Short Barrel Housing With H1 Connector	12mm 3 wire	12mm 3 wire
Short Barrel Housing With H1 Connector and Extended (4mm) Sensing Range	12mm 3 wire	
Short Barrel housing With 2 Meter Cable	12mm, 18mm & 30mm 3 or 4 wire	12mm, 18mm & 30mm 3 or 4 wire
With Standard Length Housing w/K Connector	All 12mm, 18mm & 30mm	All 12mm, 18mm & 30mm

NOTE: Extended Sensing Range Is Not Available In Standard Length Housing Sensors.



5-100mm Ring



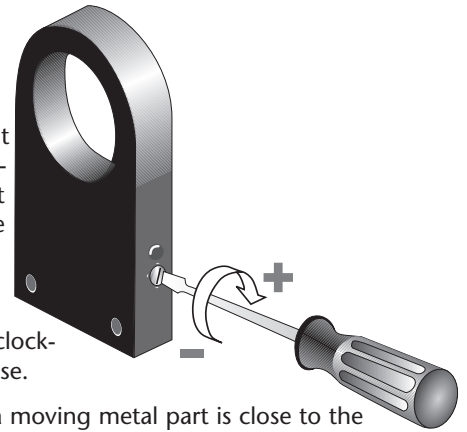
Inductive Proximity Sensor

In Ring Sensors, the sensing is carried out *inside* the ring. The sensor intervenes when a Metallic object is introduced.

They are particularly suitable for checking the presence and counting of small metal objects, screws, nuts, washers etc. or for any similar operation. They are available with internal diameters of 5, 12, 15, 22, 25, 30, 44, 63 & 100mm with LED and trimmer for the sensitivity adjustment.

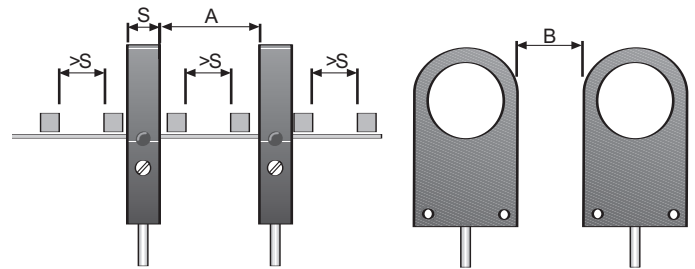
SENSITIVITY ADJUSTMENT:

After having followed the instructions regarding to the choice of the most suitable unit it is recommended that the sensitivity adjustment be carried out when the sensor is installed in the final position taking into account how much metal mass is close by which could alter its functioning. The sensitivity increases turning the trimmer clockwise and reduces by turning it anti-clockwise.



EFFECTS OF METAL IN THE CLOSE VICINITY: If a moving metal part is close to the sensing area the functioning can be disturbed. In order to avoid this, install the units some distance from metallic objects. Ensure that this does not interfere with the functioning.

SPECIFICATIONS	
SWITCHING POINT HYSTERESIS	<10% of max. switching distance. See Chart. Ring Sensors.
SHORT CIRCUIT PROTECTION	Yes, all DC Models
REVERSE POLARITY PROTECTION	Yes, all DC Models
LED INDICATOR	Yes
OPERATING TEMPERATURE	-25° to 70°C
STANDARD TERMINATION	2 Meter Cable or Connector
DEGREE OF PROTECTION	NEMA 1, 4, 12, 13 (IP65) - Ring
HOUSING	Plastic



USE OF SENSOR: A distance equal to the width of the sensor should be left between each object that passes through the sensor. If more than none sensor is to be installed in close vicinity, the minimum distance indicated between sensors should be observed.

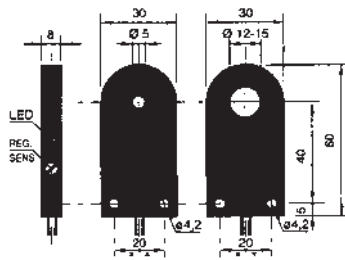
A (mm)	B (mm)
25	10
30	10
60	20
60	20
300	250
300	250
600	650

RING SENSORS — GENERAL CHARACTERISTICS

Selection of Ring Sensor: Selection should be made based on the minimum hole diameter required. In this way the sensitivity adjustment can be made with normal parameters and need not be pushed to the maximum risking the proper functioning of the unit

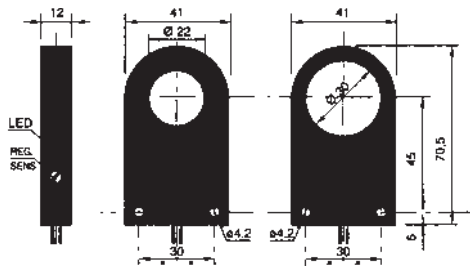
Internal Ring Diameter (mm)	Min. Object Size (Length x Diameter)	Switching Frequency
5	1mm x 0.7mm	600 to 1500 Hz
12	2mm x 1.2mm	600 to 1000 Hz
22	6mm x 3mm	600 to 1000 Hz
30	7mm x 4mm	600 to 800 Hz
44	9mm x 5mm	250 to 600 Hz
63	12mm x 6mm	100 to 200 Hz
100	20mm x 12mm	100 Hz

DIMENSIONS (MILLIMETERS)



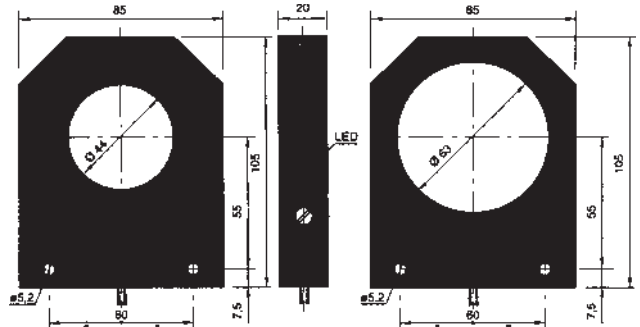
301-3-5010-XX
(5mm Ring)

301-3-5110-XX
(12mm Ring)



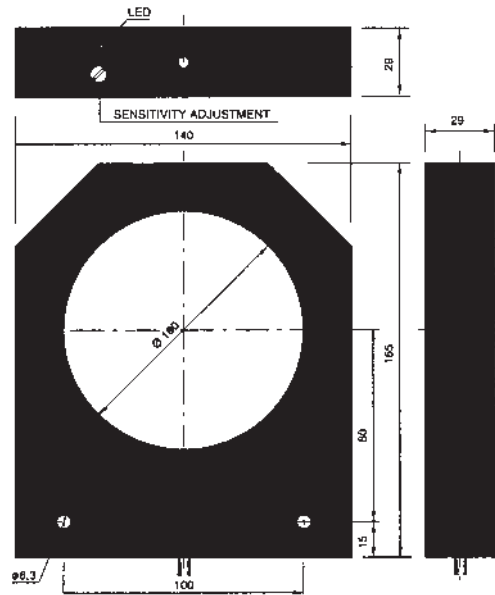
301-3-5210-XX
(22mm Ring)

301-3-5310-XX
(30mm Ring)



301-3-5410-XX
(44mm Ring)

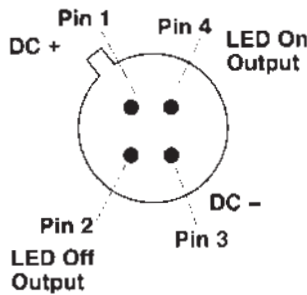
301-3-5510-XX
(63mm Ring)



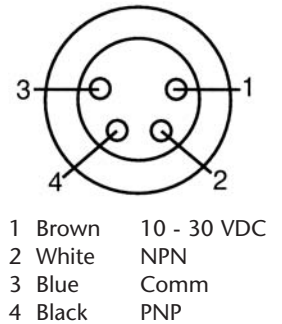
(100mm Ring) 301-3-5610-XX

MODEL NUMBER >>>>>	30	1		
Type				
Non-Shielded	1			
Housing				
5mm Plastic Ring	50			
12mm Plastic Ring	51			
22mm Plastic Ring	52			
30mm Plastic Ring	53			
44mm Plastic Ring	54			
63mm Plastic Ring	55			
100mm Plastic Ring	56			
Termination				
2 Meter Cable	10			
K Connector	30			
H (Micro) Connector*	40			
H1 Connector	50			
Output				
DC, 4 Wire, NPN, NO & NC	23			
DC, 4 Wire, PNP, NO & NC	26			

CABLE CONNECTOR (MICRO)



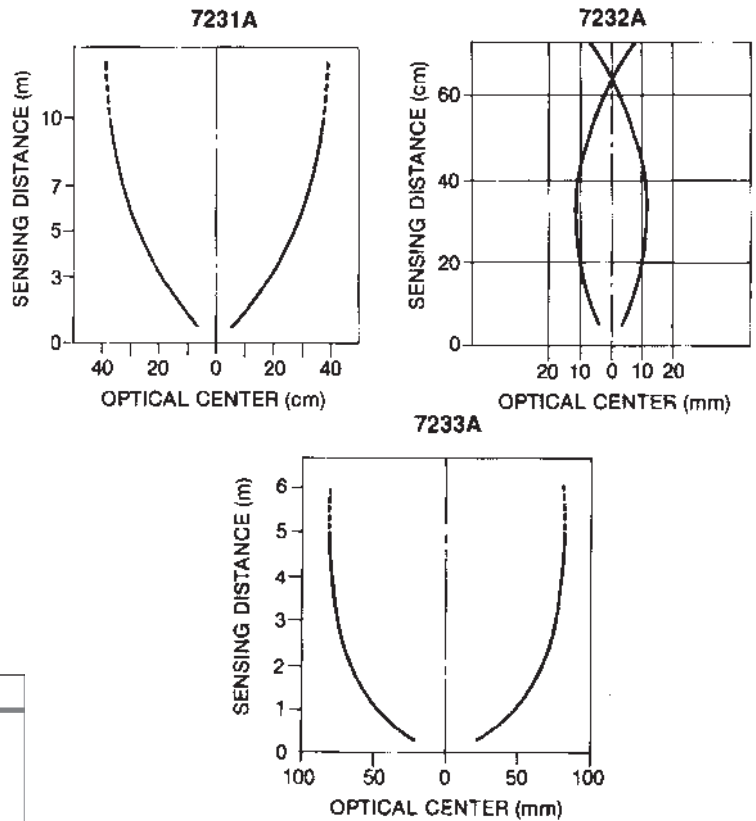
HOUSING CONNECTOR (PICO)





40mm RECTANGULAR
80mm SQUARE

Inductive Proximity Sensor



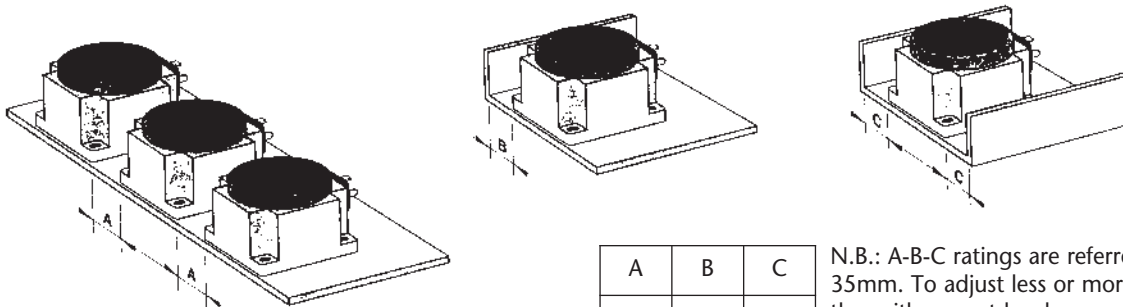
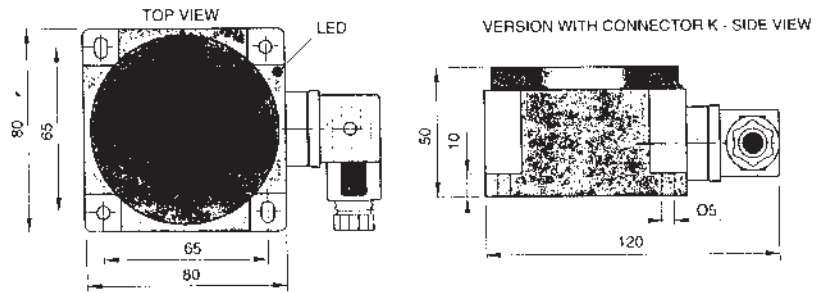
MODEL NUMBER >>>>>>	30	3			
Type					
Shielded	0				
Non-Shielded	1				
Housing					
40mm Rectangular Plastic		42			
80mm Square Plastic		82			
Termination					
Terminal Block		20			
K Connector		30			
Output					
AC, 2 Wire, NO or NC		13			
DC, 4 Wire, NPN, NO & NC		23			
DC, 4 Wire, PNP, NO & NC		26			
DC, 2 Wire, NO		27			
DC, 2 Wire, NC		28			

SPECIFICATIONS	
SWITCHING POINT HYSTERESIS	<10% of max. switching distance. See Chart. Ring Sensors.
SHORT CIRCUIT PROTECTION	Yes, all DC Models
REVERSE POLARITY PROTECTION	Yes, all DC Models
LED INDICATOR	Yes
OPERATING TEMPERATURE	-25° to 70°C
DEGREE OF PROTECTION	NEMA 1, 4, 12, 13 (IP65) - Ring
HOUSING	Plastic

SIZE	40mm Rectangular						80mm Square				
	TYPE		2 wire DC		4 wire DC		2 wire AC		2 wire DC	4 wire DC	2 wire AC
SHIELDING	N - Non-Shielded		S	N	S	N	S	N	N	N	N
	S - Shielded										
MAXIMUM SENSING DISTANCE (SN)mm			10	20	15	20	15	20	50	50	50
SUPPLY VOLTAGE (RESIDUAL RIPPLE <10%)			10-30 VDC		10-55 VDC		20-250 VAC		10-30 VDC	10-55 VDC	20-250 VAC
MAXIMUM OUTPUT CURRENT mA			100		200		300		100	200	300
NO LOAD CURRENT AT 24 VDC mA			—		<10		—		—	<10	—
LEAKAGE CURRENT mA			<0.6		—		<2.5		<0.6	—	<2.5
VOLTAGE DROP (ON STATE)			<7 VDC		<1.8 VDC		<6 VAC		<7 VDC	<1.8 VDC	<6 VAC
OUTPUTS			N.O. or N.C. Programmable		PNP-N.O.-N.C. NPN-N.O.& N.C.		N.O. or N.C. Programmable		N.O. or N.C. Programmable	PNP-N.O.-N.C. NPN-N.O.& N.C.	N.O. or N.C. Programmable
SWITCHING FREQUENCY			300		300		12		50	50	12
REPEATABILITY mm					<0.3				<0.5		
MINIMUM OUTPUT CURRENT			<1.5		—		<5		<1.5	—	5
MAX. PEAK CURRENT FOR 20mS			—		—		1.5		—	—	1.5
STANDARD TERMINATION			Terminal Block						Terminal Block		

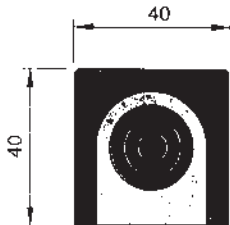
Proximity Sensors // 300/301 Series

DIMENSIONS (MILLIMETERS)

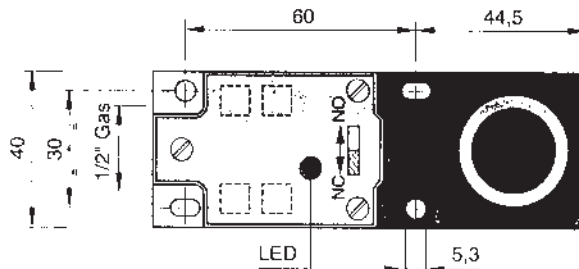


A	B	C
>450	>45	>70

N.B.: A-B-C ratings are referred to Sn = 35mm. To adjust less or more sensitivity they either must be decreased or increased.

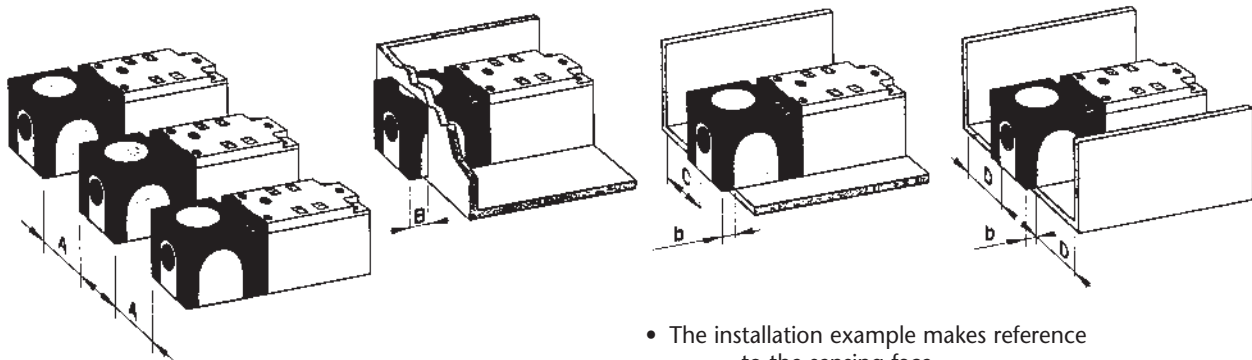


Frontal view



Version with terminal block - top view

300-3-4220-XX



- The installation example makes reference to the sensing face.

DIMENSIONS mm	A	B	b	C	D
SHIELDED	>30	>6	>0	>0	>0
NON-SHIELDED	>40	>40	>15	>10	>15