



Basic Series 18mm Diameter Cylindrical Style Sensors

- Up to 50% longer sensing ranges than previous versions
- Housing lengths as short as 60mm (2 3/8")
- Cost-effective, compact sensor in a rugged metal housing



Diffused Mode with Background Suppression

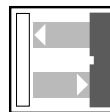
See page 614

Features:

- Adjustable focal points
- Sharp sensing range cut-off

Sensing Range: 100mm

Outputs: NPN, PNP



Diffused Mode

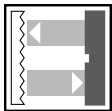
See pages 615-616

Features:

- Light on/dark on mode determined by wiring
- Adjustable sensitivity

Sensing Ranges: 200mm, 500mm

Outputs: NPN, PNP



Retro-Reflective Mode

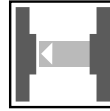
See page 617

Features:

- Light on/dark on mode determined by wiring
- Polarized filters detect shiny targets

Sensing Range: 4m

Outputs: NPN, PNP



Thru-Beam Mode

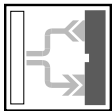
See pages 618-619

Features:

- Laser model has 1.5mm diameter light spot
- Light on/dark on mode determined by wiring

Sensing Range: 10m

Outputs: NPN, PNP



Fiber Optic Diffused and Thru-Beam Mode

See page 620

Features:

- Light on/dark on mode determined by wiring
- Wide selection of mating fiber optic heads and lengths

Sensing Range: Determined by fiber optic cable

Outputs: NPN, PNP

See page 621-624 for Basic Series 18mm diameter wiring and dimensions.

Photoelectric Sensors

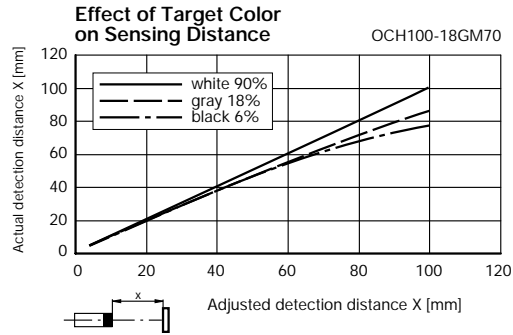
Photoelectric Basic Series 18mm Diameter Style



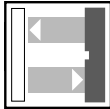
Diffused Mode with Background Suppression

Specifications	
SENSING RANGE	30-100mm
SENSITIVITY ADJUSTMENT	Yes (30-100mm)
REFERENCE TARGET	100 x 100mm white test card
GRAY/WHITE DIFFERENTIAL*	≤13%
MODEL NUMBER(S)	OCH100-18GM70-A0-V1
	OCH100-18GM70-A2-V1
OUTPUT: Transistor, Normally Open and Normally Closed	-A0 2 NPN
	-A2 2 PNP
LOAD CURRENT	100mA max.
LEAKAGE CURRENT	≤10μA
VOLTAGE DROP	≤2.5VDC
SHORT CIRCUIT AND OVERLOAD PROTECTION	Yes
REVERSE POLARITY PROTECTION	Yes
SUPPLY VOLTAGE	10-30VDC
VOLTAGE RIPPLE	10%
LED(s)	Yes (1)
CURRENT CONSUMPTION	≤40mA
OPERATING MODE	Light on/dark on
RESPONSE TIME	≤0.5ms
READINESS DELAY	≤100ms
HYSTERESIS	6% (for 18% gray test card)
SWITCHING FREQUENCY	1kHz
ELECTROMAGNETIC COMPATIBILITY COMPLIANCE	NEMA ICS5-2000 See page 6
PROTECTION (IEC)	IP65
LIGHT SOURCE	Visible red LED 660nm
AMBIENT LIGHT RESISTANCE	≤10,000 lux
TEMPERATURE RANGE	<i>WORKING</i> -13°F to +131°F
	<i>STORAGE</i> -22°F to +158°F
HOUSING MATERIAL	Nickel-plated brass
LENS	Glass
WEIGHT	2.8oz
APPROVALS	General Purpose LISTED Yes
	General Purpose CERTIFIED Yes
ELECTRICAL CONNECTION	Quick disconnect type V1
ADDITIONAL DATA	See pages 621-624

Sensing Characteristics



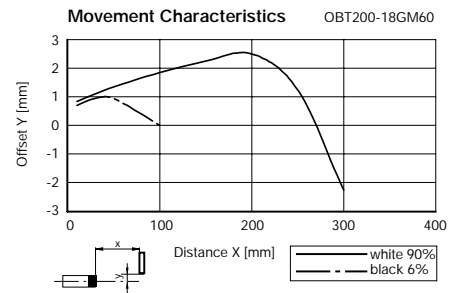
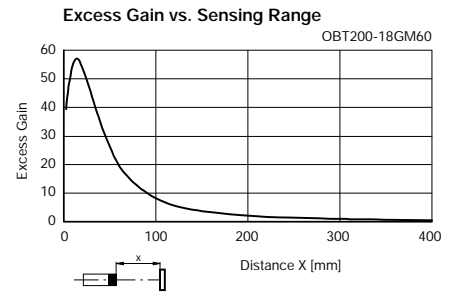
*Difference in sensing range between 90% white test card and 18% gray test card

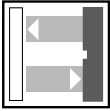


Diffused Mode



Specifications		
SENSING RANGE	14-200mm	14-200mm
SENSITIVITY ADJUSTMENT	Yes (14-200mm)	Yes (14-200mm)
REFERENCE TARGET	200 x 200mm white test card	200 x 200mm white test card
MODEL NUMBER(S)	OBT200-18GM60-E4	OBT200-18GM60-E4-V1
	OBT200-18GM60-E5	OBT200-18GM60-E5-V1
OUTPUT: Transistor, Normally Open or Normally Closed	-E4	NPN
	-E5	PNP
LOAD CURRENT	≤100mA	≤100mA
VOLTAGE DROP	≤2.5VDC	≤2.5VDC
SHORT CIRCUIT AND OVERLOAD PROTECTION	Yes	Yes
REVERSE POLARITY PROTECTION	Yes	Yes
SUPPLY VOLTAGE	10-30VDC	10-30VDC
VOLTAGE RIPPLE	10%	10%
LED(s)	Yes (2)	Yes (2)
CURRENT CONSUMPTION	≤30mA	≤30mA
OPERATING MODE	Light on/dark on	Light on/dark on
RESPONSE TIME	≤1.0ms	≤1.0ms
READINESS DELAY	≤25ms	≤25ms
HYSTERESIS	<15%	<15%
SWITCHING FREQUENCY	500Hz	500Hz
ELECTROMAGNETIC COMPATIBILITY COMPLIANCE	NEMA ICS5-2000 See page 6	NEMA ICS5-2000 See page 6
PROTECTION (IEC)	IP67	IP67
LIGHT SOURCE	Infrared LED 880nm	Infrared LED 880nm
AMBIENT LIGHT RESISTANCE	≤10,000 lux	≤10,000 lux
TEMPERATURE RANGE	WORKING	-13°F to +131°F
	STORAGE	-40°F to +158°F
HOUSING MATERIAL	Nickel-plated brass	Nickel-plated brass
LENS	Polycarbonate	Polycarbonate
WEIGHT	4.3oz	2.1oz
APPROVALS	General Purpose	Yes
	General Purpose	Yes
ELECTRICAL CONNECTION	2-meter cable, PVC covered 4-conductor, #22AWG	Quick disconnect type V1
ADDITIONAL DATA	See pages 621-624	

Sensing Characteristics



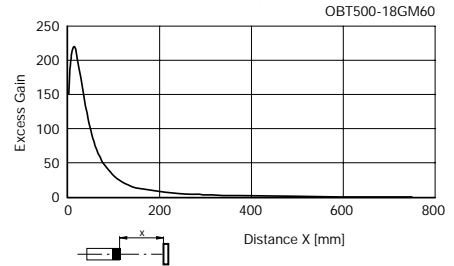


Diffused Mode

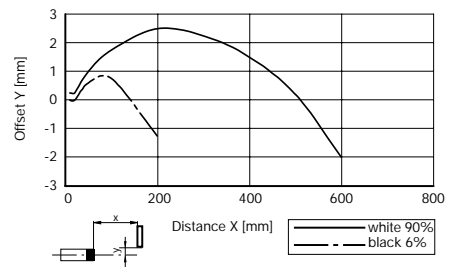
Specifications		
SENSING RANGE	14-500mm	14-500mm
SENSITIVITY ADJUSTMENT	Yes (14-500mm)	Yes (14-500mm)
REFERENCE TARGET	200 x 200mm white test card	200 x 200mm white test card
MODEL NUMBER(S)	OBT500-18GM60-E4	OBT500-18GM60-E4-V1
	OBT500-18GM60-E5	OBT500-18GM60-E5-V1
OUTPUT: Transistor, Normally Open or Normally Closed	-E4	NPN
	-E5	PNP
LOAD CURRENT	100mA max.	100mA max.
VOLTAGE DROP	≤2.5VDC	≤2.5VDC
SHORT CIRCUIT AND OVERLOAD PROTECTION	Yes	Yes
REVERSE POLARITY PROTECTION	Yes	Yes
SUPPLY VOLTAGE	10-30VDC	10-30VDC
VOLTAGE RIPPLE	10%	10%
LED(s)	Yes (2)	Yes (2)
CURRENT CONSUMPTION	≤30mA	≤30mA
OPERATING MODE	Light on/dark on	Light on/dark on
RESPONSE TIME	≤1.0ms	≤1.0ms
READINESS DELAY	≤25ms	≤25ms
HYSTERESIS	<15%	<15%
SWITCHING FREQUENCY	500Hz	500Hz
ELECTROMAGNETIC COMPATIBILITY COMPLIANCE	NEMA ICS5-2000 See page 6	NEMA ICS5-2000 See page 6
PROTECTION (IEC)	IP67	IP67
LIGHT SOURCE	Infrared LED 880nm	Infrared LED 880nm
AMBIENT LIGHT RESISTANCE	≤10,000 lux	≤10,000 lux
TEMPERATURE RANGE	WORKING	-13°F to +131°F
	STORAGE	-40°F to +158°F
HOUSING MATERIAL	Nickel-plated brass	Nickel-plated brass
LENS	Polycarbonate	Polycarbonate
WEIGHT	4.3oz	2.1oz
APPROVALS	UL LISTED General Purpose	Yes
	CE CERTIFIED General Purpose	Yes
ELECTRICAL CONNECTION	 2-meter cable, PVC covered 4-conductor, #22AWG	 Quick disconnect type V1
ADDITIONAL DATA	See pages 621-624	

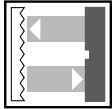
Sensing Characteristics

Excess Gain vs. Sensing Range








Movement Characteristics

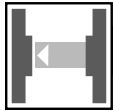




Retro-Reflective Mode






Specifications		
SENSING RANGE	0-4m	0-4m
SENSITIVITY ADJUSTMENT	Yes	Yes
REFERENCE TARGET	ORR50 reflector	ORR50 reflector
POLARIZED FILTER	Yes	Yes
MODEL NUMBER(S)	OBS4000-18GM60-E4	OBS4000-18GM60-E4-V1
	OBS4000-18GM60-E5	OBS4000-18GM60-E5-V1
OUTPUT: Transistor, Normally Open or Normally Closed	-E4	NPN
	-E5	PNP
LOAD CURRENT	100mA max.	100mA max.
VOLTAGE DROP	≤2.5VDC	≤2.5VDC
SHORT CIRCUIT AND OVERLOAD PROTECTION	Yes	Yes
REVERSE POLARITY PROTECTION	Yes	Yes
SUPPLY VOLTAGE	10-30VDC	10-30VDC
VOLTAGE RIPPLE	10%	10%
LED(s)	Yes (2)	Yes (2)
CURRENT CONSUMPTION	≤25mA	≤25mA
OPERATING MODE	Light on/dark on	Light on/dark on
RESPONSE TIME	≤1.0ms	≤1.0ms
READINESS DELAY	≤25ms	≤25ms
HYSTERESIS	<15%	<15%
SWITCHING FREQUENCY	500Hz	500Hz
ELECTROMAGNETIC COMPATIBILITY COMPLIANCE	NEMA ICS5-2000 See page 6	NEMA ICS5-2000 See page 6
PROTECTION (IEC)	IP67	IP67
LIGHT SOURCE	Visible red LED 660nm	Visible red LED 660nm
AMBIENT LIGHT RESISTANCE	≤10,000 lux	≤10,000 lux
TEMPERATURE RANGE	WORKING	-13°F to +131°F
	STORAGE	-40°F to +158°F
HOUSING MATERIAL	Nickel-plated brass	Nickel-plated brass
LENS	PMMA	PMMA
WEIGHT	4.3oz	2.1oz
APPROVALS  General Purpose  LISTED	Yes	Yes
	 General Purpose CERTIFIED	Yes
ELECTRICAL CONNECTION	 2-meter cable, PVC covered 4-conductor, #22AWG	 Quick disconnect type V1
ADDITIONAL DATA	<i>See pages 621-624</i>	

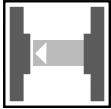
Photoelectric Sensors




Thru-Beam Mode

Photoelectric Basic Series 18mm Diameter Style

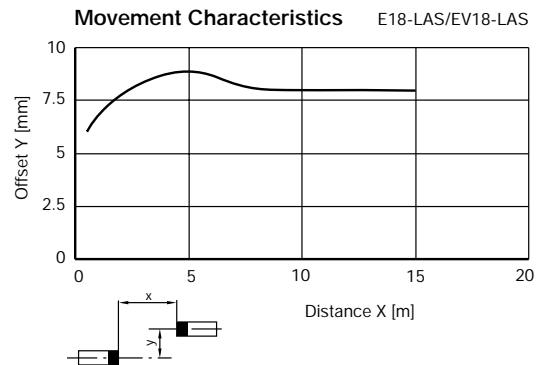
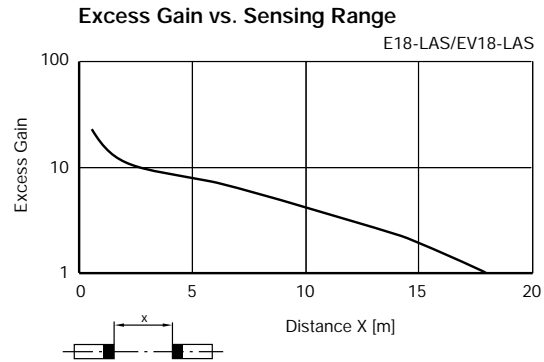
Specifications			
SENSING RANGE		0-10m	0-10m
SENSITIVITY ADJUSTMENT		Yes	Yes
REFERENCE TARGET		Receiver	Receiver
MODEL NUMBER(S)		OBE10M-18GM60-SE4	OBE10M-18GM60-SE4-V1
		OBE10M-18GM60-SE5	OBE10M-18GM60-SE5-V1
OUTPUT: Transistor, Normally Open or Normally Closed	-SE4	NPN	NPN
	-SE5	PNP	PNP
LOAD CURRENT		100mA max.	100mA max.
VOLTAGE DROP		≤2.5VDC	≤2.5VDC
SHORT CIRCUIT AND OVERLOAD PROTECTION		Yes	Yes
REVERSE POLARITY PROTECTION		Yes	Yes
SUPPLY VOLTAGE		10-30VDC	10-30VDC
VOLTAGE RIPPLE		10%	10%
LED(s)		Yes (2)	Yes (2)
CURRENT CONSUMPTION		≤25mA	≤25mA
OPERATING MODE		Light on/dark on	Light on/dark on
RESPONSE TIME		≤1.5ms	≤1.5ms
READINESS DELAY		≤25ms	≤25ms
HYSTERESIS		<15%	<15%
SWITCHING FREQUENCY		300Hz	300Hz
ELECTROMAGNETIC COMPATIBILITY COMPLIANCE		NEMA ICS5-2000 See page 6	NEMA ICS5-2000 See page 6
PROTECTION (IEC)		IP67	IP67
LIGHT SOURCE		Infrared LED 880nm	Infrared LED 880nm
AMBIENT LIGHT RESISTANCE		≤10,000 lux	≤10,000 lux
TEMPERATURE RANGE	WORKING	-13°F to +131°F	-13°F to +131°F
	STORAGE	-40°F to +158°F	-40°F to +158°F
HOUSING MATERIAL		Nickel-plated brass	Nickel-plated brass
LENS		Polycarbonate	Polycarbonate
WEIGHT		4.3oz (per housing)	2.1oz (per housing)
APPROVALS  General Purpose LISTED 		Yes	Yes
	 General Purpose CERTIFIED	Yes	Yes
ELECTRICAL CONNECTION		 2-meter cable, PVC covered 2/4-conductor, #22AWG	 Quick disconnect type V1
ADDITIONAL DATA		<i>See pages 621-624</i>	



Thru-Beam Mode

Specifications	Laser
SENSING RANGE	0-10m
SENSITIVITY ADJUSTMENT	No
REFERENCE TARGET	Receiver
SENSING HEAD	Straight
MODEL NUMBER(S)	— E18-LAS/EV18-LAS/25/32/76a/92
OUTPUT: Transistor, Normally Closed	—
/32	PNP
LOAD CURRENT	200mA max.
SHORT CIRCUIT AND OVERLOAD PROTECTION	Yes
REVERSE POLARITY PROTECTION	Yes
SUPPLY VOLTAGE	10-30VDC
VOLTAGE RIPPLE	10%
LED(s)	Yes (1)
CURRENT CONSUMPTION	≤25mA transmitter ≤60mA receiver
OPERATING MODE	Light on
RESPONSE TIME	≤0.5ms
SWITCHING FREQUENCY	1kHz
ELECTROMAGNETIC COMPATIBILITY COMPLIANCE	NEMA ICS5-2000 See page 6
PROTECTION (IEC)	IP65
LIGHT SPOT DIAMETER	<1.5mm at a range of 1.5m (1.2mm min. target diameter)
LIGHT BEAM ANGLE	±2° receiver
LIGHT SOURCE	Visible red laser
AMBIENT LIGHT RESISTANCE	≤100,000 lux
TEMPERATURE RANGE	WORKING +32°F to +140°F STORAGE -40°F to +185°F
HOUSING MATERIAL	Nickel-plated brass
LENS	Glass
WEIGHT	1.6oz (per housing)
APPROVALS	UL LISTED General Purpose — CE SF CERTIFIED General Purpose —
ELECTRICAL CONNECTION	 Quick disconnect type V1
ADDITIONAL DATA	See pages 621-624

Sensing Characteristics





Photoelectric Sensors

Photoelectric Basic Series 18mm Diameter Style



Diffused and Thru-Beam Mode Fiber Optic Sensors

Specifications		
SENSING RANGE	Determined by cable*	Determined by cable*
SENSITIVITY ADJUSTMENT	Yes	Yes
MODEL NUMBER(S)	OBT200L-18GM70-E4	OBT200L-18GM70-E4-V1
	OBT200L-18GM70-E5	OBT200L-18GM70-E5-V1
OUTPUT: Transistor, Normally Open or Normally Closed	-E4 NPN	NPN
	-E5 PNP	PNP
LOAD CURRENT	100mA max.	100mA max.
VOLTAGE DROP	≤2.5VDC	≤2.5VDC
SHORT CIRCUIT AND OVERLOAD PROTECTION	Yes	Yes
REVERSE POLARITY PROTECTION	Yes	Yes
SUPPLY VOLTAGE	10-30VDC	10-30VDC
VOLTAGE RIPPLE	10%	10%
LED(s)	Yes (1)	Yes (1)
CURRENT CONSUMPTION	≤20mA	≤20mA
OPERATING MODE	Light on/dark on	Light on/dark on
RESPONSE TIME	≤1.5ms	≤1.5ms
READINESS DELAY	≤50ms	≤50ms
HYSTERESIS	≤10%	≤10%
SWITCHING FREQUENCY	300Hz	300Hz
ELECTROMAGNETIC COMPATIBILITY COMPLIANCE	NEMA ICS5-2000 See page 6	NEMA ICS5-2000 See page 6
PROTECTION (IEC)	IP67	IP67
LIGHT SOURCE	Infrared LED 940nm	Infrared LED 940nm
AMBIENT LIGHT RESISTANCE	≤10,000 lux	≤10,000 lux
TEMPERATURE RANGE	WORKING -13°F to +131°F	-13°F to +131°F
	STORAGE -40°F to +158°F	-40°F to +158°F
HOUSING MATERIAL	Nickel-plated brass	Nickel-plated brass
LENS	PMMA	PMMA
WEIGHT	6.9oz	2.8oz
APPROVALS	UL LISTED General Purpose	Yes
	CE LISTED General Purpose	Yes
ELECTRICAL CONNECTION	 2-meter cable, PVC covered 3-conductor, #22AWG	 Quick disconnect type V1
	ADDITIONAL DATA	

See pages 621-624

Attaching Fiber Optic Cable

1. Position mounting plate on sensor so that alignment tabs fit into lens holes.



2. With fiber optic cable pulled through metal capnut opening, position cable on mounting plate.



3. Hand tighten metal capnut on sensor.



*See pages 735-764 for glass fiber optic lengths and specifications.

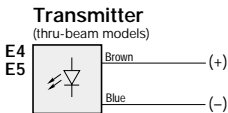
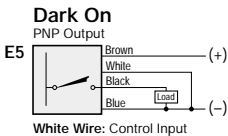
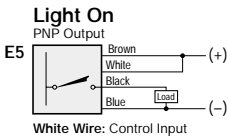
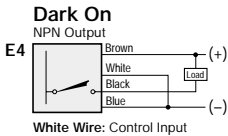
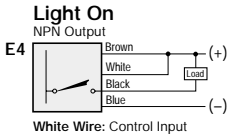
Wiring Diagrams

DC

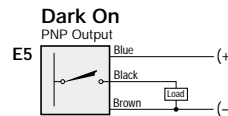
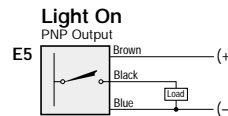
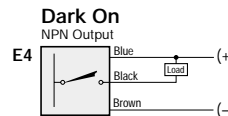
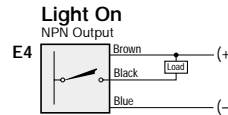


Cable Connection

OB...-18GM60



OBT200L-18GM70

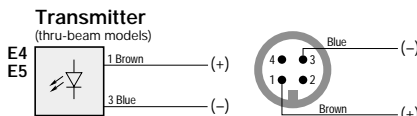
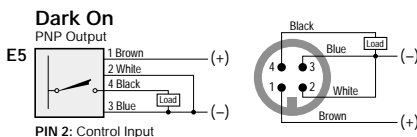
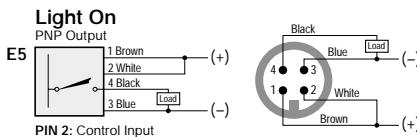
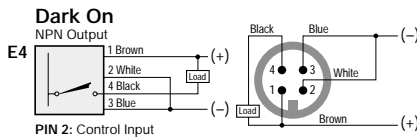
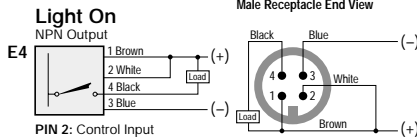


Quick Disconnect

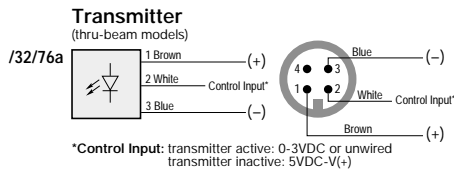
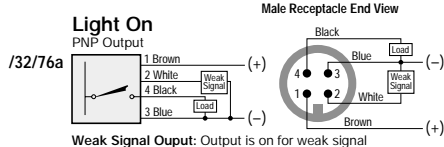
Note: Wiring diagrams show quick disconnect pin numbers.

V1 Type

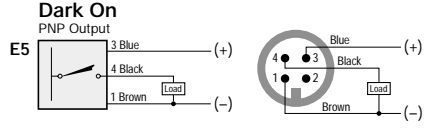
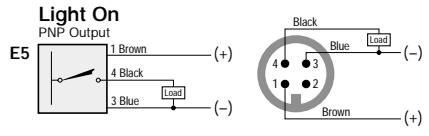
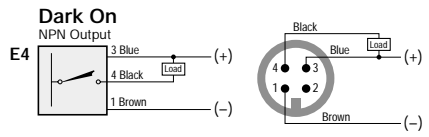
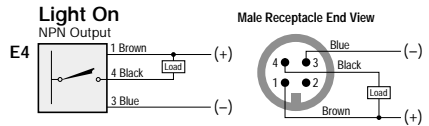
OB...-18GM60



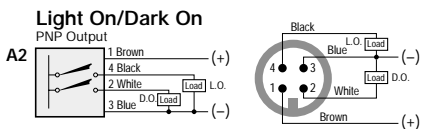
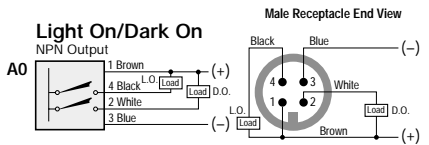
E18-LAS/EV18-LAS



OBT200L-18GM70



OCH100-18GM70

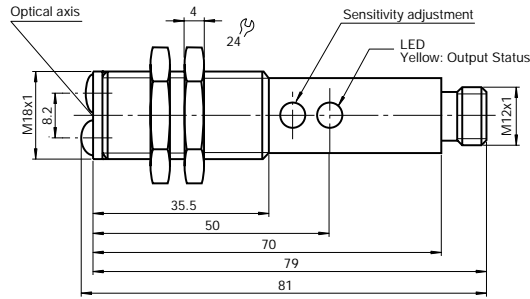


Photoelectric Sensors

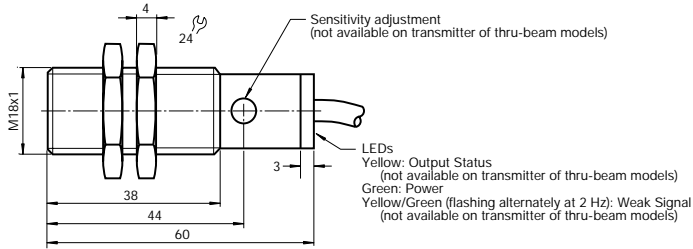
Dimensions (mm)

Photoelectric Basic Series 18mm Diameter Style

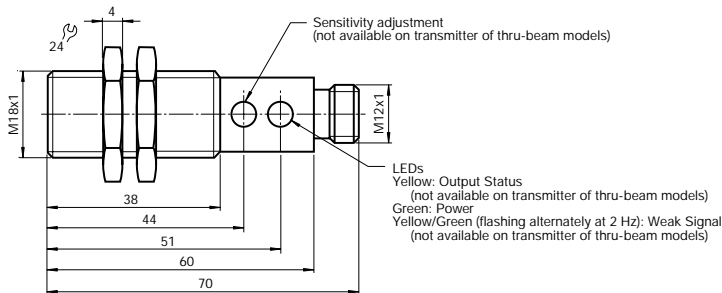
OCH100-18GM70



OB...-18GM60

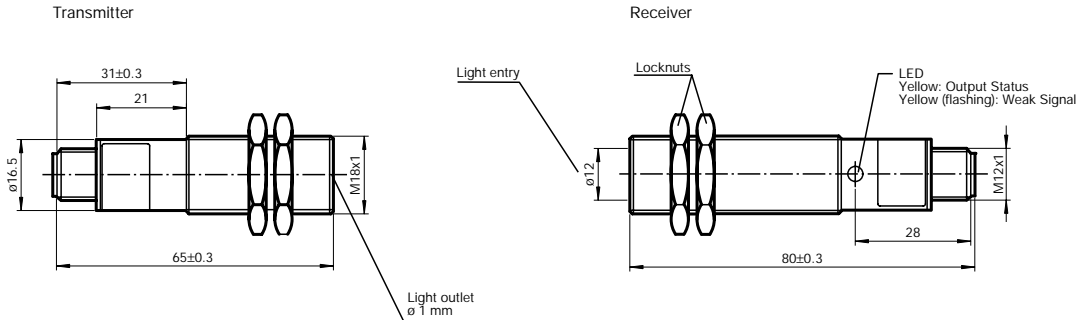


OB...-18GM60...-V1

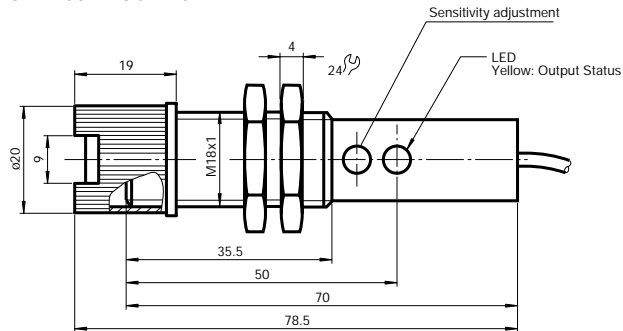


Dimensions (mm)

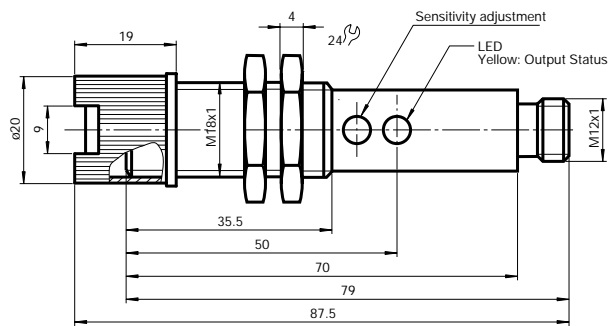
E18-LAS/EV18-LAS



OBT200L-18GM70



OBT200L-18GM70...-V1



Photoelectric Basic Series 18mm Diameter Style

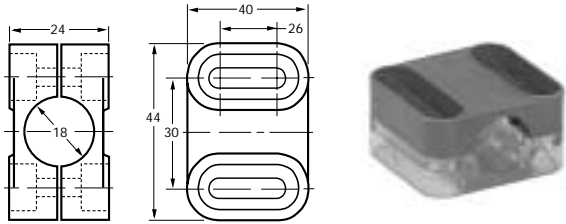
Photoelectric Sensors

Photoelectric Basic Series 18mm Diameter Style

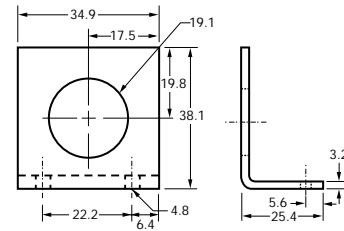
Accessories

(Dimensions in mm)

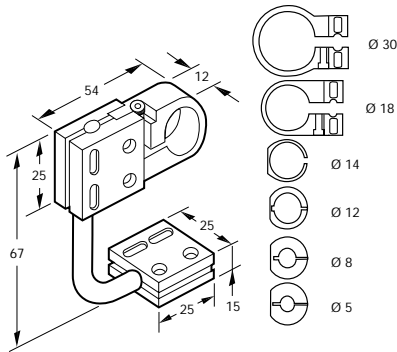
Adjustable Mounting Bracket Model BF18



Right Angle Mounting Bracket Model AB18



Universal Mounting Bracket Model BF5-30



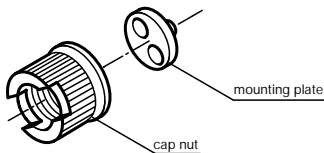
90° Optical Deflector Model OSP18A
(open front)



90° Optical Deflector Model OSP18B
(closed front for infrared retro-reflective and thru-beam modes only)



Fiber Adapter Set Model OLA18
(for connecting fiber optic cable to OBT200L-18GM70 series)



See pages
769-828 for
cordsets



See pages 829-840
additional accessories
for photoelectric sensors