





Through Beam Sensors (TX + RX)	Reflex Sensors (With reflector)	Diffuse Sensors (Proximity)	Fibre-Optic Sensors
			

Through beam sensors consist of separate emitter and receiver units, aligned on opposite sides of the sensing path. The target interrupts the light beam and causes the receiver to switch regardless of surface characteristics. The separate construction permits large scanning distances and is ideal for use in unfavourable environmental conditions e.g. moisture, dust, oil etc.

Reflex sensors have the emitter and receiver integrated into a single housing. A reflector opposite the beam bounces the emitter's light back to the receiver. The target interrupts the reflected light beam and causes a change in the output signal. When sensing clear or shiny objects, specially selected Polarising filters can be used for optimum results.

Diffuse sensors, have the emitter and receiver integrated into a single housing. The light is reflected back to the receiver by the target itself. Materials with a matt black surface, with a reflectance of at least 6%, can be reliably detected. The sensing range depends upon size, shape colour & surface characteristics of the reflecting target. Using a Kodak grey card with 90% reflectivity (like white paper) ranges of up to 2000 mm can be obtained. Sensors with background suppression only detect material surfaces within a defined scanning range. Objects outside that range are not detected.

In photo-electric fibre-optic switches, the light source & light receiver are located in the same housing. With plastic or glass fibre flexible optical cables, the operating location of the device is transferred away from an operating area that is inaccessible to photoelectric or proximity switches. Fibre optic cables can therefore be used under unfavourable conditions, eg. at temperatures as high as +300°C, in the presence of heavy vibration or aggressive substances.

Polarising

Polarising reflex sensors continually collect light from a reflector. The reflector changes the angle of sensor light by 90°. The Polarising filter accepts only rotated light, providing precise differentiation between retro-reflected light collected by the receiver and undesirable mirror like reflections or unwanted light shining from nearby sources.

Contamination

Reduces the indicated sensing range of sensors and fibre optics as compared with pure air because dust and dirt particles, accumulate on the lenses and affect their transparency, and absorb and diffuse the light in the incoming beam. Contamination indicator illuminates in the safe range.

Background Suppression

When using diffuse sensors with background suppression, only objects within a defined scanning range can be reliably detected without being affected by a reflecting background, e.g. for counting objects where sensors can only be mounted overhead such as above conveyor belts. Background suppression adjusts the focus of the sensor and not the gain.

Red Light-LED

Visible light, good as an alignment aid and for sensor adjustment.

Infrared-LED

Invisible beam with high energy.

Red-light Laser

Laser sensors have a narrower beam width than conventional infrared types for applications requiring more accurate edge detection.

Teach-In Setting

Sensor settings on teach-in sensors do not have to be made using a potentiometer or slide switches; everything is controlled with the push of a button.

Potentiometer Setting

Sensors with potentiometer setting are manually set by the turning of an in-built potentiometer. Multi-turn potentiometers offer greater sensitivity adjustment.

Short circuit & Reverse Polarity Protection

The output leads can be connected to the wrong potential without destroying the sensor. These sensors are completely protected against mis-wiring.

Dark On

Output energised when light is not detected by receiving element. For through beam sensors, light from the projector is not detected by the receiver when an object is present. For reflected sensors, light is not detected when it is reflected from an object surface.

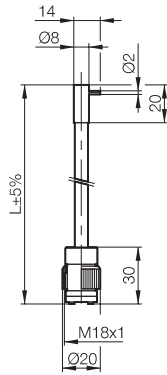
Light On

Output energised when light is detected by receiving element. For through beam sensors, light from the projector is detected by the receiver when an object is not present. For reflected sensors, light is detected when it is reflected from an object surface.

Sensing Distance

It is the distance between the standard target and the active surface of the light sensor for causing a signal change.

Glass Fibre Optic Cable, 90°, 10mm Diffuse, 300mm Reflex

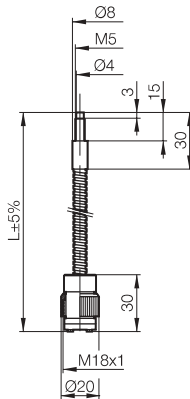


A right angle, glass fibre optic cable for use with Balluff diffuse M18 range of sensors, housed in a strain relief, corrugated metal jacket. It is flexible & crush resistant. Used as a diffuse sensor it has a sensing range of 10mm, as a reflex sensor it will sense to 300mm. Sensing distances can be increased to 1000mm using a more powerful sensor. Please enquire.

Recommended sensor M18, 400mm Diffuse, BOS18MPA1PDE5CS4
BOS18MPU1PDS4C (teach in)
Sensing range 10mm Diffuse, 300mm Reflex
Temperature range -20 to +170°C (if fixed, up to 250°C)
Minimum bending radius 60mm
Glass fibre cable dia. 1.5mm
Cable length 1m (please enquire for alternative lengths)
Note:
When used with teach-in sensors, please remove adaptor disc.
When used as a reflex sensor, target must not be closer than 20mm

Stock No.	Manf Ref'	Type	Unit Price		
			1-4	5-9	10-24
2668187	BFO18AXAFMZG151		75.61	73.34	71.07

Glass Fibre Optic Cable 20mm Diffuse, 500mm Reflex

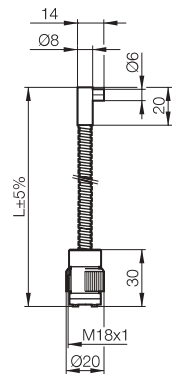


A glass fibre optic cable for use with Balluff diffuse M18 range of sensors, housed in a strain relief, corrugated metal jacket. It is flexible & crush resistant. Used as a diffuse sensor it has a sensing range of 20mm, as a reflex sensor it will sense to 500mm. Sensing distances can be increased to 1000mm using a more powerful sensor. Please enquire.

Recommended sensor M18, 400mm Diffuse, BOS18MPA1PDE5CS4
BOS18MPU1PDS4C (teach in)
Sensing range 20mm Diffuse, 500mm Reflex
Temperature range -20 to +170°C (if fixed, up to 250°C)
Minimum bending radius 60mm
Glass fibre cable dia. 3mm
Cable length 1m (please enquire for alternative lengths)
Note:
When used with teach-in sensors, please remove adaptor disc.
When used as a reflex sensor, target must not be closer than 40mm

Stock No.	Manf Ref'	Type	Unit Price		
			1-4	5-9	10-24
2668181	BFO18AXAAMZG301		77.38	75.06	72.74

Glass Fibre Optic Cable, 90° 20mm Diffuse, 500mm Reflex

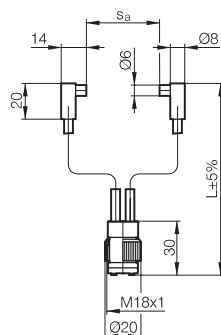


A right angle, glass fibre optic cable for use with Balluff diffuse M18 range of sensors, housed in a strain relief, corrugated metal jacket. It is flexible & crush resistant. Used as a diffuse sensor it has a sensing range of 20mm, as a reflex sensor it will sense to 500mm. Sensing distances can be increased to 1000mm using a more powerful sensor. Please enquire.

Recommended sensor M18, 400mm Diffuse, BOS18MPA1PDE5CS4
BOS18MPU1PDS4C (teach in)
Sensing range 20mm Diffuse, 500mm Reflex
Temperature range -20 to +170°C (if fixed, up to 250°C)
Minimum bending radius 60mm
Glass fibre cable dia. 3mm
Cable length 1m (please enquire for alternative lengths)
Note:
When used with teach-in sensors, please remove adaptor disc.
When used as a reflex sensor, target must not be closer than 40mm

Stock No.	Manf Ref'	Type	Unit Price		
			1-4	5-9	10-24
2668184	BFO18AXAEMZG301		107.43	104.21	100.98

Glass Fibre Optic Cable, 90° 200mm, Through Beam



A through beam, right angle, glass fibre optic cable for use with Balluff diffuse M18 range of sensors, housed in a strain relief, corrugated metal jacket. It is flexible & crush resistant. Sensing distances can be increased to 700mm using a more powerful sensor. Please enquire.

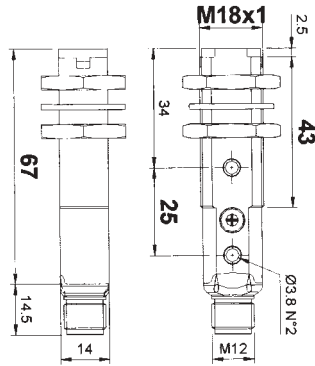
Recommended sensor M18, 400mm Diffuse, BOS18MPA1PDE5CS4
BOS18MPU1PDS4C (teach in)
Sensing range 200mm Through beam
Temperature range -20 to +170°C (if fixed, up to 250°C)
Minimum bending radius 60mm
Glass fibre cable dia. 2mm
Cable length 1m (please enquire for alternative lengths)
Note:
When using a fibre optic through beam the normally open signal of the sensor is changed to a normally closed signal.
When used with teach-in sensors, please remove adaptor disc.

Stock No.	Manf Ref'	Type	Unit Price		
			1-4	5-9	10-24
2668178	BFO18ALEEMZG20	1	178.16	172.82	167.47

M18, 0...20m Through Beam
 M18, 0.1...4.5m Reflex
 M18, 0...100mm Diffuse

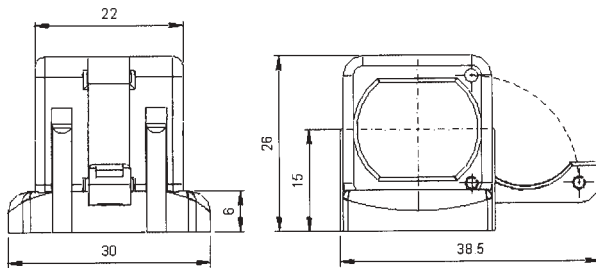


Flat Plastic Tubular Housing



A range of diffuse, reflex & through beam industrial sensors, in a unique M18 flat plastic tubular housing with screw fixing enabling it to be mounted either against a flat sided bracket or conventionally secured with locknuts. Through beam & reflex sensors have potentiometer sensitivity adjustment. Reflex sensors have polarising filters and red light output, for ease of alignment/set-up. All feature short circuit & reverse polarity protection.

Thread size M18
 Supply voltage 10-30 volt DC
 Rated output current < 100 mA
 Temperature -25 to + 55 °C
 Frequency 250Hz (through beam), 1KHz (reflex, diffuse)
 Sensitivity adj. Pot, Through beam & Reflex only
 Built in LED's Yes
 IP Rating IP67
 Body material PBT
 Connection type, Diffuse & Reflex M12 connector, 4 wire type (brown/+ve, blue/-ve, black/NO output, white/NC output)
 Connection type, Through beam receiver M12 connector, 4 wire type (brown/+ve, blue/-ve, black/NO output, white/NC output)
 Through beam emitter (brown/+ve, blue/-ve black/test-, white/test+)



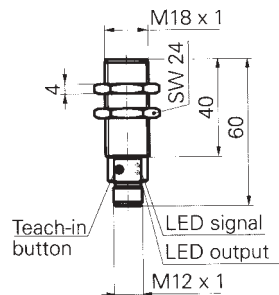
Mounting Clamp

Complete range of optic functions, universal and laser class 1
 Versions with radial optical (90°) optics also available
 Settings with fixed, trimmer or teach-in adjustment available
 Models listed are M12 cable connection, prewired versions available
 Reflex sensors to be used with suitable reflectors.

For mounting clamps please order separately. See below.

Stock No.	Manufactures Ref ¹	Sensor Type	Output Type	Range	Unit Price		
					1-4	5-9	10-24
9211027	S50-PA-5-G00-XG	THROUGH BEAM EMITTER	PNP	20M	29.95	28.75	27.85
9211015	S50-PA-5-F01-PP	THROUGH BEAM RECEIVER	PNP	20M	34.95	33.55	32.50
9211018	S50-PA-5-B01-PP	REFLEX POLARISED	PNP	4.5M	44.25	42.48	41.15
9211021	S50-PA-5-C10-PP	DIFFUSE	PNP	10CM	37.80	36.29	35.15
9211024	S50-EASY-IN	MOUNTING CLAMP			2.25	2.16	2.09

M18, 20...430mm Diffuse
 DC, Teach-in



A diffuse photo-electric sensor with simple teach-in for ease of setup. Adaptable to fibre optics. High visibility green LED status indicators. Light on and dark on programmable. Light on and dark on alarm. Protected short circuit & reverse polarity.

Thread size M18
 Nominal sensing range 20...430mm
 Supply voltage 10-30 volt DC
 Rated output current 200 mA
 Temperature -25 to + 55 °C
 Frequency 1000 Hz
 Sensitivity adjustment Teach-in button
 Built in LED Green/output, flashing green/soiled lens, yellow/switching state indication
 Body material Nickel plated brass
 Connection type M12 connector 4 wire type (brown/+ve, black/NO, white/NC, blue/-ve)
 IP Rating IP67

Stock No.	Manf Ref ¹	Type	Unit Price		
			1-4	5-9	10-24
1501076	FZAM18P6460/S14	PNP NO/NC	70.71	68.59	66.47

