



At a glance:

- Short: housing length 50 mm (cable model) / 63.5 mm (connector model)
- Long operating distances
- High switching frequency: 1000 Hz / 500 Hz*
- Glass window, therefore scratch resistant and easy to clean
- Excellent resistance to environmental influences thanks to polyurethane potting of the electronic module
- Convenient sensitivity adjustment by means of the built-in potentiometer (diffuse sensors; optional for other models)
- High degree of protection: IP 67

Construction

The devices are built into chrome-plated brass housings, and encapsulated in polyurethane. The electronic module is constructed using SMD technology on a ceramic-free epoxy substrate, and is therefore insensitive to shock.

Sensitivity setting

The sensitivity of the energetic diffuse sensors can be adjusted from 40 ... 600 mm by means of the built-in potentiometer (optional for other models). Turning clockwise increases the sensitivity.

Operating distance adjustment

The operating distance of the diffuse sensors with background suppression can be adjusted from 10 ... 120 mm by means of the built-in potentiometer. Turning clockwise increases the operating distance.

Protection

The switches are protected against overloads, short-circuits and all possible wire reversals. Furthermore, protection against overvoltages caused by inductive loads on the output and against voltage spikes on the power supply lines are built in. Malfunctions or destruction caused by electrostatic discharges, fast transients, or HF fields, are prevented by appropriate technology.

LED

The yellow LED lights up when the output is switched. The green LED lights up when sufficient light is available for reliable operation (approx. 80% of the maximum operating distance).

Connection

Switches with 2 m PVC cable 3 x 0.34 mm² (type 8) or 4 x 0.25 mm² (type 12) for energetic diffuse sensors and the receiver of through-beam sensors, or 4-pole S12 connector are standard. Other cable types or lengths are available on request. Suitable connecting cables are listed on page 146.

Reflectors

A range of suitable reflectors for the reflex sensors is listed on page 113.

Test input

The additional test input built into the emitters of the through-beam models provides the possibility of an extra system control.

Excess-gain control

The built-in excess-gain circuit simplifies alignment and adjustment of the sensors. Any eventual dirt on the sensing faces is recognized in time, and can be removed easily.

Power-ON reset

Operation of the output is inhibited until the power supply requirements are met. This prevents unwanted switching of the output during power-ON.

Background suppression

The diffuse sensor with background suppression uses electronic distance setting. A PSD (Position-Sensitive Device) serves as the light receiver. Operating distance adjustment is carried out by means of a potentiometer, using visible red light as the source. The visible light spot (approx. 3 mm Ø) permits simple alignment. The device contains no moving optical parts, and is therefore insensitive to vibration.

Data sheets

Detailed data sheets with additional technical information are available for all models. These may be retrieved from the CONTRINEX website (www.contrinex.com), or ordered cost-free from our sales offices.

Drawings

The mechanical drawings may be downloaded as data files from the CONTRINEX website, and imported directly into construction drawings.

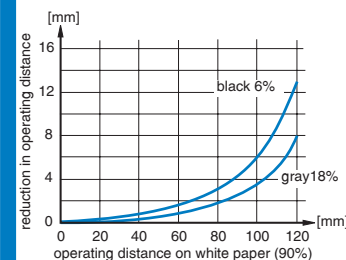
Delivery package

Proximity switch, 2 fixing nuts, instructions.

Technical data:

(according to IEC 60947-5-2)	
Hysteresis	10 % typ.
Supply voltage range U _B	10 ... 36 VDC
Max. ripple content	20 %
Output current	200 mA max.
Output voltage drop	2.0 V max. at 200 mA
Max. switching frequency	1,000 Hz / 500 Hz*
Switching time (↑ and ↓)	0.5 msec / 1 msec*
Max. ambient light:	
halogen	5,000 Lux
sun	10,000 Lux
Ambient temperature range	-25 ... +55 °C (-13 ... +131 °F)
Degree of protection	IP 67
EMC protection:	
IEC 60255-5	1 kV
IEC 61000-4-2	Level 2
IEC 61000-4-3	Level 3
IEC 61000-4-4	Level 3
* Diffuse sensor with background suppression	

Response curve:



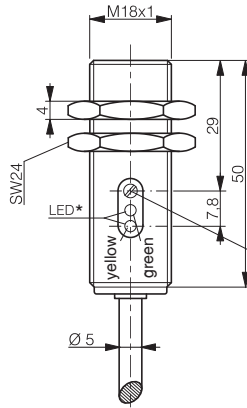
Operating distance (setting range)	120 mm (10 ... 120 mm)
Standard target	100 x 100 mm white
No-load supply current	25 mA typ.
Emitter	LED red 660 nm
Weight (cable / connector model)	121 / 53 g
Part ref.: (bold : preferred types)	
NPN light-ON / cable	LHK-1180-301
NPN dark-ON / cable	-
NPN light-ON / connector S12	LHS-1180-301
NPN dark-ON / connector S12	-
PNP light-ON / cable	LHK-1180-303
PNP dark-ON / cable	-
PNP light-ON / connector S12	LHS-1180-303
PNP dark-ON / connector S12	-
Suitable connecting cables (page 146)	G, H, K, L
Wiring (pages 114 - 115)	Diagram 1

SERIES 1180

M18

Reflex sensor

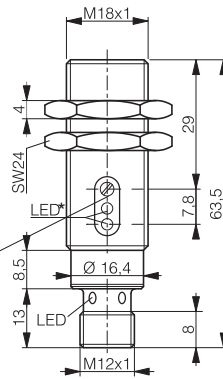
2,000 mm



M18

Diffuse sensor, energetic

600 mm

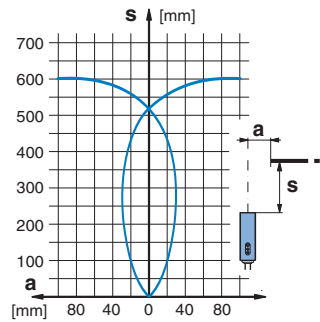
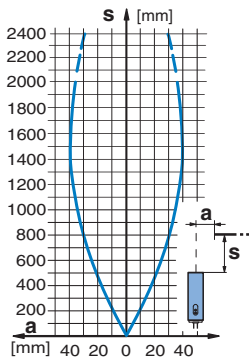


potentiometer (diffuse sensors only)

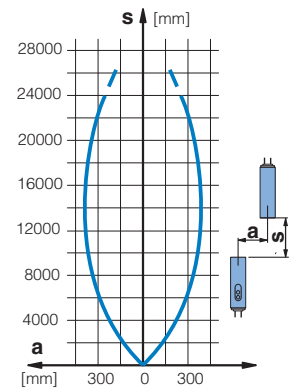
M18

Through-beam sensor

20,000 mm



* receiver only



2,000 mm

Operating distance (setting range)

600 mm (40 ... 600 mm)

20,000 mm

Reflector type 3

Standard target

200 x 200 mm white

-

15 mA typ.

No-load supply current

20 mA typ.

10 mA typ. (R) / 15 mA typ. (E)

LED red polarized 660 nm

Emitter

LED red 660 nm

LED red 660 nm

121 / 53 g

Weight (cable / connector model)

121 / 53 g

230 / 80 g (R and E)

Part ref.: (**bold**: preferred types)

(**R**) receiver / (**E**) emitter

- NPN changeover outputs / cable

LTK-1180-101

LLK-1180-001 (R) / LLK-1180-000 (E)

LRK-1180-302 NPN light-ON + excess gain / cable

LTK-1180-102

LLK-1180-002 (R) / **LLK-1180-000 (E)**

- NPN changeover outputs / conn. S12

LTS-1180-101

LLS-1180-001 (R) / LLS-1180-000 (E)

LRS-1180-302 NPN light-ON + excess gain / conn. S12

LTS-1180-102

LLS-1180-002 (R) / **LLS-1180-000 (E)**

- PNP changeover outputs / cable

LTK-1180-103

LLK-1180-003 (R) / LLK-1180-000 (E)

LRK-1180-304 PNP light-ON + excess gain / cable

LTK-1180-104

LLK-1180-004 (R) / LLK-1180-000 (E)

- PNP changeover outputs / conn. S12

LTS-1180-103

LLS-1180-003 (R) / LLS-1180-000 (E)

LRS-1180-304 PNP light-ON + excess gain / conn. S12

LTS-1180-104

LLS-1180-004 (R) / LLS-1180-000 (E)

G, H, K, L

Suitable connecting cables (page 146)

M, N

M, N

Diagram 1

Wiring (pages 114 - 115)

Diagram 2

Diagram 2 (R) / 4 (E)

At a glance:

- Right-angle sensing
- Compact, robust and fully integrated sensing head
- Easy installation: Fixing nuts can be mounted from both ends
- Technical data identical to corresponding devices with axial light emission
- Excellent resistance to environmental influences thanks to polyurethane potting of the electronic module
- Glass window, therefore scratch resistant and easy to clean
- High degree of protection: IP 67

Construction

The devices are built into chrome-plated brass housings, and encapsulated in polyurethane. The electronic module is constructed using SMD technology on a ceramic-free epoxy substrate, and is therefore insensitive to shock.

Sensibility setting

The sensitivity of the energetic diffuse sensors can be adjusted from 40 ... 600 mm by means of the built-in potentiometer (optional for other models). Turning clockwise increases the sensitivity.

Operating distance adjustment

The operating distance of the diffuse sensors with background suppression can be adjusted from 10 ... 120 mm by means of the built-in potentiometer. Turning clockwise increases the operating distance.

Protection

The switches are protected against overloads, short-circuits and all possible wire reversals. Furthermore, protection against overvoltages caused by inductive loads on the output and against voltage spikes on the power supply lines are built in. Malfunctions or destruction caused by electrostatic discharges, fast transients, or HF fields, are prevented by appropriate technology.

LED

The yellow LED lights up when the output is switched. The green LED lights up when sufficient light is available for reliable operation (approx. 80% of the maximum operating distance).

Connection

Switches with 2 m PVC cable 3 x 0.34 mm² (type 8) or 4 x 0.25 mm² (type 12) for energetic diffuse sensors and the receiver of through-beam sensors, or 4-pole S12 connector are standard. Other cable types or lengths are available on request. Suitable connecting cables are listed on page 146.

Reflectors

A range of suitable reflectors for the reflex sensors is listed on page 113.

Test input

The additional test input built into the emitters of the through-beam models provides the possibility of an extra system control.

Technical data:

(according to IEC 60947-5-2)	
Hysteresis	10 % typ.
Supply voltage range U _B	10 ... 36 VDC
Max. ripple content	20 %
Output current	200 mA max.
Output voltage drop	2.0 V max. at 200 mA
Max. switching frequency	1,000 Hz / 500 Hz*
Switching time (↑ and ↓)	0.5 msec / 1 msec*
Max. ambient light:	
halogen	5,000 Lux
sun	10,000 Lux
Ambient temperature range	-25 ... +55 °C (-13 ... +131 °F)
Degree of protection	IP 67
EMC protection:	
IEC 60255-5	1 kV
IEC 61000-4-2	Level 2
IEC 61000-4-3	Level 3
IEC 61000-4-4	Level 3
* Diffuse sensor with background suppression	

Excess-gain control

The built-in excess-gain circuit simplifies alignment and adjustment of the sensors. Any eventual dirt on the sensing faces is recognized in time, and can be removed easily.

Power-ON reset

Operation of the output is inhibited until the power supply requirements are met. This prevents unwanted switching of the output during power-ON.

Background suppression

The diffuse sensor with background suppression uses electronic distance setting. APSD (Position-Sensitive Device) serves as the light receiver. Operating distance adjustment is carried out by means of a potentiometer, using visible red light as the source. The visible light spot (approx. 3 mm Ø) permits simple alignment. The device contains no moving optical parts, and is therefore insensitive to vibration.

Data sheets

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Drawings

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Delivery package

Proximity switch, 2 fixing nuts, instructions.

Operating distance (setting range)	120 mm (10 ... 120 mm)
Standard target	100 x 100 mm white
No-load supply current	25 mA typ.
Emitter	LED red 660 nm
Weight (cable / connector model)	124 / 57 g
Part ref.: (bold : preferred types)	
NPN light-ON / cable	LHK-1180W-301
NPN dark-ON / cable	-
NPN light-ON / connector S12	LHS-1180W-301
NPN dark-ON / connector S12	-
PNP light-ON / cable	LHK-1180W-303
PNP dark-ON / cable	-
PNP light-ON / connector S12	LHS-1180W-303
PNP dark-ON / connector S12	-
Suitable connecting cables (page 146)	G, H, K, L
Wiring (pages 114 - 115)	Diagram 1

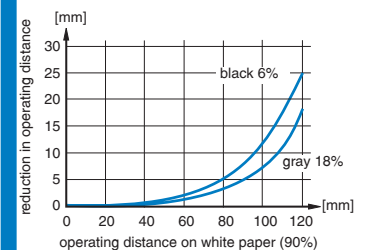
M18W

Diffuse sensor with background suppression

120 mm

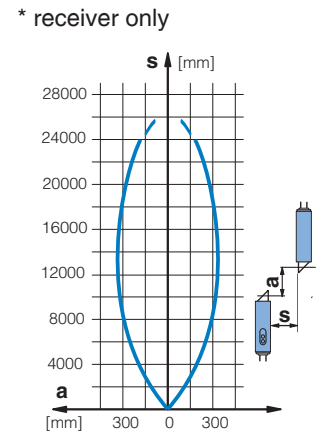
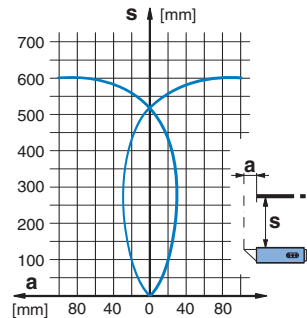
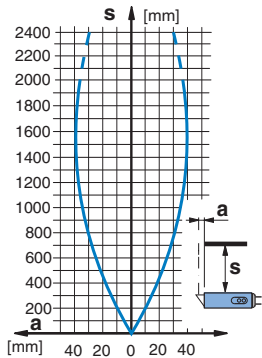
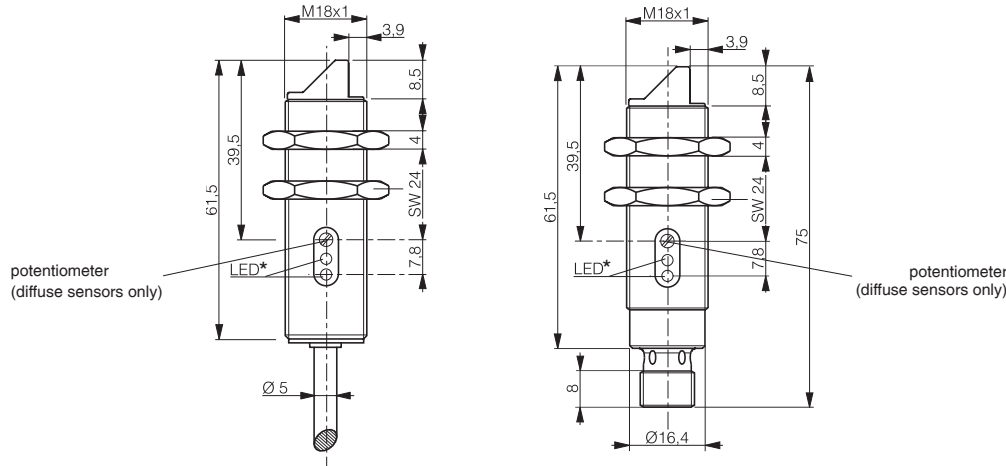


Response curve:



SERIES 1180 W

M18W	M18W	M18W
Reflex sensor	Diffuse sensor, energetic	Through-beam sensor
2,000 mm	600 mm	20,000 mm



2,000 mm	Operating distance (setting range)	600 mm (40 ... 600 mm)	* receiver only 20,000 mm
Reflector type 3	Standard target	200 x 200 mm white	-
15 mA typ.	No-load supply current	20 mA typ.	10 mA typ. (R) / 15 mA typ. (E)
LED red polarized 660 nm	Emitter	LED red 660 nm	LED red 660 nm
125 / 56 g	Weight (cable / connector model)	123 / 56 g	248 / 114 g (R and E)
-	Part ref.: (bold : preferred types)	-	(R) receiver / (E) emitter
LRK-1180W-302	NPN changeover outputs / cable	LTK-1180W-101	LLK-1180W-001 (R) / LLK-1180W-000 (E)
-	NPN light-ON + excess gain / cable	LTK-1180W-102	LLK-1180W-002 (R) / LLK-1180W-000 (E)
LRS-1180W-302	NPN changeover outputs / conn. S12	LTS-1180W-101	LLS-1180W-001 (R) / LLS-1180W-000 (E)
-	NPN light-ON + excess gain / conn. S12	LTS-1180W-102	LLS-1180W-002 (R) / LLS-1180W-000 (E)
-	PNP changeover outputs / cable	LTK-1180W-103	LLK-1180W-003 (R) / LLK-1180W-000 (E)
LRK-1180W-304	PNP light-ON + excess gain / cable	LTK-1180W-104	LLK-1180W-004 (R) / LLK-1180W-000 (E)
-	PNP changeover outputs / conn. S12	LTS-1180W-103	LLS-1180W-003 (R) / LLS-1180W-000 (E)
LRS-1180W-304	PNP light-ON + excess gain / conn. S12	LTS-1180W-104	LLS-1180W-004 (R) / LLS-1180W-000 (E)
G, H, K, L	Suitable connecting cables (page 146)	M, N	M, N
Diagram 1	Wiring (pages 114 - 115)	Diagram 2	Diagram 2 (R) / 4 (E)