

Atžglance:

- Short: housing length 50 mm (cable connection) / 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 chromed-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 can be adjusted by means of the built-in potentiometer (energetic diffuse sensors; optional for other models). Turning clockwise increases the sensitivity.

Operating distance adjustment

The operating distance can be adjusted by means of the built-in potentiometer (diffuse sensors with background suppression). 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 on. 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 0.34mm² (type 8) or 4 x 0.25 mm² (type 12) for 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 112.

Reflectors

A range of suitable reflectors for the reflex sensors is listed on page 99.

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
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
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 light control

The built-in excess light 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.

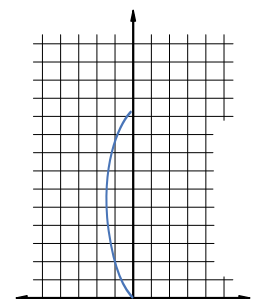
M18

Diffuse sensor, energetic

600 mm



Response curve:



Operating distance	600 mm
Standard target	200 x 200 mm white
No-load supply current	15 mA typ.
Emitter	LED red 660 nm
Weight (cable / connector model)	115 / 40 g
Part ref.: (bold: preferred types)	
NPN light-ON / cable	LTK-1180-301
NPN dark-ON / cable	-
NPN light-ON / connector S12	LTS-1180-301
NPN dark-ON / connector S12	-
PNP light-ON / cable	LTK-1180-303
PNP dark-ON / cable	-
PNP light-ON / connector S12	LTS-1180-303
PNP dark-ON / connector S12	-
Suitable connecting cables (page 112)	G, H, K, L
Wiring (pages 100 - 101)	Diagram 1

SERIES Z1180

M18

Diffuse sensor with background suppression

10...120 mm

M18

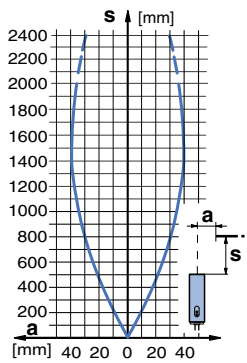
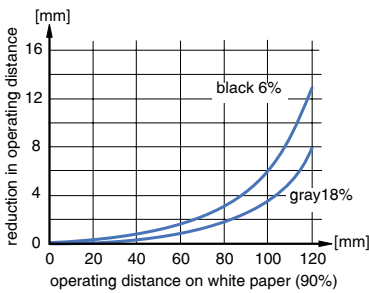
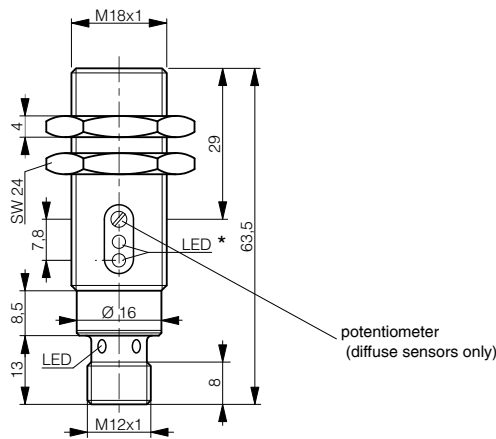
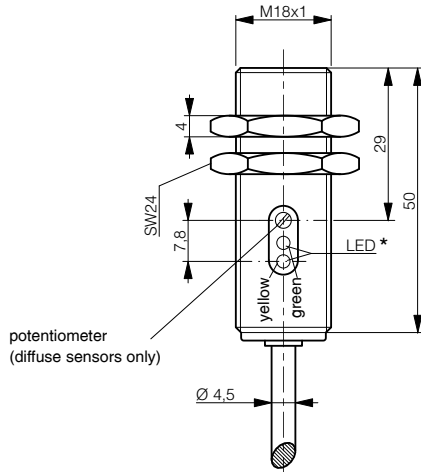
Reflex sensor

2,000 mm

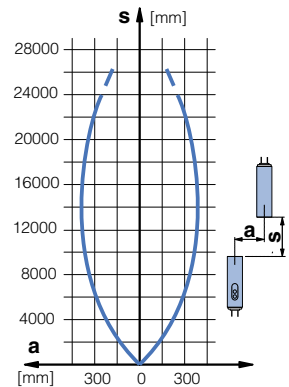
M18

Through-beam sensor

20,000 mm



* receiver only



10 ... 120 mm	2,000 mm	Operating distance	20,000 mm
100 x 100 mm white	Reflector type 3	Standard target	-
25 mA typ.	15 mA typ.	No-load supply current	10 mA typ. (R) / 15 mA typ. (E)
LED red 660 nm	LED red polarized 660 nm	Emitter	LED red 660 nm
115 / 40 g	115 / 40 g	Weight (cable / connector model)	115 / 40 g (R and E)
LHK-1180-301	-	Part ref.: (bold : preferred types)	(R) receiver / (E) emitter
-	LRK-1180-302	NPN changeover outputs / cable	LLK-1180-001 (R) / LLK-1180-000 (E)
LHS-1180-301	-	NPN excess light output / cable	LLK-1180-002 (R) / LLK-1180-000 (E)
-	LRS-1180-302	NPN changeover outputs / conn. S12	LLS-1180-001 (R) / LLS-1180-000 (E)
-	LRS-1180-302	NPN excess light output / conn. S12	LLS-1180-002 (R) / LLS-1180-000 (E)
LHK-1180-303	-	PNP changeover outputs / cable	LLK-1180-003 (R) / LLK-1180-000 (E)
-	LRK-1180-304	PNP excess light output / cable	LLK-1180-004 (R) / LLK-1180-000 (E)
LHS-1180-303	-	PNP changeover outputs / conn. S12	LLS-1180-003 (R) / LLS-1180-000 (E)
-	LRS-1180-304	PNP excess light output / conn. S12	LLS-1180-004 (R) / LLS-1180-000 (E)
G, H, K, L	G, H, K, L	Suitable connecting cables (page 112)	M, N
Diagram 1	Diagram 1	Wiring (pages 100 - 101)	Diagram 2 (R) / Diagram 4 (E)

1 Inductive proximity switches
2 Photoelectric proximity switches
3 Optical fibers
4 Connecting cables
5 Accessories
6 Glossary
7 Index

Atžglance:

- 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 chromed-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 can be adjusted by means of the built-in potentiometer (diffuse sensors; optional for other models). Turning clockwise increases the sensitivity.

Operating distance adjustment

The operating distance can be adjusted by means of the built-in potentiometer (diffuse sensors with background suppression). 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 on. 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 0.34mm² (type 8) or 4 x 0.25 mm² (type 12) for 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 112.

Reflectors

A range of suitable reflectors for the reflex sensors is listed on page 99.

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
Output voltage drop	2.0 V max. at 200 mA
Max. switching frequency	1,000 Hz / 500 Hz*
Switching time (\uparrow and \downarrow)	0.5 msec / 1 msec*
Max. ambient light:	
halogen	5,000 Lux
sun	10,000 Lux
Ambient temperature range	-25 ... +55 °C
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 light control

The built-in excess light 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 \varnothing) 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.

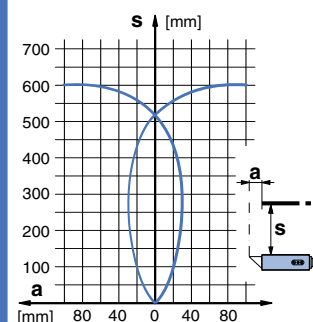
M18W

Diffuse sensor, energetic

600 mm



Response curve:



Operating distance	600 mm
Standard target	200 x 200 mm white
No-load supply current	15 mA typ.
Emitter	LED red 660 nm
Weight (cable / connector model)	123 / 56 g
Part ref.: (bold : preferred types)	
NPN light-ON / cable	LTK-1180W-301
NPN dark-ON / cable	-
NPN light-ON / connector S12	LTS-1180W-301
NPN dark-ON / connector S12	-
PNP light-ON / cable	LTK-1180W-303
PNP dark-ON / cable	-
PNP light-ON / connector S12	LTS-1180W-303
PNP dark-ON / connector S12	-
Suitable connecting cables (page 112)	G, H, K, L
Wiring (pages 100 - 101)	Diagram 1

SERIES 1180W

M18W

Diffuse sensor with background suppression

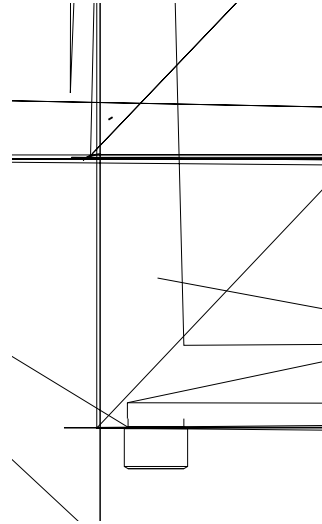
10 ... 120 mm

M18W

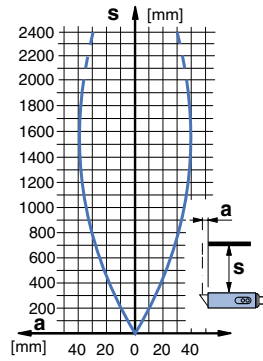
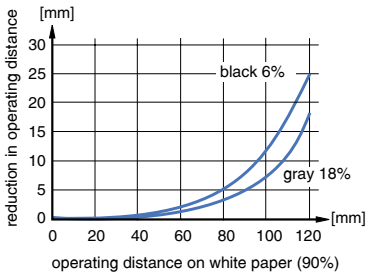
Reflex sensor

2,000 mm

potentiometer
(diffuse sensors only)



potentiometer
(diffuse sensors only)



10 ... 120 mm

100 x 100 mm white

25 mA typ.

LED red 660 nm

124 / 57 g

2,000 mm

Reflector type 3

15 mA typ.

LED red polarized 660 nm

125 / 56 g

LHK-1180W-301

-

LHS-1180W-301

-

LHK-1180W-303

-

LHS-1180W-303

-

G, H, K, L

Diagram 1

-

LRK-1180W-302

-

LRS-1180W-302

-

LRK-1180W-304

-

LRS-1180W-304

G, H, K, L

Diagram 1

Atžglance:

- Small, but robust
- 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 12-turn potentiometer
- High degree of protection: IP 67

Construction

The devices are built into a housing of glass-fiber reinforced PBTP/polybutyleneterephthalate (Crastin), and fully potted with polyurethane resin. The covers are ultrasonically welded. Two mounting holes are provided for the use of M4 fastening screws. A universal mounting bracket as well as screws are included with every switch.

Sensitivity setting

The sensitivity can be very finely adjusted by means of the built-in 12-turn potentiometer. The potentiometer cannot be turned too far. Turning clockwise increases the sensitivity.

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. Appropriate technology prevents malfunctions or destruction caused by electrostatic discharges, fast transients, or HF fields.

LED

The yellow LED lights up when the light-ON output is switched. The green LED lights up if the receiver gets enough light (excess light) for reliable operation. At the same time the corresponding output (types -102 and -104 only) is switched.

Connection

Switches with 3 m PVC cable 4 x 0.14 mm² (type 2) or 4-pole S8 connector are standard. Other cable types or lengths are available on request. Suitable connecting cables are listed on page 112.

Reflectors

A range of suitable reflectors for the reflex sensors is listed on page 99.

Test input

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

Excess light control

The built-in excess light circuit (separate output for types -102 and -104) simplifies alignment and adjustment of the sensors. Any dirt is recognized in time, and can be removed easily.

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 (total of both outputs)	200 mA
Output voltage drop	2.0 V max. at 200 mA
Max. switching frequency	1000 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
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	

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, mounting bracket, screws, washers and nuts, screwdriver, instructions.

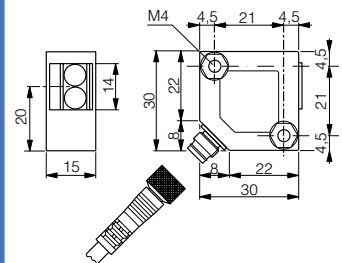
Ž30x30

Diffuse sensor, energetic

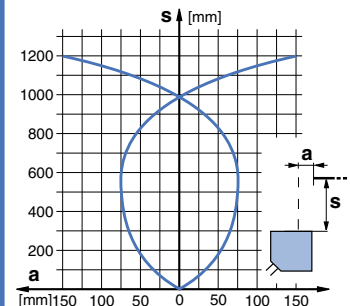
1,200 mm



Dimensions:





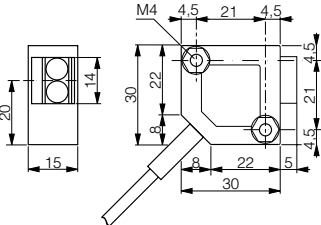
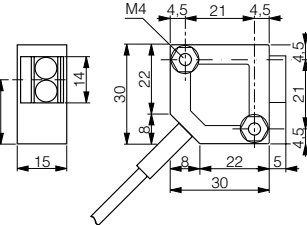
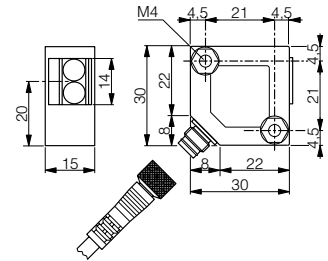
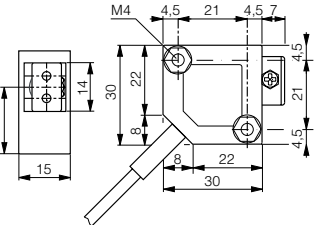
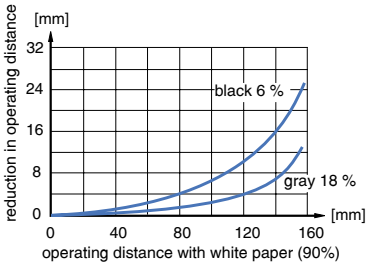
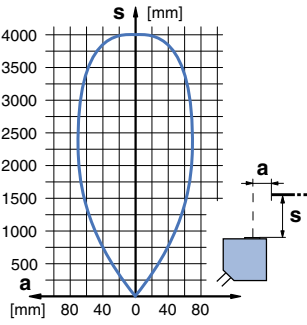
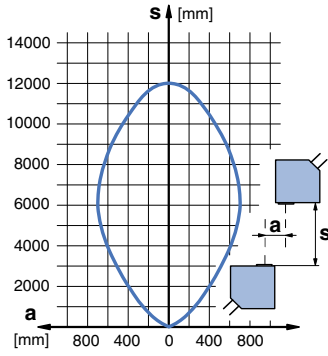
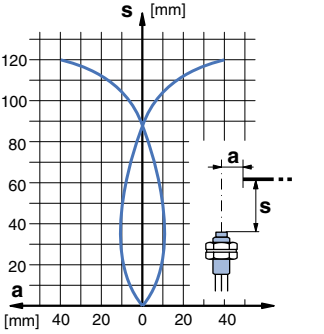


Response curve:



Operating distance	1,200 mm
Standard target	200 x 200 mm
No-load supply current	15 mA typ.
Emitter	IR LED 880 nm
Weight (cable / connector model)	75 / 17 g
Part ref.: (bold: preferred types)	
NPN changeover outputs / cable	LTK-3030-101
NPN excess light output / cable	LTK-3030-102
NPN changeover outputs / conn. S8	LTS-3030-101
NPN excess light output / conn. S8	LTS-3030-102
PNP changeover outputs / cable	LTK-3030-103
PNP excess light output / cable	LTK-3030-104
PNP changeover outputs / conn. S8	LTS-3030-103
PNP excess light output / conn. S8	LTS-3030-104
Suitable connecting cables (page 112)	E, F
Wiring (pages 100 - 101)	Diagram 2

SERIES Ž3030

□Ž30x30 Diffuse sensor with background suppression 15ž..ž150žmm	□Ž30x30 Reflex sensor 4,000žmm	□Ž30x30 Through-beam sensor 12,000žmm	□Ž30x30 Fiber-optic amplifier 120žmm
			
			
			
15 ... 150 mm	4,000 mm	12,000 mm	120 mm (with LFP-1002-020)
100 x 100 mm	Reflector type 3	-	100 x 100 mm
25 mA typ.	15 mA typ.	10 mA typ. (R) / 15 mA typ. (E)	15 mA typ.
LED red 660 nm	LED red polarized 660 nm	IR LED 880 nm	LED red 660 nm
75 / 17 g	80 / 18 g	75 / 17 g (R and E)	78 / 18 g
LHK-3030-101 LHK-3030-102 LHS-3030-101 LHS-3030-102 LHK-3030-103 LHK-3030-104 LHS-3030-103 LHS-3030-104	LRK-3030-101 LRK-3030-102 LRS-3030-101 LRS-3030-102 LRK-3030-103 LRK-3030-104 LRS-3030-103 LRS-3030-104	(R) receiver / (E) emitter LLK-3030-001 (R) / LLK-3030-000 (E) LLK-3030-002 (R) / LLK-3030-000 (E) LLS-3030-001 (R) / LLS-3030-000 (E) LLS-3030-002 (R) / LLS-3030-000 (E) LLK-3030-003 (R) / LLK-3030-000 (E) LLK-3030-004 (R) / LLK-3030-000 (E) LLS-3030-003 (R) / LLS-3030-000 (E) LLS-3030-004 (R) / LLS-3030-000 (E)	LFK-3030-101 LFK-3030-102 LFS-3030-101 LFS-3030-102 LFK-3030-103 LFK-3030-104 LFS-3030-103 LFS-3030-104
E, F Diagram 2	E, F Diagram 2	E, F Diagram 2 (R) / Diagram 4 (E)	E, F Diagram 2

1 Inductive proximity switches
 2 Photoelectric proximity switches
 3 Optical fibers
 4 Connecting cables
 5 Accessories
 6 Glossary
 7 Index

Atžglance:

- Small, but robust
- Low cost
- 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 12-turn potentiometer
- High degree of protection: IP 65

Construction

The devices are built into a housing of glass-fiber reinforced PBTP/polybutylene terephthalate (Crastin), and fully potted with polyurethane resin. The covers are ultrasonically welded. Two mounting holes are provided for the use of M4 fastening screws.

Sensitivityž setting

The sensitivity can be very finely adjusted by means of the built-in 12-turn potentiometer. The potentiometer cannot be turned too far. Turning clockwise increases the sensitivity.

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. Appropriate technology prevents malfunctions or destruction caused by electrostatic discharges, fast transients, or HF fields.

LED

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

Connection

Switches with 2 m PVC cable 3 x 0.14 mm² (type 2) or 3-pole S8 connector are standard. Other cable types or lengths are available on request. Suitable connecting cables are listed on page 112.

Reflectors

A range of suitable reflectors for the reflex sensors is listed on page 99.

Testžinput

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

Excessžlightžcontrol

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

Power-ONžreset

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

Technicalždata:

(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
Output voltage drop	2.0 V max. at 200 mA
Max. switching frequency:	1000 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
Degree of protection	IP 65
EMC protection:	
IEC 60255-5	1 kV
IEC 61000-4-2	Level 3
IEC 61000-4-3	Level 3
IEC 61000-4-4	Level 3
* Diffuse sensor with background suppression	

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.

Fixing

For fixation purposes, CONTRINEX offers a mounting set (order reference LXW-3030-003), consisting of a universal fixing bracket, screws, and a screwdriver suitable for adjusting the potentiometer.

Datažsheets

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.

Deliveryžpackage

Proximity switch, instructions.

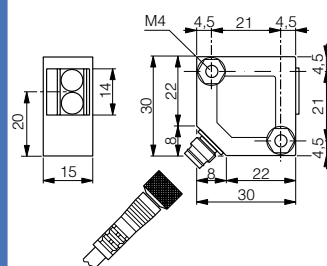
Ž30x30

Diffusežsensor,
energetic

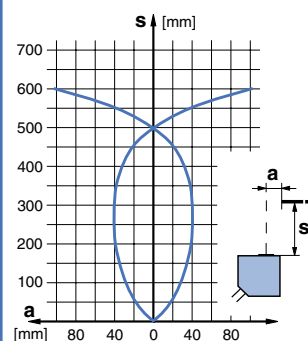
600žmm



Dimensions:





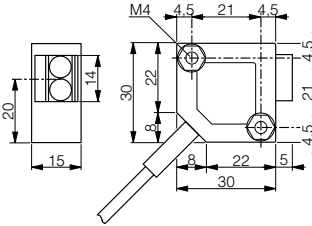
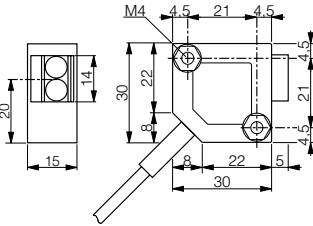
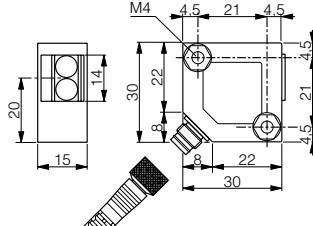
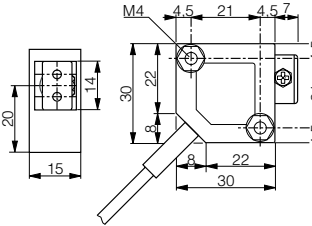
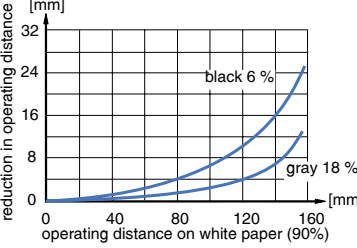
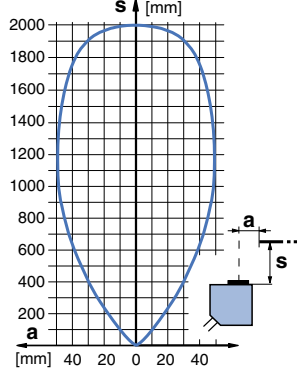
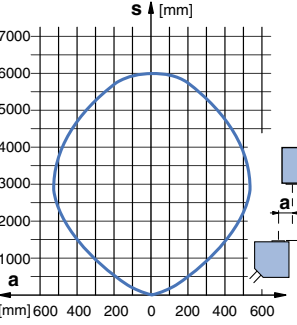
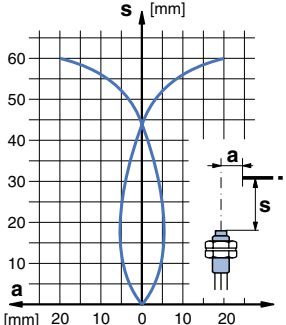


Response curve:



Operating distance	600 mm
Standard target	200 x 200 mm
No-load supply current	15 mA typ.
Emitter	IR LED 880 nm
Weight (cable / connector model)	75 / 17 g
Part ref.: (bold: preferred types)	
NPN light-ON / cable	LTK-3031-301
NPN dark-ON / cable	-
NPN light-ON / connector S8	LTS-3031-301
NPN dark-ON / connector S8	-
PNP light-ON / cable	LTK-3031-303
PNP dark-ON / cable	-
PNP light-ON / connector S8	LTS-3031-303
PNP dark-ON / connector S8	-
Suitable connecting cables (page 112)	A, B
Wiring (pages 100 - 101)	Diagram 1

SERIES Ž3031

<p>□ Ž30x30</p> <p>Diffuse sensor with background suppression</p> <p>15ž...ž150žmm</p>	<p>□ Ž30x30</p> <p>Reflex sensor</p> <p>2,000žmm</p>	<p>□ Ž30x30</p> <p>Through-beam sensor</p> <p>6,000žmm</p>	<p>□ Ž30x30</p> <p>Fiber-optic amplifier</p> <p>60žmm</p>
			
			
			
<p>15 ... 150 mm</p> <p>100 x 100 mm</p> <p>25 mA typ.</p> <p>LED red 660 nm</p> <p>75 / 17 g</p>	<p>2,000 mm</p> <p>Reflector type 3</p> <p>15 mA typ.</p> <p>LED red polarized 660 nm</p> <p>80 / 18 g</p>	<p>6,000 mm</p> <p>-</p> <p>10 mA typ. (R) / 15 mA typ. (E)</p> <p>IR LED 880 nm</p> <p>75 / 17 g (R and E)</p>	<p>60 mm (with LFP-1002-020)</p> <p>100 x 100 mm</p> <p>15 mA typ.</p> <p>LED red 660 nm</p> <p>78 / 17 g</p>
<p>LHK-3031-301</p> <p>-</p> <p>LHS-3031-301</p> <p>-</p> <p>LHK-3031-303</p> <p>-</p> <p>LHS-3031-303</p> <p>-</p> <p>A, B</p> <p>Diagram 1</p>	<p>-</p> <p>LRK-3031-302</p> <p>-</p> <p>LRS-3031-302</p> <p>-</p> <p>LRK-3031-304</p> <p>-</p> <p>LRS-3031-304</p> <p>-</p> <p>A, B</p> <p>Diagram 1</p>	<p>(R) receiver / (E) emitter</p> <p>-</p> <p>LLK-3031-202 (R) / LLK-3031-200 (E)</p> <p>-</p> <p>LLS-3031-202 (R) / LLS-3031-200 (E)</p> <p>-</p> <p>LLK-3031-204 (R) / LLK-3031-200 (E)</p> <p>-</p> <p>LLS-3031-204 (R) / LLS-3031-200 (E)</p> <p>-</p> <p>A, B</p> <p>Diagram 1 (R) / Diagram 4 (E)</p>	<p>LFK-3031-301</p> <p>LFK-3031-302</p> <p>LFS-3031-301</p> <p>LFS-3031-302</p> <p>LFK-3031-303</p> <p>LFK-3031-304</p> <p>LFS-3031-303</p> <p>LFS-3031-304</p> <p>A, B</p> <p>Diagram 1</p>

1 Inductive proximity switches

2 Photoelectric proximity switches

3 Optical fibers

4 Connecting cables

5 Accessories

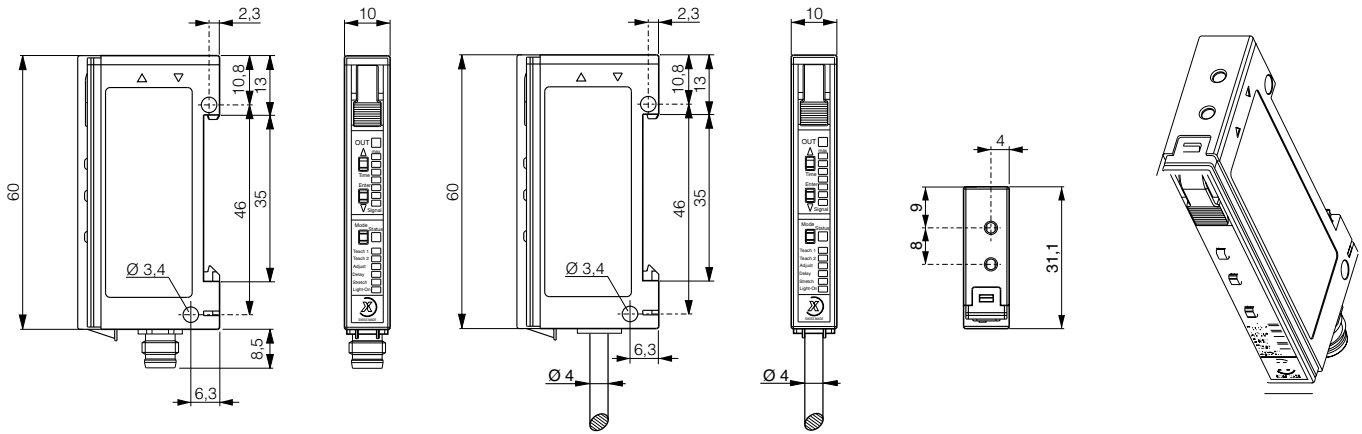
6 Glossary

7 Index

SERIES Ž4040

	□ž40x40	□ž40x40	□ž40x40	1
	Reflexžsensor	Through-beamžsensor	Fiber-opticžčamplifier	Inductive proximity switches
	6,000žmm	15,000žmm	150žmm	2
				Photoelectric proximity switches
				3
				Optical fibers
	6,000 mm	15,000 mm	150 mm (with LFG-1030-050)	4
	Reflector type 3	-	100 x 100 mm	Connecting cables
	15 mA typ.	10 mA typ. (R) / 15 mA typ. (E)	15 mA typ.	5
	LED red polarized 660 nm	IR LED 880 nm	IR LED 880 nm	Accessories
	90 / 35 g	95 / 35 g (R and E)	95 / 35 g	6
		(R) receiver / (E) emitter		
	LRK-4040-101	LLK-4040-001 (R) / LLK-4040-000 (E)	LFK-4040-101	
	LRK-4040-102	LLK-4040-002 (R) / LLK-4040-000 (E)	LFK-4040-102	
	LRS-4040-101	LLS-4040-001 (R) / LLS-4040-000 (E)	LFS-4040-101	7
	LRS-4040-102	LLS-4040-002 (R) / LLS-4040-000 (E)	LFS-4040-102	
	LRK-4040-103	LLK-4040-003 (R) / LLK-4040-000 (E)	LFK-4040-103	
	LRK-4040-104	LLK-4040-004 (R) / LLK-4040-000 (E)	LFK-4040-104	
	LRS-4040-103	LLS-4040-003 (R) / LLS-4040-000 (E)	LFS-4040-103	
	LRS-4040-104	LLS-4040-004 (R) / LLS-4040-000 (E)	LFS-4040-104	
	E, F	E, F	E, F	
	Diagram 2	Diagram 2 (R) / Diagram 4 (E)	Diagram 2	Index

Dimensions:



Atžglance:

- Robust universal devices
- Long operating distances
- High switching frequency: 1000 Hz / 250 Hz*
- Reflex sensors using autocollimation principle
- Glass window, therefore scratch resistant and easy to clean
- The PBTP (Crastin) housing provides exceptional resistance to environmental influences
- Sensitivity adjustment by means of a built-in potentiometer with calibration scale and reduction gearbox
- High degree of protection: IP 67

Construction

The devices are built into a housing of glass-fiber reinforced PBTP/polybutyleneterephthalate (Crastin). For fixing purposes, a number of through holes suitable for M5 screws are provided. The distance between the holes has been chosen for maximum compatibility with the most commonly available sensors on the market.

Sensitivity setting

The sensitivity can be very finely adjusted by means of the built-in potentiometer with calibration scale and reduction gearbox. The potentiometer cannot be turned too far. Turning clockwise increases the sensitivity.

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. Appropriate technology prevents malfunctions or destruction caused by electrostatic discharges, fast transients, or HF fields.

LED

The yellow LED lights up when the light-ON output is switched. The green LED indicates that sufficient light is available for reliable operation (approx. 80% of the maximum operating distance); at the same time, the corresponding output (if available) is switched.

Connection

As standard, the devices are delivered with 4-pole or 5-pole S12 connector, or screw terminal. Suitable connecting cables are listed on page 112.

Reflectors

A range of suitable reflectors for the reflex sensors is listed on page 99.

Test input

The built-in test input (optional for some models) provides the possibility of an extra system control.

Excess light control

The built-in excess light circuit simplifies alignment and adjustment of the sensors. Eventual dirt is recognized in time, and can be removed easily.

Technical data:

(according to IEC 60947-5-2)

Hysteresis	10 % typ.
DC supply voltage range U_B	10 ... 36 VDC
UC supply voltage range U_B	20 ... 265 VAC
	20 ... 320 VDC
Max. ripple content**	20 %
Output current**	200 mA
Output voltage drop**	2.0 V max.
	at 200 mA
Max. switching frequency**	1000 Hz / 250 Hz*
Switching time** (↑ and ↓)	0.5 msec / 1 msec*
Max. ambient light:	
halogen	5,000 Lux
sun	10,000 Lux
Ambient temperature range	-5 ... +55 °C
Degree of protection	IP 67
EMC protection:	
IEC 60255-5	1 kV
IEC 61000-4-2	Level 3
IEC 61000-4-3	Level 3
IEC 61000-4-4	Level 3
* Diffuse sensor with background suppression	
** DC models (UC see data sheet)	

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 infra-red light as the source. At a distance of 1 m, the light spot has a diameter of approx. 30 mm.

Timer

The timer (optional) allows selection of switch-on delay, switch-off delay, or pulses; adjustable from 0.01 ... 1 s (UC models 0.1 ... 10 s).

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, instructions.

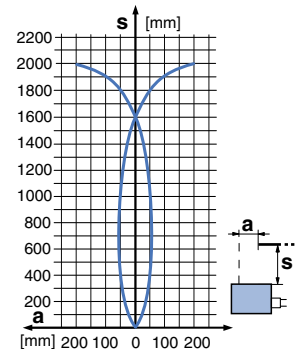
□ 65x83

Diffuse sensor,
energetic

2,000 mm



Response curve:



Operating distance	2,000 mm
Standard target	400 x 400 mm white
No-load supply current DC / UC	20 mA / 2 VA typ.
Emitter	IR LED 880 nm
Weight	100 g
Part ref.: (bold : preferred types)	
DC NPN / connector S12	LTS-6080-101*
DC NPN / screw terminal	LTT-6080-101
DC NPN timer*** / connector S12	LTS-6080-151**
DC NPN timer*** / screw terminal	LTT-6080-151
DC PNP / connector S12	LTS-6080-103*
DC PNP / screw terminal	LTT-6080-103
DC PNP timer*** / connector S12	LTS-6080-153**
DC PNP timer*** / screw terminal	LTT-6080-153
UC relay / connector S12	LTS-6080-115
UC relay / screw terminal	LTT-6080-115
UC relay / timer*** / connector S12	LTS-6080-165
UC relay / timer*** / screw terminal	LTT-6080-165
Suitable connecting cables (page 112)	M, N (**with test input: O, P)
Wiring (pages 100 - 101)	2 (LTS-...*) / 3 (LTS/LTT-...)/ 5 (UC)

1
Inductive
proximity switches

2
Photoelectric
proximity switches

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Optical fibers

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