

At a glance:

- Fiber-optic amplifiers for DIN-rail mounting (DIN/EN 50022)
- Excellent detection properties across a wide sensing range of 0 ... 200 mm for red-light / 0 ... 100 mm for blue-light executions and 0 ... 140 mm for executions with high switching frequency
- No blind zone
- Large setting range of 20 ... 200 mm for red-light / 20 .. 100 mm for blue-light executions and 20 ... 140 mm for executions with high switching frequency
- Distance setting by means of a 12-turn potentiometer with illuminated calibration scale
- Switch selectable light-ON / dark-ON output, as well as excess-gain output
- 10 mm housing width

Construction

The devices are built into a housing of glass-fiber reinforced PBTP / polybutyleneterephthalate (Crastin). The housing width is only 10 mm, thus minimizing the space required for stacking. The optical fibers (\varnothing 2.2 mm) are connected by quick-locking, which protects them from detaching accidentally. The operating and display elements are protected by a clip-on transparent cover. The devices can be snapped onto DIN rails (DIN/EN 50022).

Operating distance adjustment

The operating distance is adjusted by means of a 12-turn potentiometer (setting range 20 ... 200 mm for red-light / 20 ... 100 mm for blue-light executions and 20 ... 140 mm for executions with high switching frequency).

Light-ON / dark-ON

The output function is switch selectable light-ON / dark-ON directly on the device (default setting: light-ON).

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. Thanks to optimum sealing, the devices are resistant to environmental influences (degree of protection IP 64).

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

Devices with 2 m PVC cable 4 x 0.25 mm² (type 12) or 4-pole S8 connector are standard. Other cable types or lengths are available on request. Suitable connecting cables are listed on page 146.

Technical data:

(according to IEC 60947-5-2)	
Hysteresis	10 % typ.
Supply voltage range U_B	10 ... 30 VDC
Max. ripple content	20 %
Output current	200 mA max.
Output voltage drop	2.0 V max. at 200 mA
Max. switching frequency	1,500 Hz / 5,000 Hz*
Switching time (\uparrow and \downarrow)	330 μ sec / 100 μ sec*
Max. ambient light:	
halogen	5,000 Lux
sun	10,000 Lux
Ambient temperature range	-25 ... +55 °C (-13 ... +131 °F)
Degree of protection	IP 64
EMC protection:	
IEC 60255-5	5 kV
IEC 61000-4-2	Level 2
IEC 61000-4-3	Level 3
IEC 61000-4-4	Level 2

* Executions with high switching frequency

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.

Simple operation

The operating and display elements are clearly structured and largely self-explanatory. Additional operating information can be found on the device labels, and detailed operating instructions are delivered with every switch.

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

Device, instructions.

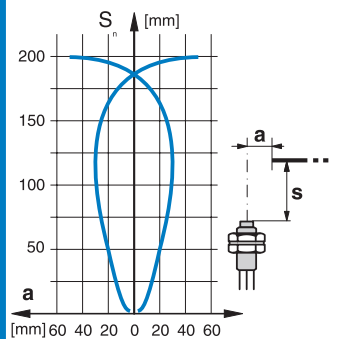
□ 31x60

Fiber-optic amplifier with potentiometer

200 mm



Response curve:



Operating distance	200 mm (with LFP-1002-020)
Standard target	100 x 100 mm white
No-load supply current (at $U_B=24V$)	15 mA typ.
Emitter	LED red 680 nm
Weight (cable / connector model)	69 g / 18 g
Part ref.: (bold : preferred types)	
NPN potentiometer / cable	LFK-3060-101
NPN potentiometer / connector S8	LFS-3060-101
PNP potentiometer / cable	LFK-3060-103
PNP potentiometer / connector S8	LFS-3060-103
Suitable connecting cables (page 146)	E, F
Wiring (pages 114 - 115)	Diagram 2

SERIES 3060

□ 31x60

Fiber-optic amplifier with potentiometer, high switching frequency

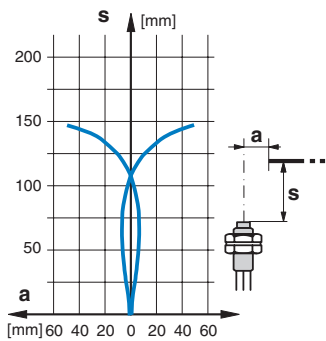
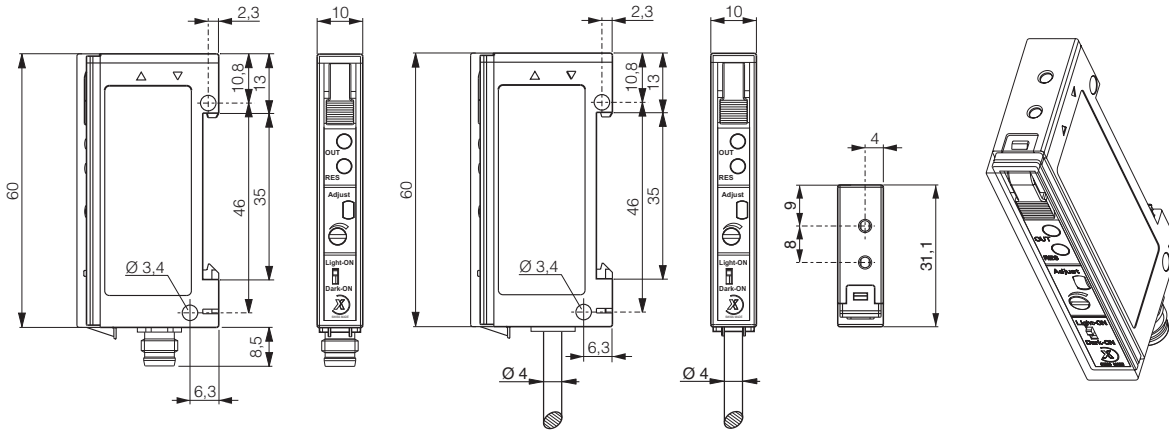
140 mm

□ 31x60

Blue-light fiber-optic amplifier with potentiometer

100 mm

Dimensions:



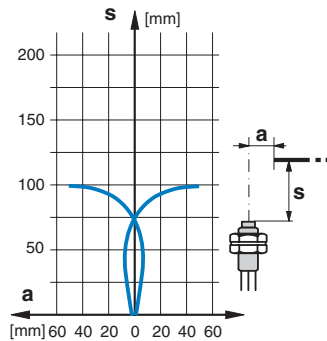
140 mm (with LFP-1002-020)

100 x 100 mm white

15 mA typ.

LED red 680 nm

69 g / 18 g



100 mm (with LFP-1002-020)

100 x 100 mm white

15 mA typ.

LED blue 465 nm

69 g / 18 g

LFK-3260-101

LFS-3260-101

LFK-3260-103

LFS-3260-103

E, F

Diagram 2

LFK-3360-101

LFS-3360-101

LFK-3360-103

LFS-3360-103

E, F

Diagram 2

1 Inductive proximity switches

2 Photoelectric proximity switches

3 Optical fibers

4 Ultrasonic proximity switches

5 Connecting cables

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8 Index

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- No blind zone
- Large setting range of 20 ... 200 mm for red-light / 20 ... 100 mm for blue-light executions and 20 ... 140 mm for executions with high switching frequency
- Regulated emitter light power
- Distance setting by means of teach-in with additional manual fine adjustment
- Signal-strength and excess-gain indication by means of a bargraph
- 10 mm housing width

Construction

The devices are built into a housing of glass-fiber reinforced PBTP / polybutyleneterephthalate (Crastin). The housing width is only 10 mm, thus minimizing the space required for stacking. The optical fibers (\varnothing 2.2 mm) are connected by quick-locking, which protects them from detaching accidentally. The operating and display elements are protected by a clip-on transparent cover. The devices can be snapped onto DIN rails (DIN/EN 50022).

Operating distance adjustment

The operating distance is adjusted by means of teach-in (setting range 20 ... 200 mm for red-light / 20 ... 100 mm

for blue-light executions and 20 ... 140 mm for executions with high switching frequency). Depending on the application, either Teach 1 (only for background), or Teach 2 (for target and background) may be used. The additional manual fine adjustment allows for optimum regulation. The teach process can be triggered remotely.

Regulated light power

The emitter light power is regulated automatically, which results in a very small temperature and aging drift of the operating distance, as well as reducing the spread of the latter between individual devices.

Timers

If needed, the built-in timers for pulse delay and stretching can be activated. The factory-adjusted 10 msec setting can be increased by increments of 10 msec.

Light-ON / dark-ON

The output function can be selected directly on the device (default setting: light-ON).

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. Thanks to optimum sealing, the devices are resistant to environmental influences (degree of protection IP 64).

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(according to IEC 60947-5-2)

Hysteresis	10 % typ.
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IEC 61000-4-3	Level 3
IEC 61000-4-4	Level 2

* Executions with high switching frequency

LED

A yellow LED indicates the switching state. Signal-strength and excess-gain indication by means of a bargraph allow for optimum alignment of the optical fibers. The status LED shows the output state of the device during the teach process, and 8 green LEDs indicate the activated functions.

Connection

Devices with 2 m PVC cable 4 x 0.25 mm² (type 12) or 4-pole S8 connector are standard. Other cable types or lengths are available on request. Suitable connecting cables are listed on page 146.

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.

Simple operation

The operating and display elements are clearly structured and largely self-explanatory. Additional operating information can be found on the device labels, and detailed operating instructions are delivered with every switch.

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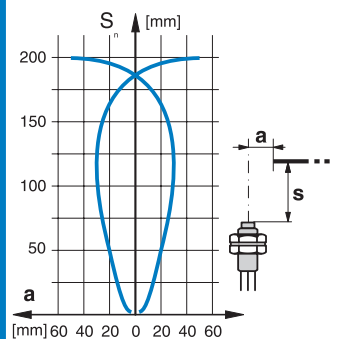
□ 31x60

Fiber-optic amplifier with teach-in

200 mm



Response curve:



Operating distance	200 mm (with LFP-1002-020)
Standard target	100 x 100 mm white
No-load supply current (at $U_B=24V$)	25 mA typ.
Emitter	LED red 680 nm
Weight (cable / connector model)	68 g / 17 g
Part ref.: (bold : preferred types)	
NPN teach-in / cable	LFK-3065-101
NPN teach-in / connector S8	LFS-3065-101
PNP teach-in / cable	LFK-3065-103
PNP teach-in / connector S8	LFS-3065-103
Suitable connecting cables (page 146)	E, F
Wiring (pages 114 - 115)	Diagram 6

SERIES 3065 WITH TEACH-IN

□ 31x60

Fiber-optic amplifier with teach-in,
high switching frequency

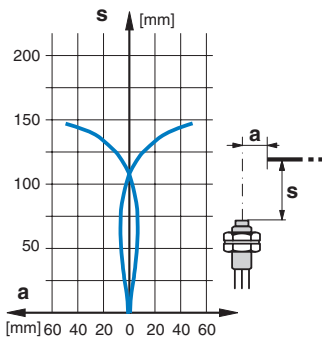
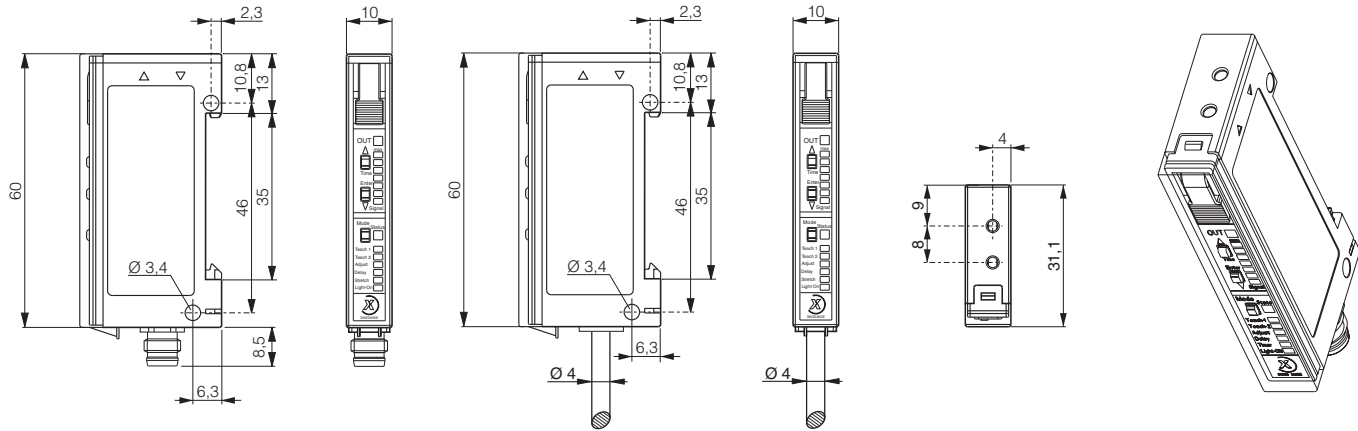
140 mm

□ 31x60

Blue-light fiber-optic amplifier
with teach-in

100 mm

Dimensions:



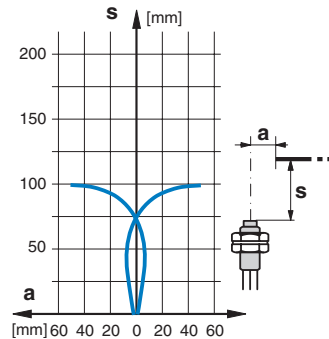
140 mm (with LFP-1002-020)

100 x 100 mm white

25 mA typ.

LED red 680 nm

68 g / 17 g



100 mm (with LFP-1002-020)

100 x 100 mm white

25 mA typ.

LED blue 465 nm

68 g / 17 g

LFK-3265-101

LFK-3365-101

LFS-3265-101

LFS-3365-101

LFK-3265-103

LFK-3365-103

LFS-3265-103

LFS-3365-103

E, F

Diagram 7

E, F

Diagram 6