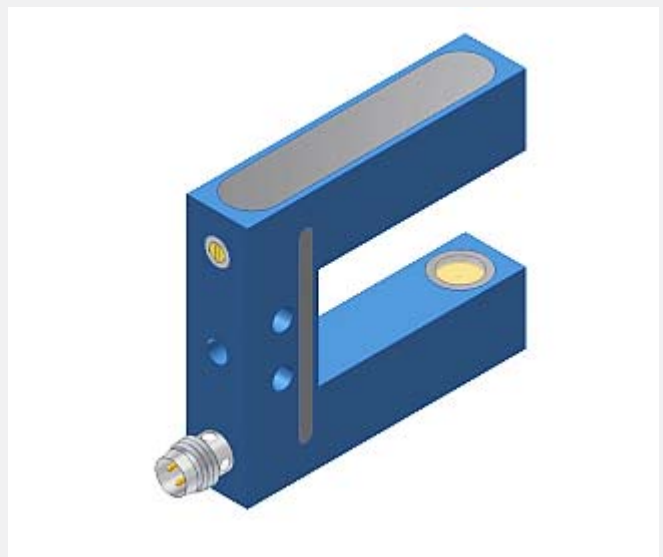


F-LAS Series

► F-LAS-AC-...

- Collimated, visible red laser beam,
Laser class 1 (<0.39 mW, 670 nm)
- AC operation
- Switching frequency typ. 1 kHz
- Various fork sizes and aperture sizes available
- Potentiometer either for gain setting or
for adjustment of comparator threshold
- 3-pol. M8-connector
- Scratch-resistant optics
- Compact design, sturdy aluminum housing, IP67



Design

Product name:

F-LAS-AC-(fork size)-(aperture)-(potentiometer)-(output)

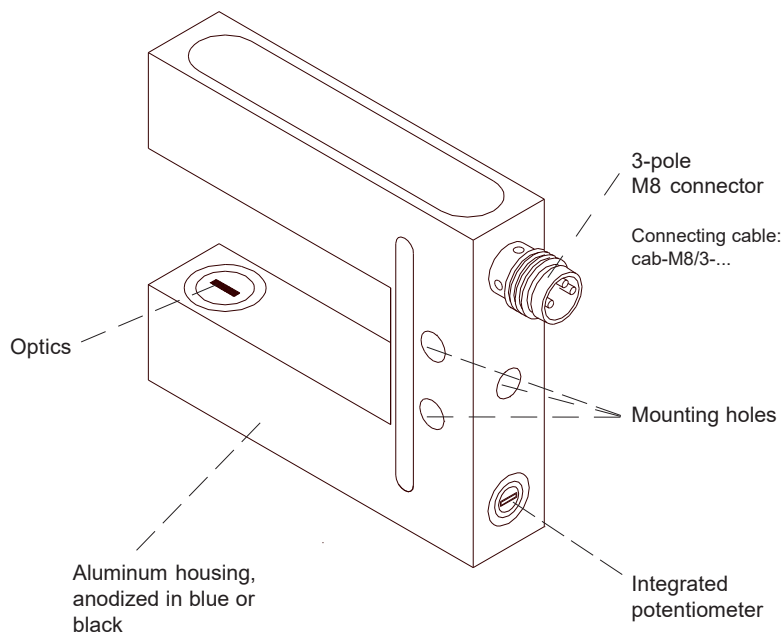
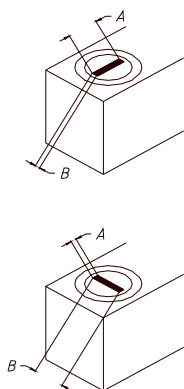
Available apertures:

Round apertures:

d0.2	(Ø 0.2 mm)
d0.3	(Ø 0.3 mm)
d0.5	(Ø 0.5 mm)
d0.7	(Ø 0.7 mm)
d1.0	(Ø 1.0 mm)
d2.0	(Ø 2.0 mm)

Rectangular apertures (AxB):

0.3x1	(0.3 mm x 1 mm)
0.3x1.5	(0.3 mm x 1.5 mm)
0.3x3	(0.3 mm x 3 mm)
0.5x1	(0.5 mm x 1 mm)
0.75x2	(0.75 mm x 2 mm)
0.75x3	(0.75 mm x 3 mm)
1x0.3	(1 mm x 0.3 mm)
1x0.5	(1 mm x 0.5 mm)
1x2	(1 mm x 2 mm)
1x3	(1 mm x 3 mm)
1.5x0.3	(1.5 mm x 0.3 mm)
2x0.75	(2 mm x 0.75 mm)
2x1	(2 mm x 1 mm)
3x0.3	(3 mm x 0.3 mm)
3x0.75	(3 mm x 0.75 mm)
3x1	(3 mm x 1 mm)



Available fork sizes:

10/34	(fork width A=10 mm, fork depth B=34 mm)
20/34	(fork width A=20 mm, fork depth B=34 mm)
30/34	(fork width A=30 mm, fork depth B=34 mm)
40/34	(fork width A=40 mm, fork depth B=34 mm)
50/34	(fork width A=50 mm, fork depth B=34 mm)
100/34	(fork width A=100 mm, fork depth B=34 mm)
50/80	(fork width A=50 mm, fork depth B=80 mm) <i>special size</i>

Potentiometer:

A	(potentiometer for adjustment of gain)
T	(potentiometer for adjustment of comparator threshold)

Switching output:

Q	(pnp bright-switching = pnp n.c. / npn dark-switching = npn n.o.)
Qinv	(pnp dark-switching = pnp n.o. / npn bright-switching = npn n.c.)

Technical Data

Type	F-LAS-AC
Laser	Semiconductor laser, 670 nm, AC operation, 0.39 mW max. optical power, laser class 1 acc. to DIN EN 60825-1. The use of these laser light barriers therefore requires no additional protective measures.
Available aperture sizes	Round apertures: Ø 0.2 mm to Ø 2 mm Rectangular apertures: 0.3 mm x 1 mm to 1 mm x 3 mm
Optical filters	Interference filter and red light filter RG 630
Min. detectable object	typ. 1% of aperture size
Reproducibility	typ. 1% of aperture size
Voltage supply	+12VDC ... +32VDC, reverse-polarity protected, overcurrent protected
Ambient light	up to 5000 Lux
Operation mode	AC operation, 100 kHz
Current consumption	typ. 60 mA
Max. switching current	100 mA, short-circuit protected
Digital output (1x)	Q = pnp bright-switching (pnp n.c.) / npn dark-switching (nnp n.o.) or Qinv = pnp dark-switching (pnp n.o.) / npn bright-switching (nnp n.c.) 100mA, short-circuit protection
Potentiometer	either for adjustment of gain factor (A) or for adjustment of comparator threshold (T)
Switching frequency	typ. 1 kHz
Operating temperature range	-20°C ... +50 °C
Storage temperature range	-20°C ... +85°C
Housing material	Aluminum, anodized in blue or black
Housing dimensions	Cf. page 3 and 4
Type of connector	3-pole M8-connector
Enclosure rating	IP67
EMC test acc. to	DIN EN 60947-5-2 

Laser Information

The laser transmitters of F-LAS-AC series comply with laser class 1 according to EN 60825-1. Under reasonably foreseeable conditions a class 1 laser is safe.
The reasonably foreseeable conditions are kept during specified normal operation.
The use of these laser transmitters therefore requires no additional protective measures.

The laser transmitters of F-LAS-AC series are supplied with an information label „CLASS 1 Laser Product“.



Class 1 Laser Product
IEC 60825-1: 2014
P<0.39 mW; λ=670 nm
COMPLIES WITH 21 CFR 1040.10 AND 1040.11
EXCEPT FOR CONFORMANCE WITH IEC 60825-1
ED. 3, AS DESCRIBED IN
LASER NOTICE NO. 56, DATED MAY 8, 2019.

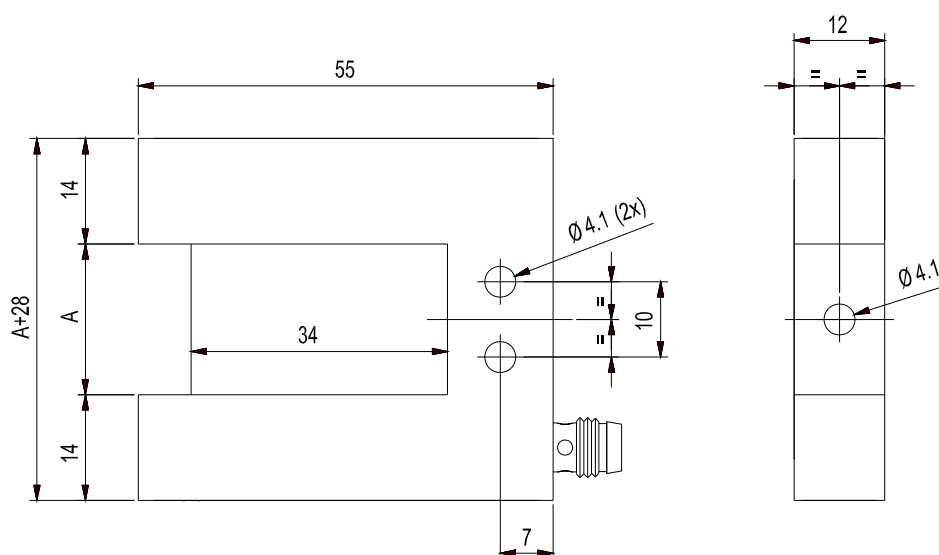
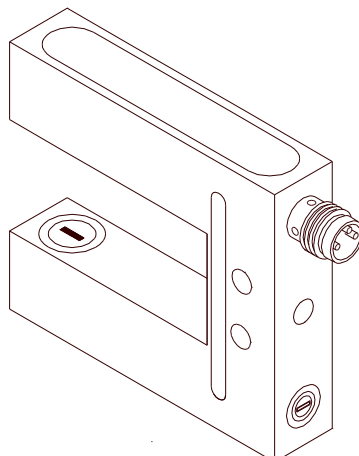


Dimensions

F-LAS-AC-(fork size):

Fork size	dim. A	dim. B
10/34	10 mm	34 mm
20/34	20 mm	34 mm
30/34	30 mm	34 mm
40/34	40 mm	34 mm
50/34	50 mm	34 mm
100/34	100 mm	34 mm

50/80 50 mm 80 mm ==> cf. page 4



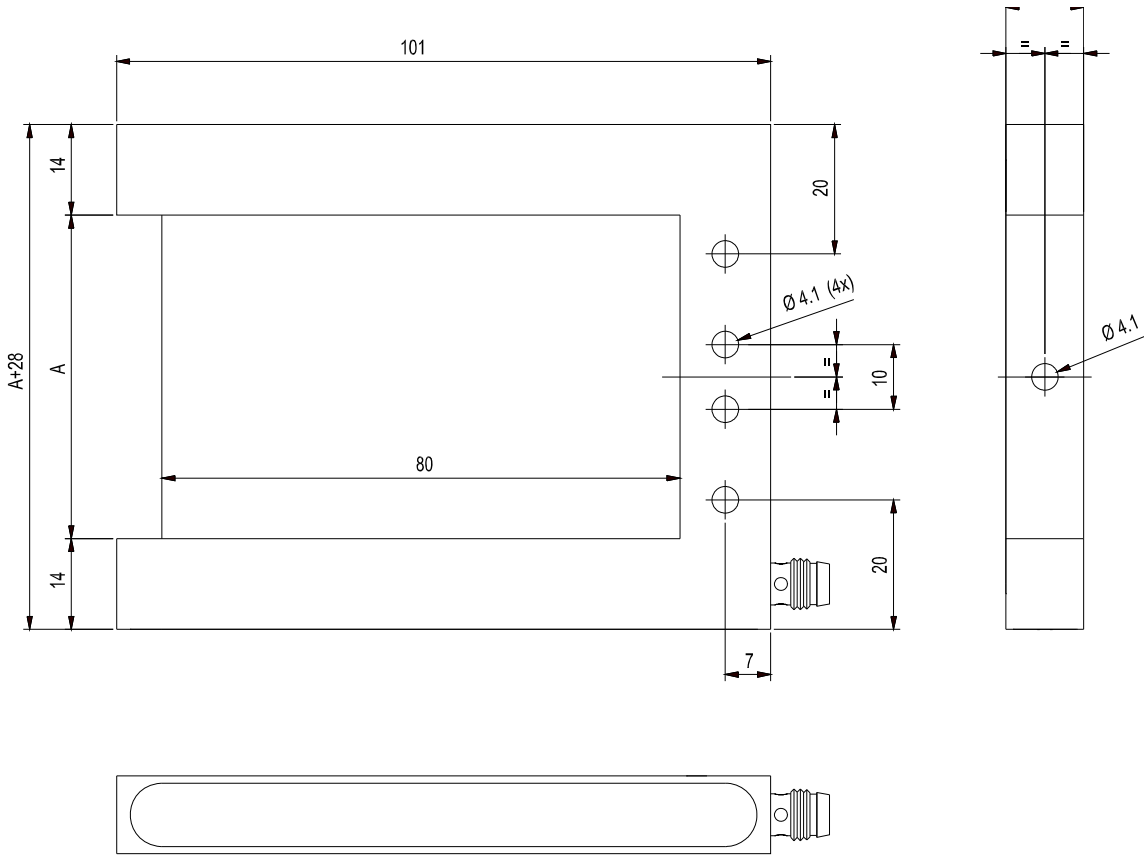
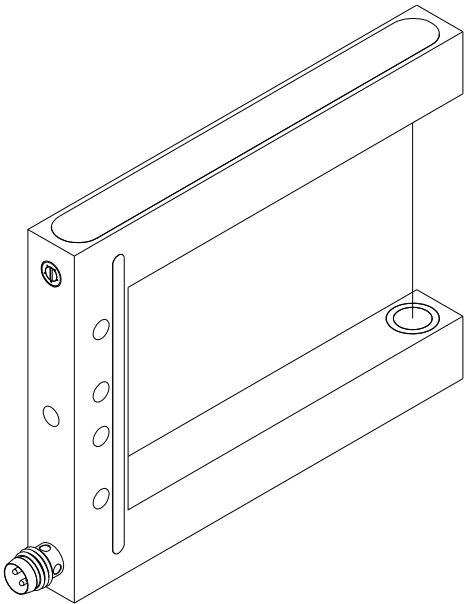
(All dimensions in mm)



Dimensions

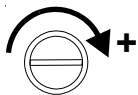
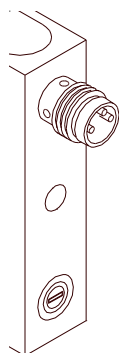
F-LAS-AC-50/80-... (special fork size):
with fork width A = 50 mm
and fork depth B = 80 mm

Fork size	Dim. A	Dim. B
50/80	50 mm	80 mm



(All dimensions in mm)

Setting



Adjustment of potentiometer A respectively T:

Potentiometer for adjustment of gain (A)

Rotation clockwise: Increase of analog voltage

Potentiometer for adjustment of comparator threshold (T)

Rotation clockwise: Increase of threshold

Connector Assignment

F-LAS-AC-...-Q

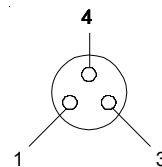
(3-pole M8-connector):

Pin:	Color:	Assignment:
1	brown	+Ub (+12VDC ... +32VDC)
3	blue	0V (GND)
4	black	Output Q (pnp bright-switching = pnp n.c. / nnp dark-switching = npn n.o.)

F-LAS-AC-...-Qinv

(3-pole M8-connector):

Pin:	Color:	Assignment:
1	brown	+Ub (+12VDC ... +32VDC)
3	blue	0V (GND)
4	black	Output Qinv (pnp dark-switching = pnp n.o. / nnp bright-switching = npn n.c.)



Connecting Cables

Available connecting cables:

- cab-M8/3-g-2m (l=2m, outer jacket PUR)
- cab-M8/3-g-5m (l=5m, outer jacket: PUR)
- cab-M8/3-w-2m (angle type 90°, l=2m, outer jacket PUR)
- cab-M8/3-w-5m (angle type 90°, l=5m, outer jacket PUR)

