

# F-LAS Series

## ► F-LAS-AC-...

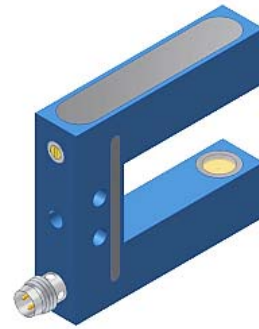
- Collimated, visible red laser beam  
**Laser class 1** (<0.39 mW, 670 nm),
- AC operation
- Switching frequency typ. 1 kHz
- Various fork sizes and aperture sizes available
- Potentiometer either for gain setting or for adjustment of comparator threshold
- 3-pol. M8-connector
- Scratch-resistant optics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

In Proud Partnership with Sensor Instruments

**PAQUIN**  
SENSORS

For technical support, sales, & distribution  
within the USA & Canada

www.paquin.com | (800) 831-8217 | paquinsensors@paquin.com



## Design

### Product name:

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

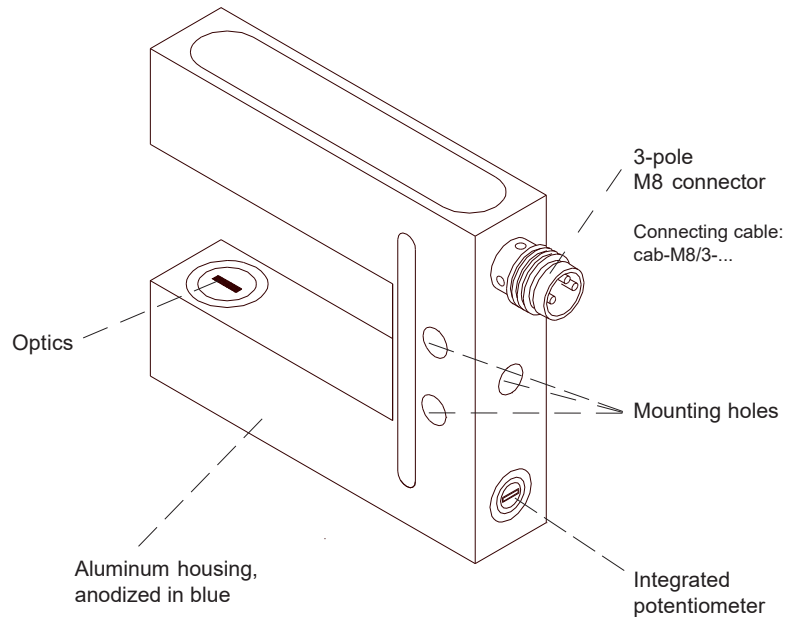
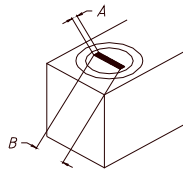
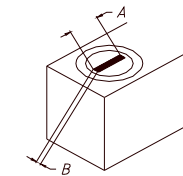
#### Available apertures:

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) *special size*

#### 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
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 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

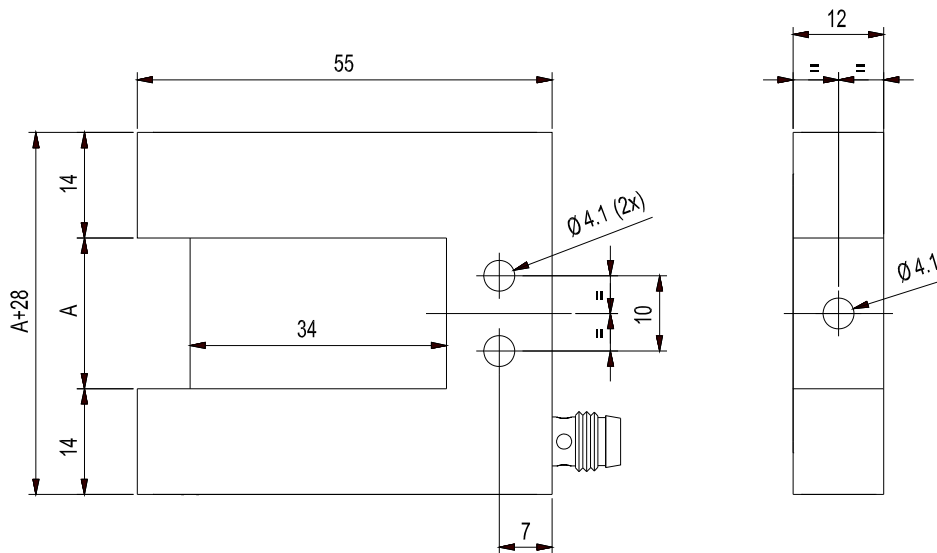
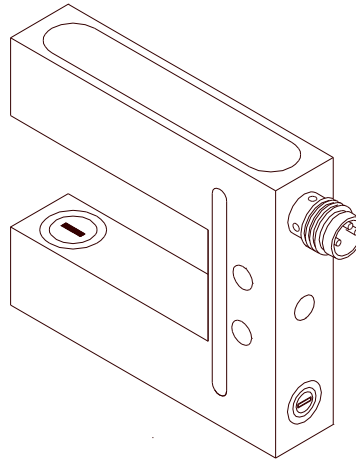
COMPLIES WITH 21 CFR 1040.10 AND 1040.11  
EXCEPT FOR CONFORMANCE WITH IEC 60825-1  
ED. 3, AS DESCRIBED IN  
LASER NOTICE NO. 56, DATED MAY 8, 2019.

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



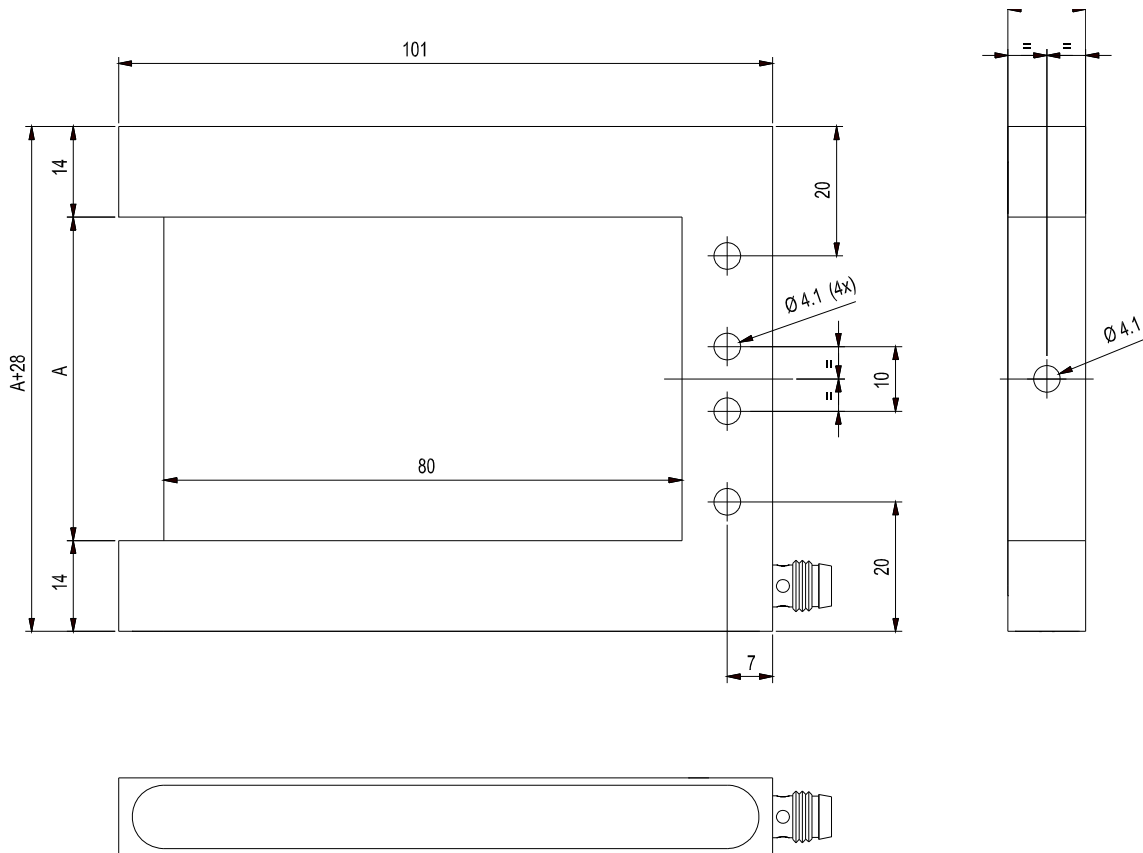
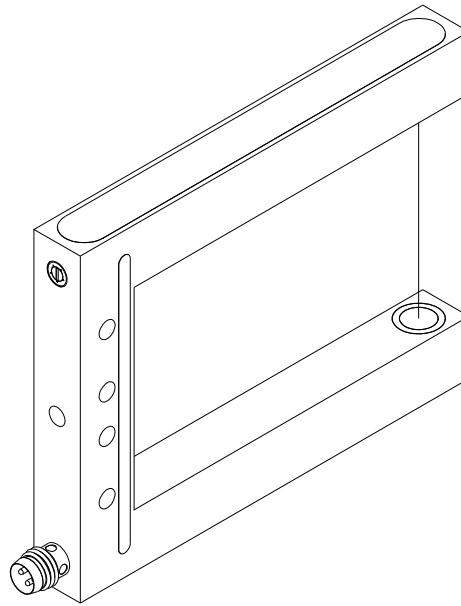
(All dimensions in mm)



Dimensions

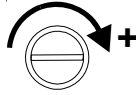
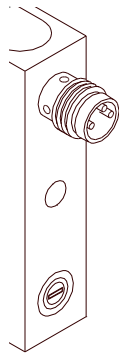
F-LAS-AC-50/80-... (special fork size):  
with fork width A = 50 mm  
and fork depth B = 80 mm

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**

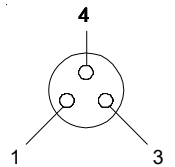
(3-pole M8-connector):

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



Connecting Cables

Available connecting cables:

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

