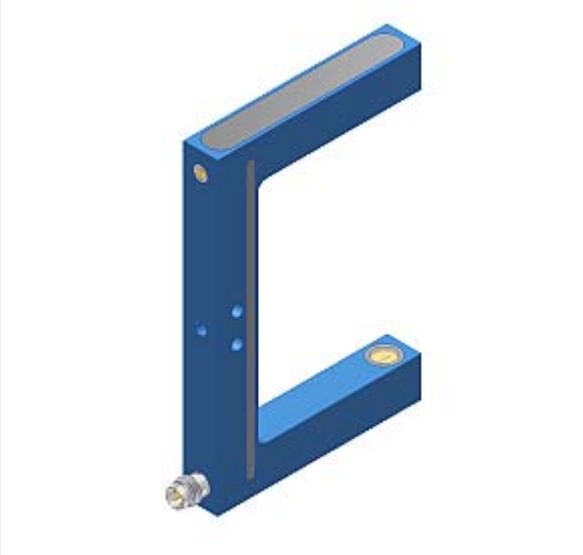
F-LAS Series



➤ F-LAS-DC-...

- Collimated, visible red laser beam
- Laser class 1 (<0.39 mW, 670 nm)
- DC operation
- Switching frequency typ. 25 kHz
- Various fork sizes and aperture sizes available
- Potentiometer either for gain setting or for adjustment of comparator threshold
- Threshold correction optionally (TC)
- Analog output (0 ... +10V)
- Scratch-resistant optics
- Sturdy aluminum housing, IP67

Design

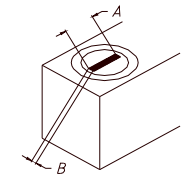
Product name:

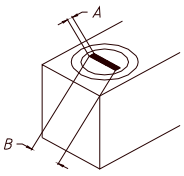
F-LAS-DC-(fork size)-(aperture)-(potentiometer)-(output)
F-LAS-DC-(fork size)-(aperture)-(potentiometer)-(output)-TC

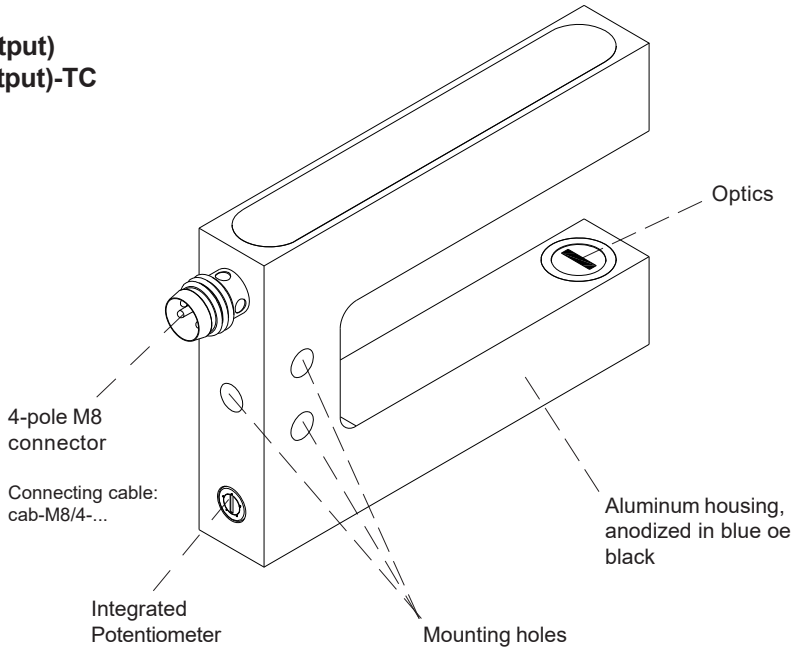
Available apertures:

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

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:

10/50	(fork width A=10 mm, fork depth B=50 mm)	cf. p. 3
20/50	(fork width A=20 mm, fork depth B=50 mm)	cf. p. 3
30/50	(fork width A=30 mm, fork depth B=50 mm)	cf. p. 3
40/50	(fork width A=40 mm, fork depth B=50 mm)	cf. p. 3
40/80	(fork width A=40 mm, fork depth B=80 mm)	cf. p. 3
50/50	(fork width A=50 mm, fork depth B=50 mm)	cf. p. 3
80/50	(fork width A=80 mm, fork depth B=50 mm)	cf. p. 3
80/80	(fork width A=80 mm, fork depth B=80 mm)	cf. p. 3
100/50	(fork width A=100 mm, fork depth B=50 mm)	cf. p. 3
100/100	(fork width A=100 mm, fork depth B=100 mm)	cf. p. 4
110/50	(fork width A=110 mm, fork depth B=50 mm)	cf. p. 3
150/80	(fork width A=150 mm, fork depth B=80 mm)	cf. p. 5
200/50	(fork width A=200 mm, fork depth B=50 mm)	cf. p. 5

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.)

Optional:

TC	(threshold correction)

Technical Data

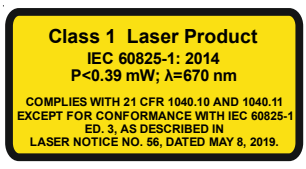
Type	F-LAS-DC	F-LAS-DC-...-TC
Laser	Semiconductor laser, 670 nm, 0.39 mW max. optical power, laser class 1 acc. to DIN EN 60825-1. The use of these laser light barriers therefore requires no additional protective measures.	
Available aperture sizes	Round apertures: Ø 0.2 mm to Ø 2 mm Rectangular apertures: 0.3 mm x 1 mm to 1 mm x 3 mm (cf. page 1)	
Optical filters	Interference filter and red light filter RG 630	
Min. detectable object	Analog typ. 2% of aperture size, digital typ. 1% of aperture size	
Reproducibility	Analog typ. 2% of aperture size, digital typ. 1% of aperture size, with threshold correction "TC": typ. 0.1% of aperture size	
Voltage supply	+24VDC (± 10%), reverse-polarity protected, overcurrent protected	
Ambient light	up to 1000 Lux	
Operation mode	DC operation	
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 (npn n.o.) or Qinv = pnp dark-switching (pnp n.o.) / npn bright-switching (npn n.c.) 100mA, short-circuit protection	
Analog output (1x)	0 ... +10V	
Potentiometer	Either for adjustment of gain factor (A) or for adjustment of comparator threshold (T)	
Threshold correction	---	with type -TC
Switching frequency	typ. 25 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 4 to 6	
Type of connector	4-pole M8-connector	
Enclosure rating	IP67	
EMC test acc. to	DIN EN 60947-5-2 CE	

Laser Information

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

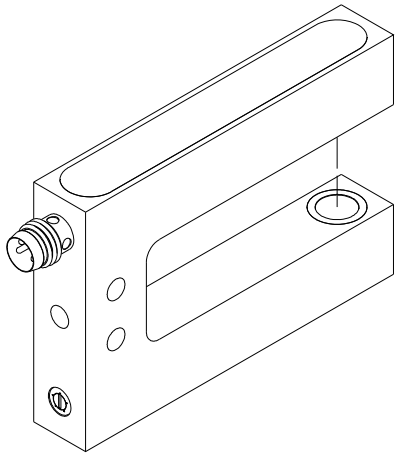


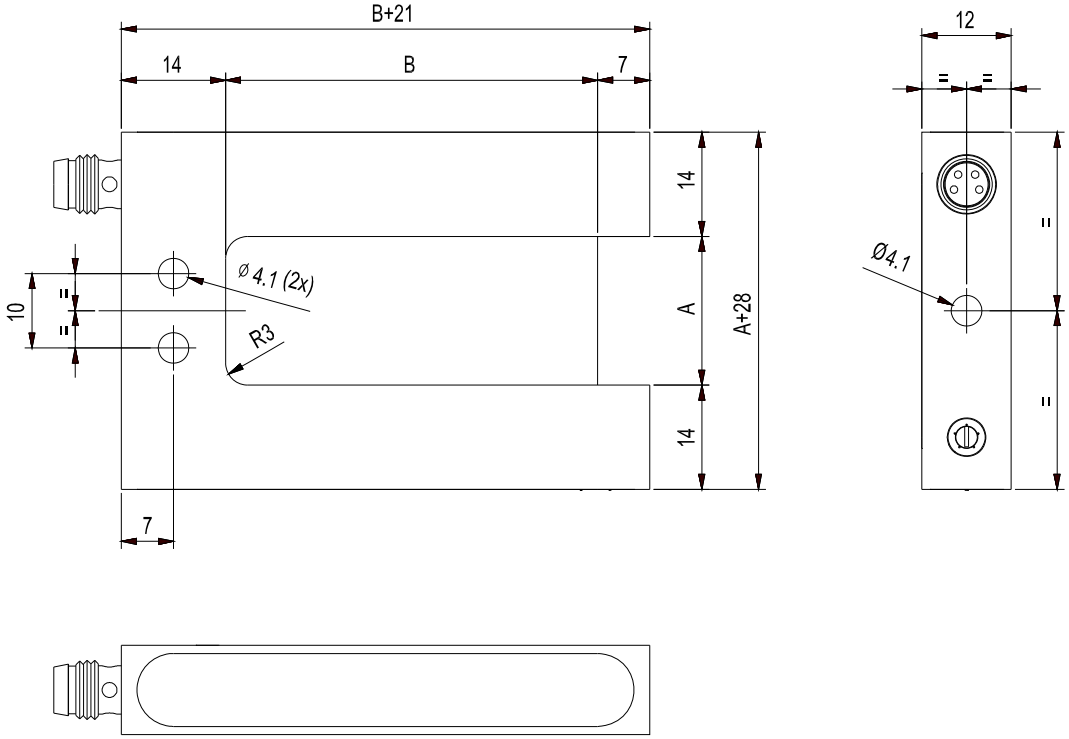


Dimensions

F-LAS-DC-(fork size)-...
with fork width A < 150 mm
and fork depth B < 100 mm

Fork size	Dim. A	Dim. B	
10/50	10 mm	50 mm	
20/50	20 mm	50 mm	
30/50	30 mm	50 mm	
40/50	40 mm	50 mm	
40/80	40 mm	80 mm	
50/50	50 mm	50 mm	
80/50	80 mm	50 mm	
80/80	80 mm	80 mm	
100/50	100 mm	50 mm	
110/50	110 mm	50 mm	
100/100	100 mm	100 mm	==> cf. page 4
150/80	150 mm	80 mm	==> cf. page 5
200/50	200 mm	50 mm	==> cf. page 5



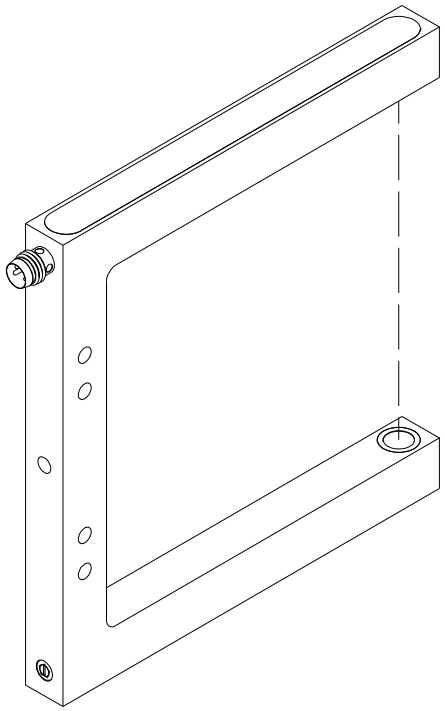


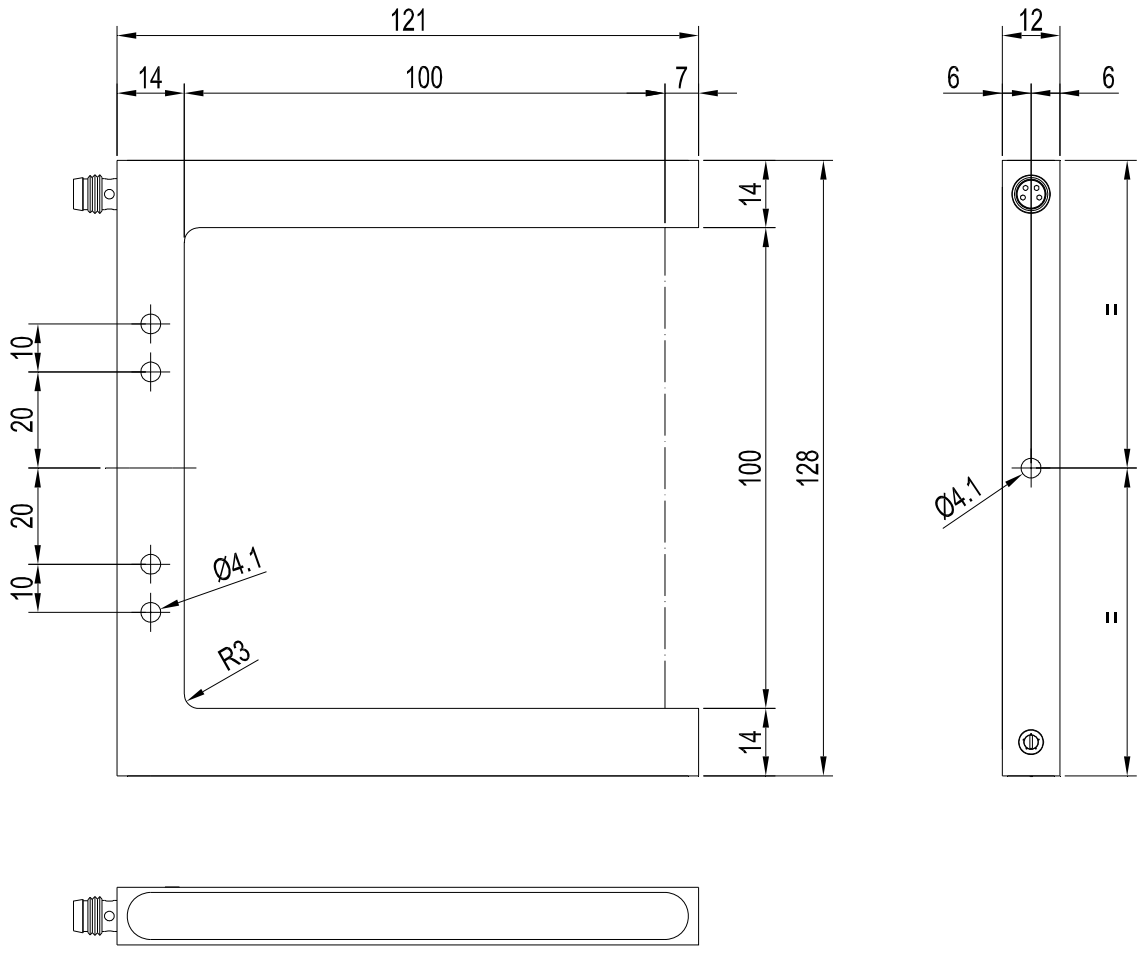
(All dimensions in mm)

Dimensions

F-LAS-DC-100/100-...
with fork width A = 100 mm
and fork depth B = 100 mm

Fork size	Dim. A	Dim. B
100/100	100 mm	100 mm



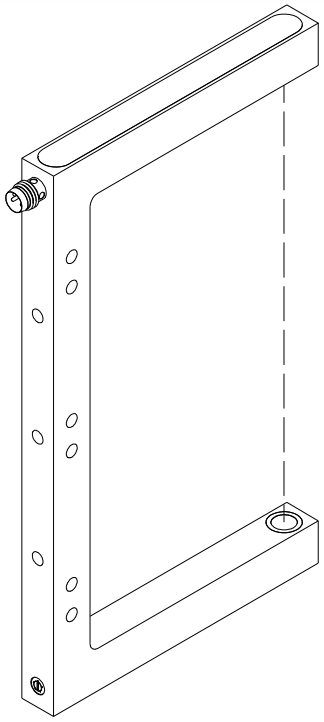


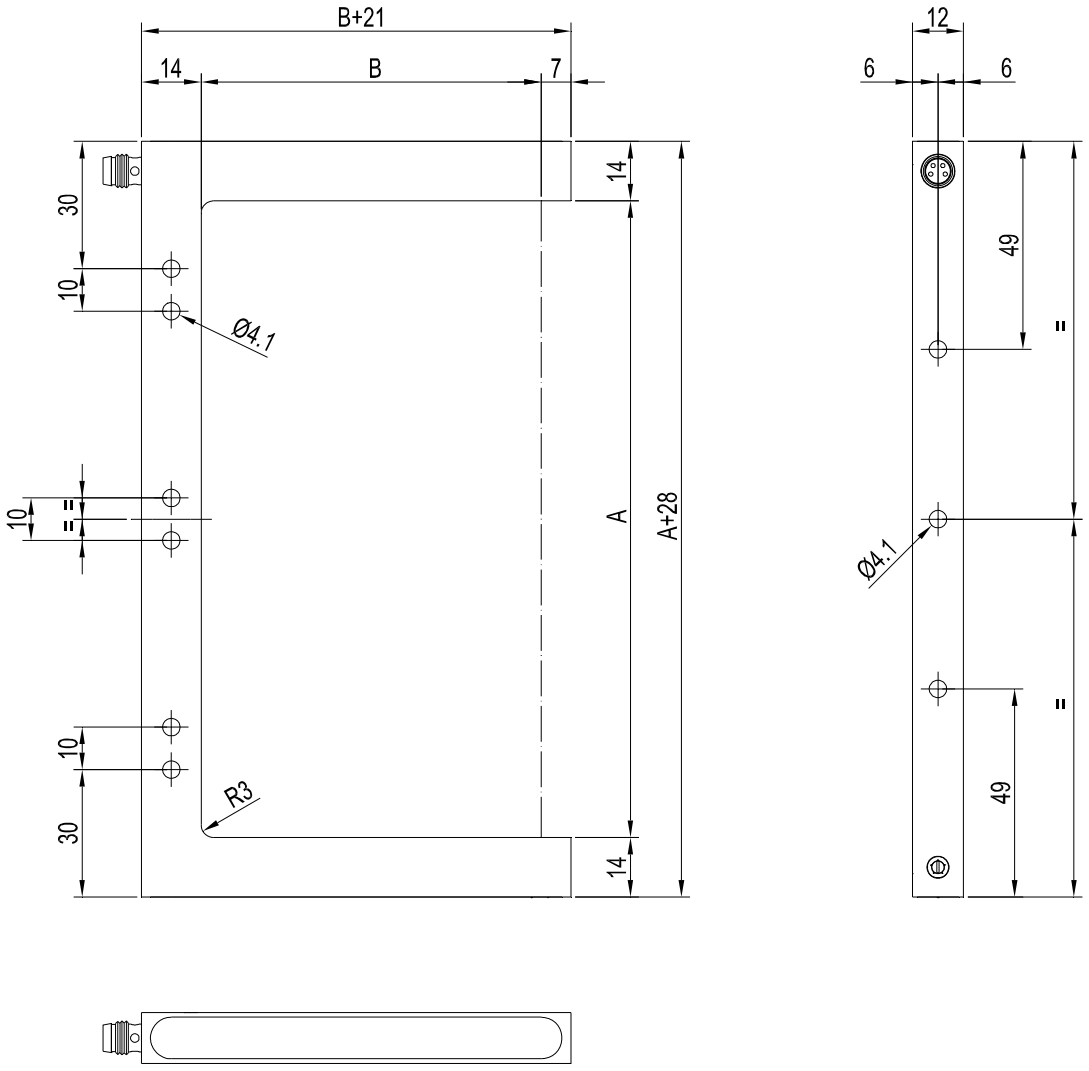
(All dimensions in mm)

Dimensions

F-LAS-DC-(fork size)-...
with fork width A ⩾150 mm
and fork depth B < 100 mm

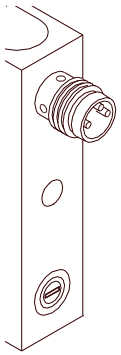
Fork size	Dim. A	Dim. B
150/80	150 mm	80 mm
200/50	200 mm	50 mm

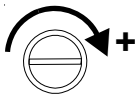




(All dimensions in mm)

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

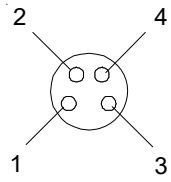
Connector Assignment

F-LAS-DC-...-Q
F-LAS-DC-...-Q-TC
(4-pole M8 connector):

Pin:	Color:	Assignment:
1	brown	+Ub (+24VDC ± 10%)
2	white	ANALOG (0 ... +10V)
3	blue	0V (GND)
4	black	Output Q (pnp bright-switching = pnp n.c. / npn dark-switching = npn n.o.)

F-LAS-DC-...-Qinv
F-LAS-DC-...-Qinv-TC
(4-pole M8 connector):

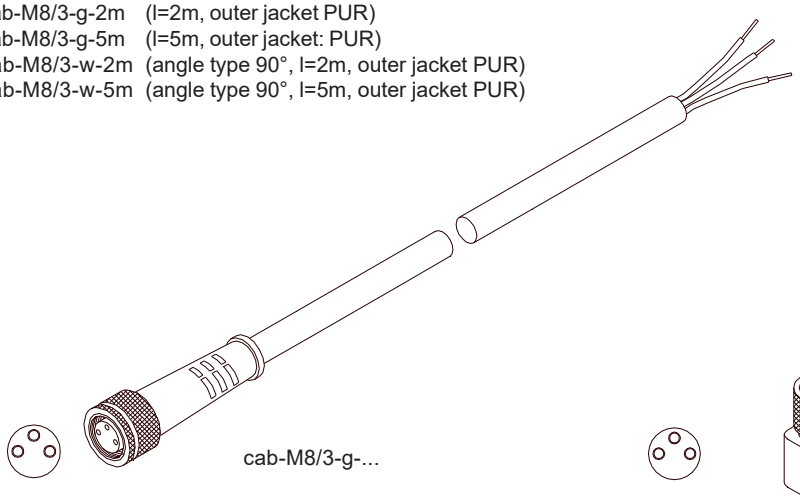
Pin:	Color:	Assignment:
1	brown	+Ub (+24VDC ± 10%)
2	white	ANALOG (0 ... +10V)
3	blue	0V (GND)
4	black	Output Qinv (pnp dark-switching = pnp n.o. / npn bright-switching = npn n.c.)



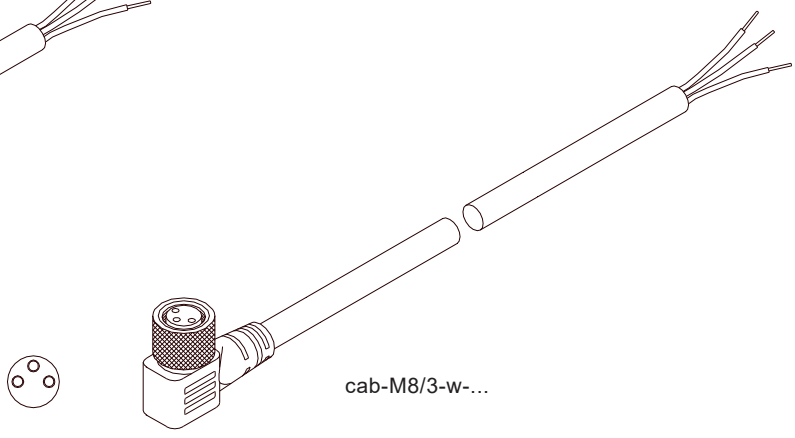
Connecting Cables

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)



cab-M8/3-g-...



cab-M8/3-w-...