

		FA	L	N	/	B	P	-	0	A
series	FA	M18 sensor with 3/4 DC wires								
emission	L	Red laser diode emission								
type	4	Direct reflection with adjustment								
	N	Polarized with adjustment								
	H	Emitter								
	D	Receiver with sensitivity adjustment								
logic output	0	LO/DO selectable output, 4 wires - Emitter								
	X	Emitter with check								
	B	4 wires output Complementary outputs								
output	0	Emitter								
	P	PNP output								
	N	NPN output								
housing	0	Plastic housing axial optic								
	1	Metal housing axial optic								
	2	Plastic housing radial optic								
	3	Metal housing radial optic								
cable/plug/output	A	Axial cable output								
	E	Axial M12 plastic connector output								

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS	FAL4/**_**
nominal sensing distance	300 mm (axial optic focused 100 mm) ⁽¹⁾ 200 mm (radial optic focused 100 mm) ⁽¹⁾
minimum sensing distance	0 mm (white 90%) 50 mm (Grey 18%) 50 mm (Black 6%)
emission	red laser diode (650 nm) class 1 laser (IEC60825-1)
minimum detectable object	0.1 mm
hysteresis	≤ 10 %
repeatability	5 %
operating voltage	10...30 Vdc
ripple	≤ 10 %
no-load supply current	≤ 35 mA
load current	100 mA
leakage current	≤ 150 µA @ V max
output voltage drop	2 V max. IL = 100 mA
output type	NPN or PNP; NO + NC or LO/DO selectable
switching frequency	800 Hz
power on delay	200 ms
power supply protections	polarity reversal, transient
output protection	short circuit (autoreset) Overvoltage
sensitivity adjustment	yes / Teach-In function
operating temperature range	- 10°C...+ 55°C (without freeze)
temperature drift	10 % Sr
protection degree	IP67 (EN60529) ⁽²⁾
EMC	in conformity with the EMC Directive according to EN 60947-5-2
external light interference	>10,000 lux (incandescent lamp) >1000 lux (fluorescent lamp)
LEDs	green power supply / yellow (ON-Light state EG ≥ 2) / yellow (Flashing-Light state 1 < EG < 2) / yellow (OFF-Dark state)
housing material	PBT (plastic) / nicked plated brass (metallic) / PC (cable exit)
optic material	PC / glass
tightening torque	1 Nm (plastic), 25 Nm (metallic)
weight (approximate)	plastic version: 30 g connector / 50 g cable metallic version: 100 g connector / 130 g cable

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS	FALN/**_**
nominal sensing distance	20 m with RL 110 30 m with RL 201; 5 m with RL 100D
minimum sensing distance	0,05 m
emission	red laser diode (650 nm)
emitter	class 1 Laser (IEC 825-1)
minimum detectable object	0.7 mm - 1 m 24 mm - 25 m
spot dimension	see diagram
hysteresis	≤ 10 %
repeatability	5 %
operating voltage	10...30 Vdc
ripple	≤ 10 %
no-load supply current	≤ 35 mA
load current	100 mA
leakage current	≤ 150 µA @ V max
output voltage drop	2 V max. IL = 100 mA
output type	NPN or PNP; NO + NC or LO/DO selectable
switching frequency	800 Hz
power on delay	200 ms
power supply protections	polarity reversal, transient
output protection	short circuit (autoreset) overvoltage
sensitivity adjustment	Yes / Teach-In function
operating temperature range	- 10°C...+ 55°C (without freeze)
temperature drift	10 % Sr
protection degree	IP67 (EN60529) ⁽¹⁾
EMC	in conformity with the EMC Directive according to EN 60947-5-2
external light interference	>10,000 lux (incandescent lamp) >1000 lux (fluorescent lamp)
LEDs	green power supply / yellow (EG ≥ 2) / yellow (Flashing-Light state 1 < EG < 2) / yellow (OFF-Dark state)
housing material	PBT (plastic) / nickel plated brass (metallic) / PC (cable exit)
optic material	PC / glass
tightening torque	1 Nm (plastic), 25 Nm (metallic)
weight (approximate)	plastic version: 30 g connector / 50 g cable metallic version: 100 g connector / 130 g cable

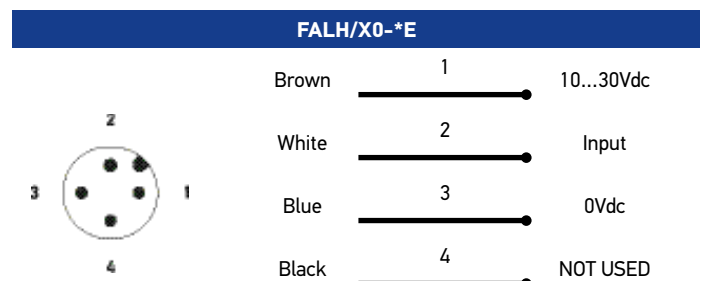
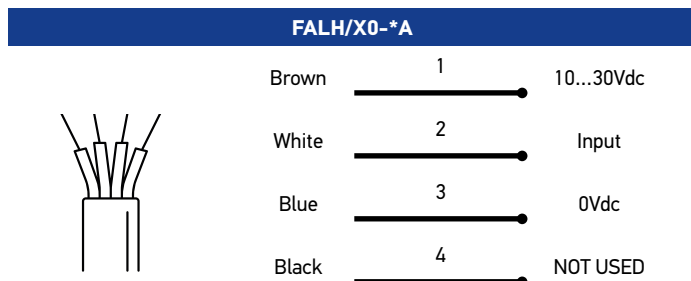
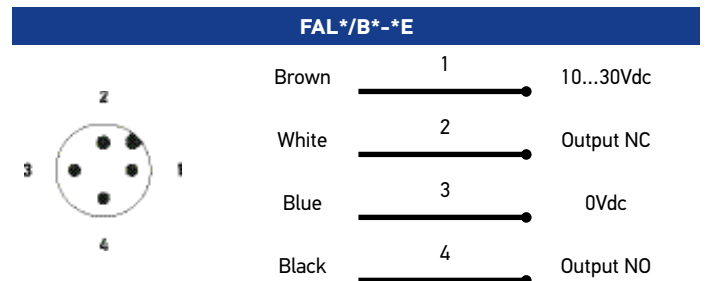
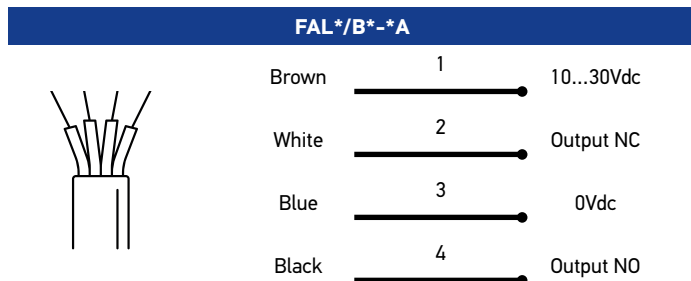
TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS	EMITTER FALH/X0-**	RECEIVER FALD/**-**
nominal sensing distance	50 m	
minimum sensing distance	0,05 m	
emission	red laser diode (650 nm)	
emitter	class 1 Laser (IEC 60825-1)	
minimum detectable object	10 mm	
spot dimension	see diagram	
hysteresis	≤ 10 %	
repeatability	5 %	
operating voltage	10...30 Vdc	
ripple	≤ 10 %	
no-load supply current	≤ 25 mA	
load current	-	100 mA
leakage current	-	≤ 150 µA @ Vmax
output voltage drop	-	2 V max. IL = 100 mA
output type	-	NPN or PNP
switching frequency	-	1 kHz
power on delay	-	200 ms
power supply protections	polarity reversal, transient	
output protection	short circuit (autoreset) overvoltage	
sensitivity adjustment	trimmer	
operating temperature range	- 10°C...+ 55°C (without freeze)	
temperature drift	10 % Sr	
check input	BK/2 connected to 0 switches off the emission	-
EMC	in conformity with the EMC Directive according to EN 60947-5-2	
protection degree	IP67 (EN60529) ⁽¹⁾	
external light interference	>10,000 lux (incandescent lamp) >1000 lux (fluorescent lamp)	
LEDs	green (power supply) yellow (on) yellow (off)	green (power supply) yellow (light status or output status in the special L0/D0 version)
housing material	PBT (plastic) / nicked plated brass (metallic) / PC (cable exit)	
optic material	PC / glass	
tightening torque	1 Nm (plastic), 25 Nm (metallic)	
weight (approximate)	plastic version: 30 g connector / 50 g cable metallic version: 100 g connector / 130 g cable	

AVAILABLE MODELS

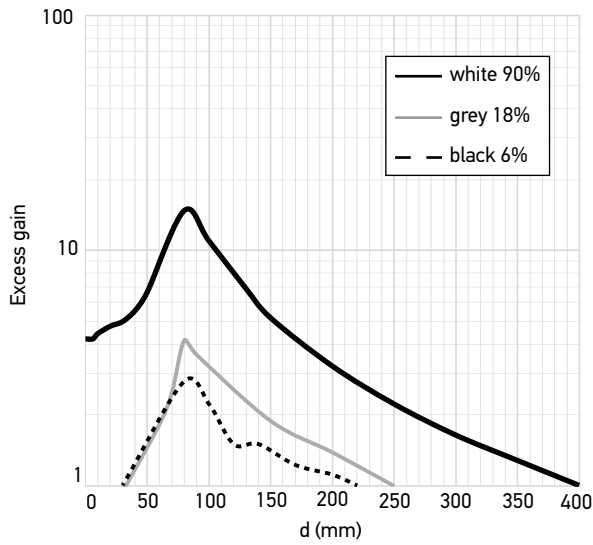
model	distance	housing	Emitter		4 wires NPN NO + NC		4 wires PNP NO + NC	
			Cable	Plug	cable	plug	cable	plug
direct diffuse	300 mm	axial plastic	-	-	FAL4/BN-0A	FAL4/BN-0E	FAL4/BP-0A	FAL4/BP-0E
		axial metal	-	-	FAL4/BN-1A	FAL4/BN-1E	FAL4/BP-1A	FAL4/BP-1E
	200 mm	90° plastic	-	-	FAL4/BN-2A	FAL4/BN-2E	FAL4/BP-2A	FAL4/BP-2E
		90° metal	-	-	FAL4/BN-3A	FAL4/BN-3E	FAL4/BP-3A	FAL4/BP-3E
polarized	20 m (RL 110)	axial plastic	-	-	FALN/BN-0A	+FALN/BN-0E	FALN/BP-0A	FALN/BP-0E
		axial metal	-	-	FALN/BN-1A	FALN/BN-1E	FALN/BP-1A	FALN/BP-1E
	30 m (RL 201)	90° plastic	-	-	FALN/BN-2A	FALN/BN-2E	FALN/BP-2A	FALN/BP-2E
		90° metal	-	-	FALN/BN-3A	FALN/BN-3E	FALN/BP-3A	FALN/BP-3E
emitter	50 m	axial plastic	FALH/X0-0E	FALH/X0-0A	-	-	-	-
		axial metal	FALH/X0-1E	FALH/X0-1A	-	-	-	-
		90° plastic	FALH/X0-2E	FALH/X0-2A	-	-	-	-
		90° metal	FALH/X0-3E	FALH/X0-3A	-	-	-	-
receiver	50 m	axial plastic	-	-	FALD/BN-0A	FALD/BN-0E	FALD/BP-0A	FALD/BP-0E
		axial metal	-	-	FALD/BN-1A	FALD/BN-1E	FALD/BP-1A	FALD/BP-1E
		90° plastic	-	-	FALD/BN-2A	FALD/BN-2E	FALD/BP-2A	FALD/BP-2E
		90° metal	-	-	FALD/BN-3A	FALD/BN-3E	FALD/BP-3A	FALD/BP-3E

ELECTRICAL DRAWINGS

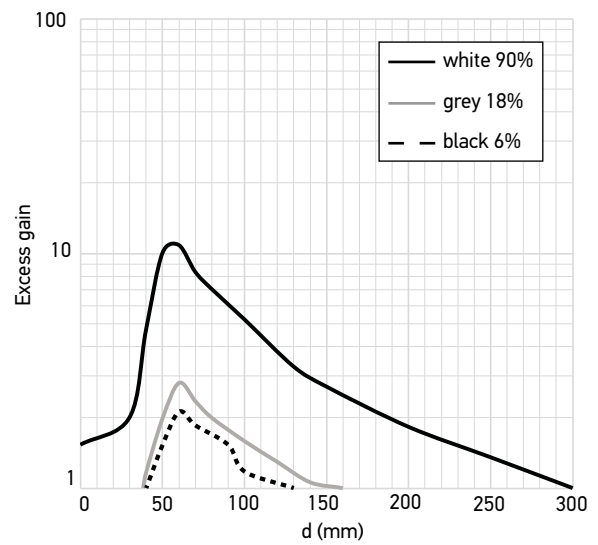


RESPONSE DIAGRAMS - DIRECT DIFFUSE MODELS

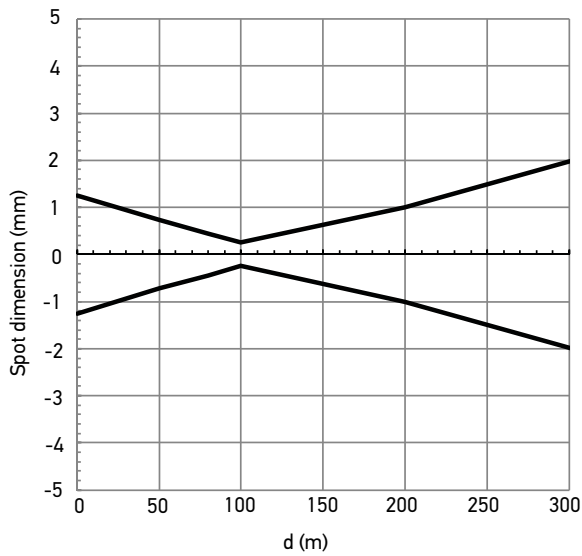
FAL4/B*-0,1* excess gain



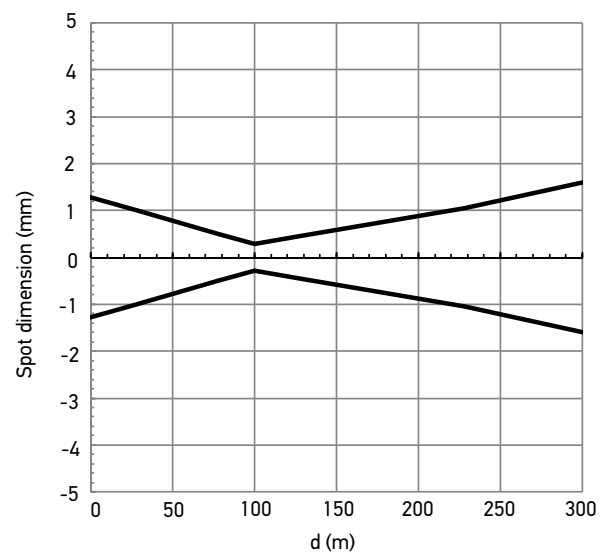
FAL4/B*-2,3 excess gain



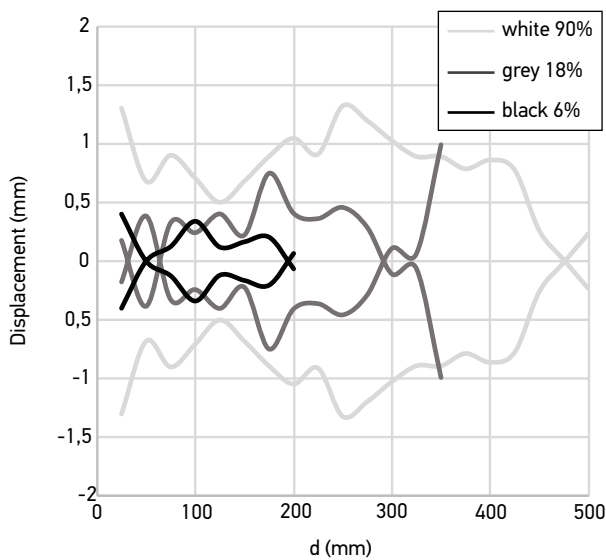
FAL4/B*-0,1* spot dimension



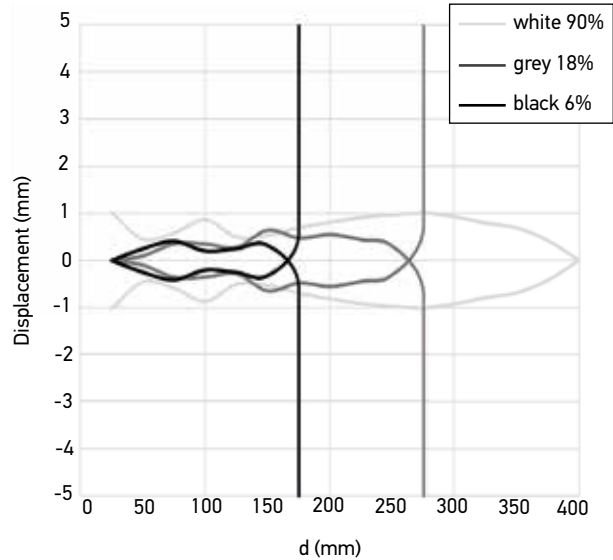
FAL4/B*-2,3* spot dimension



FAL4/B*-0,1* parallel displacement

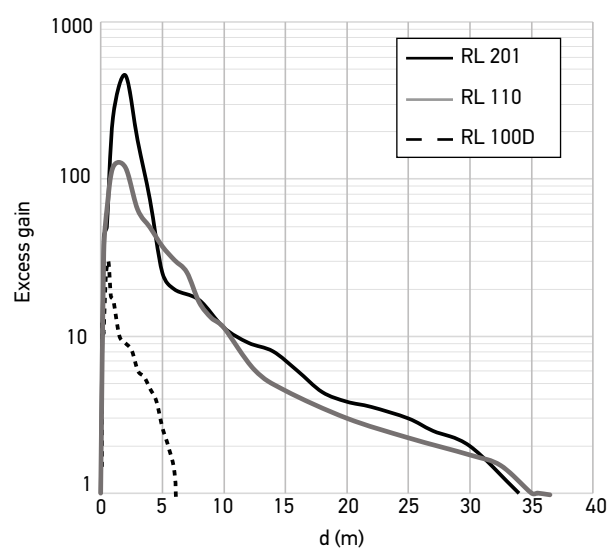


FAL4/B*- 2,3* parallel displacement

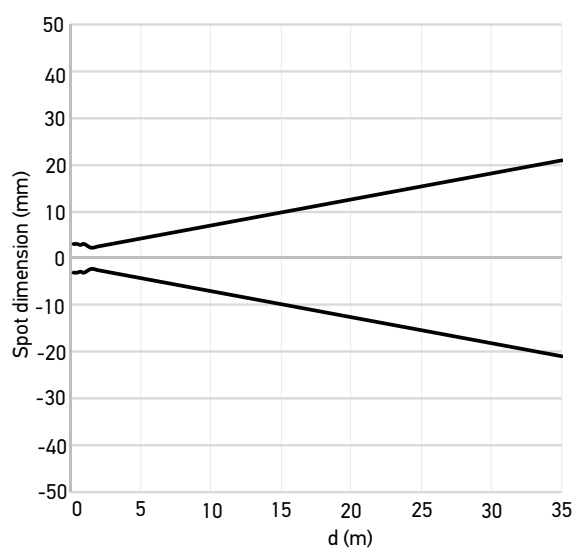


RESPONSE DIAGRAMS - POLARIZED MODELS

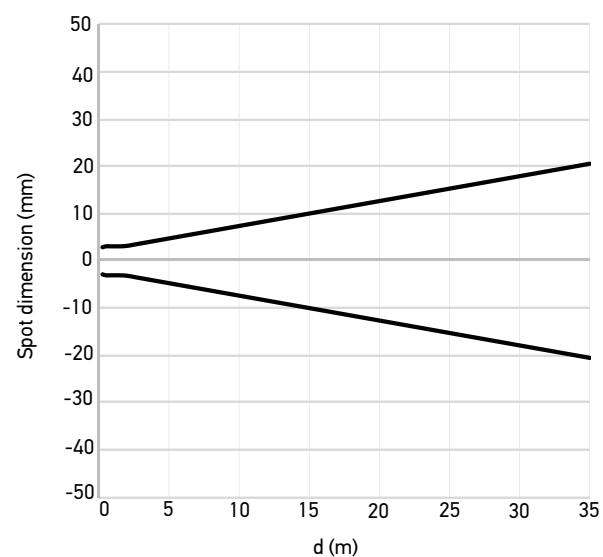
FALN/**-** excess gain



FALN/**-0,1* spot dimension

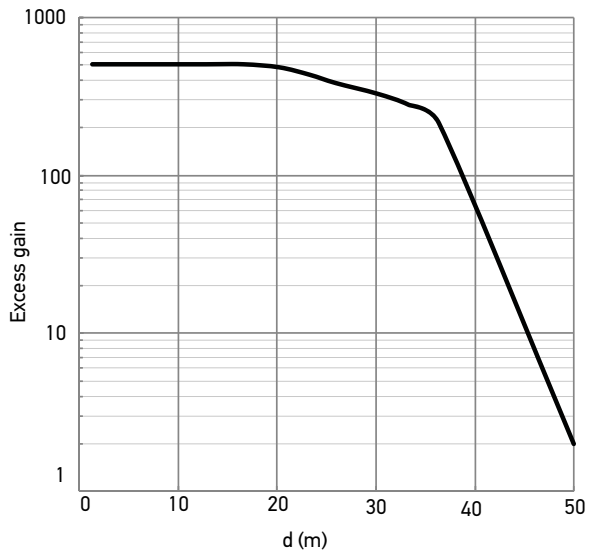


FALN/**-2,3* spot dimension

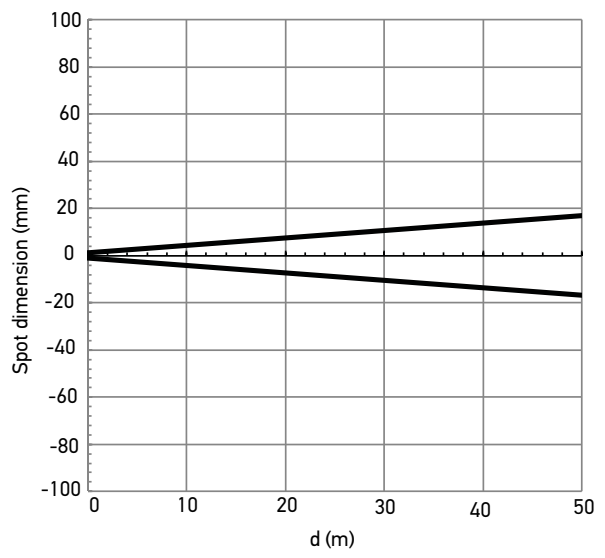


RESPONSE DIAGRAMS - THROUGH BEAM MODELS

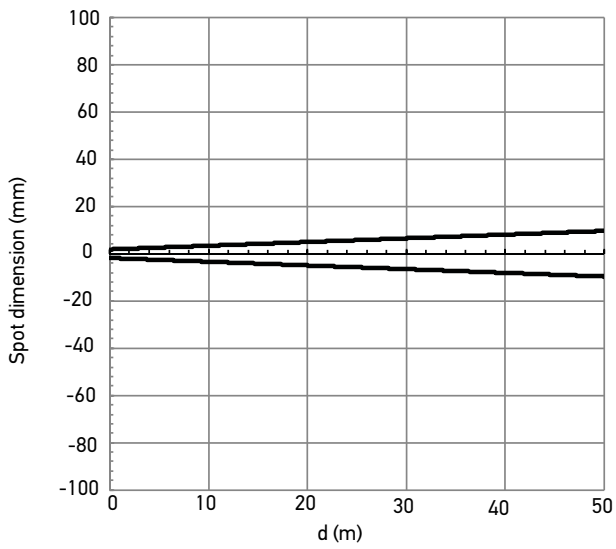
FALH/**-0°, FALD/**- 0° excess gain



FALH/**- 0°, FALD/**- 0° spot dimension

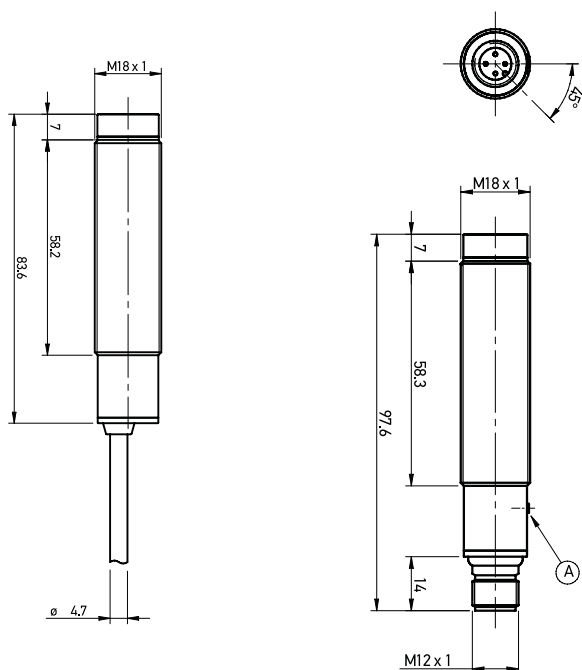


FALH/**- 0°, FALD/**- 0° parallel displacement

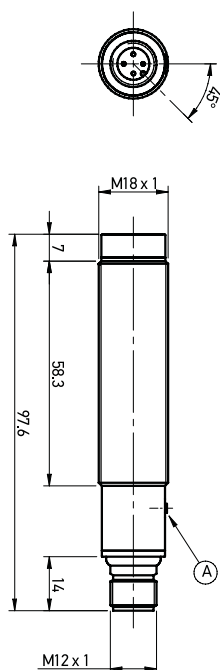


MECHANICAL DRAWINGS

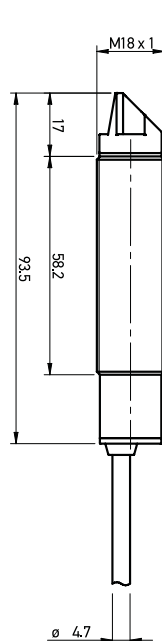
FAL/**-0A; FAL/**-1A



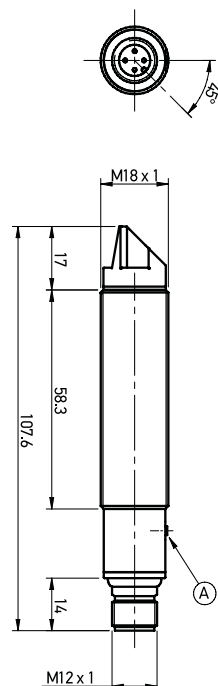
FAL/**-0E; FAL/**-1E



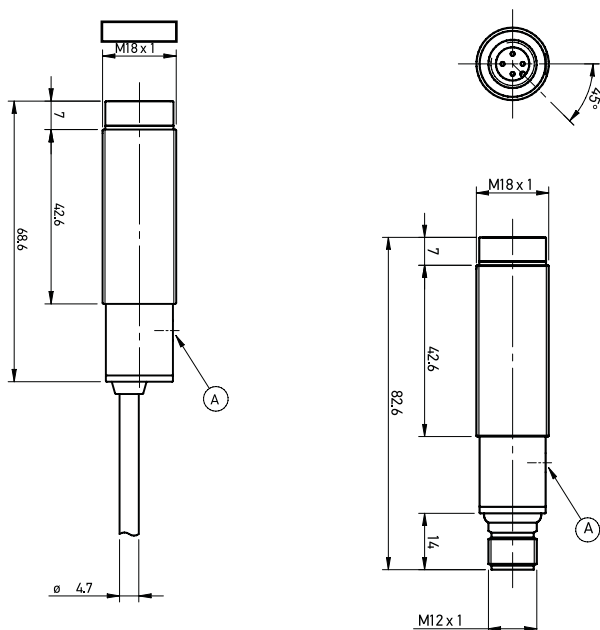
FAL/**-2A; FAL/**-3A



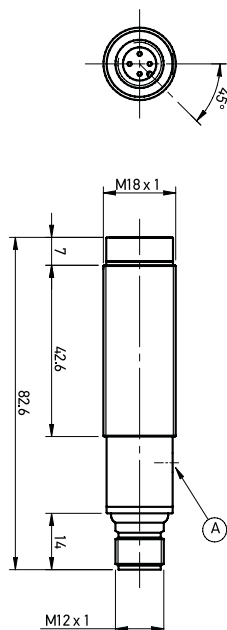
FAL/**-2E; FAL/**-3E



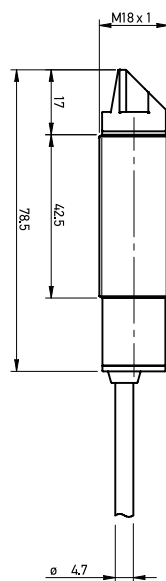
FALD/**-0A; FALD/**-1A



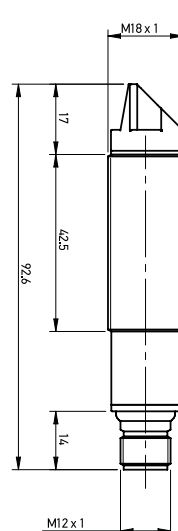
FALD/**-0E; FALD/**-1E



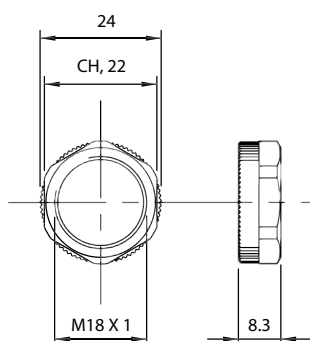
FALD/**-2A; FAL/**-3A



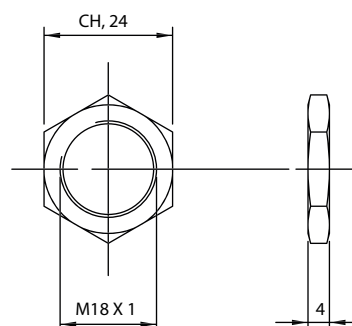
FALD/**-2E; FAL/**-3E



Plastic nut (2 x)



Metallic nut (2 x)



ACCESSORIES

REFLECTORS

Model	Description
RL 100D	Retroreflective adhesive paper @ cm ²
RL 100DA4	Reflective paper 200 x 300 mm
RL 100DC4	Reflective paper 50 x 300 mm
RL 100DQ1	Reflective paper 100 x 100 mm
RL 102	Retroreflective M22
RL 103	Retroreflective M32
RL 104	Retroreflective M41
RL 105G	Retroreflective 90x40
RL 106G	Retroreflective 182x42
RL 107	Retroreflective 105x100
RL 109G	Retroreflective c/fissaggio
RL 110	Retroreflective M80
RL 111G	Retroreflective 47x23
RL 112G	Retroreflective 73x19
RL 113G	Retroreflective 61x51
RL 116	Retroreflective 61x41
RL 130	Retroreflective 52x69
RL 131	Retroreflective Ø31 x 43
RL 133	Retroreflective 12,5x54
RL 135	Retroreflective 100x20
RL 136	Retroreflective 40x200
RL 201	Retroreflective 60x82 with micro prisms for laser sensors
RL 202	Retroreflective 60x51 with micro prisms for laser sensor
RL 203	Retroreflective 60x19,5 with micro prisms for laser sensor
RL 204	Retroreflective 32x20 with micro prisms for laser sensor

INSTALLATION ACCESSORIES

Model	Description
ST 18-A	Bracket M18 axial
ST 18-A7W	Bracket M18 axial AISI 316L
ST 18-C	Bracket M18 90°
ST 18-C7W	Bracket M18 90° AISI 316L
ST 02	M18 swiveling support
ST 03	Mirror M18
ST 30	M18 antidust front
ST 32	M18 anti condensation front
ST 50	M18 protection front
STC 18-S	Swing bracket for M18 sensor

CABLES

Model	Description
CD12M/0B-020A1	Connector Female M12 Axial 4 poles cable PVC 2m
CD12M/0B-020A5	Connector Female M12 Axial 4 poles cable PUR 2m
CD12M/0B-020C1	Connector Female M12 90° 4 poles cable PVC 2m
CD12M/0B-020C5	Connector Female M12 90° 4 poles cable PUR 2m
CD12M/0B-050A1	Connector Female M12 Axial 4 poles cable PVC 5m
CD12M/0B-050A5	Connector Female M12 Axial 4 poles cable PUR 5m
CD12M/0B-050A5US	Connector Female M12 Axial 4 poles cable PUR 5 m CSA
CD12M/0B-050C1	Connector Female M12 90° 4 poles cable PVC 5m
CD12M/0B-050C5	Connector Female M12 90° 4 poles cable PUR 5m
CD12M/0B-050C5US	Connector Female M12 90° 4 poles cable PUR 5 m CSA
CD12M/0B-070A1	Connector Female M12 Axial 4 poles cable PVC 7m
CD12M/0B-070C1	Connector Female M12 90° 4 poles cable PVC 7m
CD12M/0B-100A1	Connector Female M12 Axial 4 poles cable PVC 10m
CD12M/0B-100A5	Connector Female M12 Axial 4 poles cable PUR 10m
CD12M/0B-100A5US	Connector Female M12 Axial 4 poles cable PUR 10 m CSA
CD12M/0B-100C1	Connector Female M12 90° 4 poles cable PVC 10m
CD12M/0B-100C5	Connector Female M12 90° 4 poles cable PUR 10m
CD12M/0B-100C5US	Connector Female M12 90° 4 poles cable PUR 10 m CSA
CD12M/0B-150A1	Connector Female M12 Axial 4 poles cable PVC 15m
CD12M/0B-150A5US	Connector Female M12 Axial 4 poles cable PUR 15 m CSA
CD12M/0B-150C1	Connector Female M12 90° 4 poles cable PVC 15m
CD12M/0B-150C5US	Connector Female M12 90° 4 poles cable PUR 15 m CSA
CD12M/0B-200A1	Connector Female M12 Axial 4 poles cable PVC 20m
CD12M/0B-200A5	Connector Female M12 Axial 4 poles cable PUR 20m
CD12M/0B-200C1	Connector Female M12 90° 4 poles cable PVC 20m
CD12M/0B-250C1	Connector Female M12 90° 4 poles cable PVC 25m
CD12M/0B-300A1	Connector Female M12 Axial 4 poles cable PVC 300m
CD12M/0B-300C1	Connector Female M12 90° 4 poles cable PVC 30m
CD12M/LB-050C5	Connector Female M12 90° 4 poles cable PUR 5m with 3 LEDs
CD12M/LB-100C5	Connector Female M12 90° 4 poles cable PUR 5m with 3 LEDs