A-LAS Series

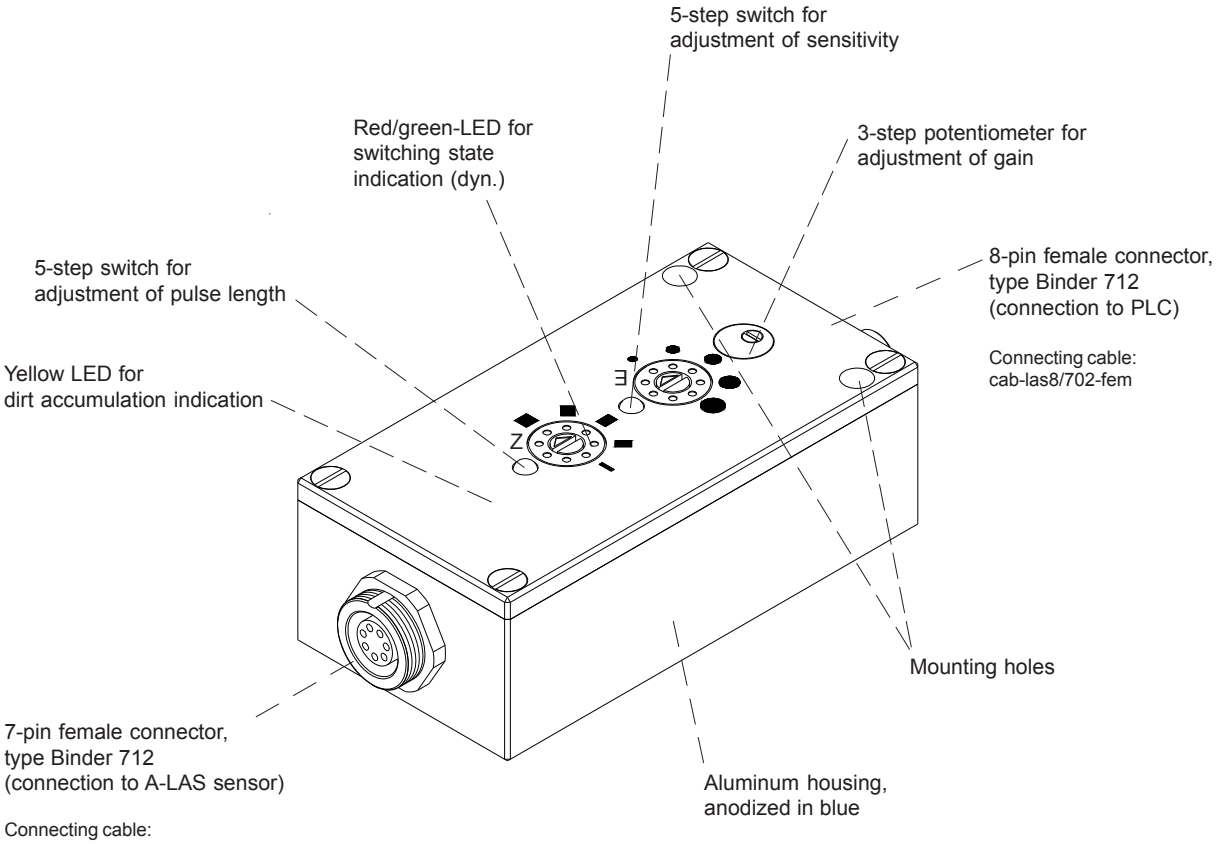
AGL-DIF Electronic control unit

- Detection of local damages at moved objects
- For use with A-LAS sensor
- Digital output dynamic (8 ms ... 300 ms)
- High switching frequency (typ. 25 kHz)
- Analog output (0V ... +10V)
- Detection of smallest objects (ab 10 µm)
- Dirt accumulation indication and compensation
- Switching state indication dynamic
- Differential evaluation (independent of intensity)

Design

Product name:

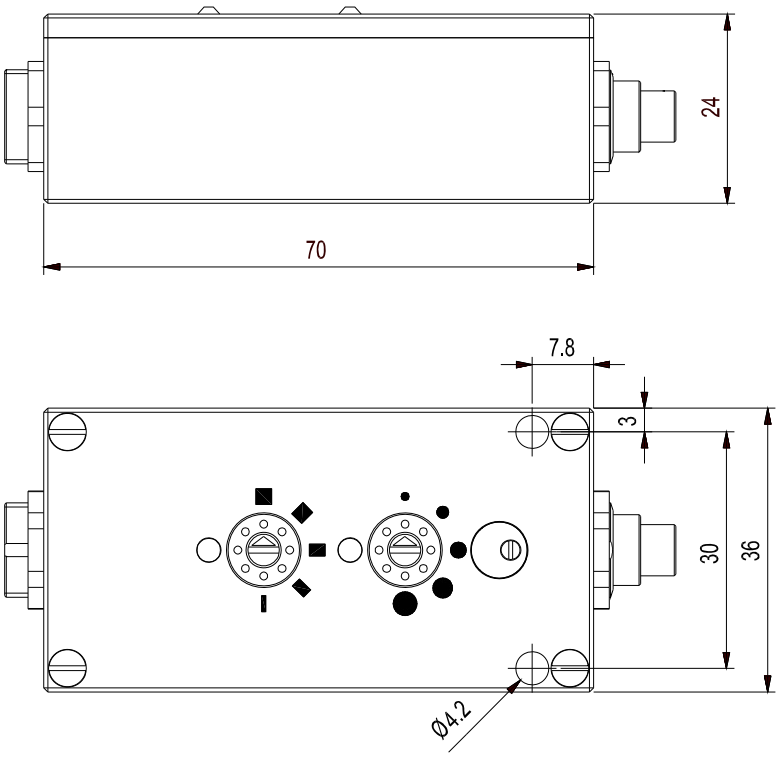
AGL-DIF



Technical Data

Model	AGL-DIF
Voltage supply	+24VDC ± 10%, reversed polarity protected, short-circuit protected
Current consumption	with A-LAS sensor: typ. 80 mA
Operating temperature range	-20°C ... +60°C
Storage temperature range	-20°C ... +85°C
Min. detectable object	starting from 10 µm (depends on the aperture of the A-LAS sensor)
Housing material	aluminum, anodized in blue
Housing dimensions	LxWxH approx. 70 mm x 36 mm x 24 mm
Enclosure rating	IP 64
Step-switch for sensitivity	adjustable in 5 steps from highly sensitive (starting from 10 µm) to sensitive (defects in the 0.1 mm range)
Output ANALOG	0V ... +5V
Output DIGITAL DYNAMIC	2x dynamic (pulse length 8 ms ... 300 ms, adjustable in 5 steps): 1x npn n.c. / pnp n.o. 1x pnp n.c. / npn n.o.
Potentiometer for gain factor	3-revolutions-potentiometer (integrated in the housing)
Step-switching for output pulse	adjustable in 5 steps (8 ms / 20 ms / 50 ms / 120 ms / 300 ms)
Dirt accumulation indication	LED red
Switching state indication DYN	LED red/green (red = object is moved through sensor, green = no object is moved through sensor)
Type of connector	Connection to PLC: 8-pole circular connector Binder Series 712 Connection to sensor: 7-pole female connector Binder Series 712 by means of an integrated cable
Cable length	Connecting cable cab-las-y: available in 1m, 2m, 3m, or 5m
Switching frequency	typ. 25 kHz
Max. switching current	200 mA, short-circuit-proof
Band width analog signal	50 kHz (-3dB)
EMC test acc. to	DIN EN 60947-5-2 CE

Dimensions

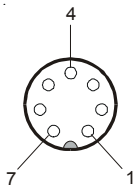


(All dimensions in mm)

Connector Assignment

Connection AGL-DIF to A-LAS sensor (transmitter and receiver)
7-pole female connector Binder Series 712

Pin:	Assignment:
1	GND (0V)
2	+5V
3	not connected
4	+5V
5	ANALOG (0V ... +5V)
6	not connected
7	GND (0V)

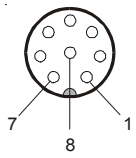


Connecting cable*:
cab-las-y-(length) or
cab-las-y-male-(length)
(standard length: 1m, also available lengths: 2m, 3m, 5m)

(* cable type depends on
type of A-LAS sensor used)

Connection AGL-DIF to PLC:
8-pole connector Binder Series 712

Pin:	Wire/cable:	Assignment:
1	white	GND (0V)
2	brown	+Ub (+24VDC ± 10%)
3	green	not connected
4	yellow	not connected
5	grey	DIF
6	pink	DIF INV
7	blue	not connected
8	red	ANALOG (0V ... +10V)

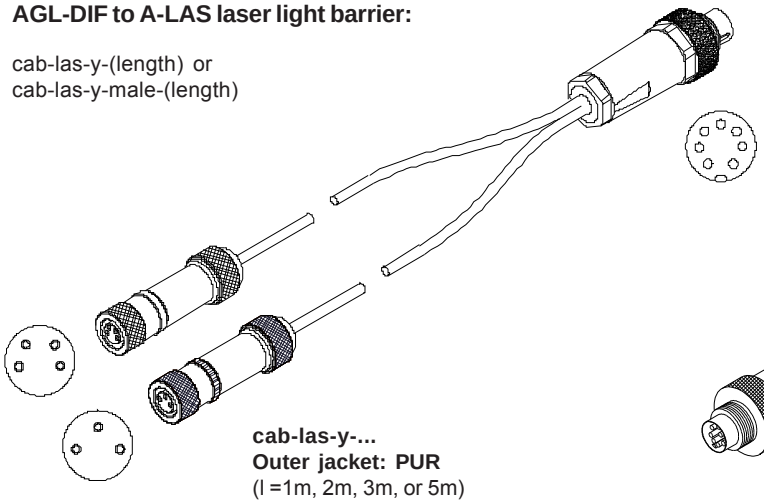


Connecting cable:
cab-las8/702-fem-(length)
(standard length: 2m, max. available length: 25m)

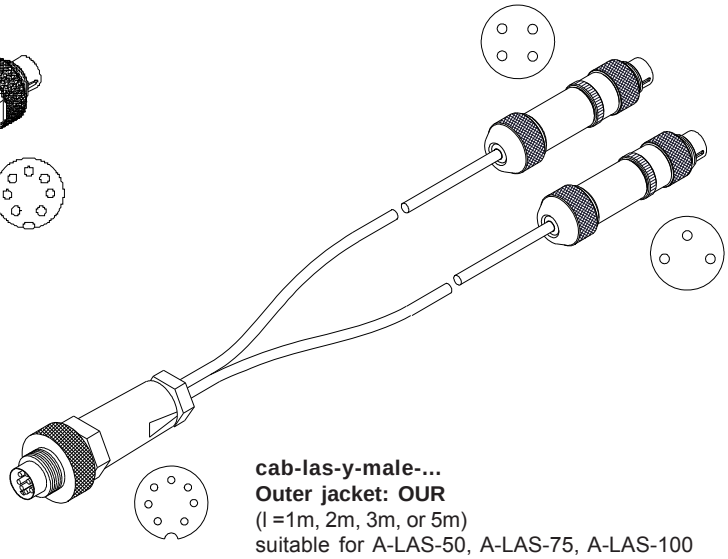
Connecting Cables

Connecting cable
AGL-DIF to A-LAS laser light barrier:

cab-las-y-(length) or
cab-las-y-male-(length)



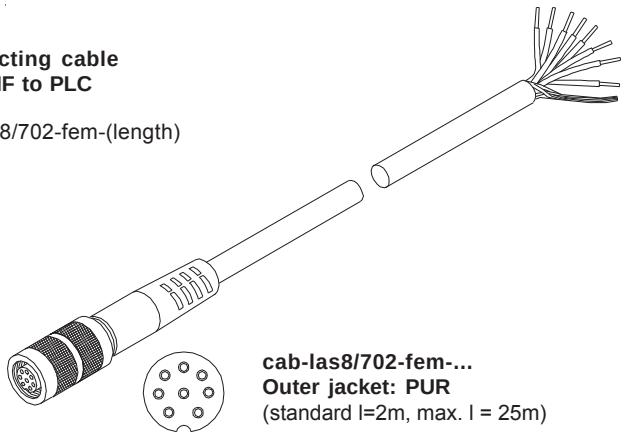
cab-las-y-...
Outer jacket: PUR
(l =1m, 2m, 3m, or 5m)



cab-las-y-male-...
Outer jacket: OUR
(l =1m, 2m, 3m, or 5m)
suitable for A-LAS-50, A-LAS-75, A-LAS-100

Connecting cable
AGL-DIF to PLC

cab-las8/702-fem-(length)



cab-las8/702-fem-...
Outer jacket: PUR
(standard l=2m, max. l = 25m)

Setting

Sensitivity setting (step-switch „E“):

Sensitivity can be adjusted by means of a step-switch.
The term ‘sensitivity’ defines the minimum detectable part size.
The sensitivity can be adjusted in 5 steps.

Adjustment of pulse lengthening (step-switch „Z“):

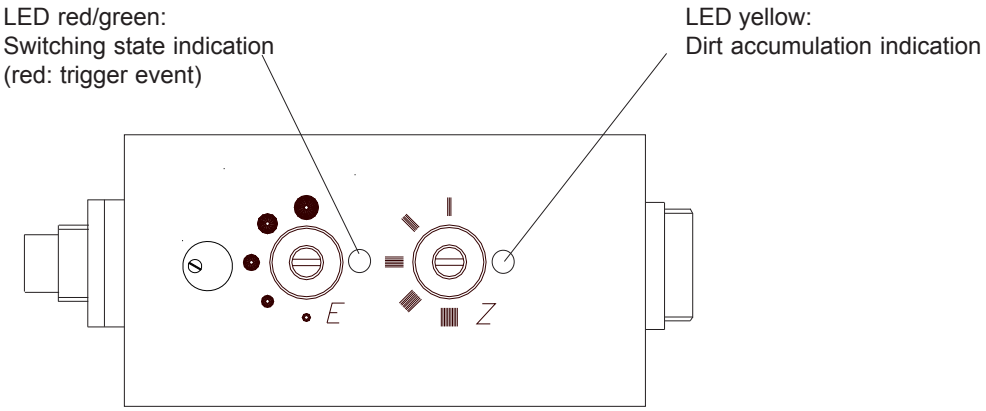
The pulse length of the dynamic output can be adjusted by means of a step-switch. 5 pulse lengths are available.

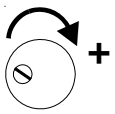
Switching state display (red/green LED):

The switching state is indicated by a red/green LED. In case that a measuring object is detected, the LED changes from GREEN to RED. The two-color-LED is coupled to the dynamic output, i.e. after pulse end the LED returns to its starting state = GREEN.

Dirt accumulation display (yellow LED):

In addition to a digital dirt accumulation output the user is informed about the dirt accumulation status by means of a yellow LED.
If this yellow LED lights up, the transmitter or receiver side should be checked for dirtying.

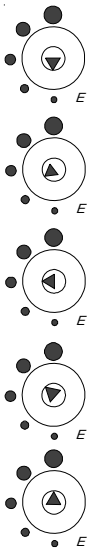




3-rev.-potentiometer
for adjustment of
gain factor:

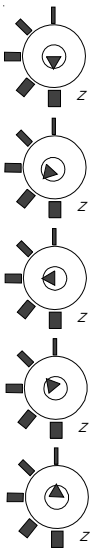
Rotation clockwise:
Increas of analog signal

5-step-switch
for adjustment of sensitivity



Step	Sensitivity
1	highest (> 0,1 mm)
2	
3	
4	
5	lowest (> 10 µm)

5-step-switch for
adjustment of pulse length



Step	Pulse length
1	300 ms
2	120 ms
3	50 ms
4	20 ms
5	8 ms

Application Example

Detection of defects of colored optical fibers

In the process of paint application to optical glass fiber cables, air pockets in the paint may lead to color defects, which at the respective place result in a smaller diameter of the optical fiber, typically over a length of several millimeters.

When such a defect passes a laser light window (here 2 mm x 0.5 mm, light curtain vertical to the direction of feed), the quantity of light increases, the steep rise of the light power triggers a change of the output state, and the defect is detected.