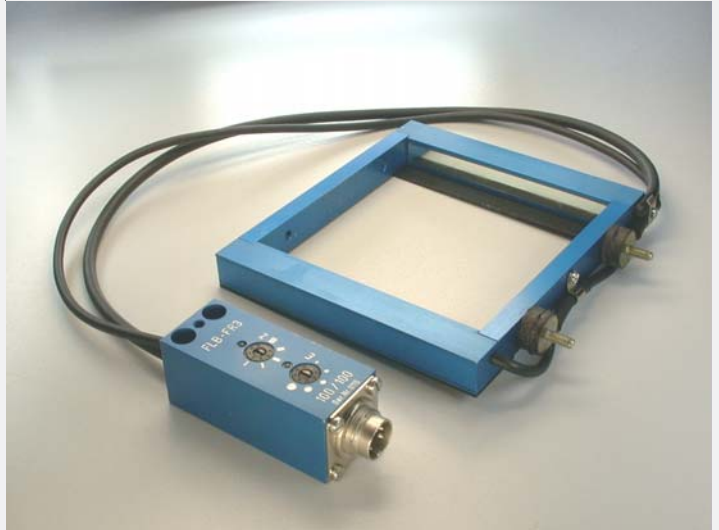


FLB Series

▶ FLB-FR3-...-ANA-HS

- Electronics integrated in tool plug
- High sensitivity (adjustable via 5-step switch)
- Pulse length adjustable via 5-step switch
- 2 dynamic outputs Q and Qinv
- 1 analog output (0 ... +10V)
- High switching frequency (10 kHz)
- Switching state indication by means of a red/green LED
- Dirt accumulation indication by means of a yellow LED
- Various frame sizes available (light curtain 58 mm ... 198 mm)
- Mechanical protection of optics by means of baffle plate
- Sturdy aluminium housing



Design

Product name:

FLB-FR3-(frame size)*-ANA-HS

ANA = Analog output (0...+10V)
 HS = High speed (10 kHz)

Available frame sizes A/B (mm):

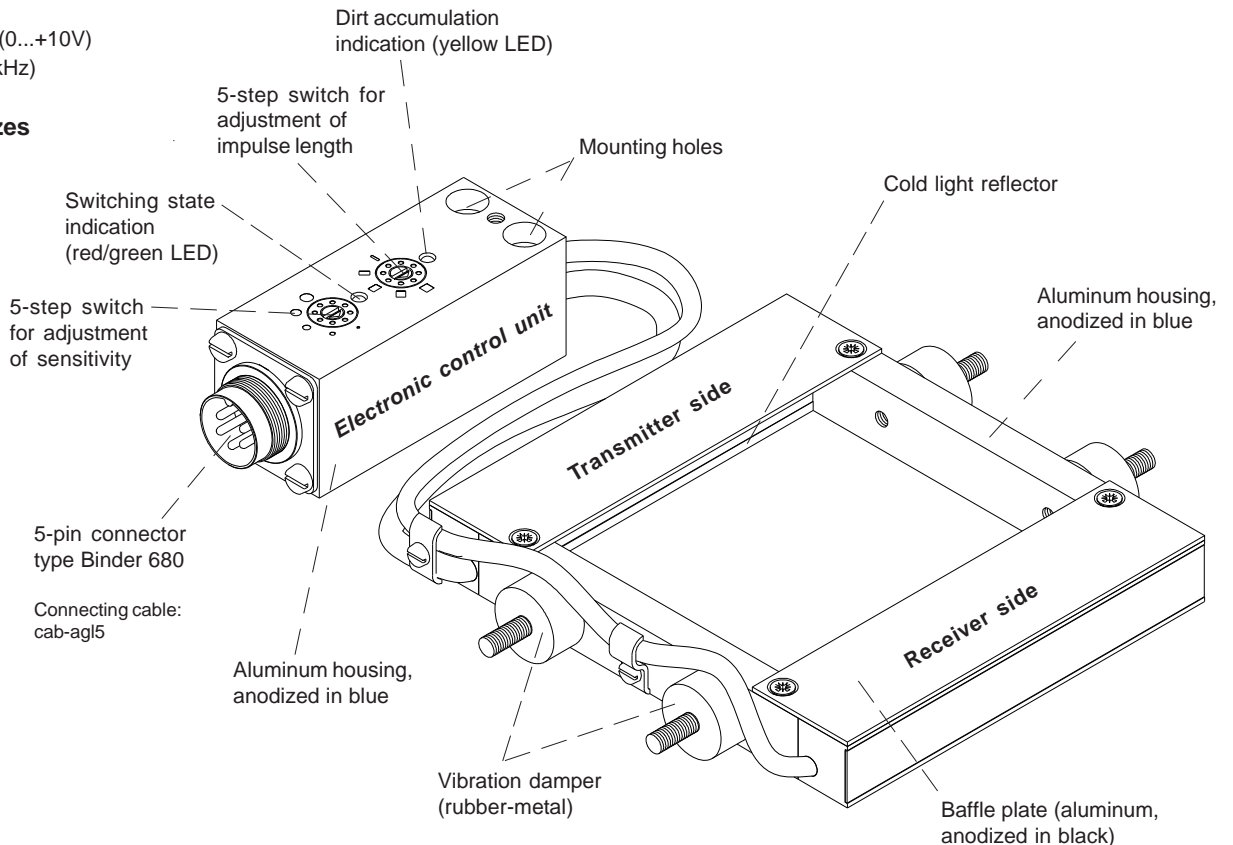
58/60
 58/80
 58/100
 58/160
 58/200

78/60
 78/80
 78/100
 78/160
 78/200

98/60
 98/80
 98/100
 98/160
 98/200

158/60
 158/80
 158/100
 158/160
 158/200


198/60
 198/80
 198/100
 198/160
 198/200



A = 58 / 78 / 98 / 158 / 198 mm (width of cold light reflector)
B = 60 / 80 / 100 / 160 / 200 mm (distance between transmitter and receiver)
 (A can be combined with any B)

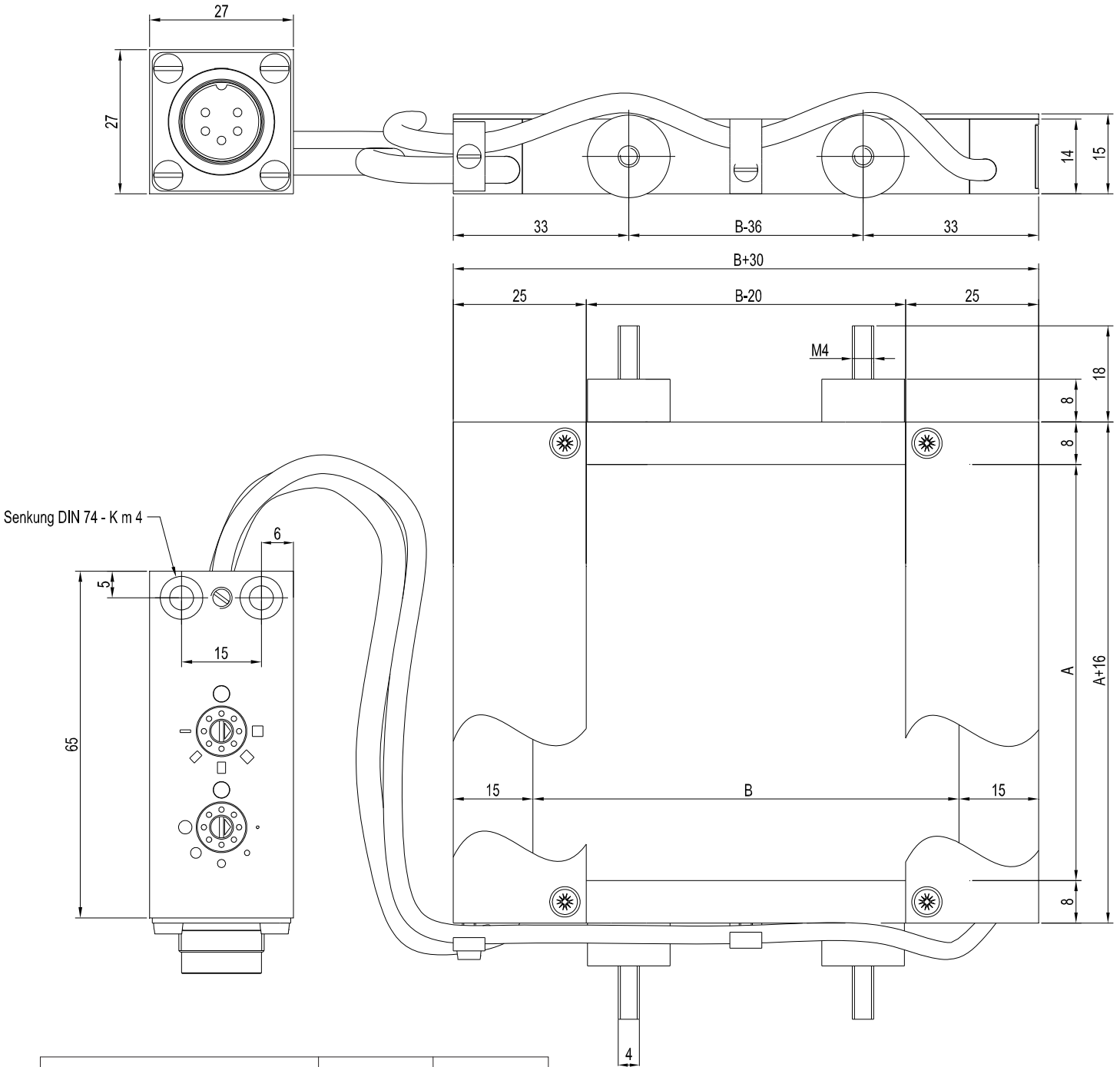



Technical Data

Model	FLB-FR3-...-ANA-HS
Max. transmitter/receiver distance (fork width)	200 mm
Min. detectable object	with dim. A = 58, 78, 98 mm: typ. 0.3 mm with dim. A = 158 mm: typ. 0.5 mm with dim. A = 198 mm: typ. 0.7 mm
Digital outputs	1x DYN (Q), 1x INV DYN (Qinv)
Analog output	1x analog voltage output (0 ... +10V)
Optical filter	Cold-light reflector
Light type	Infrared
Voltage supply	+12VDC ... +32VDC, protected against polarity reversal, overload protected
Pulsating light operation	approx. 5 kHz
Ambient light	up to 5000 Lux
Type of protection	IP67
Current consumption	200 mA
EMC test acc. to	DIN EN 60947-5-2 
Connector type	5-pole connector, Binder Series 680
Operating temperature range	-20°C ... +60°C
Storage temperature range	-20°C ... +85°C
Housing	Aluminum, anodized in blue
Max. switching current	200 mA, short-circuit-proof
Switching frequency	typ. 10 kHz
Sensitivity setting	in 5 steps by means of step switch
Pulse lengthening	in 5 steps by means of step switch (20 ms ... 300 ms)
Dirt accumulation display	By means of yellow LED
Switching state display	By means of bi-color LED: RED (object passes light curtain) / GREEN (light curtain free, or no change)

Dimensions

FLB-FR3-(frame size A/B)-ANA-HS:



Product name	A	B
FLB-FR3-58/B-ANA-HS	58	
FLB-FR3-78/B-ANA-HS	78	
FLB-FR3-98/B-ANA-HS	98	B*
FLB-FR3-158/B-ANA-HS	158	
FLB-FR3-198/B-ANA-HS	198	

*B = 60/80/100/160/200

(All dimensions in mm)



Connector Assignment

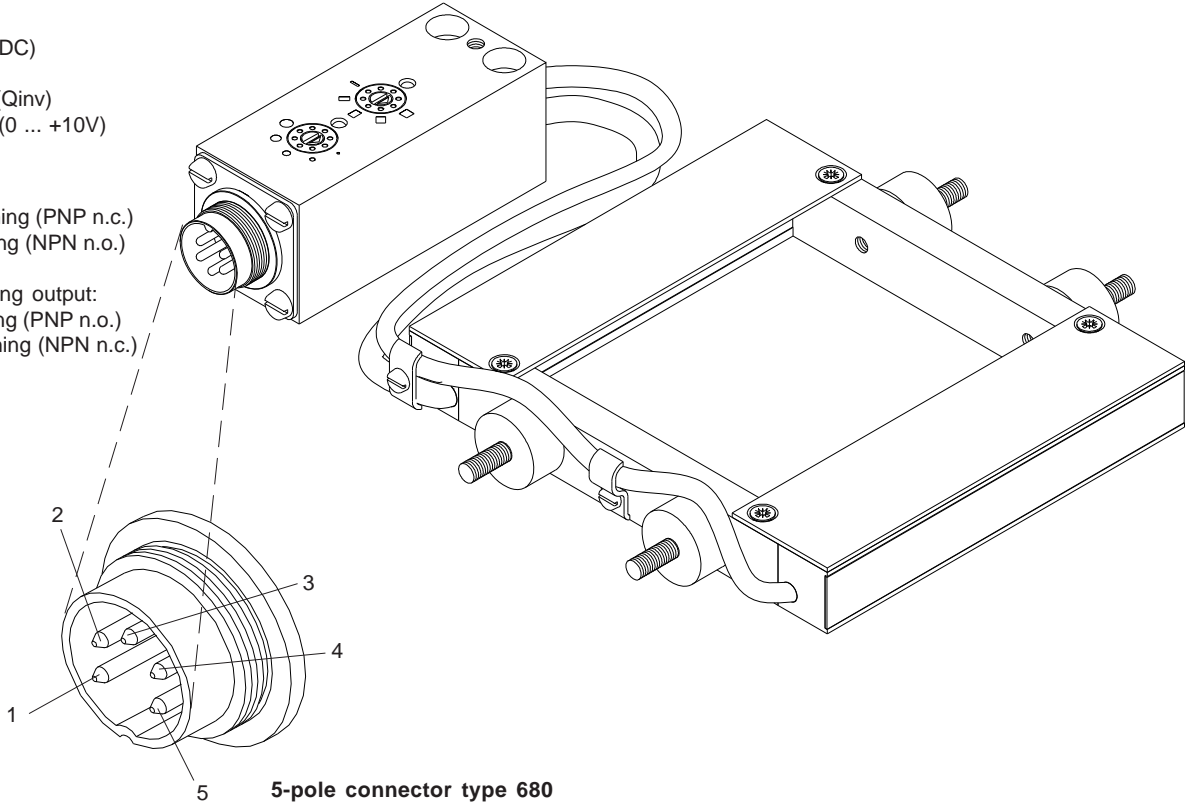
Connector assignment FLB-FR3-...-ANA-HS:

Assignment of 5-pole connector type Binder 680

Pin No.:	Assignment:
1	GND (0V)
2	+U _B (+12 ... +32VDC)
3	Output DYN (Q)
4	Output INV DYN (Q _{inv})
5	Output ANALOG (0 ... +10V)

Q = Switching output:
 PNP bright-switching (PNP n.c.)
 NPN dark-switching (NPN n.o.)

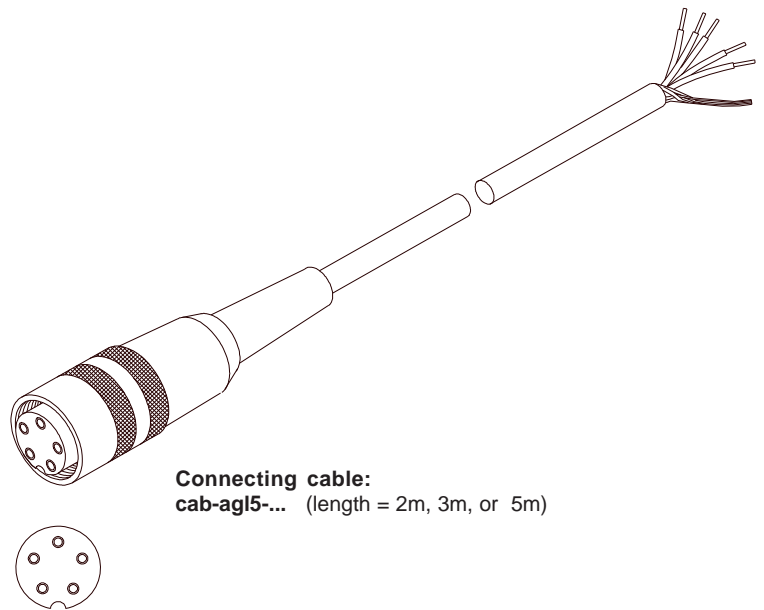
Q_{inv} = Additional switching output:
 PNP dark-switching (PNP n.o.)
 NPN bright-switching (NPN n.c.)



5-pole connector type 680

Connecting cable cab-agl5-(length)

Pin No.:	Color:	Assignment:
1	blue	GND (0V)
2	brown	+U _B (+12 ... +32VDC)
3	white	Output DYN (Q)
4	black	Output INV DYN (Q _{inv})
5	red	Output ANALOG (0 ... +10V)



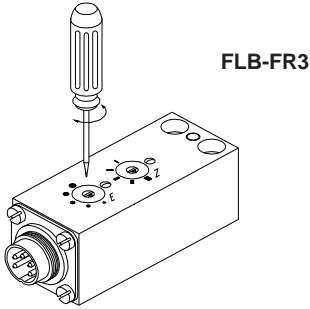
Connecting cable:
 cab-agl5-... (length = 2m, 3m, or 5m)



Setting

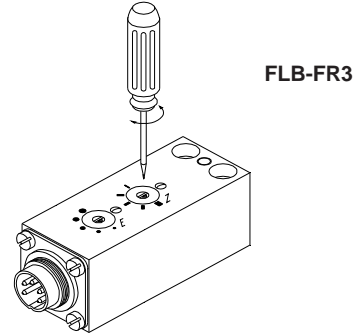
Sensitivity setting (step-switch „E“):






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.



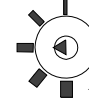
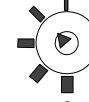



Adjustment of pulse lengthening (step-switch „Z“):

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

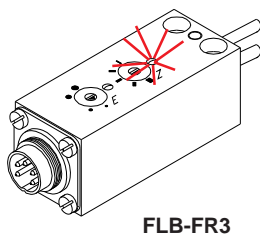


Step	Part size (dyn.)	Part size (stat.)
 1	$\geq 0.5 \text{ mm}$	$\geq 2 \text{ mm}$
 2	$\geq 0.7 \text{ mm}$	$\geq 3 \text{ mm}$
 3	$\geq 1.3 \text{ mm}$	$\geq 5 \text{ mm}$
 4	$\geq 1.7 \text{ mm}$	$\geq 7 \text{ mm}$
 5	$\geq 2.5 \text{ mm}$	$\geq 10 \text{ mm}$

Step	Pulse length
 1	300 ms
 2	200 ms
 3	100 ms
 4	50 ms
 5	20 ms

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.



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.

