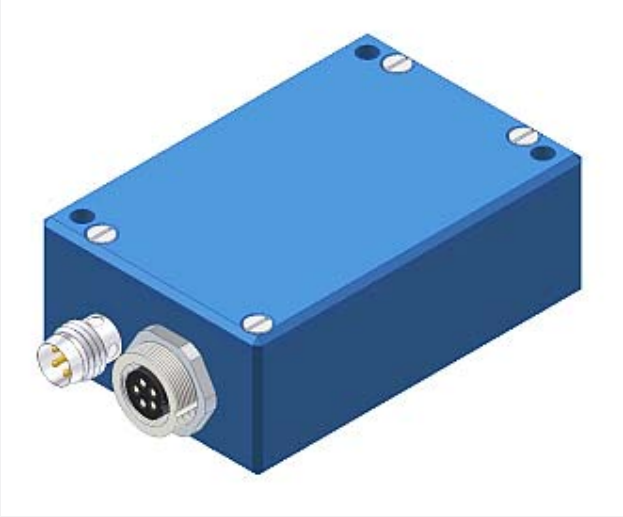
FLB Series

FLB-CON2-2X Electronic Control Unit



- Suitable for FLB-F, FLB-H, FLB-V sensors (FLB Series) as well as for FKB-...-P and SLB-...-P sensors (TLB Series)
- Detection of smalles objects (starting from 50 µm)
- 2x digital output, 2x tolerance window
- Switching frequency typ. 6 kHz
- Adjustment of sensitivity and pulse length via software
- Threshold correction can be activated via software
- Bright or dark switching can be activated via software
- Switching state indication by means of an yellow LED
- Parameterizable under Windows®
- RS232 interface

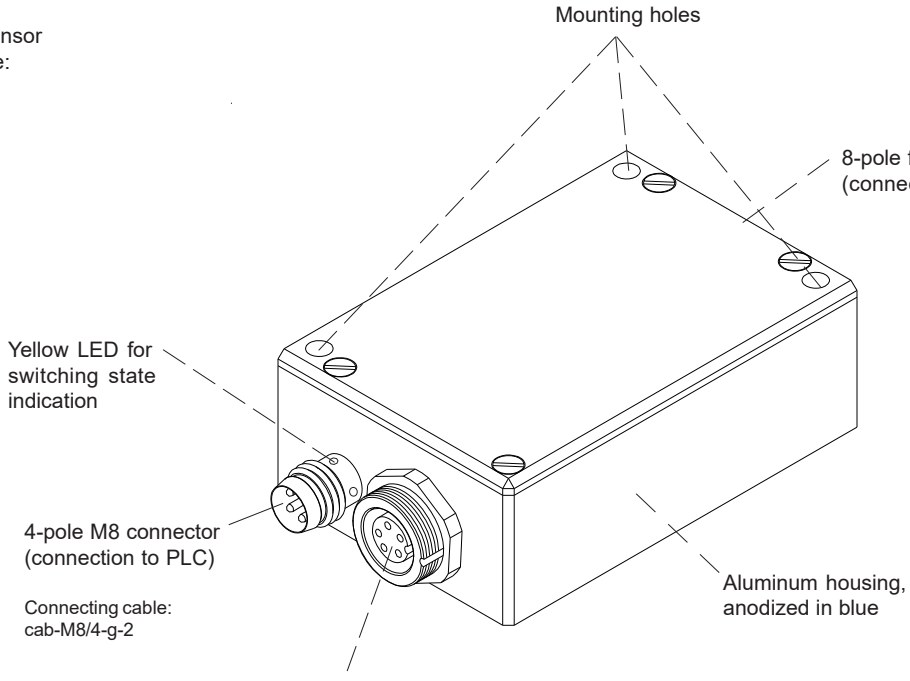
Design

Product name:

FLB-CON2-2X
(incl. Windows® PC software FLB/TLB-2X-V1.0-Scope)

Suitable for the connection of sensor frontends of type:

FLB-F-...
FLB-H-...
FLB-V-...
FKB-...-P
SLB-...-P

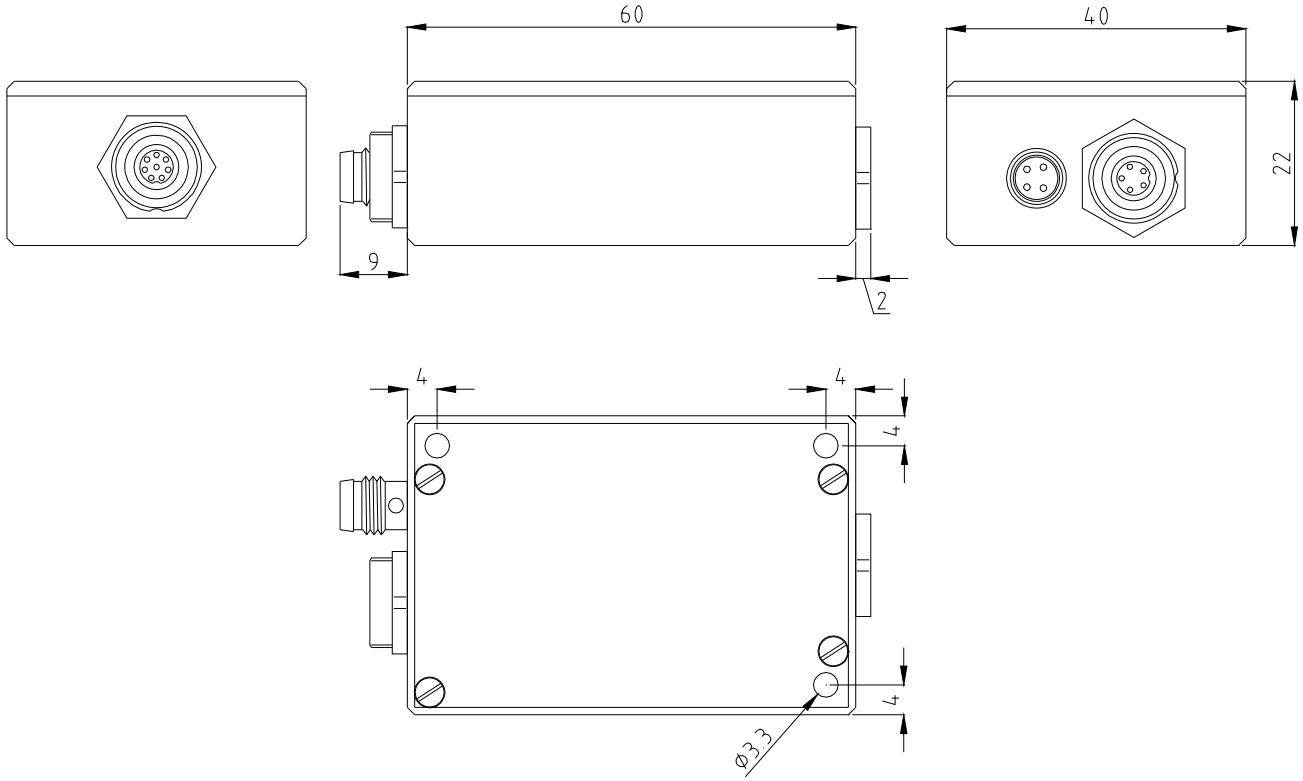


100 % reparierbar/ reparable*
* ausgenommen Totalschaden/ excluding total loss

Technical Data

Type	FLB-CON2-2X
Voltage supply	+24VDC (± 10%), reversed polarity protected, overload protected
Current consuptmion	with sensor: typ. 80 mA
Operating temperature range	-20°C ... +60°C
Storage temperature range	-20°C ... +85°C
Housing dimensions	LxWxH approx. 60 mm x 40 mm x 22 mm
Housing material	Aluminum, anodized in blue
Enclosure rating	IP 64
Outputs	2x digital (can be adjusted under Windows®): Q: PNP bright-switching, NPN dark-switching / Qinv: PNP dark-switching, NPN bright-switching
Interface	RS232, parameterizable under Windows®
Switching state indication	by means of a yellow LED (integrated in M8-connector)
Pulse lengthening	parameterizable under Windows®
Sensitivity setting	parameterizable under Windows®
Type of connector	4-pole M8-connector (connection to PLC) 5-pole fem. connector Binder series 712 (connection to PC)
Switching frequency	typ. 6 kHz
Max. switching current	200 mA, short-circuit proof
EMC test acc. to	EN 60947-5-2 CE

Dimensions



(All dimensions in mm)

Connector Assignment

Connector assignment of FLB-CON2-2X:

4-pole M8 connector (connection to PLC)

Pin-No.:	Assignment:	Color:
1	+Ub (+12VDC ... +32VDC)	brown
2	DIGITAL OUT (TOL2)	white
3	0V (GND)	blue
4	DIGITAL OUT (TOL1)	black

5-pole female connector Binder 712 (connection to PC)

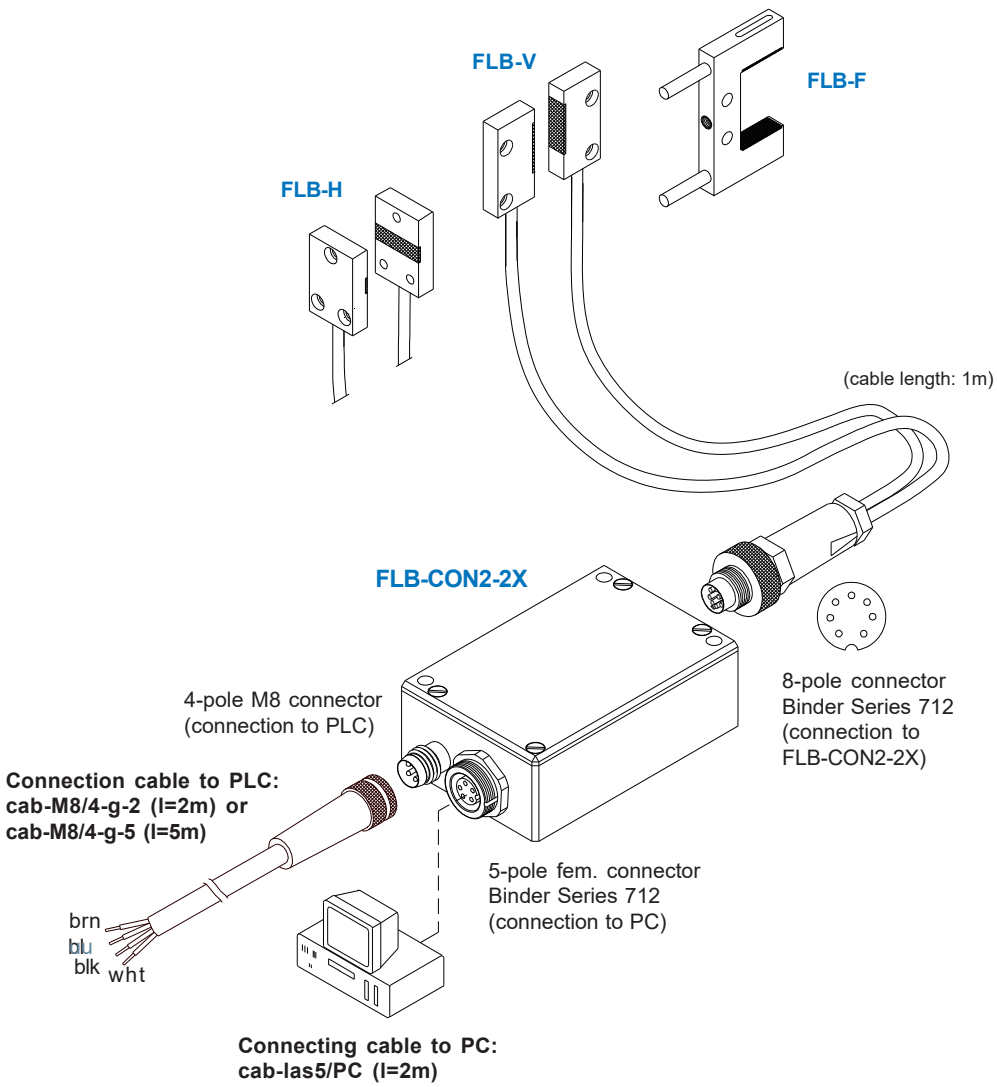
Pin-No.:	Assignment:
1	GND (0V)
2	TXD
3	RXD
4	not connected
5	not connected

8-pole female connector Binder 712 (connection to FLB-F, FLB-H, FLB-V)

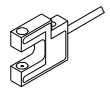
Pin-No.:	Assignment:
1	Shield
2	GND (0V)
3	Transmitter anode
4	Photo transistor collector
5	Transmitter cathode 1
6	Photo transistor emitter
7	Transmitter cathode 2
8	Transmitter cathode 3

Anschlussdiagramm

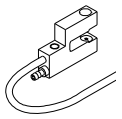
For connection to electronic control unit FLB-CON2-2X-..., the following sensor frontends are suitable:



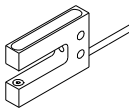
FKB-06-...-P



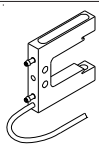
FKB-06-...-BL-P



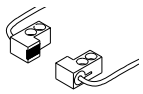
FKB-08-...-P



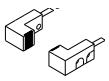
FKB-08-...-BL-P



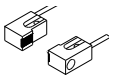
SLB-01-P



SLB-02-P



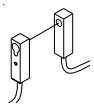
SLB-03-P



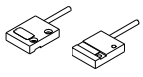
SLB-04-P



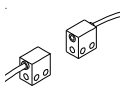
SLB-05-P



SLB-06-P



SLB-08-P

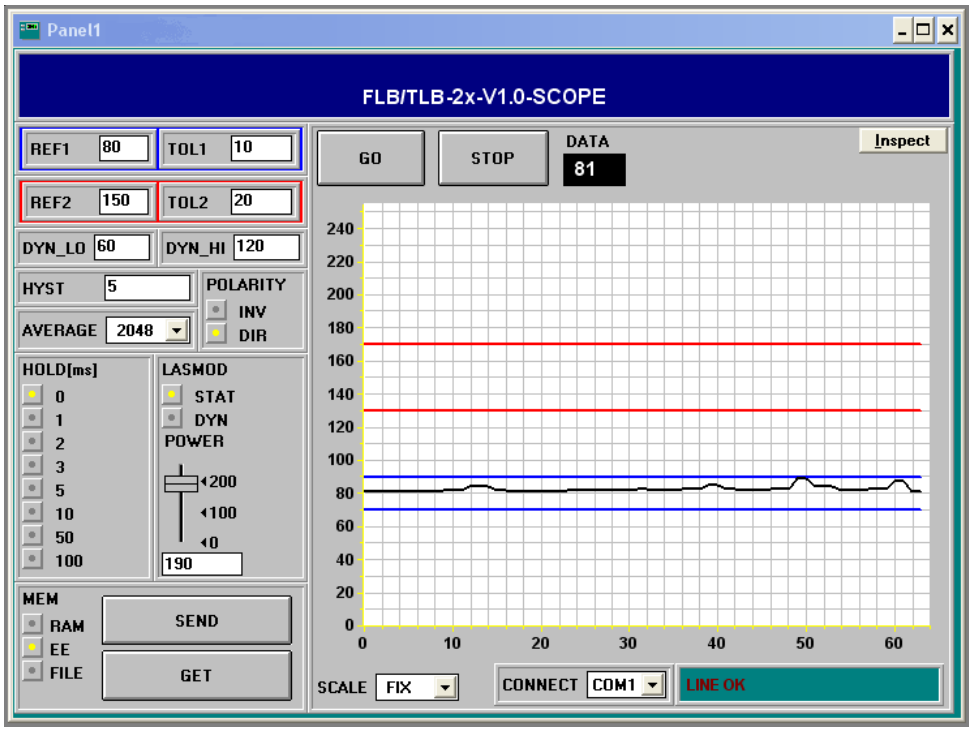


Parameterisation

Windows® software FLB/TLB-2X-V1.0-Scope:

The FLB-CON2-2X control unit can be easily parameterized with the help of the Windows® user interface. For this purpose the FLB-CON2-2X control unit is connected to the PC by way of the cab-las5/PC interface cable. When parameterization is finished, the PC can be disconnected again.

Windows® user interface:



The following parameters can be set with software FLB/TLB-2X-V1.0-Scope:



REF1 and TOL1 setting:
Entering a value in the REF1 edit-box teaches the reference for the first window.
Entering a value in the TOL1 edit-box applies a ±tolerance around this value.



REF2 and TOL2 setting:
Entering a value in the REF2 edit-box teaches the reference for the second window.
Entering a value in the TOL2 edit-box applies a ±tolerance around this value.



DYN_LO and DYN_HI:
The two function fields DYN_LO and DYN_HI are used for setting a lower and higher dynamic range limit for the sensor. When the sensor is within the dynamic range (DYN-LO < DATA < DYN-HI), the dynamic check output (green LED at the sensor housing) is active.



HYST:
The hysteresis setting value lies below or above the current reference window (REF1 ± TOL1, REF2 ± TOL2). The switching hysteresis affects the corresponding digital output. It increases the signal stability at the digital output of the electronic control unit FLB-CON2-2X.

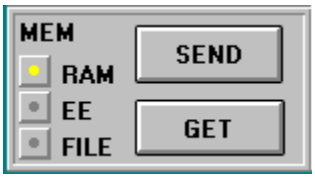
Parameterisation



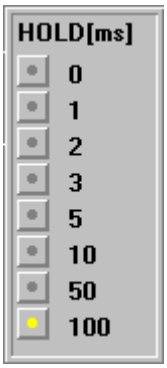
POLARITY:
Determines the polarity change of the digital outputs when the value rises above or falls below the respective thresholds.



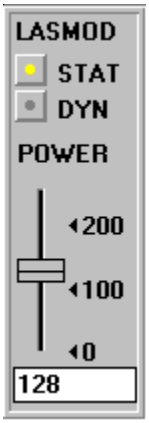
AVERAGE:
Determines the number of measured values (raw data) over which the sensor signal arriving at the receiver is averaged (noise suppression).



MEM :
This function key group serves for parameter exchange between PC and FLB-CON2-2X electronic control unit through the serial RS232 interface.



HOLD:
The FLB-CON2-2X operates with minimum scan times in the range of 100µs. For this reason most of the SPCs that are connected at the digital error output TOLOUT have difficulties with the safe detection of the resulting short changes of switching states.
By activating the respective HOLD selection button a pulse lengthening at the digital output of the FLB-CON2-2X of up to 100 ms can be set.

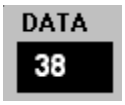


LASMOD setting:
In this function group the laser operating mode and the laser power can be adjusted at the sensor that is connected to the electronic control unit.

STAT:
With this selection button the laser power is constantly kept at the value that is set at the slider.

DYN:
The laser power is automatically and dynamically adjusted by means of the amount of radiation reflected from the object. By way of dynamic adaptation of the laser power the µC-software tries to keep the current maximum value that is detected at the receiver in the range of 100 to 200 A/D-values. In this operating mode the POWER slider is ineffective.

POWER:
With this slider the laser power is adjusted to a fixed value between 0 and 255 in STAT mode. Any change only becomes effective after the SEND button is pressed.



DATA:
Displays the current averaged value of the sensor frontend. This value is also visualised in the graphic display window with the corresponding reference windows REF1 ± TOL1 and REF2 ± TOL2.



SCALE setting:
These selection buttons are used for setting the scaling type of the y-axis.

FIX: Fixed scaling of the y-axis (0...255 - results from 8-bit A/D conversion)
AUTO: Automatic adaptation of y-axis scaling to the current measured values (zoom function).