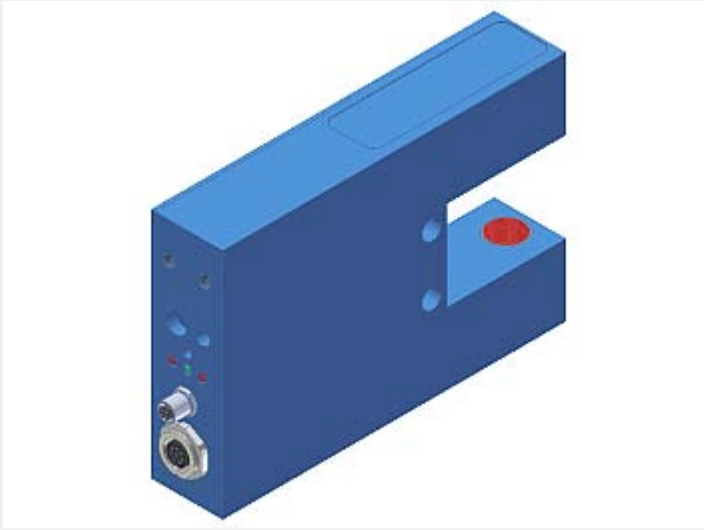
F-LAS Series



F-LAS-SPC-30/40

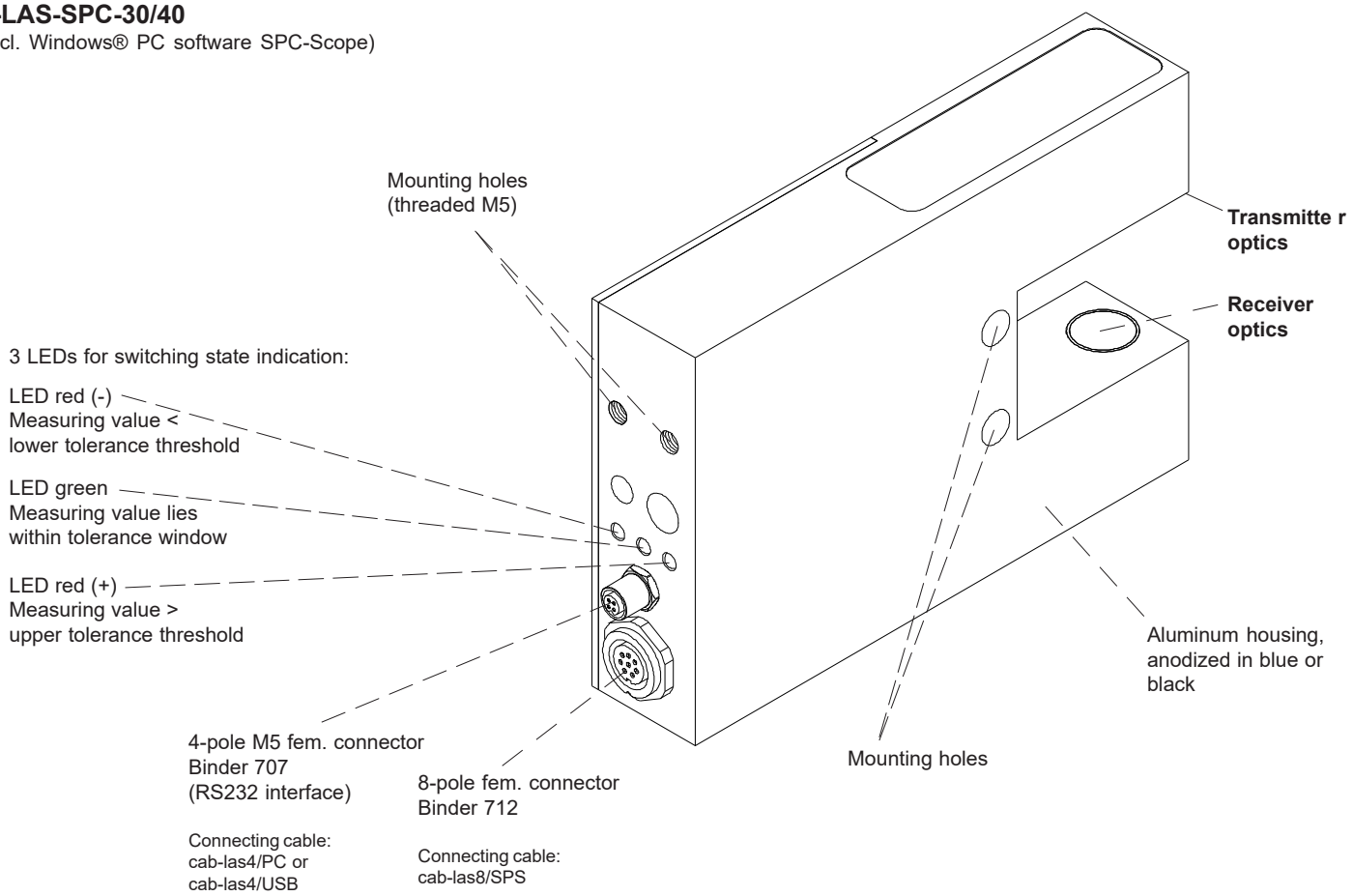
Seal Position Check

- Collimated laser beam, laser class 2
- Visible laser light (red, 670 nm, P_{opt} < 1mW)
- Twofold-receiver (scan frequency typ. 200 kHz)
- Integrated electronics with 16-bit microcontroller
- 8 evaluation modes available to select from
- Switching state indication by means of 3 LEDs
- Insensitive to outside light
- Insensitive to dirt accumulation
- For use with cable sizes from AWG 32 up to AWG 4
- Scratch-resistant optics, sturdy aluminum housing

Design

Product name:

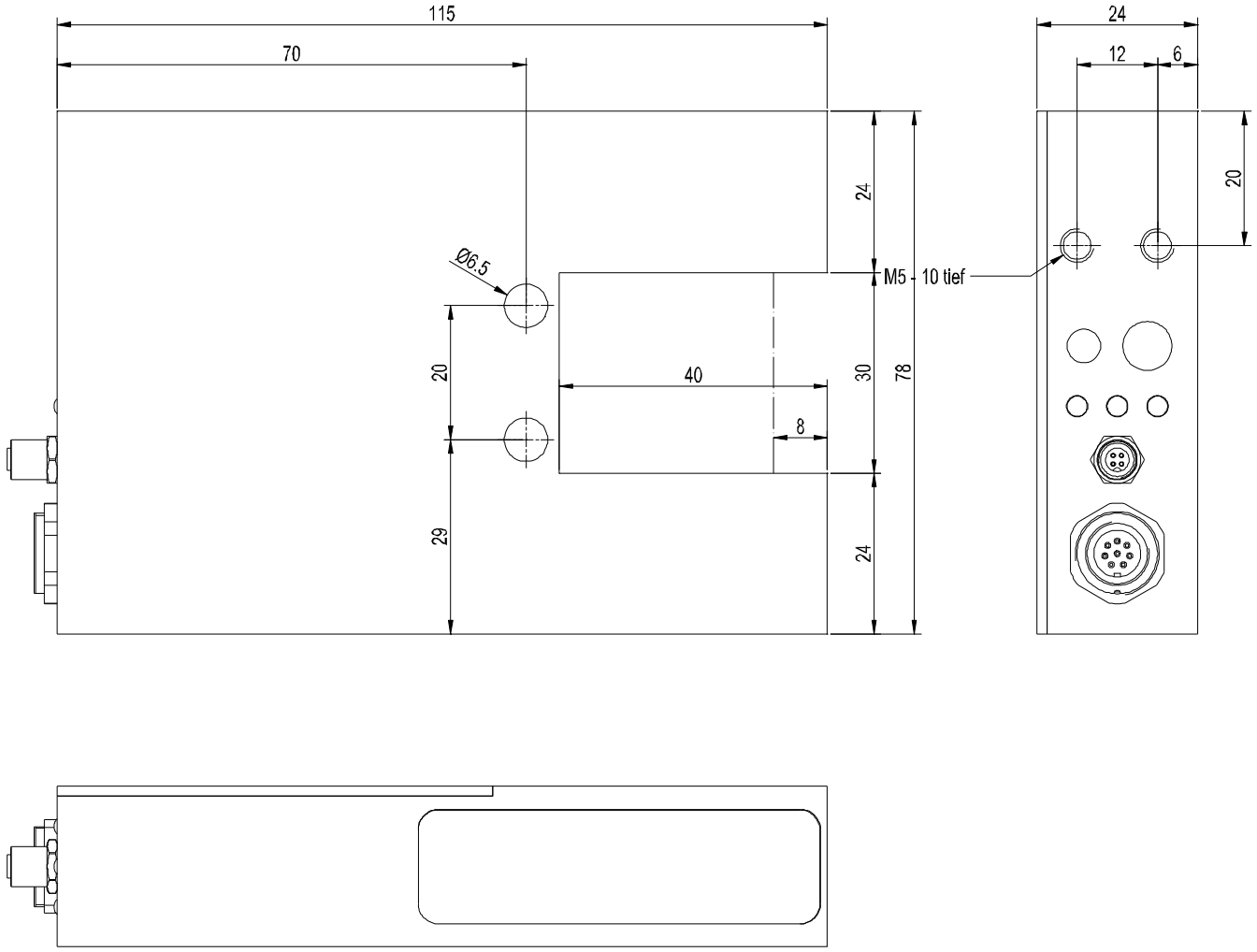
F-LAS-SPC-30/40
(incl. Windows® PC software SPC-Scope)



Technical Data

Model	F-LAS-SPC-30/40
Laser	Semiconductor laser, 670 nm, 1mW max. optical power, laser class II acc. to DIN EN 60825-1. The use of these laser light barriers therefore requires no additional protective measures.
Cable sizes to be detected	typ. AWG 4 ... AWG 32
Optical filter	Red light filter RG630
Voltage supply (+Ub)	+12VDC ... +32VDC, reversed-polarity protected, overcurrent protected
Operating mode	Constant light
Ambient light	up to 1000 Lux
Enclosure rating	Optics: IP67, elektronics: IP54
Current consumption	typ. 200 mA
Laser light curtain	Receiver aperture typ. 9,5 mm x 0.3 mm
Operating temperature range	-20°C ... +50 °C
Storage temperature range	-20°C ... +85°C
Housing	Aluminum, anodized in blue or black
Type of connector	8-pole female connector (type Binder 712), 4-pole M5 female connector (type Binder 707)
EMC test acc. to	DIN EN 60947-5-2 CE
Scan frequency	typ. 200 kHz
Max. speed of object	typ. 4 m/s
Max. number of objects/second	typ. 5/s
Various evaluation modes	"Check Seal", "Check Seal+Position"
Digital inputs (IN0, IN1)	2 digital inputs: Input voltage +Ub/0V with protective circuit
External teaching	via PLC signal line
Number of objects to be taught	1 ... 64 (adjustable under Windows® in 7 steps)
Tolerance steps	8 different programs adjustable under Windows® or via PLC
Laser power	adjustable under Windows®
Digital outputs (OUT0, OUT1)	2 digital outputs (npn or pnp), +Ub/GND(0V)
Max. switching current	100 mA, short-circuit proof

Dimensions



All dimensions in mm

Laser Warning

The transmitters of the laser one-way light barriers of series F-LAS comply with laser class 2 according to EN 60825-1. The use of these laser transmitters therefore requires no additional protective measures.

The light barriers of the F-LAS Series are supplied with a laser warning label.



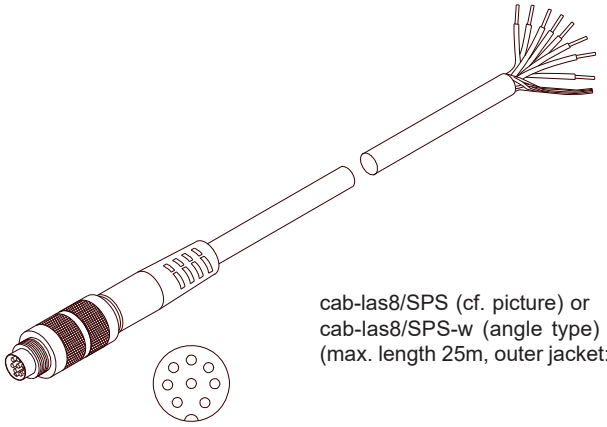


Connector Assignment

Connection to PLC:
8-pole fem. connector Binder Series 712

Pin:	Color:	Assignment:
1	white	0V (GND)
2	brown	+24VDC
3	green	IN0
4	yellow	IN1
5	grey	OUT0
6	pink	OUT1
7	blue	0V (GND)
8	red	not connected

Connecting cable:
cab-las8/SPS-(length) or
cab-las8/SPS-w-(length) (angle type, 90°)
(standard length 2m)

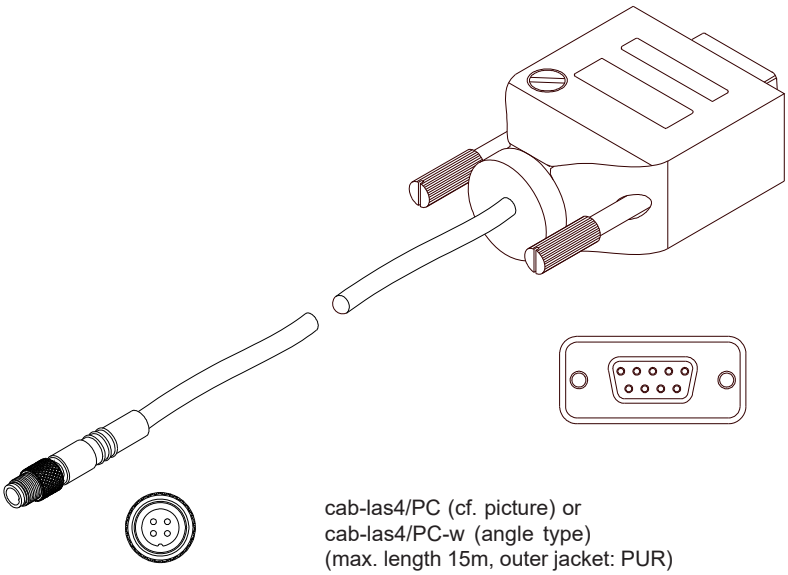


cab-las8/SPS (cf. picture) or
cab-las8/SPS-w (angle type)
(max. length 25m, outer jacket: PUR)

Connection to PC:
4-pole fem. connector Binder Series 707

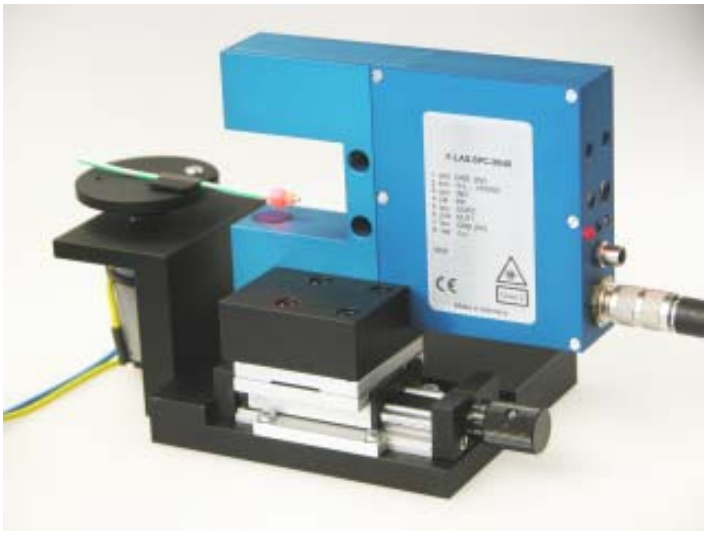
Pin:	Assignment:
1	+24VDC (+Ub, OUT)
2	0V (GND)
3	RxD
4	TxD

Connecting cable:
cab-las4/PC-(length) or
cab-las4/PC-w-(length) (angle type, 90°)
(standard length 2m)



cab-las4/PC (cf. picture) or
cab-las4/PC-w (angle type)
(max. length 15m, outer jacket: PUR)

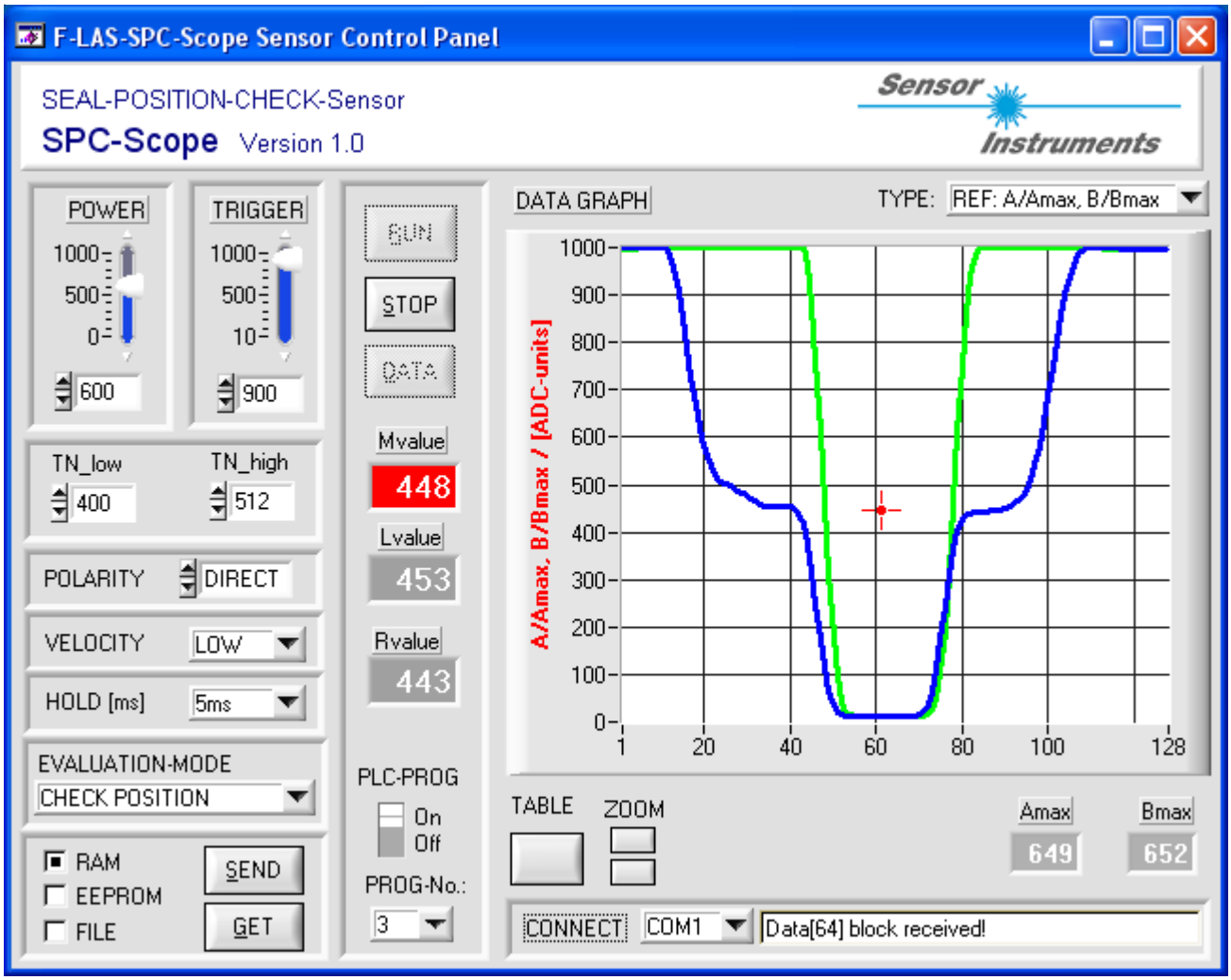




Software

Windows® PC software SPC-Scope V1.0:

The F-LAS-SPC sensor can be easily parameterised with the Windows® user interface.
For this purpose the F-LAS-SPC sensor is connected to the PC with the serial interface cable cab-las4/PC.
When parameterisation is finished, the PC can be disconnected again.

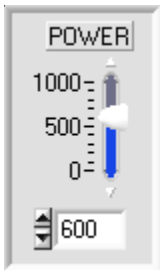


With the help of the SPC-Scope V1.0 software the following settings can be made at the sensor:

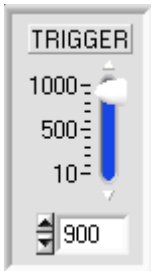
- Setting of laser power
- Polarity of digital outputs
- Different evaluation modes
- Start of the teach process by software button
- Setting of tolerance ranges for the control of the measuring value
- Setting of the trigger threshold
- Storage of the evaluation parameters in one of the 8 measuring programs (selectable)

Furthermore, various numerical and graphical measured quantities can be visualized with the SPC Scope V1.0 software. For example, the raw data and recorded measuring curves of the twofold-receiver can be displayed graphically and numerically.

Parameterisation



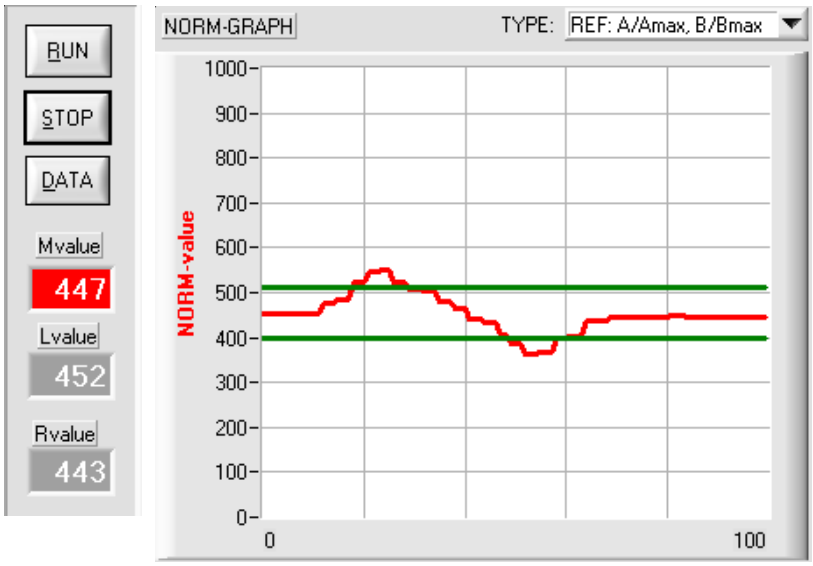
POWER:
In this function field the intensity of the laser diode can be set by using the slider or by entering a value in the edit box.



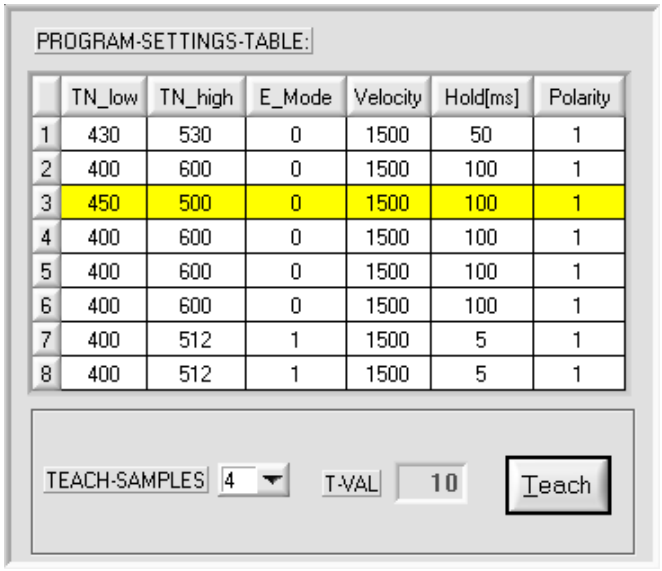
TRIGGER:
In this function field the trigger threshold for automatic triggering of the sensor can be set by using the slider or by entering a value in the edit box.



POLARITY:
The F-LAS-SPC-30/40 sensor has 2 digital outputs (OUT0, OUT1) which can provide error conditions to the PLC. The POLARITY function field is used for setting the output polarity of the two digital outputs.
DIRECT: In case of an error, the respective digital output switches to +Ub (+12VDC...+32VDC)
INVERSE: In case of an error, the reference potential GND (0V) is present at the respective digital output



NORM-GRAPH:
After a click on the RUN button the graphical output window is updated in the „roll mode“, i.e. the current measurement data (M-VALUE) is shifted from right to left in the graphical output window and is shown as a red curve. In addition, the upper (TN_high) and the lower (TN_low) tolerance thresholds are shown as green horizontal lines.



	TN_low	TN_high	E_Mode	Velocity	Hold[ms]	Polarity
1	430	530	0	1500	50	1
2	400	600	0	1500	100	1
3	450	500	0	1500	100	1
4	400	600	0	1500	100	1
5	400	600	0	1500	100	1
6	400	600	0	1500	100	1
7	400	512	1	1500	5	1
8	400	512	1	1500	5	1

PROGRAM-SETTINGS-TABLE:



A click on the TABLE button opens the program settings table which offers the possibility of setting various parameters in a maximum of 8 programs.