

LEVEL SWITCH WITH DISPLAY

The label Trafag Industrial Components extends the Trafag brand name to instruments manufactured by qualified partner companies. Trafag Industrial Components complement the genuine Trafag product range to offer customers a complete portfolio from one single source. The DLF 8980 is the ideal combination of a float level and transmitter with display. The parameters are set on the device or in a timesaving way via an NFC - smartphone App. The settings in combination with a comprehensive set of options make the DLF 8980 suitable for a wide range of industrial applications. The magnetic float which activates reed contacts inside the guiding rod provides a measuring resolution of 5, 10 or 20mm.

Applications

- Water treatment
- Machine tools
- Mobile hydraulics
- Food & Beverages
- Chemical & Pharmaceutical



Features

- Parameterization also via NFC-smartphone App (Android)
- Display and electrical connection are independently rotatable 335°/343°
- Analogue output switchable mA or V
- Integrated datalogger
- Measuring resolution 5, 10, 20 mm

03/2020

Data sheet H72450a

Technical Data			
Measuring principle	Magnetic float with reed contacts	Media temperature	-30°C ... +105°C -30°C ... +90°C PP floats -30°C ... +60°C PVC floats
Measuring range	Max. Level 2000 mm	Ambient temperature	-30°C ... +85°C
Output signal	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, switchable mA or V	Unit for display	mm, inch, user scale, %FS
Switching output	2 transistors PNP	Logger	Ring buffer: 3518 data points Sampling time: 0.1 ... 999.9 s, Off (0)
Accuracy @ 25°C typ.	Resolution of 5, 10 or 20 mm. With resolution 5mm max. stem length 1099 mm		

Subject to change

Ordering information/type code

		8980	X	XX	XXX	XX	XXXX	XXX	XX	X	XX			
1. Float and Stem Material ¹	Brass and Spansil		O											
	AISI316 L		S											
	PP or PVDF or PVC		P											
2. Measuring resolution ²	05 mm										05			
	10 mm										10			
	20 mm										20			
3. Floats ²⁻⁵	Float material	Type	Dimension (in mm)		Float material	Type	Dimension (in mm)							
	Spansil	8980-O	Ø 30x20	B20	PVDF	8980-P	Ø 49x53	F49						
			Ø 20x28	B28			Ø 49x53	P49						
			Ø 30x45	B45			PVC	8980-P	Ø 49x53	V49				
			Ø 44x50	B44										
	AISI316 L	8980-S	Ø 30x32	S29	Special float ⁶⁾			Z99						
			Ø 52x68	S52										
			Ø 52	S53										
			Ø 100	S10										
	4. Output signal	Switching output PNP, current output 4 ... 20 mA, switchable to 0 ... 10 VDC; output detail see accessories P1, P2, P3										PA		
Switching output PNP, voltage output 1 ... 6 VDC; output detail see accessories P1, P2, P3										PU				
Switching output PNP, voltage output 0 ... 10 VDC; output detail see accessories P1, P2, P3										PV				
Switching output PNP, voltage output 0 ... 5 VDC; output detail see accessories P1, P2, P3										PW				
Switching output PNP; output detail see accessory P4										PS				
5. Stem length ⁵	"L0" max 2000 mm										XXXX			
6. Process connection ³	Outside, G 1" m	G25	Flange type DIN (to specify dimension for ex. 2")							DN1				
	Outside, 1" NPT m	N25	Flange type ANSI (to specify dimension for ex. DN40 PN16)							DN2				
	Outside, G 1 1/2" m	G40	Flange 6 holes on Ø60 mm in brass							FOH				
	Outside, 1 1/2" NPT m	N40	Flange 6 holes on Ø60 mm in SS							FSH				
	Outside, G 2" m	G50	Special process connection ⁷⁾							X99				
	Outside, 2" NPT m	N50												
7. Electrical connection ⁴	Male electrical plug M12x1, 4-pole, Mat. PA (Accessories P3, P4)										32			
	Male electrical plug M12x1, 5-pole, Mat. PA (Accessories P1, P2)										35			
8. Temperature class ²	Standard										L			

8980 - X - XX - XXX - XX - XXXX - XXX - XX - X - XX

9. Accessories		
Pin configuration 5-pole.; 1: U+, 2: analogue, 3: U-, 4: SP1, 5: SP2		P1
Pin configuration 5-pole.; 1: U+, 2: SP2, 3: U-, 4: SP1, 5: analogue		P2
Pin configuration 4-pole.; 1: U+, 2: analogue, 3: U-, 4: SP1		P3
Pin configuration 4-pole.; 1: U+, 2: SP2, 3: U-, 4: SP1		P4
Female electrical plug M12x1, 5-pole ⁵⁾		33
Parameterization standard for output signal PS, T1 (see table "Parameters")		ZS
Parameterization according to customer specification (see table "Parameters")		ZC
Function package 1: Zero set / Measuring range zero point adjustment		Z1
Function package 2: User scale unit / analogue output adjustment		Z2
Protective cap, 1 pc. F89051, package of 5 pcs. F89052, package of 25 pcs. F89075		

¹⁾ See table Materials

²⁾ See table Floats

³⁾ See table Process connections

⁴⁾ See table Electrical Connections

⁵⁾ See table Dimensions

⁶⁾ For other floats, please contact factory

⁷⁾ For other process connections, please contact factory

⁸⁾ For other electrical connections, please contact factory

⁹⁾ For other options, please contact factory.

Order example

- 8980-S-05-S29-PA-XXXX-G25-35-L-P1-ZS
- 8980-S-20-S52-PA-XXXX-G50-35-L-P1-ZS
- 8980-O-10-B20-PV-XXXX-G25-35-L-P1-ZS
- 8980-O-20-B45-PA-XXXX-G25-35-L-P1-ZS
- 8980-P-05-V49-PA-XXXX-G50-35-L-P1-ZS

Material

Tab. 1

Type	Stem	Float	Process connection	Flange
8980-O xx Bxx	Brass	Spansil	Brass	Brass
8980-S xx Sxx	AISI316	AISI316	AISI316	AISI316
8980-P xx Fxx	PVDF	PVDF	PVDF	PVDF
8980-P xx Pxx	PP	PP	PP	PP
8980-P xx Vxx	PVC	PVC	PVC	PVC


Floats 8980-O

Tab. 2

				
Code	B20	B28	B45	B44
Material	Spansil	Spansil	Spansil	Spansil
Dimension (mm)	Ø30x20	Ø20x28	Ø30x45	Ø44x50
Specific gravity (kg/dm ³)	0,4	0,4	0,35	0,45
Measuring Resolution (mm)	5 - 10	5 - 10	5 - 10 - 20	5 - 10 - 20
Max. Pressure (bar)	20	20	20	20
Media temperature max.	105°C	105°C	105°C	105°C




Floats 8980-S

Tab. 2

				
Code	S29	S52	S53	S10
Material	AISI316	AISI316	AISI316	AISI316
Dimension (mm)	Ø30x32	Ø52x68	Ø52	Ø100
Specific gravity (kg/dm ³)	0,75	0,65	0,7	0,6
Measuring Resolution (mm)	5	10 - 20	5	10 - 20
Max. Pressure (bar)	30	40	50	15
Media temperature max.	105°C	105°C	105°C	105°C

Floats 8980-P

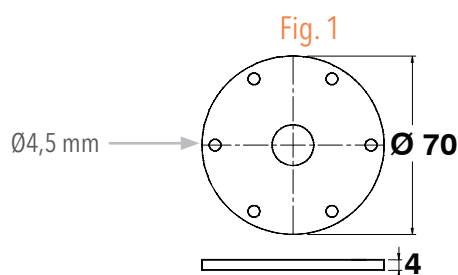
Tab. 2

			
Code	F49	P49	V49
Material	PVDF	PP	PVC
Dimension (mm)	Ø49x53	Ø49x53	Ø49x53
Specific gravity (kg/dm³)	0,8	0,45	0,7
Measuring Resolution (mm)	5	5	5
Max. Pressure (bar)	6	3	6
Media temperature max.	105°C	90°C	60°C

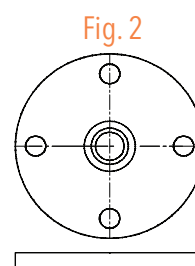
Process connection

Tab. 3

Code	Type Process Connection	8980-O				8980-S				8980-P		
		B20	B28	B45	B44	S29	S52	S53	S10	F49	P49	V49
G25	G 1" m, mounting from outside	✓	✓	✓		✓						
N25	1" NPT m, mounting from outside		✓									
G40	G 1 ½" m, mounting from outside	✓	✓	✓	✓	✓						
N40	1 ½" NPT m, mounting from outside	✓	✓	✓		✓						
G50	G 2" m	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
N50	2" NPT m	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DN1	Flange type DIN				✓		✓	✓	✓	✓	✓	✓
DN2	Flange type ANSI				✓		✓	✓	✓	✓	✓	✓
FOH	Flange 6 hole on Ø60mm in brass	✓	✓	✓								
FSH	Flange 6 hole on Ø60mm in SS					✓						



FOH - FSH
6 holes on Ø60 mm



DN = DIN - ANSI Flanges

Flanges available

DIN type	ANSI type
DN25 PN6 or PN16 or PN40	1" ANSI 150# RF or 300# RF or 600# RF
DN50 PN6 or PN16 or PN40	2" ANSI 150# RF or 300# RF or 600# RF
DN80 PN6 or PN16 or PN40	3" ANSI 150# RF or 300# RF or 600# RF
DN125 PN6 or PN16 or PN40	4" ANSI 150# RF or 300# RF or 600# RF

Parameters				
Name	Standard setting (accessory ZS)	Value range	Short name	Customer adjustment (accessory ZC)
Switch point SP1 (hysteresis mode) Upper switch point FH1 (window mode)	75 % Measuring range	SP1 > RP1 FH1 > FL1 Hysteresis \geq 1 % FS	SP1	
Reset point RP1 (hysteresis mode) Lower switch point FL1 (window mode)	25 % Measuring range	RP1 < SP1 FL1 < FH1 Hysteresis \geq 1 % FS	RP1	
Switch point SP2 (hysteresis mode) Upper switch point FH2 (window mode)	75 % Measuring range	SP2 > RP2 FH2 > FL2 Hysteresis \geq 1 % FS	SP2	
Reset point RP2 (hysteresis mode) Lower switch point FL2 (window mode)	25 % Measuring range	RP2 < SP2 FL2 < FH2 Hysteresis \geq 1 % FS	RP2	
Switch point delay time SP1 (hysteresis mode) Switch point delay time FH1 (window mode)	0	0 ... 99.99 s	dS1	
Switch point delay time RP1 (hysteresis mode) Switch point delay time FL1 (window mode)	0	0 ... 99.99 s	dR1	
Switch point delay time SP2 (hysteresis mode) Switch point delay time FH2 (window mode)	0	0 ... 99.99 s	dS2	
Switch point delay time RP2 (hysteresis mode) Switch point delay time FL2 (window mode)	0	0 ... 99.99 s	dR2	
Functions switching output 1	Hysteresis, closer (Hno)	Hysteresis NO (Hno), Hysteresis NC (Hnc) Window NO (Fno), Window NC (Fnc)	ou1	
Functions switching output 2	Hysteresis, closer (Hno)	Hysteresis NO (Hno), Hysteresis NC (Hnc) Window NO (Fno), Window NC (Fnc)	ou2	
Level unit	mm	mm, inch, %, user scale	uni	
Measuring range adjustment	100 % Nominal	50 ... 100 % Nominal	L-EP	
Damping (analogue output)	0.01 s	0.01 ... 3.00 s (time constant)	dAA	
Display rotation	No	no, yes (180°)	disr	
Display mode	Current value	Value: current, highest, lowest, display off Current value: decimal places selectable (max. 3)	dis	
Display actualisation	2	1, 2, 5, 20 Hz	duPd	

Specifications		
Electrical Data	Output / supply voltage	4 ... 20 mA: 24 (15 ... 30) VDC 0 ... 5 VDC: 24 (15 ... 30) VDC 1 ... 6 VDC: 24 (15 ... 30) VDC 0 ... 10 VDC: 24 (15 ... 30) VDC
	Switch-on-delay	Typ. 200 ms
	Inverse-polarity protection, short-circuit strength @ 25°C during 5 min.	integrated
	Current consumption	≤ 30 mA
Environmental conditions	Media temperature	-30°C ... +105°C
	Ambient temperature	-30°C ... +85°C
	Protection ¹⁾	IP65, IP67
	Humidity	Max. 95 % relative
	Vibration	0.7g (13.2 ... 100 Hz)
EMC Protection	Emission	EN/IEC 61000-6-3
	Immunity	EN/IEC 61000-6-2
Mechanical Data	Sensor (wetted parts)	see ordering information
	Pressure connection (wetted parts)	see ordering information
	Housing	Zinc based die-casting alloy, nickel plated display housing plastic
	Male electrical plug	See ordering information
	Housing alignment	Display 335° rotatable, max. 2.5 Nm Electrical connection 343° rotatable, max. 5 Nm

¹⁾ See electrical connection

Analogue output	
Output signal	Switchable 4 ... 20 mA or voltage
Current limiting output signal	4 ... 20 mA: 25 mA (overload)
	0 ... 10 VDC: < 40 mA (short-circuit)
Measuring range zero point adjustment (L_nP) ¹⁾	0 ... 50 % FS ²⁾
Measuring range end point adjustment (L_EP)	50 ... 100 % FS ²⁾
Zero point adjustment analogue output (o_nP) ¹⁾	Voltage output: 0 ... 2 VDC Current output: 3.9 ... o_EP - 8 mA
End point adjustment analogue output (o_EP) ¹⁾	Voltage output: o_nP + 4 ... 10.5 VDC Current output: o_nP + 8 ... 20.1 mA

¹⁾ Available with optional function package, see "Accessories"

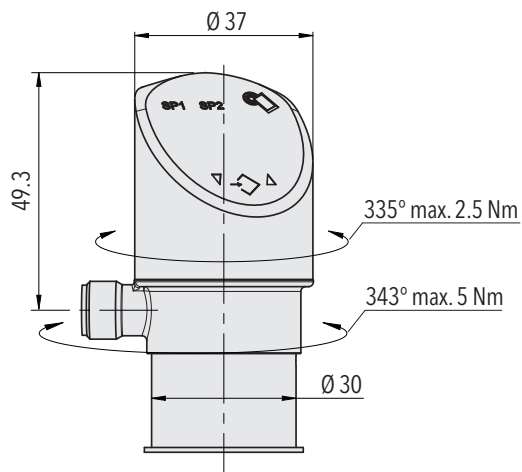
²⁾ L_EP - L_nP ≥ 50 % FS

Switching output	
Adjustment range of switchpoints	0 ... 100 % FS
Switching hysteresis	≥ measuring resolution
	Switchpoint > reset point
Switching resistance	≤ 3 Ω
Output function	Hysteresis, Window; normally closed (NO), normally open (NC)
Switching current	≤ 0.5 A each switching output
Current limiting	≤ 2 A each switching output
Switching frequency	max. 200 Hz
Delay time	0 ... 99.99 s

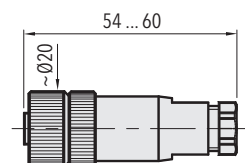
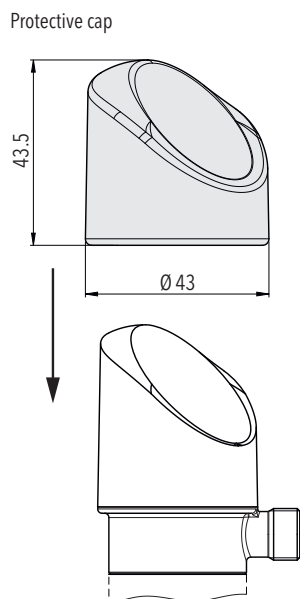
Display	
Display	4-digit 7-segment display 180° flippable with disable function Standard decimal places: ≤ 9: 3 decimal places 10 ... 99: 2 decimal places 100 ... 999: 1 decimal place
Switching status indication	2 LED, red
Operation	With 3 buttons and menu navigation according to VDMA 24574-1
Display resolution	0.1 % FS
Display range	-3 ... 103 % FS
Setting parameters	See table Parameters
User scale unit	Display zero point: -999 ... 9998
User defined values for display indication zero point and end point ¹⁾	Display end point: -998 ... 9999

¹⁾ Available with optional function package, see "Accessories"

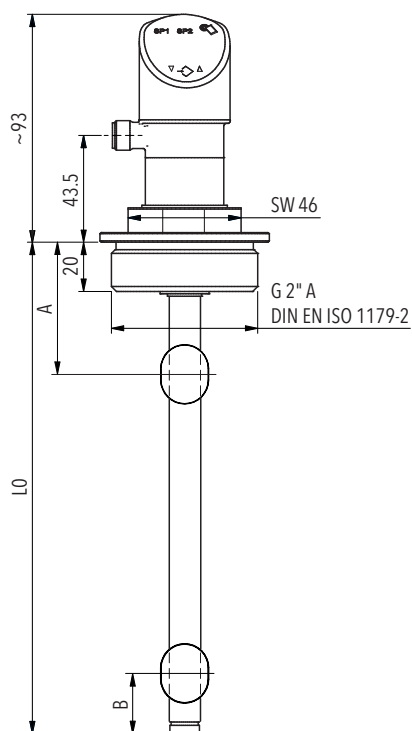
Dimensions



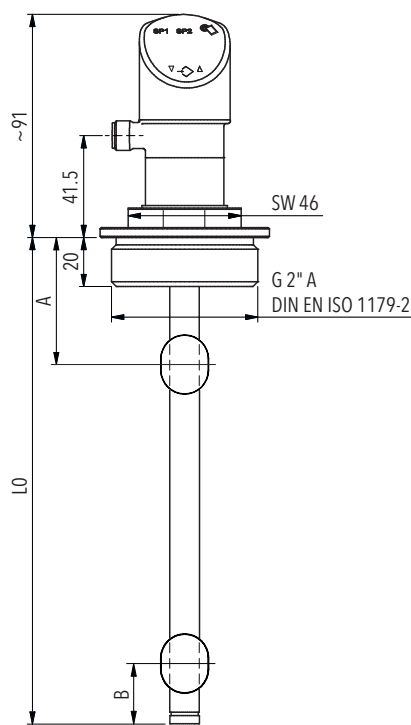
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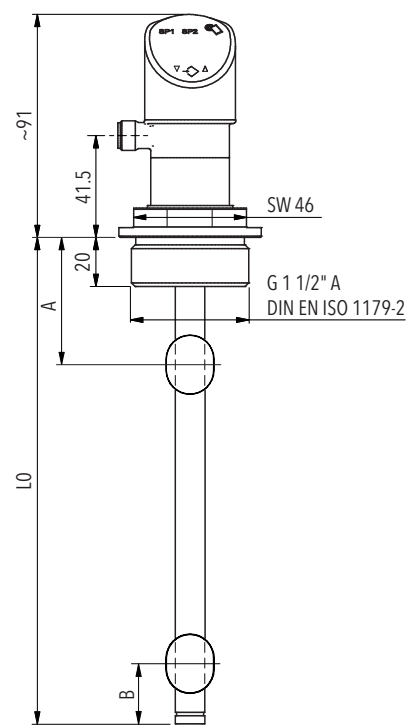
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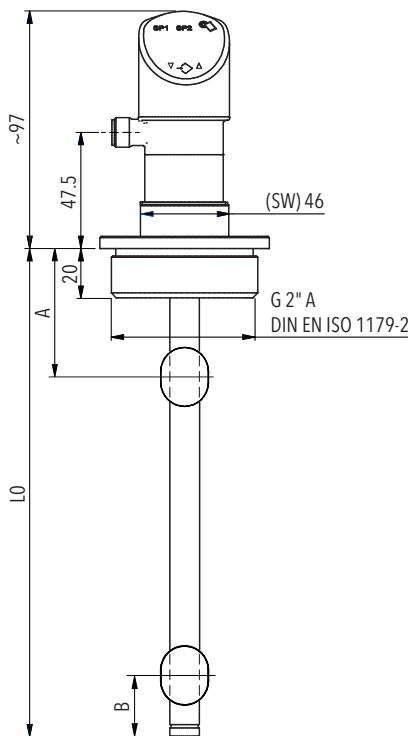
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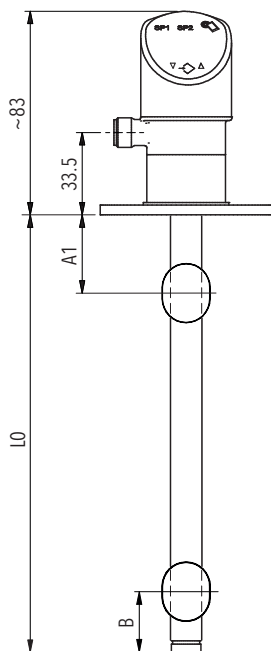
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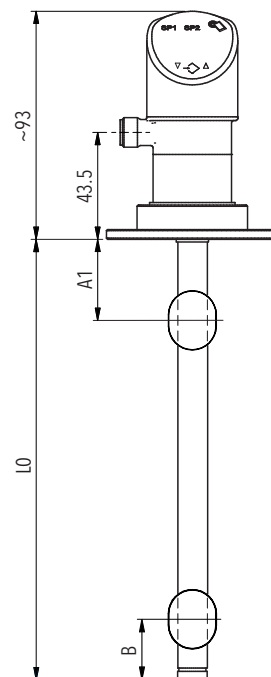
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8980-S-XX-SXXX-PX-XXXX-G40



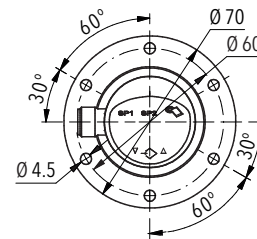
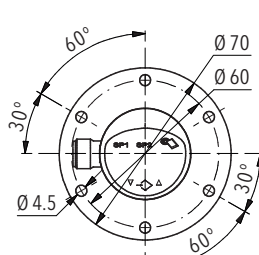
8980-P-XX-X49-PX-XXXX-G50



8980-O-XX-BXX-PX-XXXX-FOH



8980-S-XX-SXX-PX-XXXX-FSH

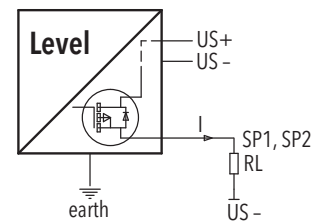


Dimension (mm)

Tab. 5												
Code	8980-O				8980-S				8980-P			
	B20	B28	B45	B44	S29	S52	S53	S10	F49	P49	V49	
A	10	15	25	25	15	35	25	50	25	25	25	
A1	25	30	40	45	35	55	45	-	45	45	45	
B	15	20	30	30	25	40	30	60	30	30	30	

Electrical connection

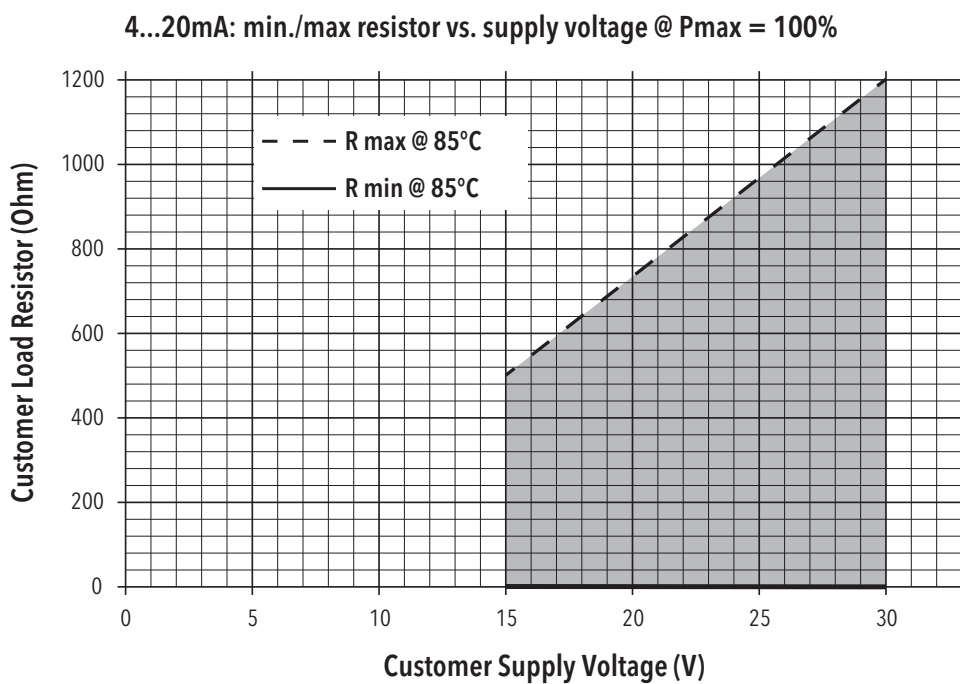
		Protection / electrical connection			
		IP67*)			
		M12x1			
		5-pole 35		4-pole 32	
Output signal		P1	P2	P3	P4
	PA	✓	✓	✓	
	PU	✓	✓	✓	
	PV	✓	✓	✓	
	PW	✓	✓	✓	
	PS				✓
Pin Configuration		P1	P2	P3	P4
	8980.xx.XXXX.xx.PA/PU/PV/PW/PS	1 3 2 4 5 Shield ***)	1 3 5 4 2 Shield ***)	1 3 2 4 Shield ***)	1 3 - 4 2



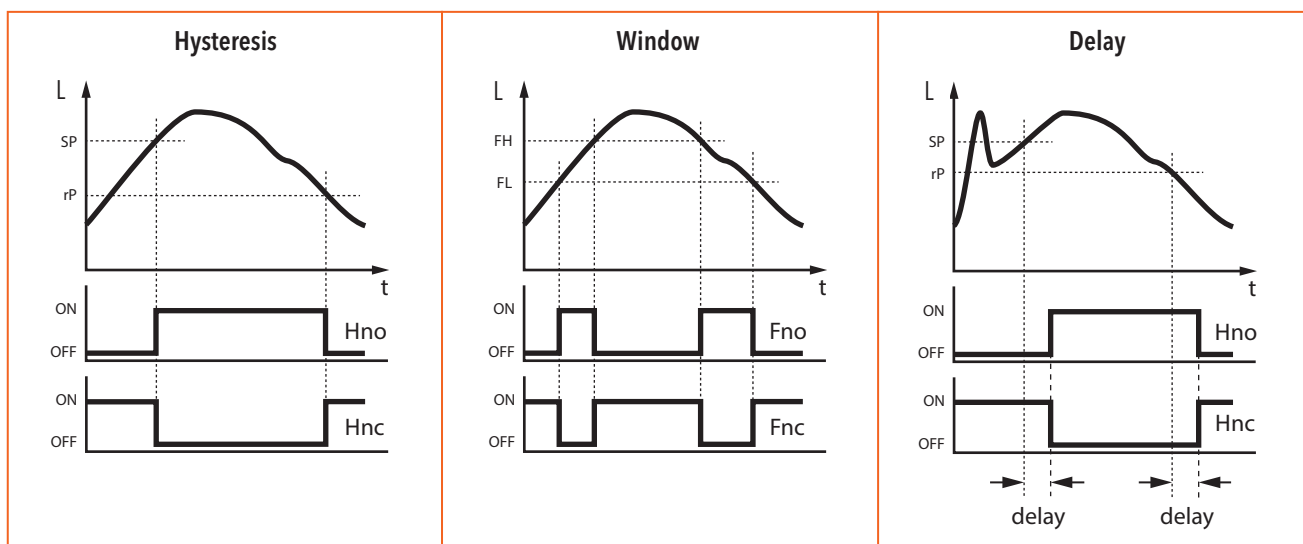
Connection of loads to switching output

*) Provided female connector is mounted according to instructions

***) The use of a shielded cable is recommended



Functions switching output



Additional information

Documents

Data sheet	www.trafag.com/H72450
Instructions	www.trafag.com/H73450
Flyer	www.trafag.com/H70450

Additional specifications		
Electrical Data	Resistance of insulation	> 10 M Ω , 100 VDC
	Dielectric strength	100 VAC, 50 Hz
	Current limiting output signal	4 ... 20mA: approx. 25 mA max.
Environmental conditions	Storage temperature	-25°C ... +60°C
EMC Protection	ESD	EN/IEC 61000-4-2 4 kV contact/ 8 kV air: no malfunction
	RFI	EN/IEC 61000-4-3 10 V/m: 0.01...2700 MHz
	Burst	EN/IEC 61000-4-4 Burst \pm 2 kV: no interference
	Surge	EN/IEC 61000-4-5 Surge 1.2/50 μ \pm 1 kV: no interference
	Conducted Immunity	EN/IEC 61000-4-6 Radio-frequency: no interference

Modifications

Index	Date	Description
a	03/2020	new data sheet