trafag
sensors + controls

Technical specification

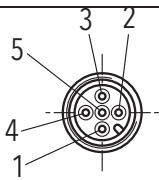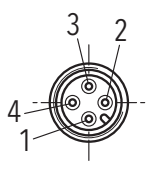|	
Ambient temperature:	– 25°C ... +85°C (housing and display)
Media temperature:	– 50°C ... +150°C
Protection:	IP67
Display unit:	°C, °F, K, user scale
Switching current:	Max. 0.5 A per switching output
Parametrisation:	With 3 buttons and menu navigation or via NFC - Smartphone App

GET IT ON
Google Play

Sensor Master by Trafag AG

Type label description

Temperature measuring range   Serial number   Type code   Manufacturing date (W/Y)

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CE

SWITZERLAND

Type   8180.50.2112
S/N   685874-007 │ 27/18
Range   -50°C...+150°C (-58°F...302°F)
Us+ (1) / 15...30V DC / Us– (3)
Out: (2)   SP1(4)   SP2(5)

Supply positive   Supply voltage   Pin assignment
Analogue output   Switching output
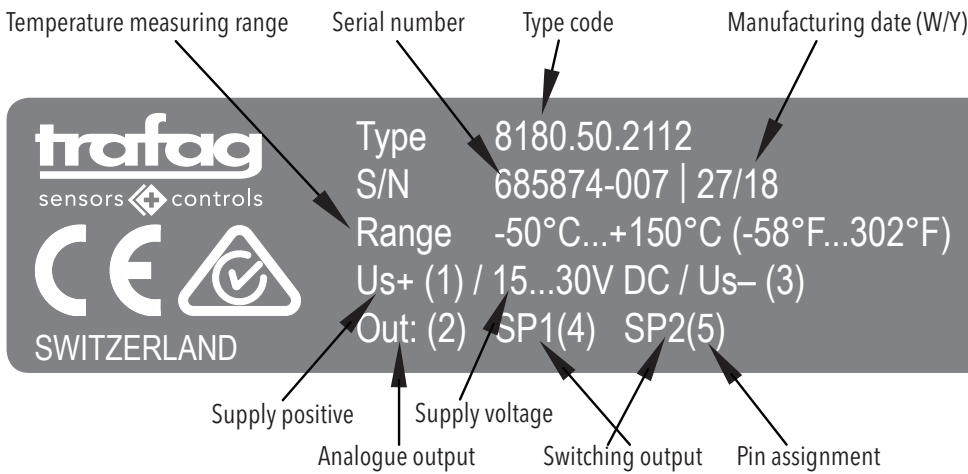
Electrical connection

Ingress Protection	IP67*⁾	IP67*⁾
Designation	M12x1 5-pole	M12x1 4-pole
Type code	**8180**.XX.XXXX.**35**	**8180**.XX.XXXX.**32**
Pin configuration		

*⁾ Provided female connector is mounted according to instructions

Output signal / supply voltage

Output	I$_{SUPPLY}$	U$_{SUPPLY}$
4 ... 20 mA	≤ 30 mA	15 ... 30 VDC
0 ... 10 VDC	≤ 30 mA	15 ... 30 VDC
0 ... 5 VDC	≤ 30 mA	15 ... 30 VDC
1 ... 6 VDC	≤ 30 mA	15 ... 30 VDC

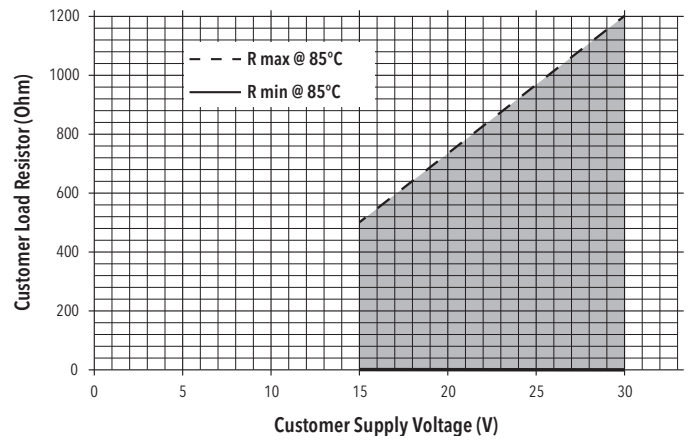## Connection of the measuring equipment

T U / I Out
⊕ Us +
⊖ Us −
Out analogue
SP1
SP2
⊕
Shield ***)
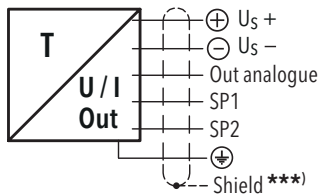
***) The use of a shielded cable is recommended

T
US+
US −
I
SP1, SP2
RL
US −
earth
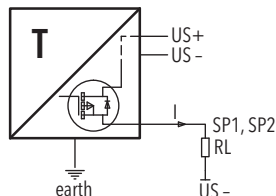
Connection of loads to switching output

4...20mA: min./max resistor vs. supply voltage @ Pmax = 100%

- - - R max @ 85°C
— R min @ 85°C

Customer Load Resistor (Ohm)

Customer Supply Voltage (V)

Mounting
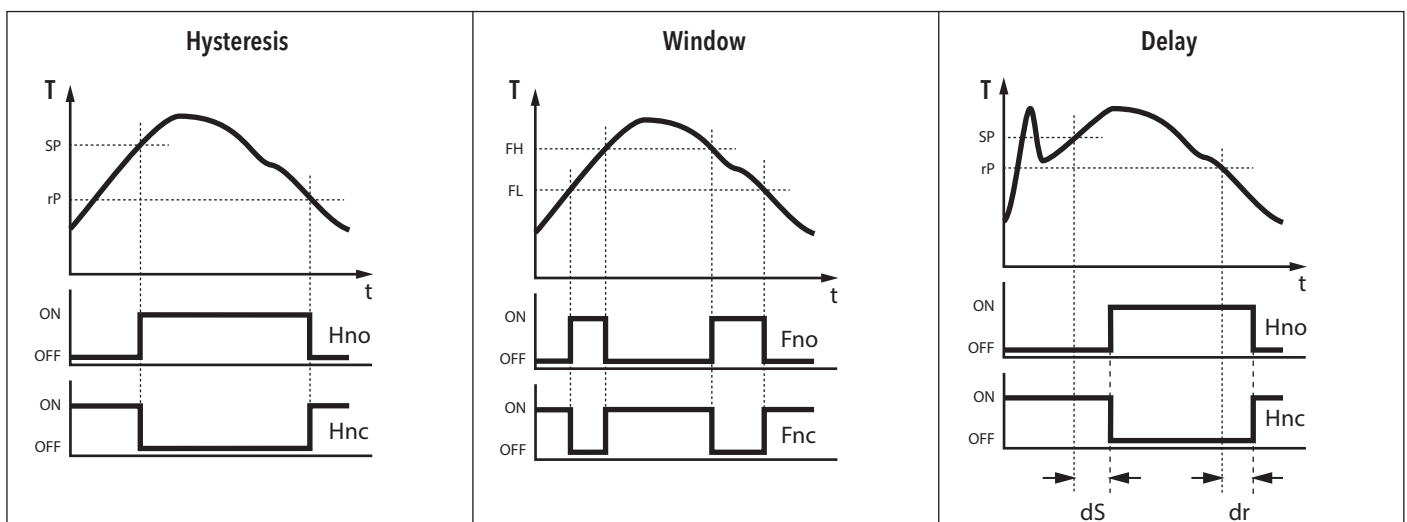
Tighten the device

max. 2.5 Nm

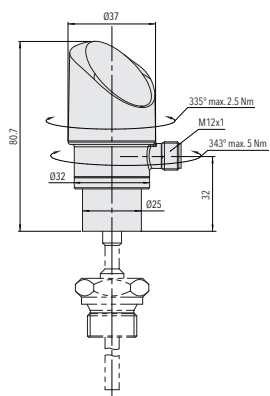max. 5 Nm
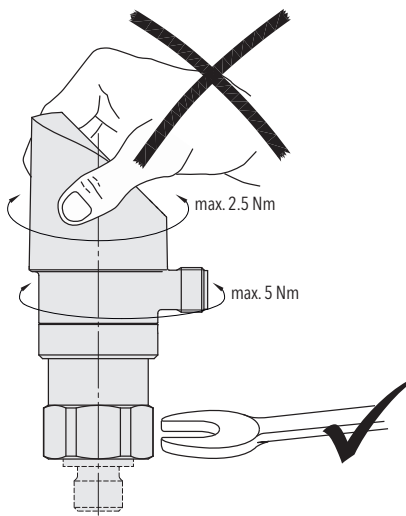
Compression fitting
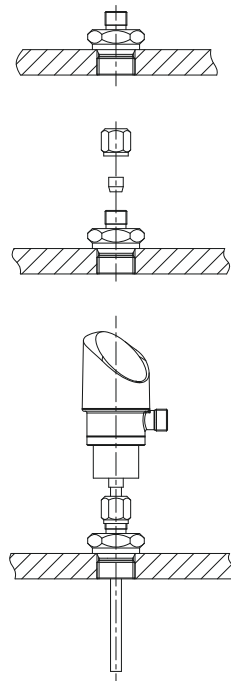
Display indication

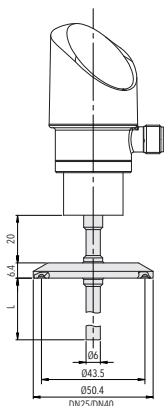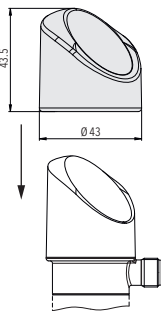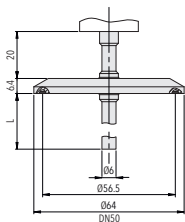|	Description
OL	The measured temperature is >3% above the measuring range end-point → The indication disappears as soon as the pressure is reduced again
UL	The measured temperature is >3% below the measuring range zero-point → The indication disappears as soon as the pressure is reduced again
FALS	Incorrect access code → Enter the correct access code
T.Err	The signal processing is faulty. → Please replace the temperature measuring device
Sbrk	Sensor break; the sensor element is defective → Please replace the temperature measuring device
Fi2c	Internal device communication is interrupted → Please replace the temperature measuring device
Ecrc	Internal memory damage occured → Execute a factory reset. If the recovery is not successful, replace the temperature measuring device
FE2P	Internal memory damage occurred → Execute a factory reset. If the recovery is not successful, replace the temperature measuring device
EnFc	NFC communication was not successful → Try again to communicate again. If the error persists, replace the temperature measuring device
E.0FC	Zero-set out of range: The measured pressure value is outside of the valid range for the zero-set function. → Press [Enter] ◇ on the measuring device to reset the error indication. This error indication does not appear when performing the zero-set function by means of the Sensor Master App (Android smartphone)

Switching output functions

Hysteresis

T
SP
rP
t
ON
OFF
Hno
ON
OFF
Hnc

Window

T
FH
FL
t
ON
OFF
Fno
ON
OFF
Fnc

Delay

T
SP
rP
t
ON
OFF
Hno
ON
OFF
Hnc
dS
dr

Dimensions

Protective cap

Ø 43.5

Ø 43

335° max. 2.5 Nm
M12x1
343° max. 5 Nm

Ø37
80.7
Ø32
Ø25
32

8180.XX.XXXX.**35/32**.XX.XX.XX

8180.XX.XXXX.**1G/2G/3G/4G/5G...**
20
6.4
L
Ø6
Ø43.5
Ø50.4
DN25/DN40

8180.XX.XXXX.**1J/2J/3J/4J/5J...**
20
6.4
L
Ø6
Ø56.5
Ø64
DN50
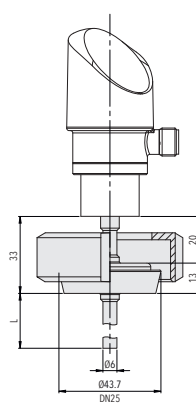
8180.XX.XXXX.**1L/2L/3L/4L/5L...**
33
20
13
L
Ø6
Ø43.7
DN25
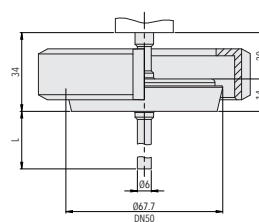
8180.XX.XXXX.**1N/2N/3N/4N/5N...**
34
20
14
L
Ø6
Ø67.7
DN50
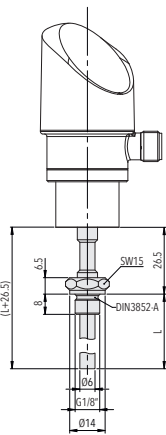
8180.XX.XXXX.**1M/2M/3M/4M/5M...**
33
20
13
L
Ø6
Ø55.7
DN40

8180.XX.XXXX.**11/21/31/41/51...**
(L+26.5)
6.5
26.5
8
SW15
DIN3852-A
Ø6
G1/8"
Ø14
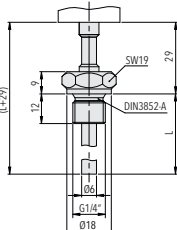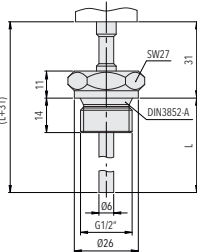
8180.XX.XXXX.**12/22/32/42/52...**
(L+29)
9
12
29
SW19
DIN3852-A
L
Ø6
G1/4"
Ø18

8180.XX.XXXX.**13/23/33/43/53...**
(L+31)
11
14
31
SW27
DIN3852-A
L
Ø6
G1/2"
Ø26

8180.XX.XXXX.**1B/2B/3B/4B/5B...**
(L+25)
5
15
25
SW14
14
L
Ø6
1/4"NPT

8180.XX.XXXX.**1C/2C/3C/4C/5C...**
(L+28)
8
19
28
SW22
18
L
Ø6
1/2"NPT
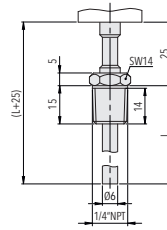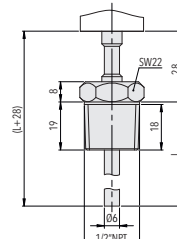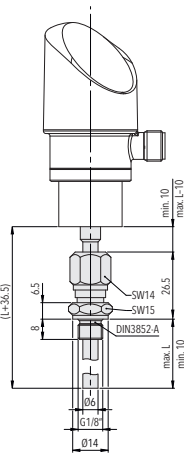
8180.XX.XXXX.**14/24/34/44/54...**
min. 10
max. L-10
(L+36.5)
6.5
26.5
8
SW14
SW15
DIN3852-A
max. L
min. 10
Ø6
G1/8"
Ø14

8180.XX.XXXX.**15/25/35/45/55...**
min. 10
max. L-10
(L+39)
9
12
29
SW14
SW19
DIN3852-A
max. L
min. 10
Ø6
G1/4"
Ø18
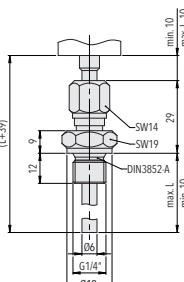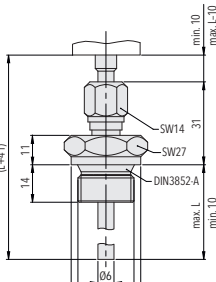
8180.XX.XXXX.**16/26/36/46/56/66/68...**
min. 10
max. L-10
(L+41)
11
14
31
SW14
SW27
DIN3852-A
max. L
min. 10
Ø6
G1/2"

8180.XX.XX.**57**
min. 10
max. L-10
(L+41)
11
14
31
SW14
SW27
DIN3852-A
max. L
min. 10
Ø6
M20x1.5

8180.XX.XXXX.**1D/2D/3D/4D/5D...**
min. 10
max. L-1
(L+52)
5
15
25
SW14
14
max. L
min. 10
Ø6
1/4"NPT

8180.XX.XXXX.**1E/2E/3E/4E/5E...**
min. 10
max. L-1
(L+38)
8
19
28
SW14
SW22
18
max. L
min. 10
Ø6
1/2"NPT

Operating menu

Base Display → unit indication → actual value →

SP1 → value ▲▼ →
rP1 → value ▲▼ →
SP2 → value ▲▼ →
rP2 → value ▲▼ →
EF → rES → function ▲▼ →
tCor → value ▲▼ →
dS1 → value ▲▼ →
dr1 → value ▲▼ →
dS2 → value ▲▼ →
dr2 → value ▲▼ →
ou1 → list ▲▼ →
ou2 → list ▲▼ →
uni → list ▲▼ →
Lo → display only →
Hi → display only →
HLrE → function ▲▼ →
oAnA → list ▲▼ →
t_nP → value →
t_EP → value ▲▼ →
o_nP → value (opt.) →
o_EP → value (opt.) →
dAA → value ▲▼ →
diSr → list ▲▼ →
diS → list ▲▼ →
duPd → list ▲▼ →
diA → function ▲▼ →
StiM → value ▲▼ →
CodE → value ▲▼ →

Description	Value range
Switch point SP1 (Hysteresis) or Window high FH1	SP1 > rP1, FH1 > FL1 Hysteresis ≥ 1 % FS
Reset point rP1 (Hysteresis) or Window low FL1	rP1 < SP1, FL1 < FH1 Hysteresis ≥ 1 % FS
Switch point SP2 (Hysteresis) or Window high FH2	SP2 > rP2, FH2 > FL2 Hysteresis ≥ 1 % FS
Reset point rP2 (Hysteresis) or Window low FL2	rP2 < SP2, FL2 < FH2 Hysteresis ≥ 1 % FS
Reset to factory settings	
Temperature offset correction	± 5 °C
Switching delay time for SP1/FH1	0.01 ... 99.99 s
Switching delay time for rP1/FL1	0.01 ... 99.99 s
Switching delay time for SP2/FH2	0.01 ... 99.99 s
Switching delay time for rP2/FL2	0.01 ... 99.99 s
Function switching output 1	Hysteresis NO (Hno), Hysteresis NC (Hnc) Window NO (Fno), Window NC (Fnc)
Function switching output 2	Hysteresis NO (Hno), Hysteresis NC (Hnc) Window NO (Fno), Window NC (Fnc)
Temperature unit	°C, °F, K, user scale (optional)
Lowest measured temperature	
Highest measured temperature	
Reset highest and lowest temperature value	
Analogue output type	I, U, off
Temperature zero point	0 % ... 50 % FS
Temperature end point	50 % ... 100 % FS
Analogue output zero point	(optionally adaptable)
Analogue output end point	(optionally adaptable)
Damping analogue output rise time 10 ... 90 % nominal temperature	0.01 ... 3.00 s
Display rotate	no, yes (180°)
Display mode	actual, highest, lowest, off, act. – 1 decimal, act. – 2 dec., act. – 3 dec.
Display update rate	1, 2, 5, 20 Hz
Diagnostic mode	
Sampling time for logger	0.1 ... 999.9 s, off (0)
Access code	4-digit code

Base Display
▲▼
SP1
▲▼
parameter   ▲+▼
▲▼
EF → rES
▲▼ ▲+▼
parameter
▲▼ ▲+▼
parameter
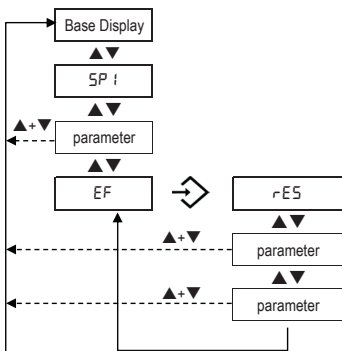
By pressing ▲+▼ simultaneously the menu will return to the base display or automatically after ca. 60 s without operation.

parameter → list or value ▲▼pw →

pw*   When performing a parameter change by pressing ▲ or ▼ and if an access code has been defined, it has to be entered digit by digit.

After confirming the new parameter value, the menu item of the changed parameter will be displayed.