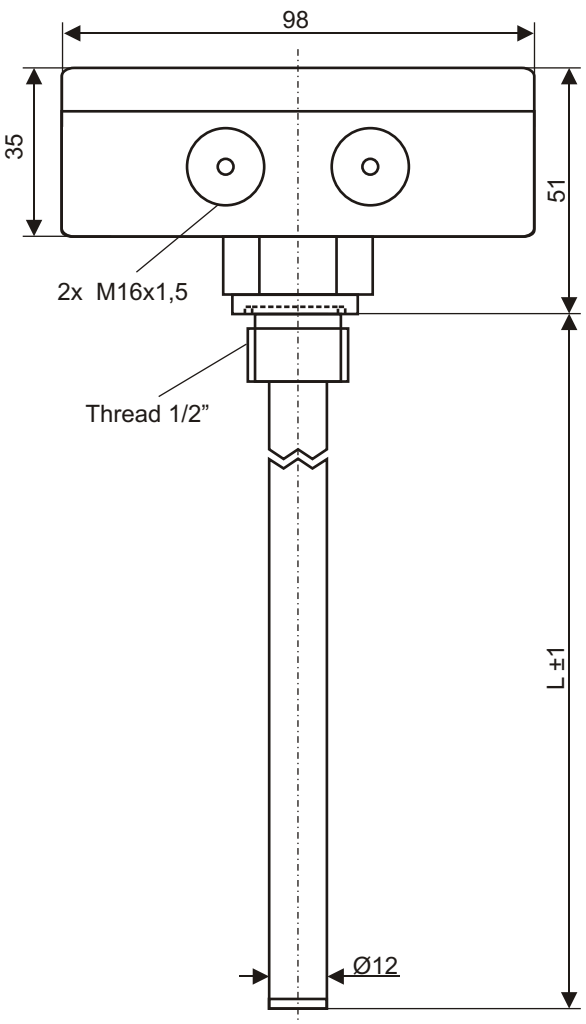
Data sheet
Adjustable temperature switch, controller
Type: ETS-1...01



Dimensions in mm

Features
- Adjustable temperature switch up to max. 2 steps
- Temperature sensor in conduit, mounted on the housing or externally via cable connection

Fields of application
- Temperature control
- Monitoring of cooling and heating circuits
- Temperature overload protection for systems

Order key

Example: **ETS-1. 2. 200. 01**

Type ETS-1	ETS-1.
No. of temperature steps	2.
Conduit length in mm, e.g. 200	200.
Design - 01	01

Terminal diagram

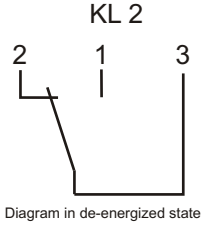


Diagram in de-energized state

Step 1:
Temperature switch, controller
change-over contact,
230VAC / 2A

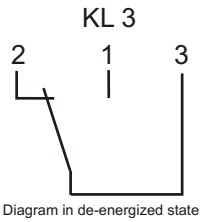
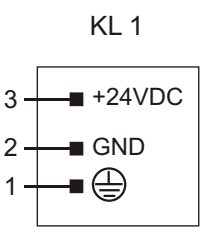


Diagram in de-energized state

Step 1:
Temperature switch, controller
change-over contact,
230VAC / 2A



Supply voltage

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Data sheet
Adjustable temperature switch, controller
Type: ETS-1...01

Technical data

Housing:	alu die-cast housing, colour RAL7001 (grey) 98x64x35mm (wxdxh)
Connection:	cable entry at the housing 2x M16x1,5 customized connections on demand conductor cross section solid: 0,14 to 2,5mm², AWG 26-14 conductor cross section flexible: 0,14 bis 1,5mm², AWG 26-16
Mounting:	½" alu tread, other mountings on demand
Seal:	material NBR, other materials on demand
Sensor tube:	ø12mm or ø8mm, length L ±1mm acc. to specification, material brass or stainless steel
Switching capacity:	230VAC / 2A
Switching function relay:	off when upper limit value is exceeded on when actual value goes below lower limit value
Setting range temperature:	upper limiting value 0°C to 99°C lower limiting value = upper limiting value minus hysteresis hysteresis 3°C
Measuring range temperature:	measuring range -55°C to 125°C (attention! see operating temperature) resolution 1,0°C measuring accuracy ±0,5°C from -20°C to 110°C
Supply voltage:	24VDC ±15%, reverse polarity protected
Operating current:	< 45mA
Pressure:	max. 1 bar
Operating temperature:	-20°C to 100°C in medium, -10°C to 70°C above mounting
Protection rating:	IP 65
Certificate:	in accordance with CE

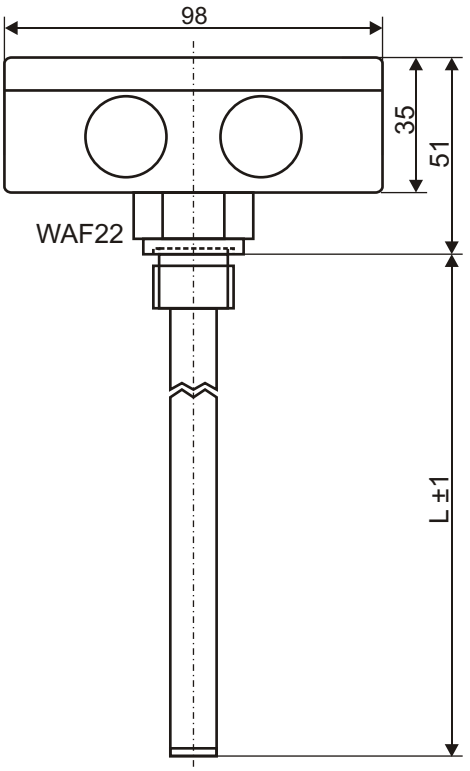
Data sheet
Adjustable temperature switch, controller
Type: ETS-1...01

Technical description

Setting:	After opening the housing the temperature switching point can be set in °C by using the two rotary encoder switches. Use the left rotary switch to enter the 1 st digit respectively the tens digit of the value. Enter the 2nd digit respectively the unit digit by using the right rotary switch. You will find a detailed adjusting guideline on our website.
Intrinsic safety:	The relay is energized at rest, ig. limit is not exceeded. A sensor failure, sensor connection, upper limit value overrun or power failure results in a drop in the relay and possibly a fault indication.
Operating indication:	The operation indicator (red LED) indicates both the operation and a malfunction. A short flash signalises an evaluation cycle consisting of read temperature, read code switch, update evaluation and relay. The relay has a display (yellow LED) which lights up in rest position, ig. upper limit is not exceeded.
Fault indication:	The combined trip and fault indication (red LED) is predominantly on in the event of a fault and flashing indicates an error code. Display 1x flash = short circuit line 1 sensor Display 2x flash = short circuit line 2 sensor Display 3x flash = sensor fault Display 4x flash = sensor short circuit

Data sheet
Adjustable temperature switch with actual value indicator
Type: ETSA-1...

Design 01
- see page 2 for further designs



Dimensions in mm

Features
- Adjustable temperature switch up to max. 2 steps
- Temperature sensor in tube, mounted on the housing or externally via cable connection
- 2-digit display

Fields of application
- Temperature control
- Monitoring of cooling and heating circuits
- Temperature overload protection for systems

Order key

Example: **ETSA-1. 2. 500. 01**

Type ETSA-1

Number of temperature steps, max. 2

Length of sensor tube L in mm

Design - see page 2
01 = mounting via alu-thread 1/2", tube ø12mm material brass, 2x M16x1.5 cable glands
09 = mounting via housing floor, with external sensor, tube Ø12mm material brass, 4xM12x1 plug-type connector
12 = aluminium housing, upright, 360° rotatable, tube Ø8 material brass, mounting via 1/2" thread material brass, 2x M16x1.5 cable glands

Terminal diagram

KI1

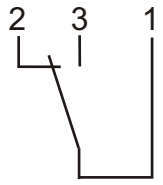


Diagram in de-energized state

Step 1: Temperature switch change-over contact
230VAC / 2A

KI2

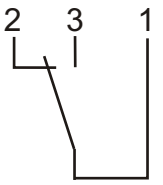
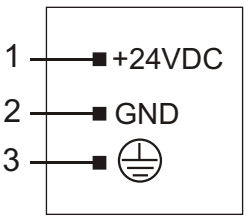


Diagram in de-energized state

Step 2: Temperature switch change-over contact
230VAC / 2A

KI5



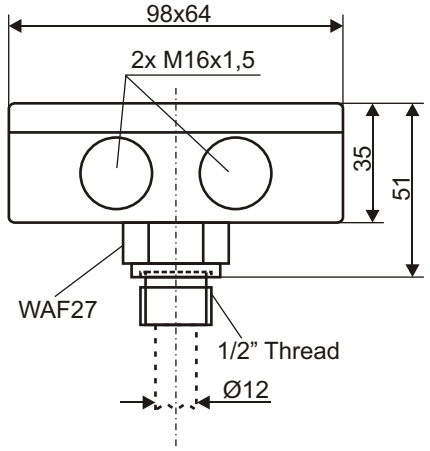
Supply voltage

Data sheet
Adjustable temperature switch with actual value indicator
Type: ETSA-1...

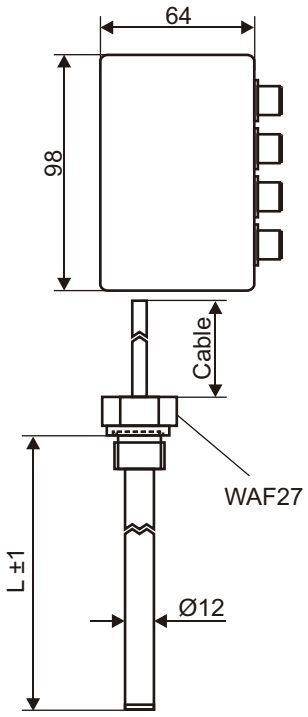
Technical data

Housing:	aluminium die-cast housing, color RAL7001 (silvergrey), 98x64x36mm (wxhxd)
Connection:	see respective design, other connections on demand
Mounting:	see respective design, other mountings on demand
Sensor tube:	ø12mm or ø8mm depending on design, length L±1mm acc. to spec. material brass
Switching capacity	230VAC / 2A
Temperature setting range:	upper limiting value 0 °C to 99 °C lower limiting value = upper limiting value minus hysteresis hysteresis 3°C or acc. to specification
Temperature measuring range:	measuring range -9 °C to 125 °C (Attention! see operating temperature) resolution 1,0 °C measuring accuracy ± 0,5 °C from -9 °C to 125 °C
Supply voltage:	24 VDC ± 15% reverse polarity protected
Operating current:	<45mA
Pressure:	max. 1 bar
Operating temperature:	-20°C to 100°C in medium, -20°C to 70°C above mounting
Protection rating:	IP 65
Certificate:	in accordance with CE

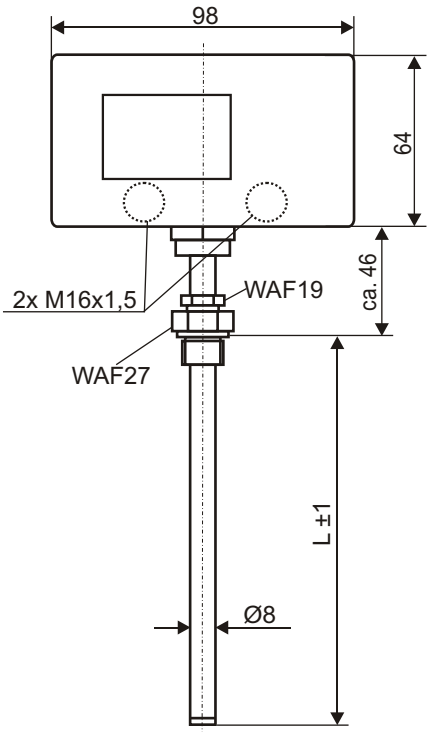
Design



Design 01
Mounting via aluminium thread 1/2"
Sensor tube ø12mm material brass
2x M16x1.5 cable glands



Design 09
Mounting of aluminium housing on the wall 2x M4
4x M12x1 plug-type connector
Sensor mounting via brass thread 1/2"
Sensor tube ø12mm, material brass
Sensor connection M12x1
Sensor cable, standard length



Design 12
Aluminium housing, upright, 360° rotatable
Mounting via brass thread 1/2"
Sensor tube ø8mm, material brass
2x M16x1.5 cable glands

Maße in mm

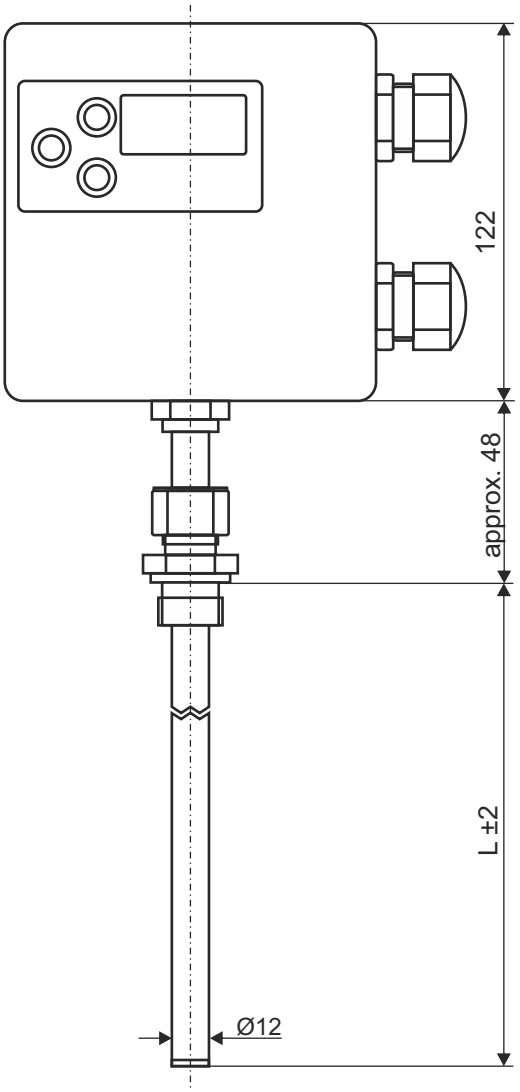
Data sheet
Adjustable temperature switch with actual value indicator
Type: ETSA-1...

Technical information

Adjustment:	After opening the housing the temperature switching point can be set in °C by using the two rotary encoder switches. Use the left rotary switch to enter the 1 st digit respectively the tens digit of the value. Enter the 2nd digit respectively the unit digit by using the right rotary switch. You will also find a detailed adjusting guideline on our website.
Intrinsic safety:	The contacts of the relays are connected in normal rest position, that means upper limiting value not exceeded. A defect of the sensor, sensor connection, exceeding of upper limiting value or break-down of the power supply results in a drop of the relays and eventually a failure indication.
Operating indication:	The operating indicator (red display) indicates both, operation and failure. Every relay is equipped with an indicator (yellow LED) that lights up in normal rest position, that means upper limiting value is not exceeded.
Commissioning:	During the set up of the power supply the indicator in the left display shows a small blinking „ u „ that characterizes the undefined condition. As soon as the temperature sensor has detected the first value, this value is shown in the display.
Display:	Range of indication: -9°C to 125°C. As a result of the two-digit design of the indicator, temperature values lower than –9°C and higher than 99 °C can not be displayed. Temperatures lower than –9 °C are indicated by "- -". Temperatures higher than 99 °C are indicated by blinking. The blinking signalizes the indicated blinking value plus 100°C, e.g. a blinking "13" means 100°C + 13°C = 113°C
Fault indication:	The combined operating and failure indication shows a failure code while blinking.

Indication:	Type of failure
E1: Type of failure	- Short circuit conductor 1 sensor
E2: Type of failure	- Short circuit conductor 2 sensor
E3: Type of failure	- Sensor defective
E4: Type of failure	- Sensor short circuit

Data sheet
Adjustable temperature switch / controller with actual value display
Type: ETSM-1...



Dimensions in mm

Features

- Adjustable temperature switch up to a max. of 6 steps
- Temperature sensor in tube, mounted on the housing or externally via cable connection
- 3-digit display
- 6 Temperature limit value LEDs
- Menu-driven parameter adjustment
- Optionally with diverse temperature sensors
- hysteresis is freely selectable

Fieds of application

- Temperature control
- Monitoring of cooling and heating circuits
- Temperature overload protection for systems
- Process control

Order key

Example: **ETSM-1. 4. 350. 01**

Type ETSM-1

Number of temperatur steps, max.6

Sensor tube length L in mm

Design see page 2:
01 = alu housing with 2x M20x1,5 cable gland, mounting via ½“ thread
02 = alu housing with 2x M20x1,5 cable gland with oval flange mounting
03 = alu housing with separate sensor, 3x M16x1,5 cable gland, M12 plug-type connector for the external senor

Terminal dagram

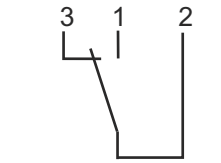


Diagram in de-energized state
Step 1 temperature switch change-over contact 230VAC / 2A

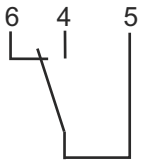
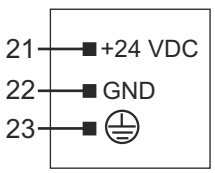


Diagram in de-energized state
Step 2 temperature switch change-over contact 230VAC / 2A



Power supply

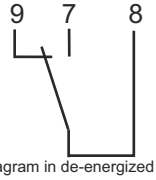


Diagram in de-energized state
Step 3 temperature switch change-over contact 230VAC / 2A

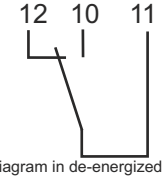


Diagram in de-energized state
Step 4 temperature switch change-over contact 230VAC / 2A

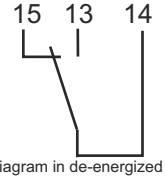


Diagram in de-energized state
Step 5 temperature switch change-over contact 230VAC / 2A

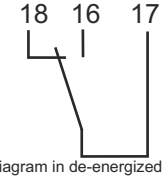


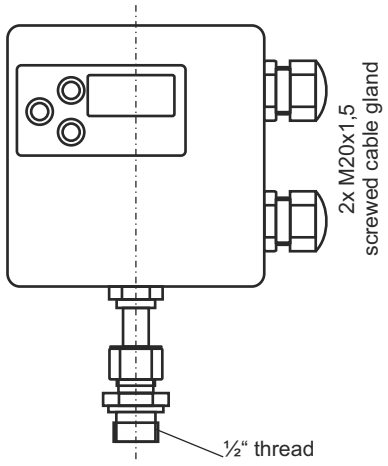
Diagram in de-energized state
Step 6 temperature switch change-over contact 230VAC / 2A

Data sheet
Adjustable temperature switch / controller with actual value display
Type: ETSM-1...

Technical data

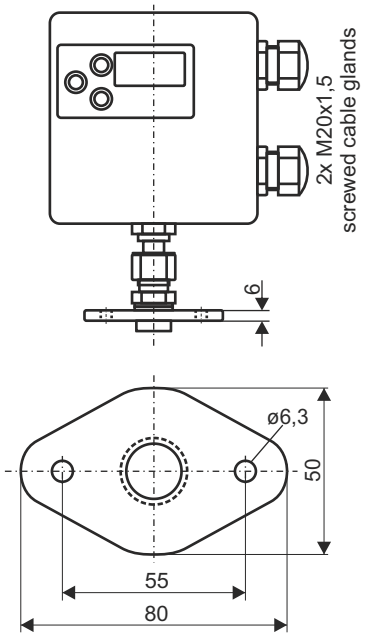
Housing:	alu housing 122 x 120 x 65mm (wxixd),
Connection:	cable entry see designs, terminal connection: conductor cross section flexible 1,0mm² to 1,5mm²
Mounting:	screwed cable gland or flange mounting depending on design
Mounting position:	360° rotatable
Seal:	material NBR
Sensor tube:	ø12mm, length L in mm acc. to customer specification, material brass
Display:	red 3-digit display, height 13mm
Switching points:	max. 6x change-over relays
Setting range:	-20°C to 120°C hysteresis is freely selectable
Measuring range :	measuring range -55°C to 125°C Measuring accuracy: ±0,5°C from -20 °C to 125 °C resolution 0,5°C, display resolution 1,0°C
Switching capacity:	230VAC / 2A
Supply voltage:	24VDC reverse polarity protected, other supply voltage on request
Operating current:	<120mA
Pressure:	max. 1 bar, higher pressure on request
Operating temperature:	-20°C to 100°C in medium, -20 to 70°C above mounting
Protection rating:	IP 65
Certificate:	in accordance with CE

Designs



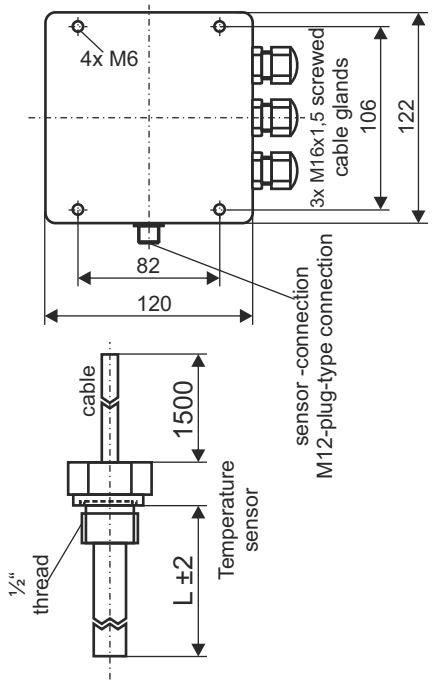
Design 01

Mounting via ½“ thread
screwed cable gland 2x M20x1.5
sensor tube Ø12mm, material brass
immersion depth of the tube will be adjusted via the thread



Design 02

Oval-flange mounting
screwde cable gland 2x M20x1.5
sensor tube Ø12mm, material brass
immersion depth of the tube will be adjusted via the thread

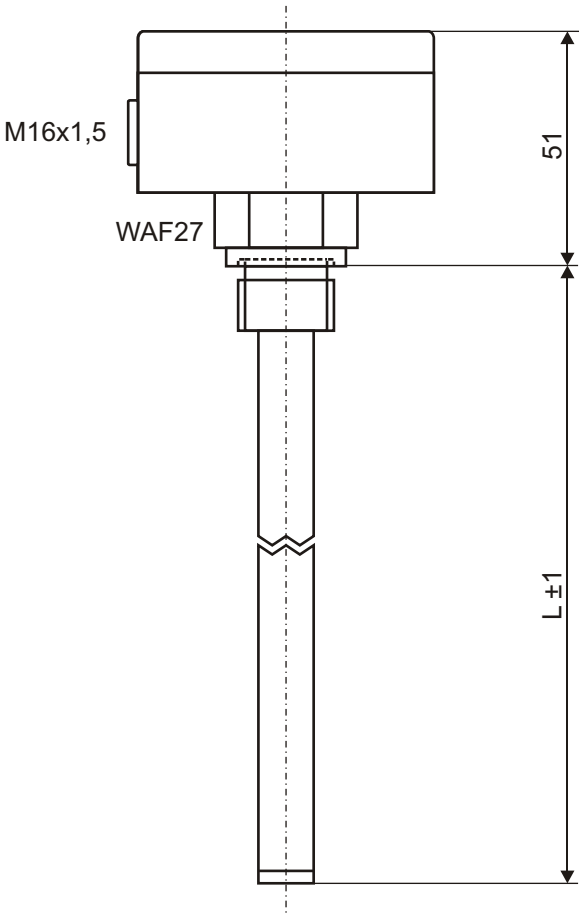


Design 03

Mounting over alu housing
with separate sensor
screwde cable glands 3x M16x1.5
sensor tube Ø12mm, material brass

Dimensions in mm

Data sheet
Electronic temperature switch
Type: STB-2...02...



Dimensions in mm

Terminal diagram

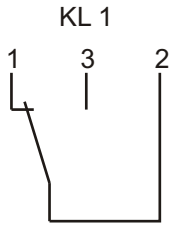
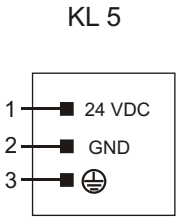


Diagram in de-energized state

Temperature switch
switching point e.g. 70°C
change-over contact 230VAC / 2A



Power supply

Order key

Example: STB-2. 200. 02. 70. --

- Type STB-2
- Conduit length L in mm
- 02 - design
- Upper temperature switching point T in °C
- Hysteresis HY in °C
  for standard (3°C) no specification

Technical data

Connection:	terminal connection in the housing 64x58x35mm wxdxh, drilling for M16x1,5 screwed cable gland
Mounting:	thread 1/2", material alu
Seal:	material NBR, profile seal
Tube:	ø12mm, length L ±1mm acc. to specification, material brass
Temperature switching point:	1x relay change-over contact, switching point acc. to specification fixed setting
Switching capacity:	230VAC / 2A
Temperature measurement:	at the bottom of the tube
Relay switching function:	relay is actuated when temperature T > limiting value relay is released when temperature T < limiting value or device fault
Temperature measuring range:	-20°C to 100°C
Temperature measuring accuracy:	±5% at -20°C to 100°C
Temperature hysteresis:	3°C fixed setting, other on request
Supply voltage:	24VDC ±10%, reverse polarity protected
Operating current:	<25mA
Pressure:	max. 1 bar
Operating temperature:	-20°C to 100°C in medium; -20°C to 70°C above mounting
Protection rating:	IP 65

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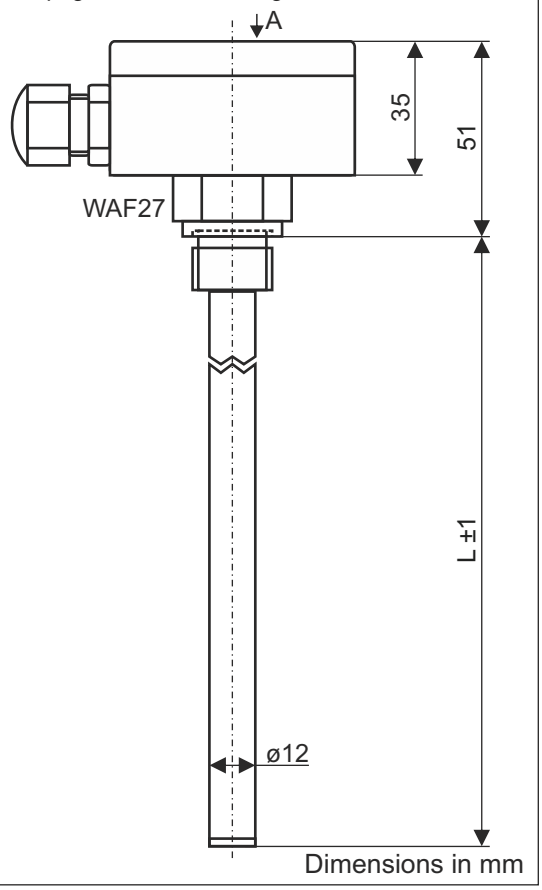
Data sheet
Electronic temperature switch
Type: TSE...

Designs 1
- see page 2 for more desingns



Dimensions in mm

Order key

Example: **TSE-1. M. 200. 50. 45. 70. 69**

Type TSE	TSE-1.
Design 1	
Material M - brass E - stainless steel	M.
Sensor tube length L in mm	200.
Temp. step 1: limiting value °C	50.
Temp. step 1: reset value °C	45.
Temp. step 2: limiting value °C	70.
Temp. step 2: reset value °C	69

Terminal diagram

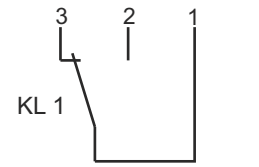


Diagram in de-energized state

Step 1
Temperature switch/controller
change-over contact, 230VAC / 2A

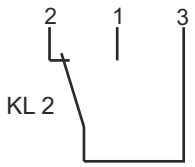
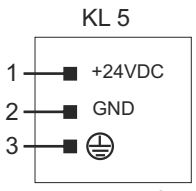


Diagram in de-energized state

Step 2
Temperature switch/controller
change-over contact, 230VAC / 2A



power supply

Design 15
M12x1 4-pin connector

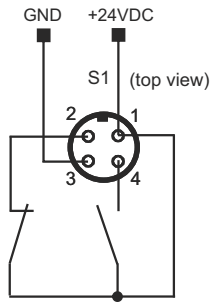


Diagram in de-energized state

Temp. step 2 Temp. step 1

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Steuer- und Messtechnik

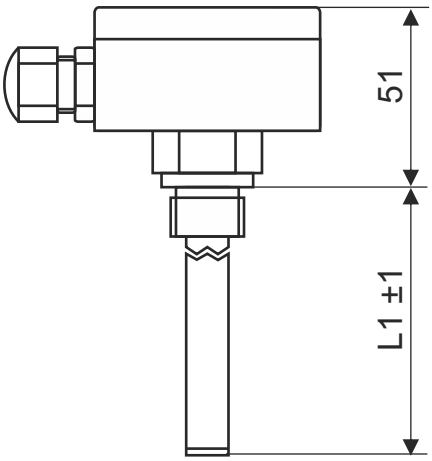
Data sheet
Electronic temperature switch
Type: TSE...

In Arbeit - BE

Technical data

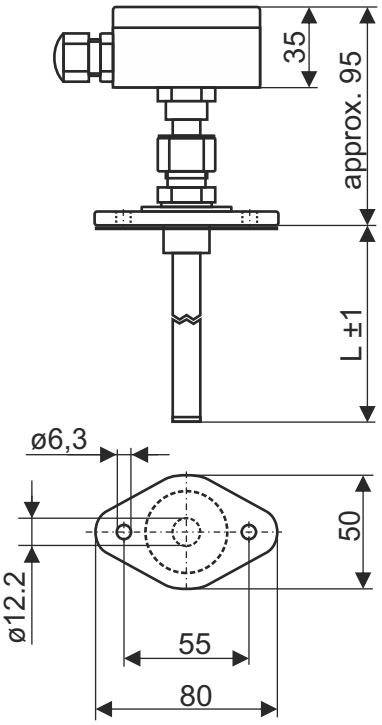
Housing:	aluminium die-cast housing 64 x 58 x 35mm (wxdxh)
Connection:	see respective design, other connections on demand
Mounting:	see respective design, other mountings on demand
Seal:	material NBR
Sensor tube:	ø8mm, ø12mm, length L±1mm according to specification material brass oder stainless steel
Temp. switching point:	max. 2 change-over relays
Switching capacity:	230 VAC / 2A or 24VDC / 150mA
Temperature measurement:	Sensor at the lower end of the tube
Relay switching function:	relay is actuated at temperature T< limit value yellow LED lights on relay breaks at temperature T> limit value or device fault
Temp. Switching points:	step 1: temp.switching point and reset temperature in °C acc. to specification, step 2: temp. switching point and reset temperature in °C acc. to specification
Temp. measurement range:	measuring range -55°C to 125°C measuring accuracy ± 0.5 °C from -20 °C to 110 °C
Supply voltage:	24 VDC ± 15% reverse polarity protected
Operating current:	<40mA
Prennure:	depending on design max. 5 bar
Operating temperature:	-20°C to 100°C in medium, -20°C to 70°C above mounting.
Protection rating:	IP 65
Certificate:	in accordance with CE

Designs



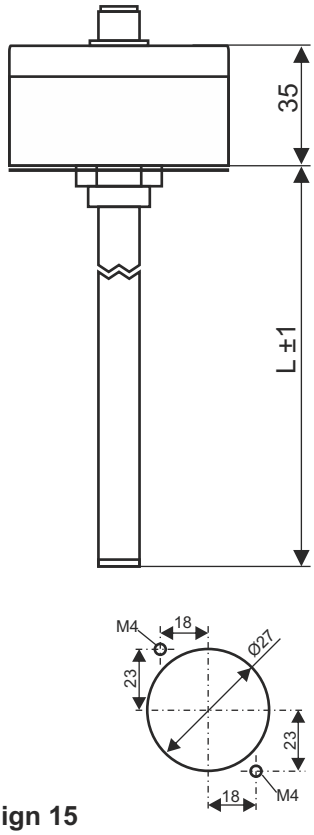
Design 01

Aluminium housing
thread 1/2"aluminium or stainless steel
M16x1.5 cable gland
sensor tube ø12mm, material brass
or stainless steel



Design 08

360° rotatable aluminium housing
Mounting via oval flange
M16x1.5 cable gland at the housing
sensor tube ø12mm material brass



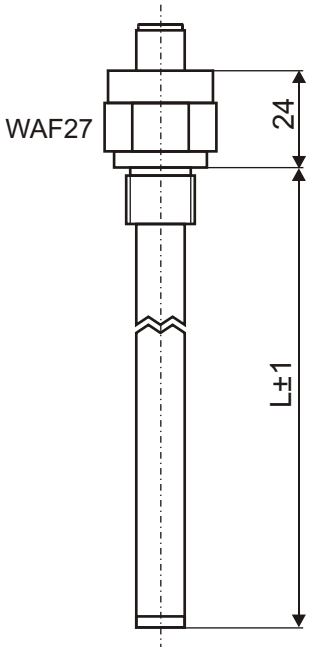
Design 15

Aluminium housing
via housing floor - see drilling pattern
Connection via M12x1 4-pin connector
sensor tube ø12mm material brass

Dimensions in mm

Data sheet
Temperature sensor PT100 in 2-, 3-, and 4- wire technology
Type: PT100..., PT103..., PT104...

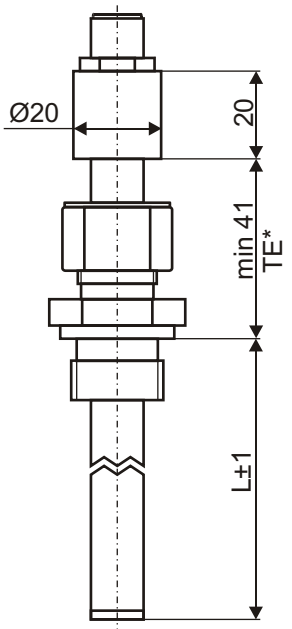
Design / connection 30



Connection:
plug-type connector M12x1 4-pol, material TPU
Mounting:
thread 1/2" or 3/8", material alu or stainless steel
Operating t*emperature:*
BT01
Pressure:
with brass / alu 1bar
with stainless steel 35bar

Dimensions in mm

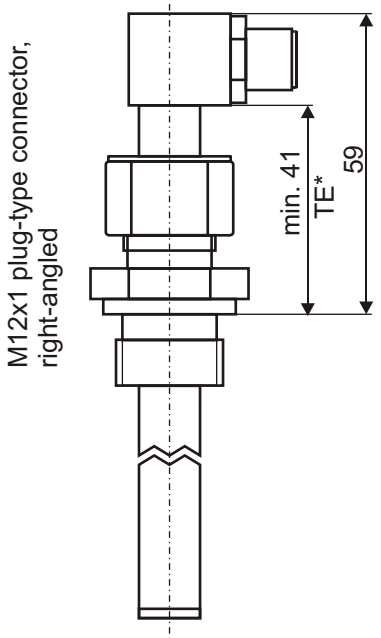
Design / connection 31



(TE) Depth setting on the screw connection can be selected by the customer

Connection:
plug-type connector M12x1 4-pole, material TPU
Mounting:
depth setting, thread see order key,
material brass or stainless steel
Operating temperature:
BT01 and BT06
Pressure:
with brass 1bar
with stainless steel 35bar

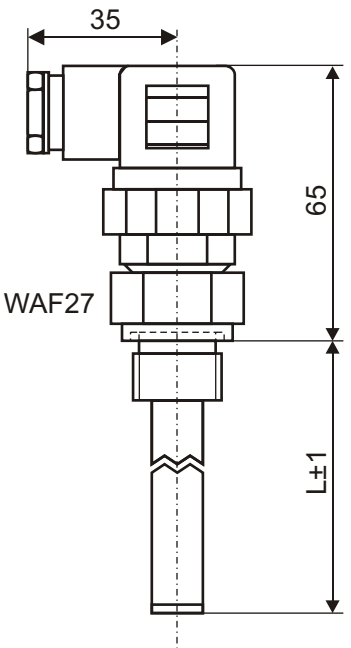
Design / connection 32



(TE) Depth setting on the screw connection can be selected by the customer

Connection:
plug-type connector M12x1 4-pole right-angled, material TPU
Mounting:
depth setting, thread see order key,
material brass or stainless steel
Operating temperature:
BT01 and BT06
Pressure:
with brass 1bar
with stainless steel 35bar

Design / connection 33

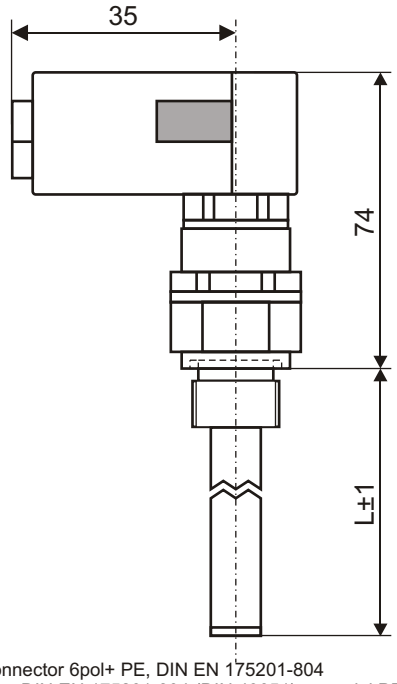


-Further version in plastic see page 5

Connection:
plug-type connector 2-, 3pol+ PE, DIN EN 175301-803, material PA
Mounting:
thread 1/2" or 3/8", material alu or stainless steel
Operating temperature:
BT01 und BT06
Pressure:
with brass / alu 1bar
with stainless steel 35bar

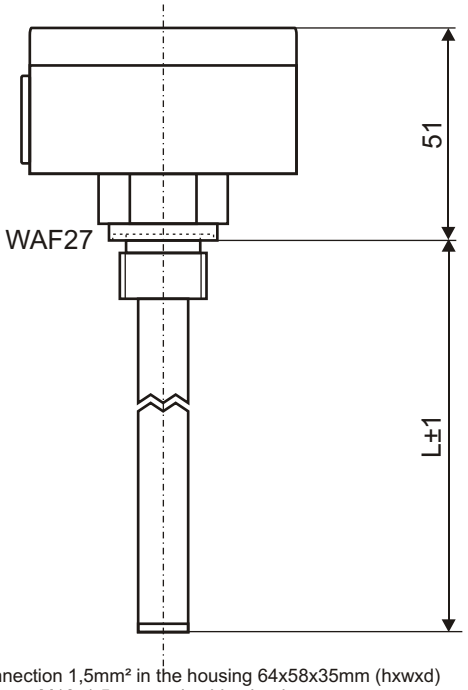
Data sheet
Temperature sensor PT100 in 2-, 3-, and 4- wire technology
Type: PT100..., PT103..., PT104...

Design / connection 34



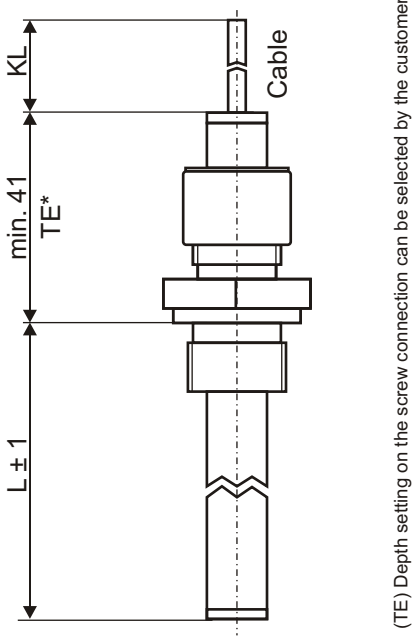
Connection:
plug-type connector 6pol+ PE, DIN EN 175201-804
material PA or DIN EN 175201-804 (DIN 43651), material PET
Mounting:
thread 1/2" or 3/8", material alu or stainless steel
Operating temperature:
BT01
Pressure:
with brass / alu 1bar
with stainless steel 35bar

Design / connection 35



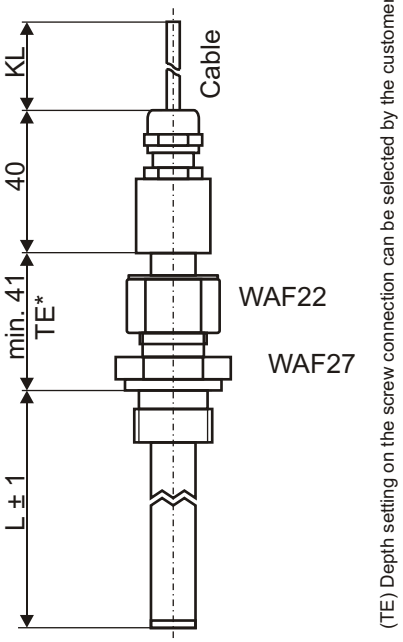
Connection:
terminal connection 1,5mm² in the housing 64x58x35mm (hxwxd)
cable entry over M16x1,5 screwed cable glands
Mounting:
thread 1/2" or 3/8", material alu or stainless steel
Operating temperature:
BT01 und BT06
Pressure:
with brass / alu 1bar
with stainless steel 35 bar

Design / connection 36



Connection:
oil-resistant FDCP-cable, shielded
without cable strain relief, length according to specification
Mounting:
depth setting, thread see order key,
material brass or stainless steel
Operating temperature:
BT01
Pressure:
with brass 1bar
with stainless steel 35 bar

Design / connection 37



Connection:
oil-resistant FDCP-cable, shielded
with cable strain relief, length according to specification
Mounting:
depth setting, thread see order key,
material brass or stainless steel
Operating temperature:
BT01
Pressure:
with brass 1bar
with stainless steel 35 bar

Data sheet
Temperature sensor PT100 in 2-, 3-, and 4- wire technology
Type: PT100..., PT103..., PT104...

Order key

Example: PT104. 12. 12E. 100. 30. KL1000. BT01

Sensor element
PT100 = 2-wire technology
PT103 = 3-wire technology
PT104 = 4-wire technology

Mounting
14 = thread 1/4" (only in connection with sensor tube Ø6 and Ø8mm)
38 = thread 3/8"
12 = thread 1/2"

Sensor tube:
outer diameter: 06 = ø6mm
08 = ø8mm
10 = ø10mm
12 = ø12mm
material: M = brass
E = stainless steel

sensor tube length L in mm

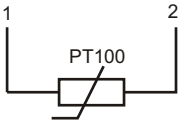
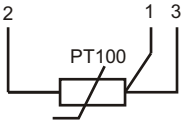
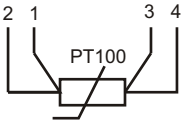
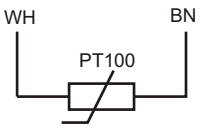
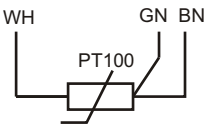
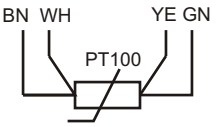
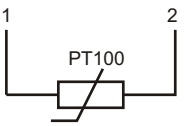
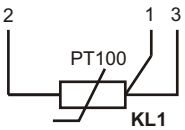
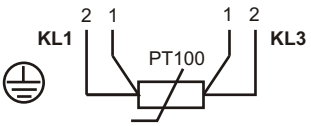
Design / connection
30 = M12 plug-type connector 4-pole
31 = M12 plug-type connector 4-pole, adjustable
32 = M12 plug-type connector right-angled
33 = plug-type connector 2-, 3 pole
34 = plug-type connector 6-pole
35 = terminal connection in the housing
36 = cable connection
37 = cable connection, cable strain relief

Cable length
KL= L in mm (Specification only for design 36 and 37 required)

Operating temperature
BT...

Note: *Material brass and stainless steel are not combinable*

Terminal diagrams

	2-wire technology	3-wire technology	4-wire technology
Plug connector			
Cable connector			
Housing connector			

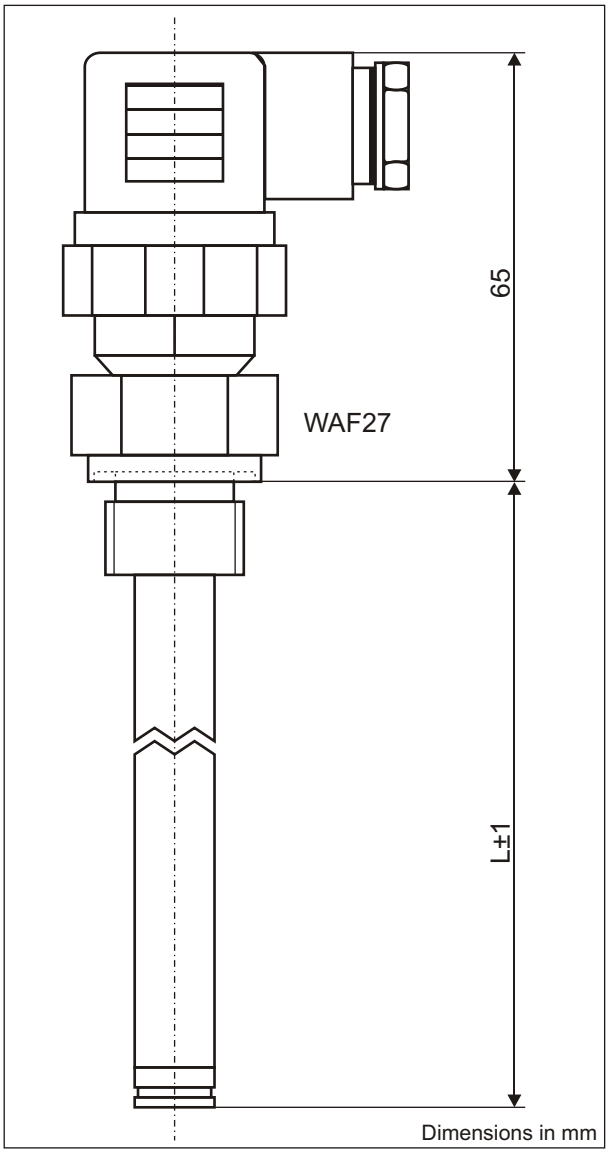
Data sheet
Temperature sensor PT100 in 2-, 3-, and 4- wire technology
Type: PT100..., PT103..., PT104...

Technical data

Connection:	see respective design / connection, further connections on request
Mounting:	see respective design / connection, further mountings on request
Sensor tube:	ø6mm, ø8mm, ø10mm or ø12mm, length L±1mm according to specification, material brass or stainless steel, other materials available on request
Temperature sensor:	platinum resistor PT100 in 2-, 3- and 4-wire technology
Tolerance class:	DIN EN 60751, class B
Nominal resistance:	100 Ohm at 0°C
Temperature coefficient:	3850ppm/K
Inductance of the measuring element:	0,03 µH
Self-heating:	0,4K/mW
Long-term stability after 1000h at 150°C:	R_0-Drift < 0,06 %
Pressure:	see design / connection
Operating temperature:	see design / connection BT01: -15°C to 100°C in medium, -20°C to 70°C above mounting BT06: -30°C to 180°C in medium, -20°C to 70°C above mounting (only in connection with stainless steel) BT08: -30°C to 150°C in medium, -20°C to 70°C above mounting (only in connection with stainless steel) higher temperatures on request
Protection rating:	IP 65

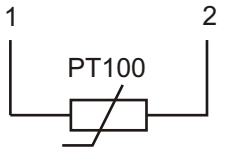
Comment: *For further protection, a thermowell can be used, see additional data sheet THE..., select sensor tube 16mm longer than protective tube of thermowell.*

Data sheet
Temperature sensor PT100 in 2-, 3-, and 4- wire technology
Type: PT100..., PT103..., PT104...

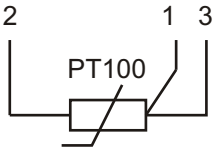


Dimensions in mm

Terminal diagram



2- wire technology



3- wire technology

Order key

Example: **PT103. 12. 12PP. 100. 33. BT01**

Sensor element
PT100 = 2-wire technology
PT103 = 3-wire technology

Mounting
38 = thread 3/8"*
12 = thread 1/2"

Sensor tube
outer diameter 12 = Ø12mm
16 = Ø16mm

Material PP = polypropylene
PVDF = polyvinyliden fluoride

Sensor tube length L in mm

Design - 33

Operating temperature - BT...
- see techn. data

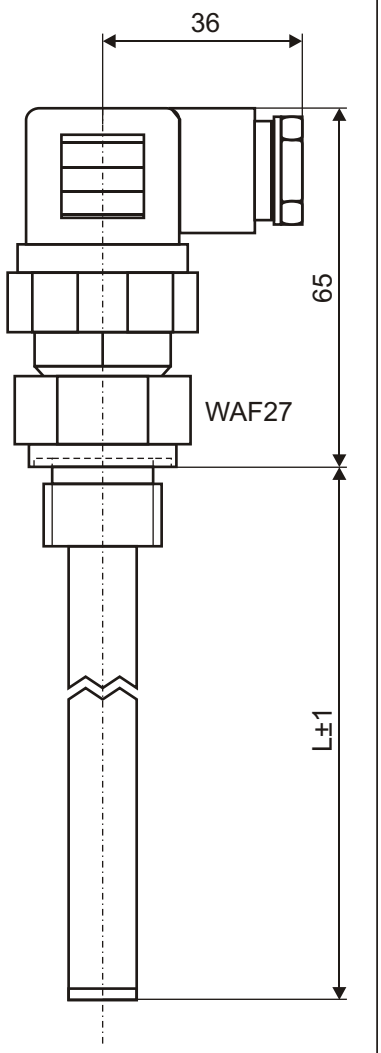
* 3/8" only in connection with PP tube

Technical data

Connection:	plug-type connection 2-, 3-pole + PE DIN EN 175301-803, material PA
Mounting:	thread 1/2" material PP or PVDF thread 3/8", material PP
Seal:	material NBR
Sensor tube:	ø12mm, length L±1mm acc. to customer specification, material PP ø16mm, length L±1mm acc. to customer specification, material PVDF
Temperature sensor:	platinum measuring resistor PT100 in 2-, 3- wire technology
Tolerance class:	DIN EN 60751, class B
Nominal resistance:	100Ohm at 0°C
Temperature coefficient:	38850ppm/K
Inductance of the measuring element:	0,03µH
Self-heating:	0,4K/mW
Long-term stability after 1000h at 150°C:	R_0-Drift < 0,06 %
Pressure:	max. 5bar
Operating temperature:	BT03: -15°C to 80°C in medium, -20°C to 70°C above mounting (only in connection with PP) BT01: -15°C to 100°C in medium, -20°C to 70°C above mounting (only in connection with PVDF)
Protection rating:	IP65

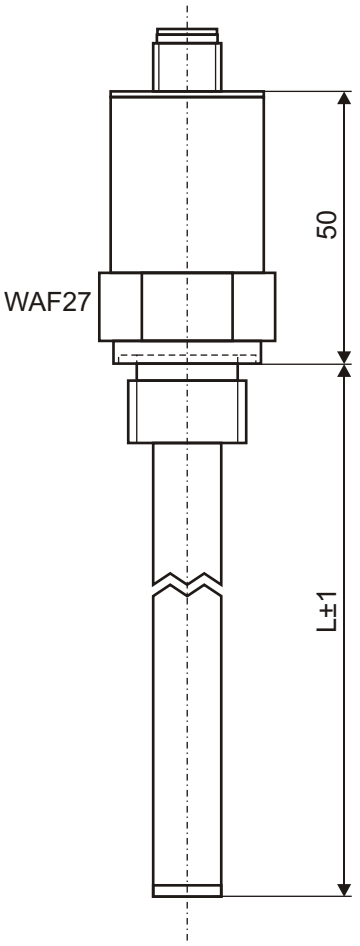
Data sheet
Temperature sensor with integrad measuring transducer 4...20mA
Type: PT100-6....

Connection: ST



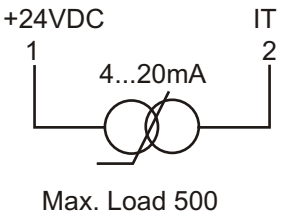
Dimensions in mm

Connection: 08



Dimensions in mm

Terminal diagram



Max. Load 500

Order key

Example: **PT100-6. 12. 12M. 150. ST**

Temperature sensor:	
Mounting	1/2” = 12 3/8” = 38 M20x1,5 = 20
Conduit	ø8mm = 08 ø10mm = 10 ø12mm = 12
Material	brass = M stainless steel = E
Conduit length: L in mm	
Connection	08 ST

Technical data

Connection:	right-angled connector 3-pole + PE DIN EN 175301-803 (DIN 43650), material PA, connection **ST** plug-type connector M12x1 4-pole, material TPU, connection **08**
Mounting:	1/2”, 3/8”, M20x1,5 thread, material alu or stainless steel, further threads on request
Seal:	material NBR
Conduit:	ø8mm, ø10mm, ø12mm, material brass or stainless steel length L of the conduit according to customer specification
Sensor:	platinum- measuring resistor PT100 acc. DIN EN 60751 class B
Output:	4...20mA at 0°C to 100°C
Load:	max. 500 Ohm
Supply voltage:	24 VDC ± 15%, reverse polarity protected
Linearity:	0,35% at 0°C to 100°C
Accuracy:	0,6% at 0°C
Pressure:	max. 1 bar
Operating temperature:	-20°C to 100°C in medium, -20°C to 70°C above mounting
Protection rating:	IP 65

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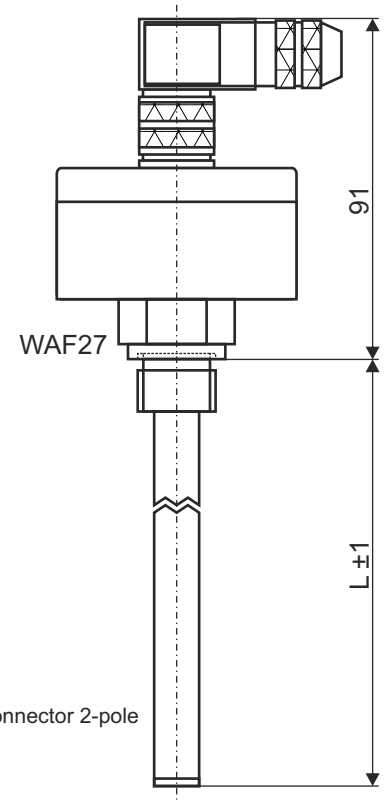
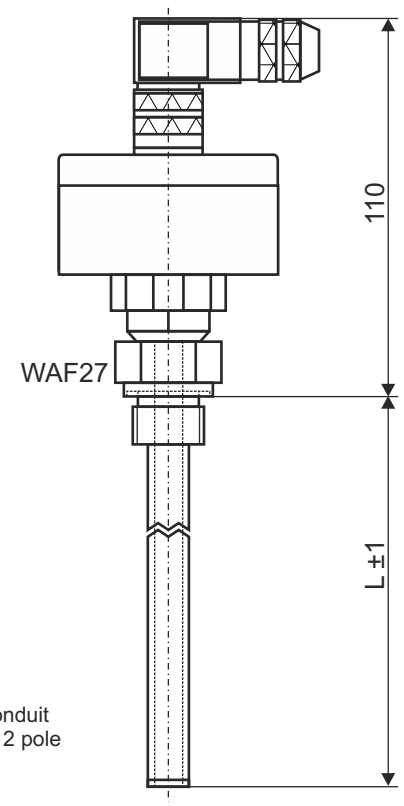
Data sheet
Temperature sensor with integrated measuring transducer in 4 ... 20mA
Type: PT100-6L...



Design GEST

- thread 1/2”
- EMV-plug-type connector 2-pole
- conduit Ø12mm, material brass



Design 05

- thread 1/2”, with removable conduit
- EMV-right-angled, 2 pole
- conduit Ø12mm, material brass

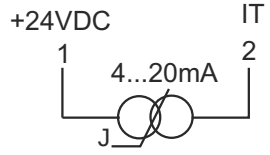
Dimensions in mm

Order key

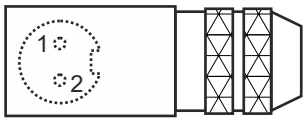
Example: PT100-6L. 12. 12M. 200. GEST

- Type PT100-6L
- Mounting: 12 = 1/2”, 14 = 1/4”, 38 = 3/8”
- Conduit: 06 = Ø 6mm, 08 = Ø 8mm, 10 = Ø 10mm, 12 = Ø 12mm
  material: M = brass, E = stainless steel
- Conduit length in mm
- Design: GEST, 05

Terminal diagram



Load max. 500 Ohm



Technical data

Connection:	EMV-right angled connector 2-pole, material brass nickel plated
Mounting:	thread 1/2”, 1/4”, 3/8”, with profile seal, material alu
Conduit:	Ø6mm, Ø8mm, Ø10mm, Ø12mm, length L±1mm according to specification, material brass or stainless steel
Sensor:	platinum-measuring resistor PT100 acc. DIN EN 60751 (DIN 43760)
Output:	4 ... 20mA at 0°C to 100°C
Load:	max. 500 Ohm
Linearity:	0,35% at 0°C to 100°C
Precision:	±0,6%
Supply voltage:	24VDC ±15%, reverse polarity protected
Pressure:	max. 1 bar
Operating temperature:	-20°C to 100°C in medium, -20°C to 70°C above mounting
Protection rating:	IP 65

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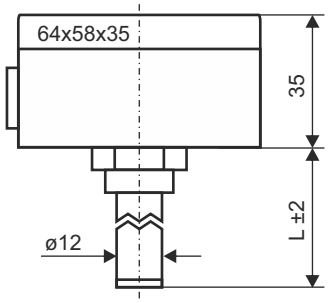
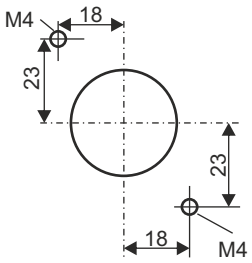
Data sheet
Bimetal temperature switch
Type: T...

Design 1



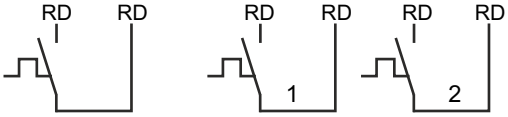
Dimensions in mm

Drilling pattern



Connection: terminal connection in aluminium housing 64x58x35mm WxDxH
cable entry M16x1.5 screwed cable gland
Mounting: via housing floor - see drilling pattern
Gasket: material NBR
Pressure: max. 1 bar

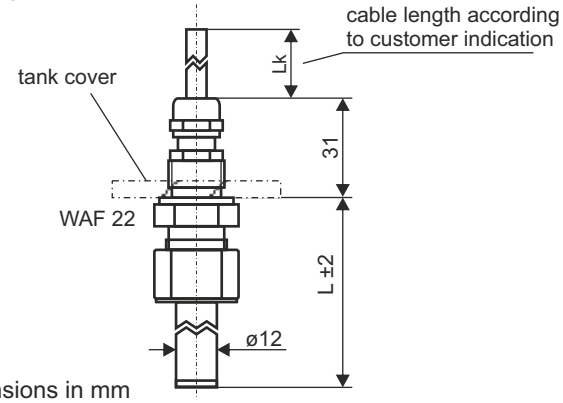
Terminal diagram



1 temperature switch
n.c. contact / n.o. contact

2 temperature switches

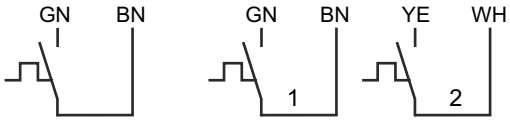
Design 2



Dimensions in mm

Connection: oil-resistant cabel, length LK in mm, mit cable grip
Mounting: G 3/8” thread, material brass or stainless steel
Pressure: max. 1 bar

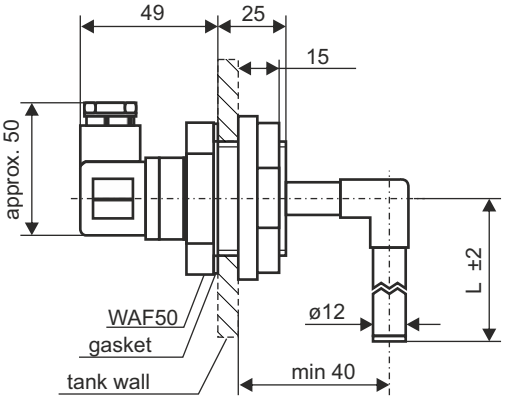
Terminal diagram



1 temperature switch
n.c. contact / n.o. contact

2 temperature switches

Design 4

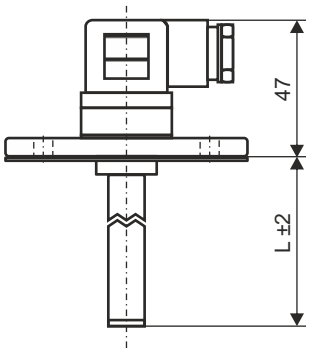


Dimensions in mm

Connection: right-angled socket 3-pole + PE DIN EN 175301-803 (DIN 43650), material PA
Mounting: G 1 1/4” thread, material PVC
Gasket: material EPDM
Pressure: atmospheric

Terminal diagram: see page 2

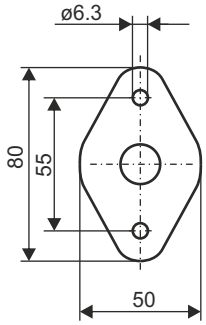
Design 5



Dimensions in mm

Drilling pattern

90° turned

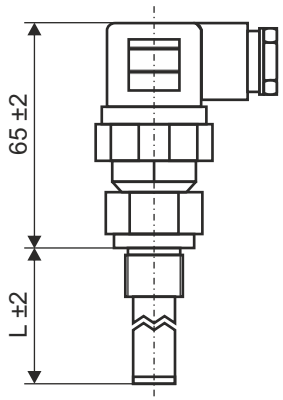


Connection: right-angled socket 3-pole + PE DIN EN 175301-803 (DIN 43650), material PA
Mounting: oval-flange 80x50mm, material PA, see drilling pattern
Gasket: material NBR
Pressure: atmospheric

Terminal diagram: see page 2

Data sheet
Bimetal temperature switch
Type: T...

Design 7 and 10



Dimensions in mm

Design 7

Connection:	right-angled socket 3-pole + PE DIN EN 175301-803 (DIN 43650), material PA ,
Mounting:	G1/2" thread, material alu or stainless steel
Gasket:	material NBR
Pressure:	max. 1 bar
Key-wide:	SW27

Design 10

Connection:	right-angled socket 3-pole + PE DIN EN 175301-803 (DIN 43650), material PA
Mounting:	G3/8" thread, material brass or stainless steel
Pressure:	max. 1 bar
Key-wide:	SW24

Terminal diagram: see below

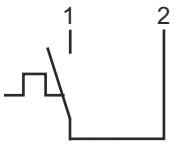
Note materials: conduit brass - thread aluminum
conduit stainless steel - thread stainless steel

Order key

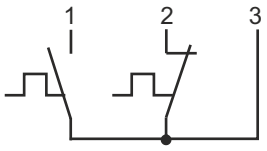
Example: **T 70S/75O . 12M . 2 . 200 . 7**

- Temperature range: **T**
  - S = n.o. contact
  - O = n.c. contact
- Tube diameter: 08 = 8mm, 10 = 10mm, 12= 12mm
- Tube material: M - brass, E - stainless steel
- Number of switching contacts - max. 1 (to ø10 & ø12, 2 switching points possible)
- tube length
- Design

Terminal diagram for design 4, 5, 7 and 10



1 temperature switch
n.c. contact / n.o. contact

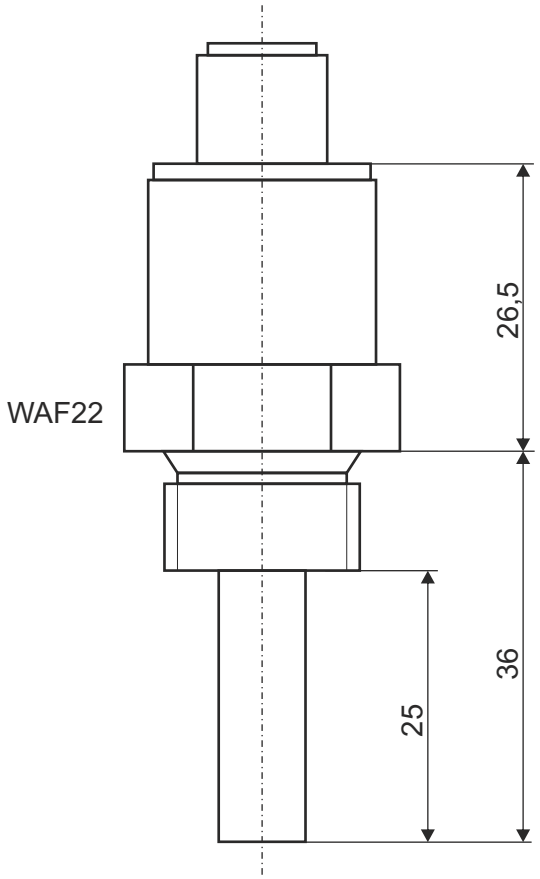


2 temperature switch
Pin 1 = switch with lower temp.
Pin 2 = switch with higher temp.

Technical data for ALL design

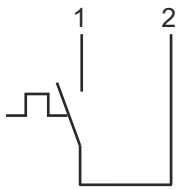
Tube:	ø8, ø10, ø12, material brass or stainless steel, length according to customers specification
Temperature switch:	bimetal
Temperature switching values T:	normally closed contact: T 40°C in steps with 5°C untile 145°C normally opened contact: T 40°C in steps with 5°C untile 145°C, further temp. values on request
Number of switching point:	with ø8 tube, one switching point possible. with ø10 and ø12 tube two switching points possible
Switching point precision:	±5°C, smaller tolerances on request
Reset temperature:	temperature switching point -8°C to - 30°C ±15°C
Switching voltage:	max. 230VAC / 50-60Hz
Switching current:	max. 24VDC, 5A; 230VAC, 6A
Operating temperature:	-20°C to temperature switching value T +5°C, -20°C to 70°C above mounting
Protection rating:	IP 65

Data sheet
Temperature switch
Type: T...31...

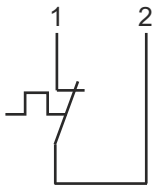


Dimensions in mm

Terminal diagram



Temperature switch
normally open contact
24VDC/1A



Temperature switch
normally closed contact
24VDC/1A

Order key

Example: **T -5. S. 31. 15**

Switching temperature: -5°C

Switching function:
S - n.o. contact
O - n.c. contact

Design
-see technical data

Hysteresis: 15K

Technical data

Connection:	plug-type connector M12x1 4-pole, material TPU
Mounting:	thread M18x1,5, material brass
Probe:	ø8mm, material brass
Temperature switch:	normally open contact or normally closed contact
Switching temperature:	-25°C to 100°C ±3, freely selectable
Switching hysteresis	15K or 5K of your choice
Switching voltage:	24VDC
Switching capacity:	1A
Pressure:	max. 5bar
Operating temperature:	-20°C to 100°C in medium; -20°C to70°C above mounting
Protection rating:	IP 65

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Data sheet
Temperature circuit breaker bi-metal ±3°C
Type: TSB-1...

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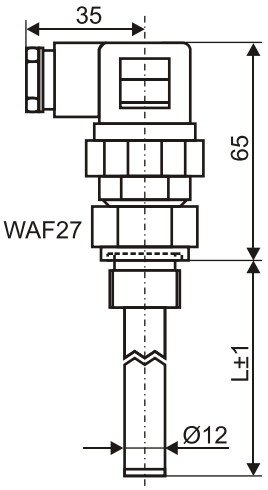
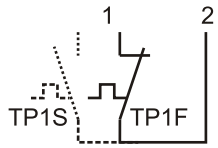
Mounting BE12 to BE16
(thread)



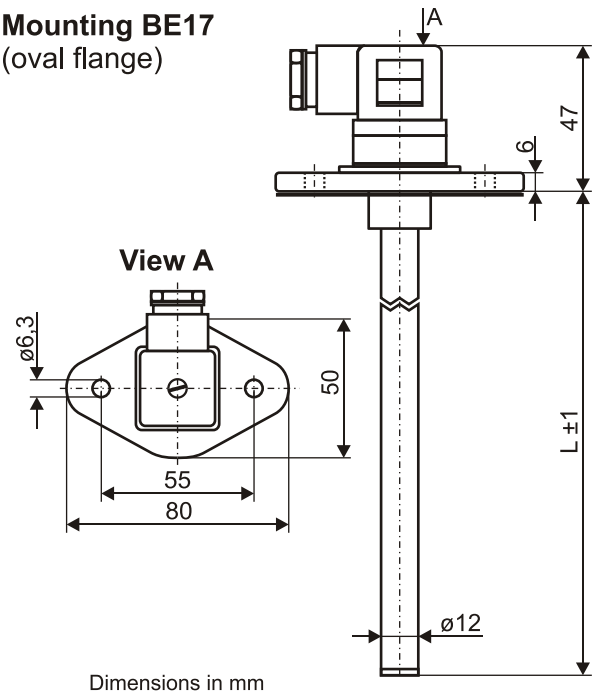
Terminal diagrams



Temperature switch
1x n.o. contact / n.c. contact, 24VDC / 2A

Temperature switch
2x n.o. contact / n.c. contact, 24VDC / 2A

Mounting BE17
(oval flange)



Dimensions in mm

Order key

Example: TSB-1. AS08.BE15.RH09=150.TP1S=60.TP2F=68

- Type TSB-1
- Electrical connection
  AS08: plug-type connection
  3-polig, DIN EN 175301-803
- Mounting
  BE12: 1/2” brass
  BE13: 3/8” brass
  BE14: 3/4” aluminium
  BE15: 1/2”stainless steel
  BE16: 3/8” stainless steel
  BE17: oval flange
- Conduit RHxx = length L in mm
  RH03: Ø12mm brass
  RH09: Ø12mm stainless steel
- Temperature switching point TPxF/S = temp. in °C
  x = 1, switching point 1
  x = 2, switching point 2
  normally closed contact: TP1F; TP2F
  normallly open contact: TP1S; TP2S

Technical data

Connection:	plug-type connection 3-pole + PE, DIN EN 175301-803 (DIN 43650), material PA
Mounting:	see order key, further mountings on demand
Seal for mounting BE17:	material NBR
Conduit:	ø12mm, material brass or stainless steel 1.4571 length L ±1mm accord. to customer specification
Temperature switch	
Technology, no. of contacts:	bi-metal, max. 2x n.c. contacts / n.o. contacts
Temperature setting range:	30°C to 125°C, other temperatures on demand
Tolerance:	±3K
Reset temperature:	temperature switching point (TP) - 1°C
Switching capacity:	24VDC / 2A
Pressure:	with mounting BE17: atmospheric; with BE12 to BE16: max. 1 bar
Operating temperature:	-20°C to 80°C in medium; -20°C to 70°C above mounting
Protection rating:	IP 65

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