## resistance thermometer WTR 120

### features

- resistance thermometer without neck tube,with screw in thread
- with process connection thread
- protective fitting on DIN 43 763
- protective fitting screwed with connection head
- available with several connection heads on DIN
- exchangeable measuring elements with ceramic socket or programmable measuring transducer
- passive (connection via terminals) or with a measuring transducer
- available with:
  - digital measuring transducer DMU100 (4..20mA 3-wire/OLED display)
  - head transmitter KMU100 (4..20mA 2-wire)
  - head transmitter KMUS100 (0..10V 3-wire)
- special designs on request

**WTR 120-5-1B-1A3-KMU**

### product benefits

The WTR 120 is a temperature sensor for use in liquid and vapor mediums. With the thread as process connection it can be easily integrated into many industrial applications. The simple exchange of the measuring element also makes this sensor ideal for use in closed processes. High-quality materials give this sensor a very high long-term stability. The WTR 120 is also available with different measuring transducers.

**WTR 120-1-B-1A3-KMU**

### technical specifications

- protection fitting made of stainless steel 1.4571
- diameter of neck tube 9 x 1 mm, other diameters on request
- process connection thread G 1/2“A, other on request
- standard temperature of the process: -50 °C to +400 °C (extended ranges on request)
  Deviation in operating temperature when using a transmitter

exchangeable measuring element


Also available with display (DMU100)



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## resistance thermometer WTR 120

### technical data DMU 100


| | |
|---|---|
| - operating temperature: | -30 °C..+70 °C |
| - operating voltage: | UB = 10..35 V DC |
| - current requirement: | 7.3 mA (UB=24V) + 4..20mA output |
| - input: | PT1000 2-wire |
| - measuring range max. | -100°C..+650°C |
| - measuring span min.: | 10 K |
| - measuring deviation: | <+-0.1% of the final value |
| - output: | 4..20mA 3-wire (underflow 3.5mA, overflow 20.5mA) |
| - sensor break: | 21mA |
| - standard configuration: | 4 mA = -50 °C, 20 mA = 150 °C<br>(wide temperature range can be parameterized) |
| - max. permissible load: | Rmax=[(UB – 6V) / 0.021 A] Ω |
| - display: | high-resolution OLED display 0.96 inches |
| - orientation display: | 0° or 180° |
| - display digits: | 4 digits |
| - display range: | -99.9 to +999.9°C |
| - configuration interface: | USB Type C |
| - electrical connection: | 5x terminal connection 1.5 mm² |
| - configuration: | commercially available USB Type C cable (no programming adapter necessary)<br>windows application for configuration (“pmtKonfigTool”) |

### technical data KMU 100


| | |
|---|---|
| - operating temperature: | -40 °C..+85 °C |
| - operating voltage: | UB = 10..36VDC |
| - current requirement: | 4..20mA output |
| - input: | PT100 or PT1000 2, 3, 4 wire |
| - measuring range max. | Pt100: -200°C..+850°C; Pt1000: –200°C … +250 °C |
| - measuring span min.: | 10 K |
| - measuring deviation: | across the entire range: 0.15 K or 0.07% of span*<br>n the range -50°C … +250°C: 0.1 K or 0.07% of the measuring span* |
| - output: | 4-20mA (underflow linear drop of 4.0 ... 3.8 mA,<br>linear increase of 20.0 … 20.5 mA) |
| - sensor break: | ≤ 3.6 mA (“Low”) or ≥ 21 mA (“High”) can be selected |
| - standard configuration | 4mA = -50°C, 20mA = 150°C<br>(wide temperature range can be parameterized) |
| - electrical connection: | 6x screw terminals 1.5mm² |
| - configuration: | PXU01 programming adapter<br>Windows application for configuration (“PXU01”) |

* the larger value is valid

### technical data KMUS 100

| | |
|---|---|
| - operating temperature: | -40 °C..+85 °C |
| - operating voltage: | UB = 15..35 V DC |
| - current requirement: | max. 10mA |
| - input: | PT100/PT1000 2-, 3-, 4-wire |
| - measuring range | 12 measuring ranges, see page 3 |
| - measuring deviation: | <+-0.3% of measuring range |
| - output: | 0..10V 3-wire |
| - sensor break: | >10V |
| - standard configuration: | 0V = -20°C, 10V = 150°C |
| - electrical connection: | 6 screw terminals 1.5mm2 |
| - configuration: | DIP switch (12 different measuring ranges) |



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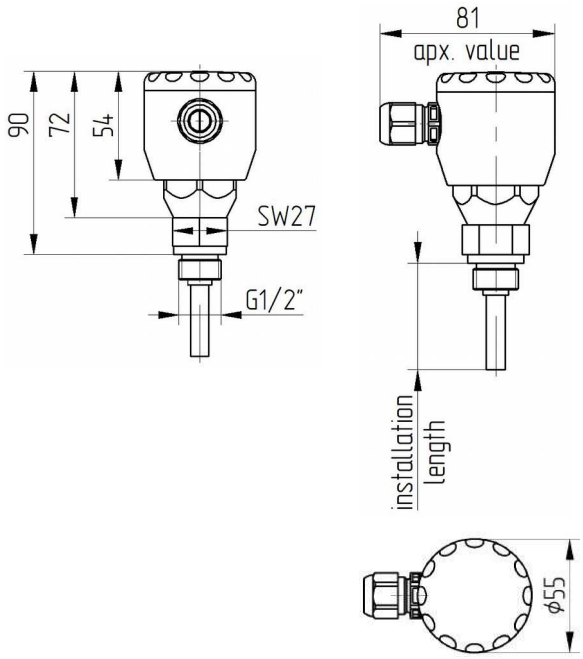
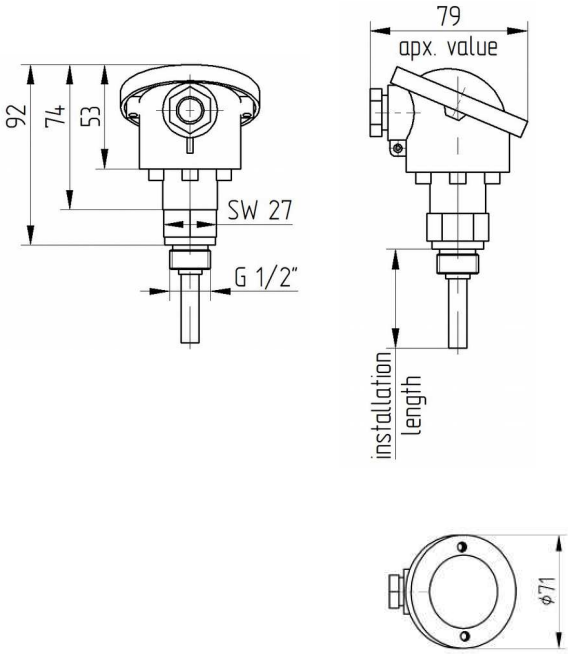
## technical drawing WTR 120

### stainless steel head

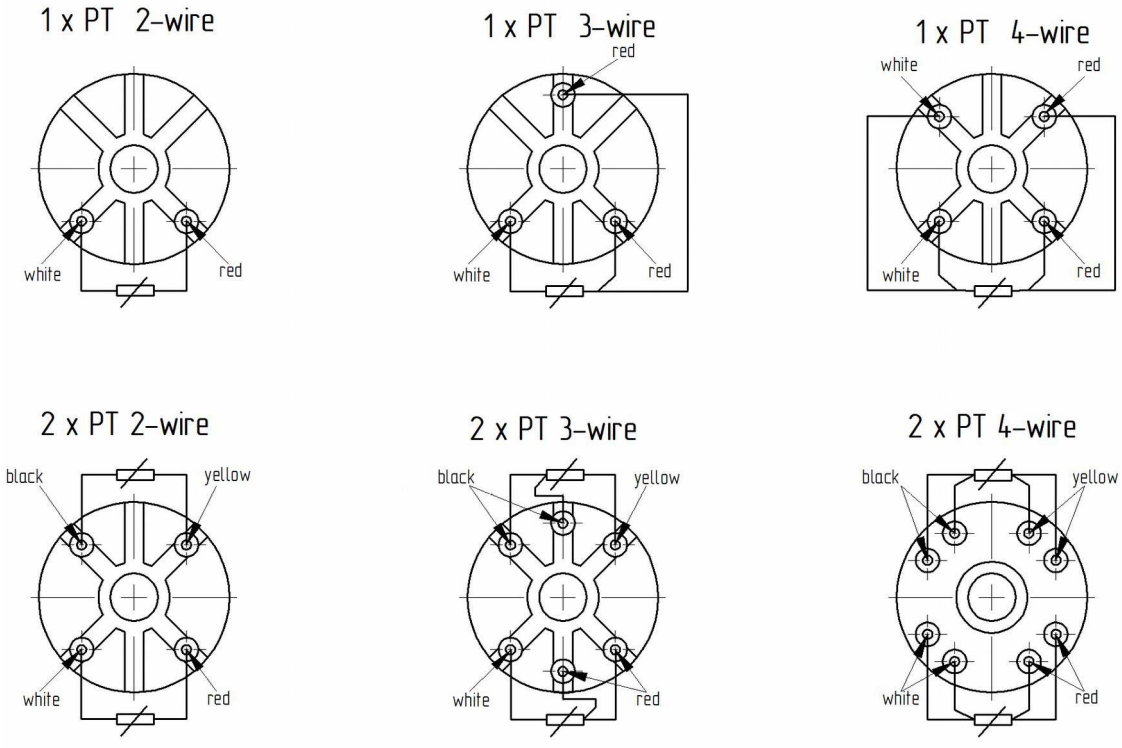



### aluminiumhead




## connection WTR 120

### connection WTR 120 passive (ceramic base)



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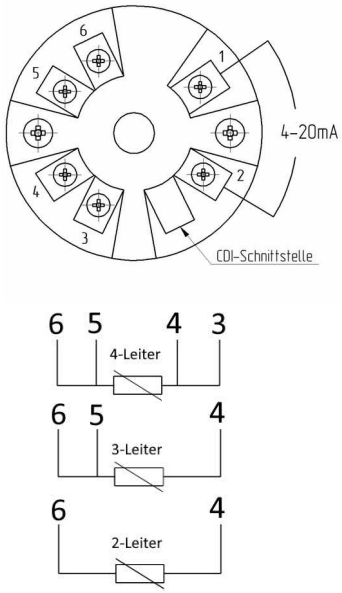
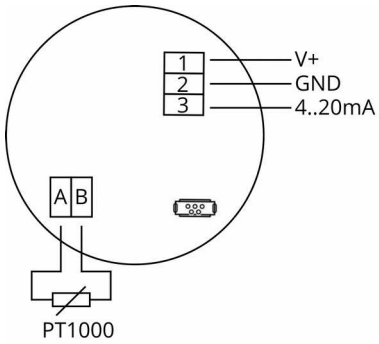
## connection WTR 120 with measuring transducer

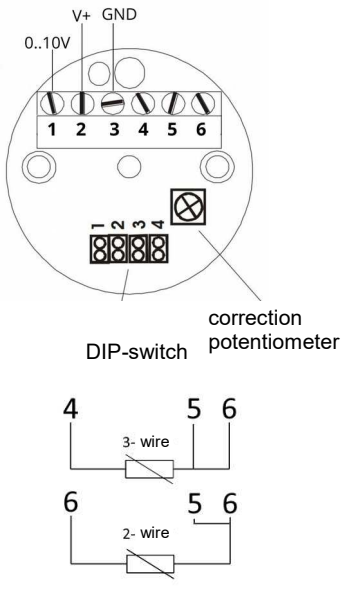
**WTR 120 with KMU 100**




**WTR 120 with DMU 100**

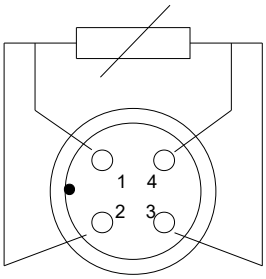



**WTR 120 with KMUS 100**

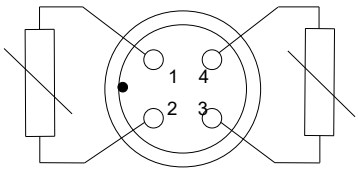



## Connection WTR 120 with M12 plug

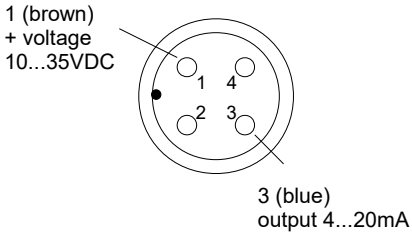
**M12 plug**
**PT100 and PT1000**




**M12 plug**
**2x PT100 or 2x PT1000**




**M12 plug with measuring transducer**




## configuration

If the WTR 120 is used with a DMU 100, the DMU settings can be read out, graphically displayed and changed using the Windows software “pmtKonfigTool”. The Windows software can be downloaded from the website www.promesstec.de. The connection between PC and MUFG-DMU can be established with a standard USB Type C cable.

If the WTR 120 is used with a KMU 100, the settings of the KMU can be read out, graphically displayed and changed using the PXU01 parameterization software kit. In addition to the software, the software kit also includes a programming adapter.

If the WTR 120 is used with a KMUS 100, the measuring range can be adjusted using four DIP switches. The measuring ranges are listed in the table below. There is also a correction potentiometer on the top of the head transmitter, which can be used to fine-tune the output voltage. A seal secures the potentiometer against accidental adjustment.

| Nr. | Messbereich | DIP-Sch. 1 2 3 4 |
|---|---|---|
| MB1: | - 20°C .. +150°C | 1-1-1-1 |
| MB2: | 0°C .. + 50°C | 0-1-1-1 |
| MB3: | 0°C .. +100°C | 1-0-1-1 |
| MB4: | 0°C .. +200°C | 0-0-1-1 |
| MB5: | 0°C .. +300°C | 1-1-0-1 |
| MB6: | 0°C .. +400°C | 0-1-0-1 |
| MB7: | 0°C .. +500°C | 1-0-0-1 |
| MB8: | 0°C .. +600°C | 0-0-0-1 |
| MB9: | - 50°C .. + 50°C | 1-1-1-0 |
| MB10: | -100°C .. +100°C | 0-1-1-0 |
| MB11: | - 30°C .. + 70°C | 1-0-1-0 |
| MB12: | - 40°C .. + 60°C | 0-0-1-0 |

Jumper = 1: plugged in, Jumper = 0: not plugged in

**Attention:** Only ranges 1..5 are available for Pt1000.



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## order-code WTR 120...

order example: WTR 120-5-A-1A3-KMU (0-100 °C)

### connection heads

| | | | | |
|---|---|---|---|---|
| -1 | aluminiumhead, | standard, | with screwing, | protection class IP65 |
| -2 | aluminiumhead | with flap lid, | with screwing, | protection class IP65 |
| -2W | aluminiumhead | with flap lid, | with screw connection, | protection class IP65 with window |
| -3 | aluminiumhead | with flap lid and snap closing, | with screwing, | protection class IP54 |
| -4 | aluminiumhead | with high flap lid, | with screwing, | protection class IP65 |
| -5 | stainless steel head | standard with screw cap, | with screwing, | protection class IP69K |
| -6 | stainless steel head | standard with screw cap, | with M12-plug, | protection class IP69K |
| -15 | stainless steel head | hightened design | with screwing | protection class IP69K |
| -16 | stainless steel head | hightened design | with M12-plug | protection class IP69K |

### mounting length (ML)

| | |
|---|---|
| -A | 50 mm mounting length |
| -B | 100 mm mounting length |
| -C | 160 mm mounting length |
| -D | 200 mm mounting length |
| -E | 250 mm mounting length |
| -F | 300 mm mounting length |
| -G | 350 mm mounting length |
| -H | 400 mm mounting length |
| -K | mounting length on customer`s request (please specify length) |

**optional (not specified diameter 9mm)**

| | |
|---|---|
| /6x1 | diameter 6mm, wall strength 1mm |
| /10x1 | diameter 10mm, wall strength 1mm |
| /11x2 | diameter 11mm, wall strength 2mm |
| /16x4 | diameter 16mm, wall strength 4mm |

### type of sensor and tolerance

| | |
|---|---|
| -1A2 | 1xPT100 class A 2-wire |
| -1A3 | 1xPT100 class A 3-wire |
| -1A4 | 1xPT100 class A 4-wire |
| -2A2 | 2xPT100 class A 2-wire |
| -2A3 | 2xPT100 class A 3-wire |
| -1A2/PT1000 | 1xPT1000 class A 2-wire |
| -2A2/PT1000 | 2xPT1000 class A 2-wire |
| -KX | other types or sensor and tolenance on customer`s request |

### optional (several combinations possible)

**When using a measuring transducer, please specify the temperature range!**

| | | |
|---|---|---|
| -KMU | with head transmitter KMU 100 | (4..20mA 2-wire) |
| -2KMU | with 2 head transmitters KMU 100 | (4..20mA 2-wire), head increased design required |
| -KMUS | with head transmitter KMUS 100 | (0..10V 3-wire) |
| -DMU | with digital measuring transducer DMU50 (4..20mA 3-wire, OLED display) only with aluminum connection head “2W” | |
| -MME | jacket measuring insert, vibration-proof | |
| -PS | perforated protective fitting (air sensor) | |

## accessories

***welding sleeves***

| | |
|---|---|
| -99-000421 | GEM 150, stainless steel weld-in sleeve, G1/2" inner thread, outer diameter 26mm, length sleeve 33mm |

***M12-connection wires***

| | |
|---|---|
| -101090 | connection cable M12 angled, 4-pole, 5m PVC cable, grey |
| -101087 | connection cable M12 straight, 4-pole, 5m PVC cable, grey |

**Other lengths available on request.**

**For more accessories, see accessories data sheet.**



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