

The selection is detailed on page 6



# WTD-200

## Digital Temperature Transmitter

### Working principle

Through the temperature sensor, the ambient temperature is automatically sampled and monitored in real time. When the ambient temperature is higher than the control setting value, the control circuit starts and the control return difference can be set. If the temperature is still rising, when it rises to the set alarm temperature point, start the alarm function. When the controlled temperature can not be effectively controlled, in order to prevent the damage of the equipment, it can also stop the equipment from continuing to run through the function of tripping.

### Product description

#### Design and function

Characters up to 9 mm can be displayed on the sturdy LED display, and the screen is slightly tilted so that the operator can easily read the values from a distance. With a 14-segment display, text can be clearly displayed.

The operation of the keys is designed to make menu navigation simple and intuitive without any additional help. Menu navigation conforms to the latest VDMA standards.

The VDMA standard for fluid sensors is designed to simplify the use of temperature transmitters by standardizing menu navigation and display screens.

The control keys are designed to the maximum and ergonomically distributed to ensure quick and easy adjustment by the operator. The keys have tactile feedback, making it easy for the operator to operate without additional assistance.

### Product application

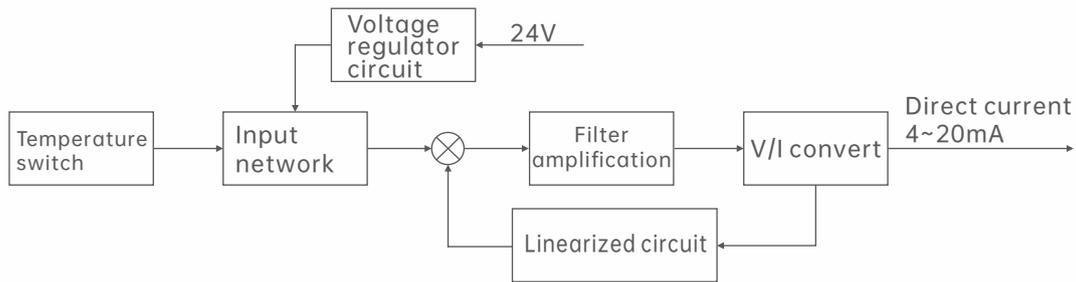
Machine tool  
Hydraulic and pneumatic systems  
Pumps and compressors  
Machine building

### Functional characteristics

The display is easy to read and rugged  
Setup intuitive and fast  
The installation and configuration are simple and flexible



## Schematic diagram



## Technical parameter

Reveal	14-segment LED, red, 4-digit, character size 9 mm (0.35 in)
	The display can be turned 180° electronically
	Refresh: 200 ms
On-off valve	Switch action point 1 and switch action point 2 can be adjusted separately
Switching function	Normally open, normally closed, window, back difference mode (adjustable)
Switching voltage	Supply voltage - 1 V
Switching current	
▪ None IO-Link	Max 250 mA
▪ There is an IO-Link	SP1 Max 100 mA
	SP2 Max 250 mA
Adjustment accuracy	≤0.5% FS
Zero deviation adjustment	±3% FS
Scale	
▪ Zero	0 ... 25% FS
▪ Full scale	75 ... 100% FS)
load	
▪ Analog signal 4 ... 20 mA	≤ 0.5 kΩ
▪ Analog DC 0 ... 10 V	> 10 kΩ
Service life	1Billions of switching cycles
The supply voltage is U+	Direct current 15 ... 35V
Current consumption - Switch output	
▪ Analog signal 4 ... 20 mA	70 mA
▪ Analog DC 0 ... 10 V	45 mA
▪ No analog signal	45 mA
Total current consumption	
▪ None IO-Link	Up to 600mA, including switching current
▪ There is an IO-Link	Up to 450mA, including switching current
Accuracy parameter <sup>1)</sup>	
Analog signal	≤ ±0.5% FS + Temperature sensor error
Switching output	≤ ±0.8% FS + Temperature sensor error
Reveal	≤ ± (0.8% FS + Temperature sensor error) ±1digit
Temperature sensor error	°C: ±(0.15 K + 0.002   t  )
	°F: ± [1.8*(0.15 + 0.002 (t - 32) / 1.8)]   t   It's a temperature value that doesn't take the sign into account

1) The actual accuracy that can be obtained depends mainly on the installation conditions (depth of immersion, probe length, operating conditions). This is especially true when there is a large temperature gradient between the medium and the environment.

## Measuring range

### Optional version

1) Process connections are limited to the use of bushing threaded joints.  
2) The installation instructions in the section "Operating Conditions" must be followed.

Temperature °C/°F	
▪ Standard	-20 ... +80°C/40 ... +85°F
▪ Options 1 <sup>1)2)</sup>	-40 ... +85°C/-40 ... +85°F
▪ Options 2 <sup>1)2)</sup>	0 ... +150°C/+32 ... +302°F

### Output signal

NPN can be used instead of PNP switch output.

Optional version	Switching output		Analog signal
	SP1	SP2	
Options 1	PNP	-	4 ... 20 mA (3 linear)
Options 2	PNP	-	DC 0 ... 10 V (3 linear)
Options 3	PNP	PNP	-
Options 4	PNP	PNP	4 ... 20 mA (3 linear)
Options 5	PNP	PNP	DC 0 ... 10 V (3 linear)

## Operating condition

Allowable temperature range	
▪ Medium	See measuring range
▪ Environment	-20 ... +80 °C [-4 ... +176 °F] <sup>1)</sup>
▪ Store	-20 ... +80 °C [-4 ... +176 °F]
Air humidity	45 ... 75%, Relative humidity
Vibration resistance	
▪ Probe length F ≤ 150 mm [5.91 in]	6 g (IEC 60068-2-6, In resonance)
▪ Probe length F ≤ 250 mm [9.84 in]	2 g (IEC 60068-2-6, In resonance)
Impact resistance	50 g (IEC 60068-2-27, machine)
Protection class compliance IEC/EN 60529	IP65 AND IP67
Response time	T05 < 5 s (Conform to DIN EN 60751)
	T09 < 10 s (Conform to DIN EN 60751)
Static working pressure	The highest 15 MPa [2,175 psi]
	When using ferrule threaded joints: Max. 5 MPa [Max. 725 psi]
Installation position	As required

1) When the medium temperature is higher than 80 °C [176 °F], the allowable ambient temperature is -20... +40 °C [-4... +104 °F]. In this case, the process connection must be equipped with a jacketed threaded joint.

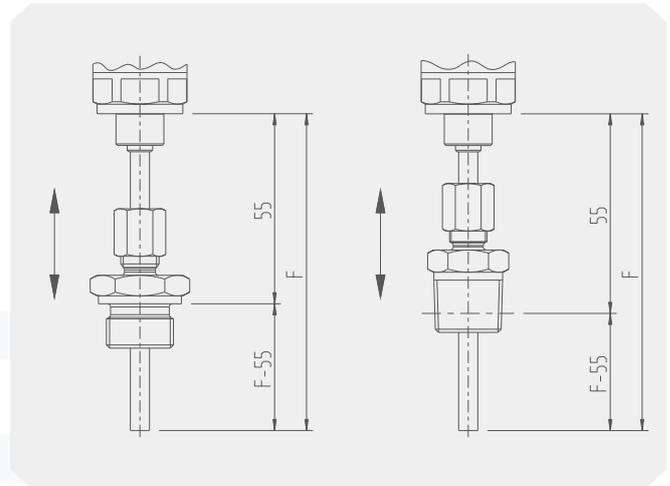
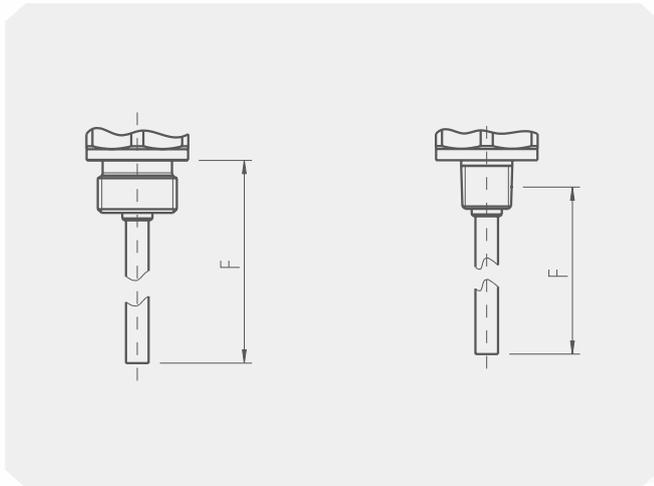
When the medium or ambient temperature is high, reasonable measures are taken to ensure that the temperature of the instrument housing in continuous operation does not exceed 80 °C [176 °F] (this temperature is measured at the hexagon head of the process connection).

## Standard condition

Temperature	15 ... 25 °C [59 ... 77 °F]
Atmospheric pressure	95 ... 105 kPa [13.78 ... 15.23 psi]
Air humidity	45 ... 75%, Relative humidity
Nominal position	Low installation process connection
Supply voltage	DC 24 V
load	See Output Signal



### Probe - Probe length (F)



F								
mm	2.5	50	100	150%	200	250	300	2.5
in	0.98	1.97	3.94	5.91	7.87	9.84	11.81	13.8

F						
mm	100	150%	200	250	300	350
in	3.94	5.91	7.87	9.84	11.81	13.8

### Electrical connection

Join	Circular joint M12 x 1 (4 The needle)
	Circular joint M12 x 1 (5 The needle) <sup>1)</sup>
Electrical safety	
▪ Short circuit protection	S+ / SP1 / SP2 vs. U-
▪ Reverse polarity protection	U+ vs. U-
▪ Insulation voltage	DC 500 V
▪ Overvoltage protection	DC 40 V

1) Only for versions with dual switch outputs and additional analog signals

### Materials

Liquid connection unit	
▪ Probe	Stainless steel 1.4571
Non-liquid parts	
▪ Shell	Stainless steel
▪ key	TPE-E
▪ Display window	Computer
▪ Display head	PC and ABS mixed

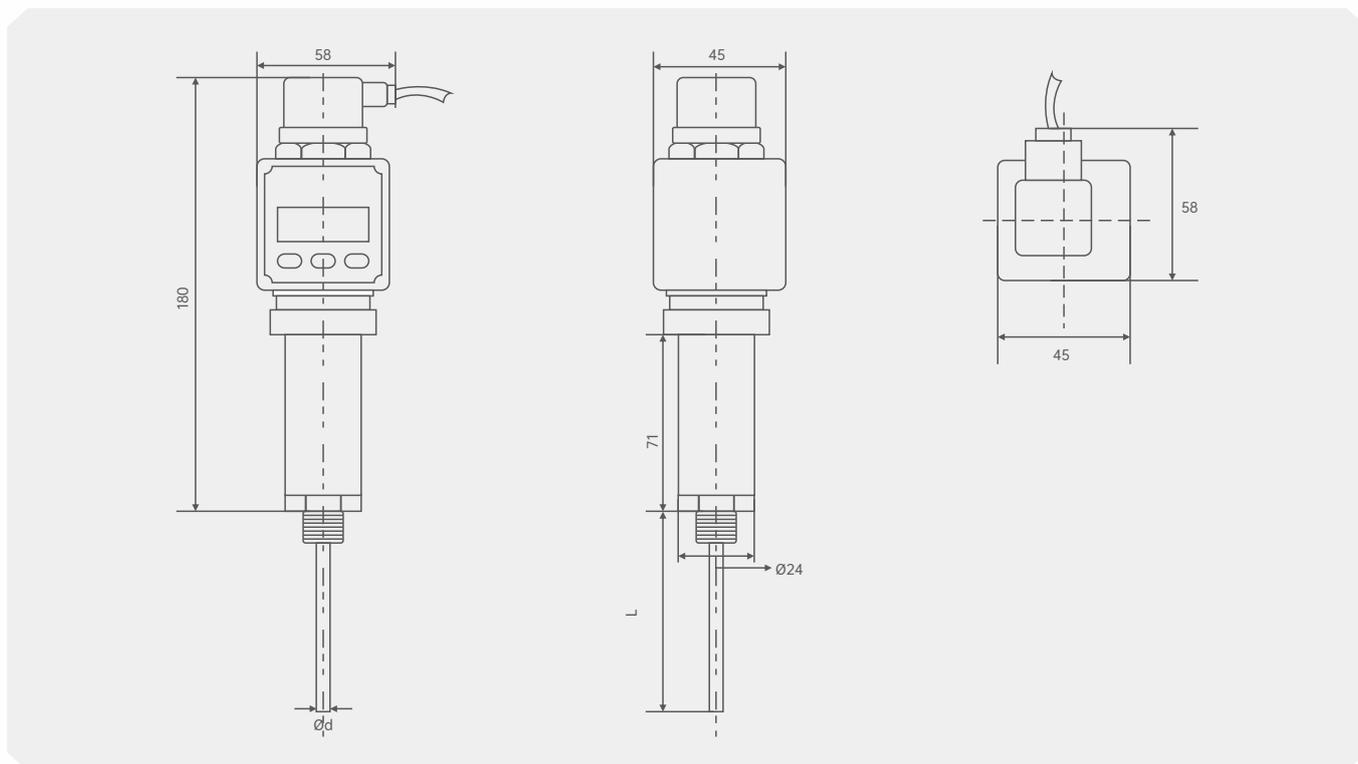
### Process connection

Optional version	
Standard	Screw thread
DIN EN ISO 1179-2 (Parallel thread)	G ¼ A
	G ½ A
DIN 3852-A (Parallel thread)	G ¼ A threaded joint with ferrule
	G ½ A threaded joint with ferrule
ANSI / ASME B1.20.1 (Taper thread)	¼ NPT
	¼ NPT threaded joint with ferrule
	½ NPT
	½ NPT threaded joint with ferrule

### Sealing element

Optional version		
Joint coincidence	Sealing material	
DIN EN ISO 1179-2 (Parallel thread)	Standard	NBR
	Options	FPM/FKM
DIN 3852-A (Parallel thread)	Standard	Copper

Size mm



Sleeve threaded joint



G1	L1	L2	SW
G ¼ A	40 [1.57]	12 [0.47]	19 [0.75]
G ½ A	44 [1.73]	14 [0.55]	27 [1.06]

G1	L1	L2	SW
¼ NPT	41 [1.61]	15.1 [0.59]	17 [0.67]
½ NPT	41 [1.61]	19.7 [0.78]	22 [0.87]

## WTD200-Selection composition

Selection example **WTD200**

1	A	2	I	3	D	4	N	5	X	6	Z	7	D	8	P	9	D	10	S	11	0-400
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1.Installation form	<b>A</b>	Digital temperature transmitter	
	<b>T( )</b>	Other types	
2.Electrical interface	<b>G</b>	1/2NPT	
	<b>H</b>	3/4NPT	
	<b>I</b>	M20*1.5	
	<b>J</b>	M16*1.5	
	<b>K</b>	M12*1.5	
	<b>T( )</b>	Other electrical interfaces	
3.Output signal	<b>D</b>	4-20mA	
	<b>F</b>	0-10V	
	<b>T( )</b>	Other output signals	
4.Input signal	<b>N</b>	Pt100, B level	
	<b>O</b>	Pt100, A level	
	<b>P</b>	Pt1000, B level	
	<b>Q</b>	Pt1000, A level	
	<b>R</b>	K(NiCr-Ni)	
	<b>S</b>	E(NiCr-CuNi)	
	<b>W</b>	N(NiCrSi-NiSi)	
	<b>U</b>	J(Fe-CuNi)	
	<b>V</b>	J(T-CuNi)	
	<b>T( )</b>	Other measuring elements	
5.Switching output	<b>X</b>	Normally open	
	<b>Y</b>	Normal close	
6.Wire system	<b>Z</b>	2Wire system	
	<b>W</b>	3Wire system	
	<b>S</b>	4Wire system	
7.Specification of threaded connection	<b>A</b>	1/2NPT	
	<b>B</b>	3/4NPT	
	<b>C</b>	1/4NPT	
	<b>D</b>	G1/2	
	<b>E</b>	G3/4	
	<b>F</b>	G1/4	
	<b>G</b>	G1/8	
	<b>H</b>	G3/8	
	<b>I</b>	G1	
	<b>J</b>	M8×1.0	
	<b>K</b>	M10×1.0	
	<b>L</b>	M12×1.5	
	<b>M</b>	M14×1.5	
	<b>N</b>	M18×1.5	
<b>O</b>	M20×1.5		
<b>T( )</b>	Other specifications		

## WTD200-Selection composition

Selection example **WTD200**

1	A	2	I	3	D	4	N	5	X	6	Z	7	D	8	P	9	D	10	S	11	0-400
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	---	----	-------

8.Rod length(mm)	R	50	
	S	100	
	P	150	
	U	200	
	V	250	
	W	300	
	X	350	
	Y	400	
	Z	450	
	I	500	
T( )	Other lengths		
9.Rod diameter mm	A	3	
	B	4	
	C	5	
	D	6	
	E	8	
	F	10	
	T( )	Other specifications	
10.Probe rod material	S	304SS	
	L	316L	
	T( )	Other materials	
11.Temperature range	C( )	Set temperature range (unit: °C)	
	F( )	Set temperature range (unit: °F)	
12.Special requirements	A	Additional information	
	N	There is no	

## Instructions:

It indicates that WTD-200 temperature transmitter is digital display type, electrical interface M20\*1.5, output 4-20mA(2-wire system), input signal is Pt100, class B, switch output normally open, screw thread specification is G1/2, rod length is 150mm, rod diameter is 6mm, rod material 304 stainless steel. The temperature ranges from 0 to 400 °C. Item 12 in the table is optional.

## Product Certification

Compliance and approval; Rodewig pressure gauges meet key standards and certifications for process measurement technology; Thus guaranteeing the highest reliability in such Settings;