ROCKSENSOR®

Field Mount Temperature Transmitter

RTT5000

- Output Signal: 4-20mA (Two-wire System)
- Accuracy: ±0.1%
- Working Temperature: (-)40 ~ 85°C
- Supply Voltage: 12V ~35V

ROCKSENSOR AT A GLANCE (ABOUT US)

Rocksensor is one of the global leaders specializing in process Instrumentation, Research and Development and Designing of Industrial Automation Equipment. We provide highly precise pressure sensors and transmitters, flow metres, level transmitters & temperature transmitters with a prime focus to help our clients efficiently, safely and economically run complex industrial processes.

Rocksensor headquartered in Germany (originated in Switzerland), has its footprint in various geographical regions such as the US, Russia, South Korea, Italy, Germany, Singapore, Malaysia, China, Taiwan, Australia, UAE, Brazil, and India. Our clients come from some of the major industries such as Oil and Gas, Petrochemicals, Pharmaceuticals, FMCG, Automobiles, Water, Cement, Metal & Mining and mainly from the Power Industry like Nuclear, Thermal, Hydro and Solar.

Rocksensor deals in a wide range of highly accurate industrial automation instruments ensuring that even the complex industrial processes happen efficiently.

To fulfill the needs of our clients we make sure that our instruments work in even the harsh environmental conditions offering accurate recordings and communication.

We, at Rocksensor, believe in creating bonds that last a lifetime and create a success story for each and every client. Rocksensor aims to achieve a perfect fit in global market landscape and establish our footprints across the globe.

ROCKSENSOR®

CONTENTS

KEY APPLICATION INDUSTRIES

- Oil and Gas sector
- Cement
- Metal
- Pulp and Paper
- Agriculture
- Textiles
- Chemicals
- Power
- Water
- Pharmaceutical
- Fertilizer
- Plastics and HVAC

1. Technical Specifications

1. Output signal: 4- 20mA (two-wire system)

2. Damping: 0-30 seconds

3. Input signal

4. Intrinsic Safe (Ex ia) & Flameproof (Ex d)

5. The error between zero and full scale is less than 0.1%

6. Input and output isolation, isolation voltage 1.5kvac

7. Accuracy ±0.1%

8. Temperature influence: Pt100 is less than (0.05% + upper limit of range / range of range x 0.008%) / 10K Thermocouple is less than (0.05% + range upper limit (mV) / range range (mV) x 0.01% + 0.014K / range range (K)* 100%)/10K

If Pt100 (0 ~ 400°C) is less than 0.063% / 10K. If K-type thermocouple (0 ~ 1000°C) is less than 0.074% / 10K

9. Ingress Protection: IP67 (IEC60529)

10. Electromagnetic compatibility: IEC61326-1

11. Digital Display

(i): $5^1/_2$ digit backlit display

(ii): Response time: 0.5s

Input Signal	Universal Input (Thermocouple, RTD, mV)
RTD mode of connection	2, 3, 4 wires connection
Power	12~35 VDC
Communication protocol	(4~20)mA+HART
Channels	2 channels (Dual Input Type)
Insulation	1000VAC
DIsplay	LCD display/ no display (optional)
Operating temperarure range	(-40~85℃) (no display)
	(-20~70℃) (with display)
Humidity range	(5~95)%RH
Storage temperature	-40~85℃
Response time	0.5s~0.8s (depends on the type & wiring mode of the sensor)
Damping adjustment	Time constant of 0 ~ 32 seconds
Cold-end temperature	±0.5℃
Stability	±0.01% of 5 years
Alerting signal (only HART)	The alarm output can be set at 3.5 ... 23 mA Upper / lower limit current 20.8mA / 3.7mA
Current accuracy (only HART)	0.03%
Voltage Influence	±0.005%/V
Safety	Intrinsic safe (Ex ia IIC T4 Ga) & Flameproof (2G Ex db IIC T6 Gb)

Standard	Sensor	Measuring Range	Minimum Measuring Range
IEC584-1	Thermocouple B E J K R S T N	320 ~ 1820°C (-)200 ~ 900°C (-)200 ~ 1200°C (-)200 ~ 1372°C 0 ~ 1768°C 0 ~ 1768°C (-)200 ~ 400°C (-)200 ~ 1300°C	500°C 50°C 50°C 50°C 500°C 500°C 50°C 50°C
IEC751 2, 3 and 4 wire	Thermal resistance Pt100 Thermal resistance Pt1000	(-)200 ~ 850°C (-)200 ~ 250°C	20°C 20°C
Thermal Resistance	Ω	20 ~ 400Ω	20Ω
IEC751 2, 3 and 4 wire	CU50, CU100	(-)50 ~ 150°C (-)50 ~ 150°C	20°C 20°C
IEC751 α=0 0.00385;			

2. Technical indicators of thermal power resistance

- RTD accuracy (25°C)

Sensor type	Working range (°C)	Accuracy (25°C)	Heating drift (per ° C)
Resistance	0~500Ω	±0.04Ω	±0.001Ω
	0~4000Ω	±0.35Ω	±0.015Ω
PT100	-200 ~ 850°C	±0.15°C	±0.003°C
PT 200	-200 ~ 850°C	±0.15°C	±0.005°C
PT 500	-200 ~ 850°C	±0.15°C	±0.005°C
PT1000	-200 ~ 850°C	±0.15°C	±0.005°C
CU50	-50 ~ 150°C	±0.15°C	±0.005°C
CU100	-50~ 150°C	±0.10°C	±0.003°C

3. Thermocouple Technical Indicators

- Thermocouple accuracy (25℃)

Signal type	Sensor range range (℃)	accuracy (25℃)	Heating drift (per ° C)
millivolt	-100mV ~ +100mV	±0.025mV	±0.001 mV
B	500 ℃~ 1810℃	±0.77℃	±0.050℃
E	-200 ℃~ 1000℃	±0.20℃	±0.025℃
J	-190 ℃~ 1200℃	±0.35℃	±0.01℃
K	-200℃ ~ 1372℃	±0.40℃	±0.025℃
N	-190℃ ~ 1300℃	±0.50℃	±0.015℃
R	0℃ ~ 1768℃	±0.75℃	±0.023℃
S	0 ℃~ 1768℃	±0.70℃	±0.023℃
T	-200℃ ~ 400℃	±0.35℃	±0.015℃

4. Installation

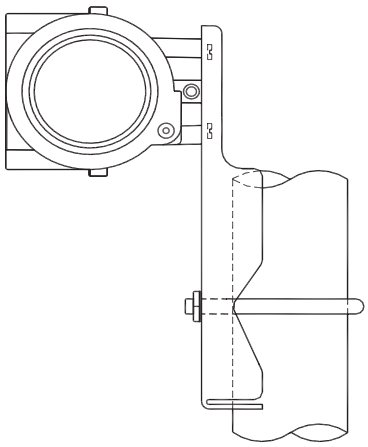


Figure 2.1 Flat bracket tube installation

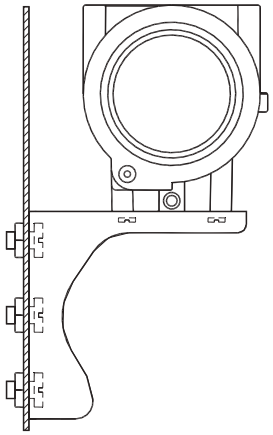


Figure 2.2 Curved bracket plate installation

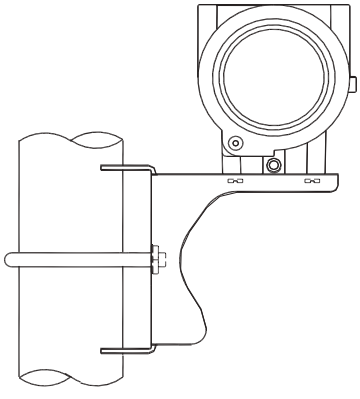


Figure 2.4 curved bracket tube installation 1

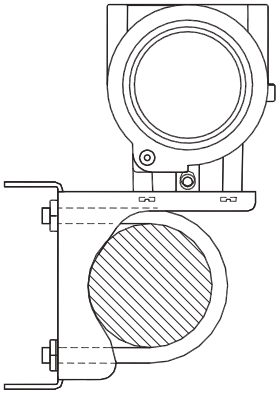
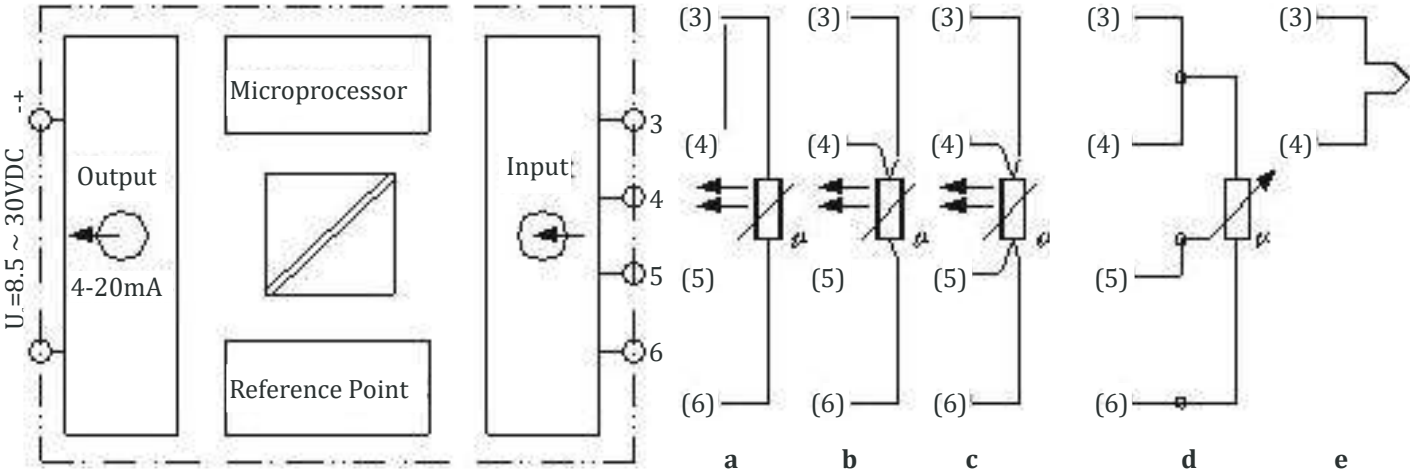


Figure 2.3 curved bracket tube installation 2

5. Wiring and Dimensions

a. Wiring Diagram



a) Two-wire thermal resistance input

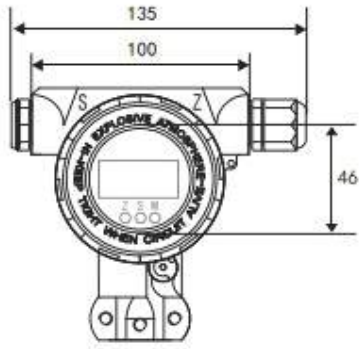
b) Three-wire thermal resistance input

c) Four-wire thermal resistance input

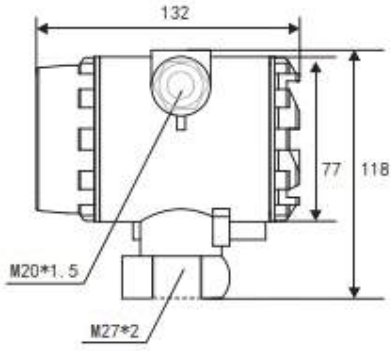
d) Double thermal resistance input, two-wire system

e) Potentiometer input (four-wire system)

b. Dimensions

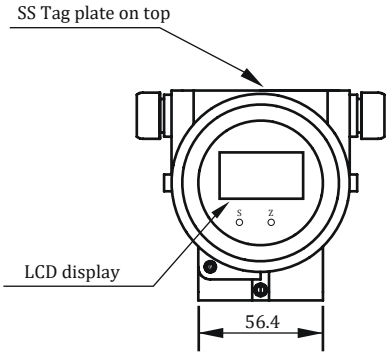


(Front View)

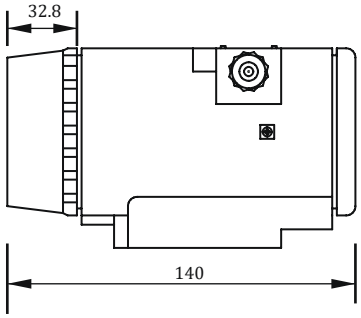


(Side View)

Single Chamber (RTT5000-S)



(Front View)

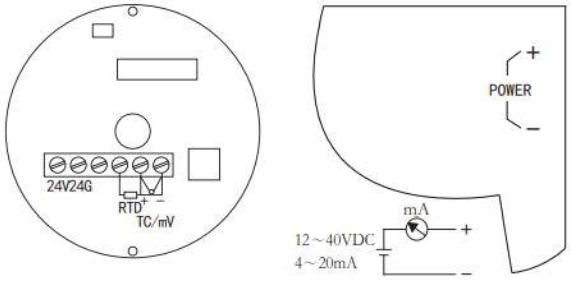


(Side View)

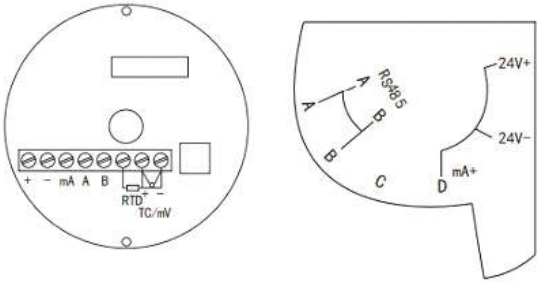
Dual Chamber (RTT5000-D)
(ATEX)

6. Terminal Configuration

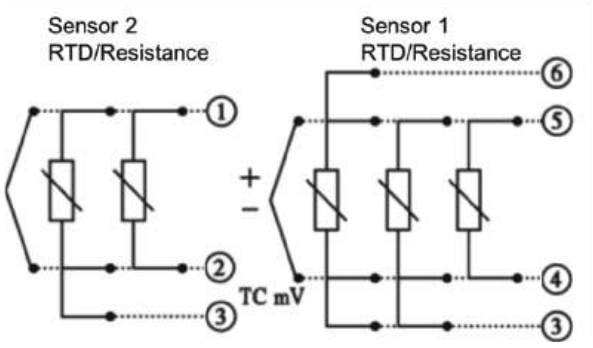
Terminals and diagram (4-20ma/Hart)



Terminals and diagram (4-20ma/RS485)



Single Chamber



Hardware Interface Description

Sensor Input 1									
Sensor Input 2		RTD 2-wire	RTD 3-wire	RTD 4-wire	Resistance 2-wire	Resistance 3-wire	Resistance 4-wire	Thermocouple	mV
	RTD 2-wire	☑	☑	☑	X	X	X	☑	X
	RTD 3-wire	☑	☑	☑	X	X	X	☑	X
	Resistance 2-wire	X	X	X	☑	☑	☑	X	X
	Resistance 3-wire	X	X	X	☑	☑	☑	X	X
	Thermocouple	☑	☑	☑	X	X	X	☑	X
	mV	X	X	X	X	X	X	X	☑

Sensor Wiring Instructions

Dual Chamber

ROCKSENSOR®

Sensing beyond the Vision

Field Instrumentation Range

Pressure Measurement

- Smart Differential Pressure Transmitter
- Smart Gauge Pressure Transmitter
- Smart Absolute PressureTransmitter
- Miniature Pressure Transducer without display
- Sanitary Gauge/ Absolute Pressure Transmitter
- Submersible Pressure Transmitter
- Remote Seal Differential P.T. with capillary
- Remote Seal Differential P.T. Direct Mount
- Remote Seal Gauge/Absolute P.T. with capillary
- Remote Seal Gauge/Absolute P.T. Direct Mount

Flow Measurement

- Coriolis Mass Flowmeter
- Thermal Gas Mass Flowmeter
- Positive Displacement Flowmeter
- Electromagnetic Flowmeter
- Vortex Flowmeter
- Turbine Flowmeter
- Variable Area Flowmeter
- Clamp On Ultrasonic Flowmeter
- Inline Ultrasonic Flowmeter
- Portable Ultrasonic Flowmeter

Level Measurement

- RADAR Level Transmitter Horn Antenna
- Compact RADAR Level Transmitter
- RADAR Level Transmitter Sanitary
- RADAR Level Transmitter
- Guided Wave RADAR Level Transmitter
- Guided Wave RADAR Level Transmitter
- RADAR Level Transmitter Lens Antenna
- RADAR Level Transmitter Rod Antenna
- Ultrasonic Level Transmitter
- Microwave Barrier Level Switch
- Admittance Level Switch Series
- Vibrating Rod Level Switch Series
- Tuning Fork Level Switch Series

Temperature Measurement

- Head Mount Temperature Transmitter
- Temperature Transmitter for Sanitary Applications
- DIN Rail Temperature Transmitter
- Field Mount Temperature Transmitter

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