VIVACE™
Process Instruments
Exceeding Automation Limits

VTT10-FH

HART TEMPERATURE TRANSMITTER

field model

HART COMMUNICATION FOUNDATION

- ✓ Two Wire Loop Powered Transmitter with HART® 7 / 4 – 20 mA Communication Protocol
- ✓ Five Digits, Rotary, Multifunctional with Bargraph LCD
- ✓ Sensor Inputs RTD, TC, Ohm and mV
- ✓ 4 – 20 mA Isolated Signal Repeater
- ✓ Dual Sensor for Backup, Maximum, Minimum and Average Temperature
- ✓ 2, 3 or 4 Wires Measurement
- ✓ Callendar Van Dusen
- ✓ Galvanic Isolation, 1.5 kVAC
- ✓ Power Supply 12 to 45 Vdc (no polarity)
- ✓ Analog Output 4-20 mA NAMUR NE 43
- ✓ Operating Temperature -40 to 85 °C
- ✓ Local Adjustment by Magnetic Tool
- ✓ Configuration, Calibration, Monitoring and Diagnostics via HART and Android Configurator and Supported by EDDL and FDT/DTM Tools

DESCRIPTION

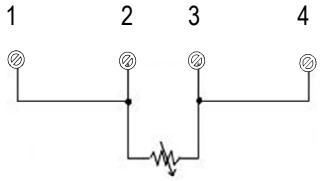
VTT10-FH is a member of the Vivace Process Instruments Temperature Transmitters Family, designed to field installation directly on the sensor, through a bracket on a 2" pipe or fixed on a wall or panel. It meets several type of sensors, such as thermocouples and RTDs, besides Ohm and mV. VTT10-FH also receives and retransmits 4 – 20 mA signals, so it is a 4 – 20 mA isolated signal repeater.

The transmitter is 12 to 45 Vdc loop powered and modulates the communication on a current of 4 to 20 mA, according to NAMUR NE43, using HART® 7 communication protocol, already established as the most used in the industrial automation world for configuration, calibration, monitoring and diagnostics.

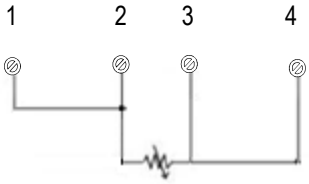
Using a HART configurator, Android platform or EDDL and FDT/DTM tools is possible to configure the sensor type, measuring scales, work units, calibration in addition to monitoring the measurement variables and checking the status of the device. It is also possible to configure the VTT10-FH via local adjustment using a magnetic tool.

Prioritizing its high performance and robustness, the VTT10-FH was designed with the latest technology of electronic components and materials, ensuring long-term reliability for any scale systems.

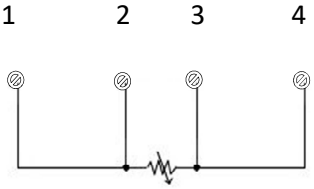
SENSOR CONNECTION



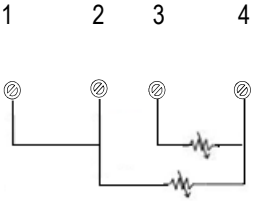
Two wires RTD or Ω connection



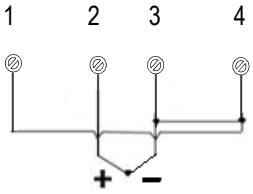
Three wires RTD or Ω connection



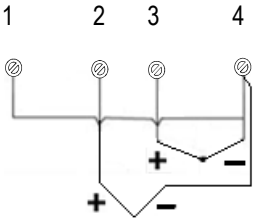
Four wires RTD or Ω connection



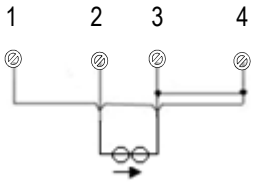
RTD or differential Ω connection



Thermocouple or mV connection



Thermocouple or differential mV connection



4 – 20 mA Input Connection

SENSOR TYPES

RTD – Temperature sensor based on resistance with 2, 3 or 4 wires connection

SENSOR OPTION	REFERENCE	INPUT RANGE (°C)	MINIMUM SPAN (°C)	ACCURACY (°C)
Pt100 (α=0.00385)	IEC751	-200 to 850	10	0.10
Pt200 (α=0.00385)	IEC751	-200 to 850	10	0.50
Pt500 (α=0.00385)	IEC751	-200 to 850	10	0.20
Pt1000 (α=0.00385)	IEC751	-200 to 300	10	0.20
Pt100 (α=0.003916)	JIS1604	-200 to 645	10	0.15
Pt200 (α=0.003916)	JIS1604	-200 to 645	10	0.70
Ni120	Edison Curve #7	-70 to 300	10	0.08
Cu10	Edison Copper Winding #15	-50 to 250	10	1.00
Pt50 (α=0,00391)	GOST 6651-94	-200 to 850	10	0.20
Pt100 (α=0,00391)	GOST 6651-94	-200 to 850	10	0.12
Cu50 (α=0.00426)	GOST 6651-94	-50 to 200	10	0.34
Cu50 (α=0.00428)	GOST 6651-94	-185 to 200	10	0.34
Cu100 (α=0.00426)	GOST 6651-94	-50 to 200	10	0.17
Cu100 (α=0.00428)	GOST 6651-94	-185 to 200	10	0.17

TC - Temperature sensor based on mV with 2 wires connection

SENSOR OPTION	REFERENCE	INPUT RANGES (°C)	MINIMUM SPAN(°C)	ACCURACY (°C)
Thermocouple B	IEC584	100 to 1820	25	0.75
Thermocouple E	IEC584	-50 to 1000	25	0.20
Thermocouple J	IEC584	-180 to 760	25	0.25
Thermocouple K	IEC584	-180 to 1372	25	0.25
Thermocouple N	IEC584	-200 to 1300	25	0.40
Thermocouple R	IEC584	0 to 1768	25	0.60
Thermocouple S	IEC584	0 to 1768	25	0.50
Thermocouple T	IEC584	-200 to 450	25	1.00
Thermocouple L	DIN43710	-200 to 900	25	0.35
Thermocouple U	DIN43710	-200 to 600	25	0.35
Thermocouple W3	ASTM E988-96	0 to 2000	25	0.70
Thermocouple W5	ASTM E988-96	0 to 2000	25	0.70
Thermocouple L	GOST R 8.585	-200 to 800	25	0.45

Ohm or mV - Linear resistive sensor or mV with 2, 3 or 4 wires

SENSOR OPTION	INPUT RANGES	ACCURACY
mV Input	-10 mV to 100 mV	0.015 mV
Ohm Input	0 Ohm to 2000 Ohm	0.45 Ohm

TECHNICAL AND PHYSICAL SPECIFICATIONS

Accuracy	As previous tables
Power Supply / Output Current	12 to 45 Vdc, no polarity / 4-20 mA according to NAMUR-NE43
Communication Protocol	HART® 7
Hazardous Area Certifications	Explosion Proof and Intrinsically Safe
Ambient Temperature Effects	For variation of 1 °C: - Resistive Sensors: ± 0.0052% of reading in Ohm - Millivoltage Sensors: ± 0.001% of reading in mV
Reading Stability	±0.1% of reading or 0.1°C (0.18°F) - whichever is greater. RTD: 3 years; Thermocouples: 2 years
Ambient Temperature Limits	- 40 to 85°C
Configuration	EDDL and FDT/DTM tools, as well as PALM and Android platform.
Assembly	In field, directly on the sensor, through a bracket on a 2” pipe or fixed on a wall or panel
Protection Degree	IP67
Electrical Isolation	Galvanic Isolation, 1.5 kVac
Housing Material	Aluminum
Approximate Weight with Bracket	1700 g

ORDERING CODE

VTT10-F *Temperature Transmitter - Field*

Communication Protocol	**H**	HART
	P	PROFIBUS
Certification Type	**0**	NO CERTIFICATION
	1	INTRINSICALLY SAFE
	2	EXPLOSION PROOF
Certification Body	**0**	NO CERTIFICATION
	1	INMETRO
Housing Material	**A**	ALUMINUM
Electrical Connection	**1**	½ – 14 NPT
Painting	**1**	BLUE – RAL 5005
Mounting Bracket	**0**	NO MOUNTING BRACKET
	1	SS 304 MOUNTING BRACKET

Ordering Code Example:

VTT10-F	**H**	**-**	**0**	**0**	**A**	**1**	**1**	**0**

**Explosion Proof Certification Ex tb (dust ignition) and Ex db (flame)*