

# VTT10-FP PROFIBUS PA TEMPERATURE TRANSMITTER

field model



- ✓ Two Wire Loop Powered Transmitter with Profibus-PA Communication Protocol
- ✓ Five Digits, Rotary, Multifunctional with Bargraph LCD
- ✓ Sensor Inputs RTD, TC, Ohm and mV
- ✓ Dual Sensor for Simple, Double, Differential and Backup Temperature Measurement
- ✓ 2, 3 or 4 Wires Measurement
- ✓ Callendar Van Dusen
- ✓ Galvanic Isolation, 1,5 kVAC
- Power Supply
  9 to 32 Vdc (no polarity)
- ✓ Operating Temperature -40 to 85 °C
- ✓ Local Adjustment by Magnetic Tool
- ✓ Configuration, Calibration, Monitoring and Diagnóstics via Configurator and Supported by EDDL and FDT/DTM

#### DESCRIPTION

**VTT10-FP** 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-FP** also receives and retransmits 4 - 20 mA signals, so it is a 4 - 20 mA isolated signal repeater.

The transmitter is 9 to 32 Vdc loop powered and uses Profibus PA communication protocol for configuration, calibration, monitoring and diagnostics.

Using a Profibus PA 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-FP** via local adjustment using a magnetic tool.

Prioritizing its high performance and robustness, the **VTT10-FP** 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  $\Omega$  connection



Four wires RTD or  $\Omega$  connection



Thermocouple or mV connection



4 – 20 mA Input Connection



Three wires RTD or  $\boldsymbol{\Omega}$  connection



RTD or differential  $\Omega$  connection



Thermocouple or differential mV connection

#### **SENSOR TYPE**

	RTD -	Temperature sensor	based on resistance	with 2.3 or	4 wires connection.
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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 Ediso	n Copper Winding	1 #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

 $\ensuremath{\text{TC}}$  - 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 F	IEC584	-50 to 1000	25	0 20
	IEC584	-180 to 760	25	0.25
Thermocouple K	IEC 584	-180 to 1372	25	0.25
Thermosouple N	IEC594	200 to 1300	25	0.40
	IEC584	-200 to 1300	25	0.40
	IEC364	0101700	25	0.00
Thermocouple S	IEC584	0 to 1/68	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 the above tables					
Power Supply / Quiescent Current	9 to 32 Vdc, no polarity / 12 mA					
Communication Protocol	Profibus PA, According to IEC 61158-2(H1), Voltage Mode 31,25 Kbits/s with Bus Power					
Functional Blocks	2 Analog Input Blocks (Al)					
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	Remote configuration through EDDL and FDT/DTM tools, besides Android platform. Local configuration through magnetic tool.					
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 P		HART PROFIBUS						
CertificationType			0 NO CERTIFICATION 1 INTRINSICALLY SAFE 2 EXPLOSION PROOF						
Certification Body				0	NO INN	CER	tific Ro	ATIO	DN
HousingMaterial					A	ALI	JMIN	JM	
Electrical Connection						1	1⁄2 -	14 N	IPT
Painting							1	BL	UE – RAL 5005
Mounting Bracket								0	NO MOUNTING BRACKET SS 304 MOUNTING BRACKET
Ordering Code Example:									
VTT10-F	Ρ	-	0	0	Α	1	1	0	



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