



# TEMPERATURE TRANSMITTERS

## TT300 SERIES

- *0.02% Basic Accuracy*
- *Single Unit and Several Options for Sensors and Connections*
- *Input Signal Isolation*
- *PID Control Capability*
- *Advanced Diagnostics*
- *Largest Library of Function Block Execution Capacity*
- *Supported by DD, EDDL, and FDT/DTM*
- *Dual Channel*
- *Sensor Backup*
- *Three Technology Options*



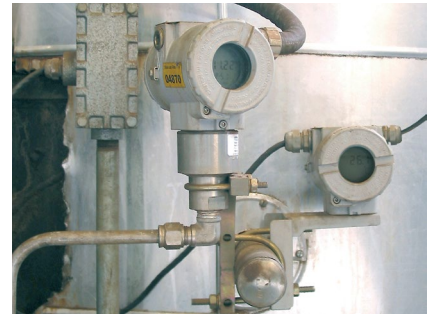
RTDs and thermocouples

### **TT300 Series**

Transmitters measure temperature using thermocouples or RTDs, however other sensors with resistance or mV outputs such as pyrometers, load cells and resistance position indicators can be used as well. The digital technology used allows the choice of several output functions, an easy interfacing between the field and the control room and other features that considerably reduce installation, operation and maintenance costs.



- 0.02% Accuracy;
- Built-in thermocouples and RTDs linearization;
- True non-interactive zero and span;
- Local zero and span adjustment;
- Remote configuration via Hand-Held Terminal or via PC;
- Alphanumerical LCD indication;
- Small and lightweight;
- Explosion proof and weather proof housing approved (IP66/68 ou IP66/68W);
- Intrinsically safe certification;
- Signal simulation for loop tests;
- Signal isolation;
- Configurable user unit;
- Configurable local adjustment;
- EMC (Electromagnetic Compatibility) according to IEC 61000-6-2: 1999, IEC 61000-6-4: 1997 and IEC 61326: 2002;
- Write protection function;
- Three technology options: HART®, FOUNDATION™ fieldbus, and PROFIBUS PA;
- Sensor backup\*;
- Universal input accepts several thermocouples, RTDs, mV and Ohm.



**HART® - 4 to 20 mA**

- Excellent long term stability due to auto-zero at the input circuit;
- 2-wire, 4-20 mA output and direct digital communication;
- Special 16-point sensor characterization;
- Update output current in 0.5 s with 1.5 µA/bit resolution;
- Improved performance due to dedicated math coprocessor;
- Multidrop operation mode;
- PID control function;
- Match sensor (Callendar Van Dusen equation);
- Maximum, minimum and average input sensor selection, also working with two sensors simultaneously;
- Pt1000 included in sensor list;
- Setpoint generator function;
- Supports DTM, DD and EDDL.

**FOUNDATION™ fieldbus**

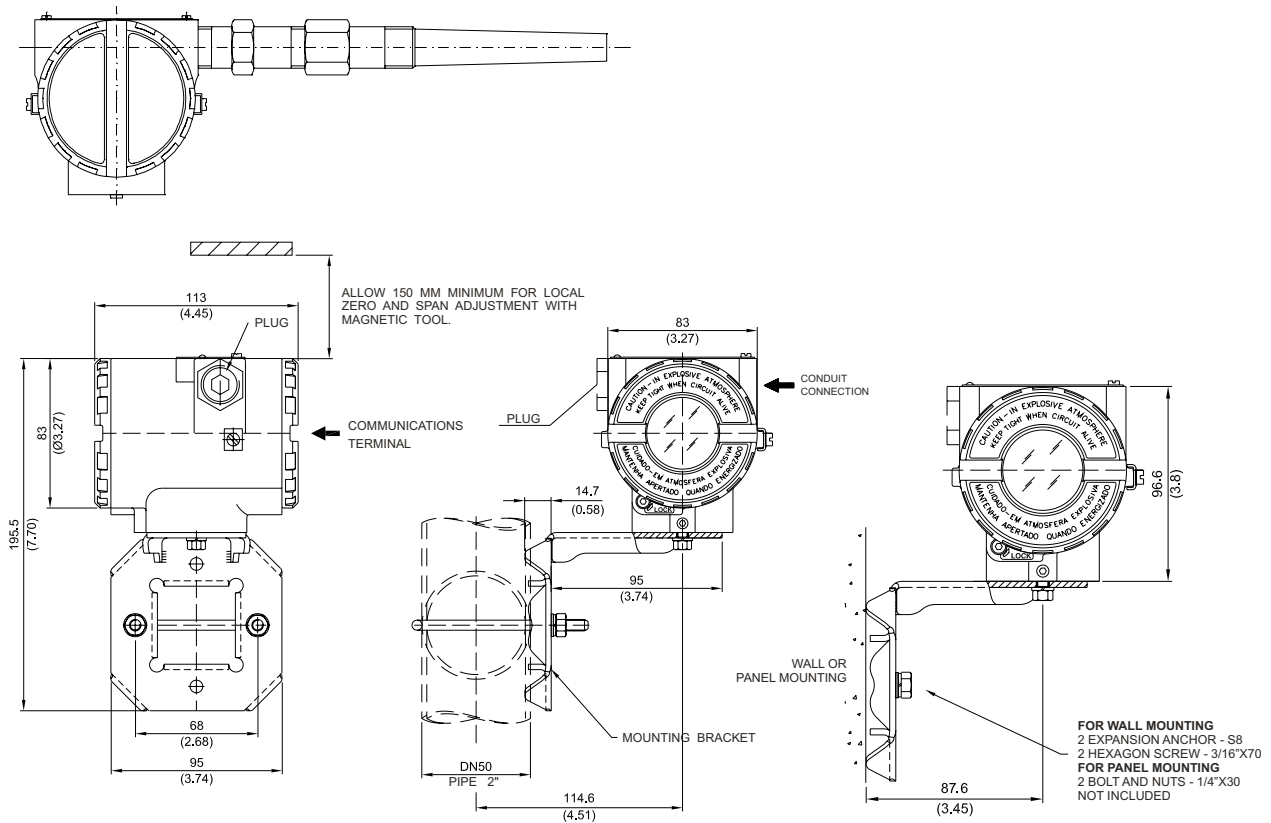
- Self-diagnosis;
- Dual channel;
- 12 mA consumption;
- 19 different types of function blocks for control strategies and advanced diagnostics;
- Up to 20 function blocks;
- Execution of up to 29 external links;
- Dynamic block instantiation improves interchangeability;
- Fieldbus Foundation™ registered and ITK approved, version 6.3.1;
- LAS (Link Active Scheduler) capability;
- MVC (Multivariable Container) enabled.

**PROFIBUS PA**

- Self-diagnosis;
- Dual channel;
- 12mA consumption;
- 2 analog input function blocks;
- Integrated to Smar Profibus View and Simatic PDM;
- Supports DTM and EDDL;
- Profile 3.0 improves interchangeability.

\*Consult your Smar representative to check option availability.





**TT300 Series offers:**

- ± 0.02% accuracy;
- Built-in thermocouples and RTDs linearization;
- Compact and lightweight;
- Interchangeable protocols.

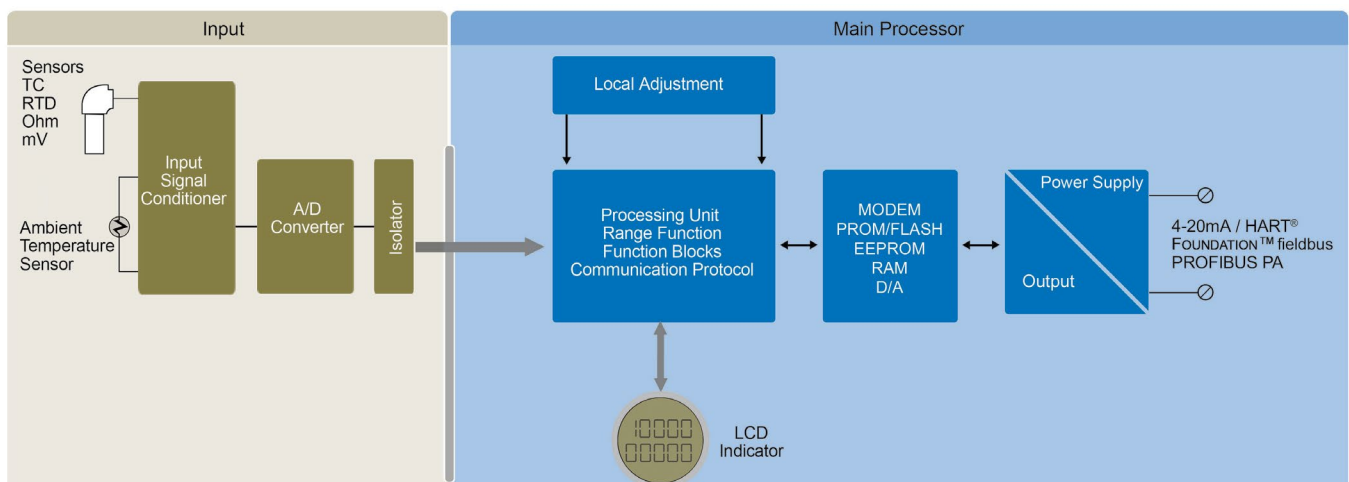
The Smar TT300 Series is a transmitter mainly intended for measurement of temperature using RTDs or thermocouples. However, it can also accept other sensors with resistance or mV output such as pyrometers, load cells, resistance position indicators, etc. The TT300 Series accepts up to two sensors and may operate in one of the modes below\*:

- Single channel with single sensor measurement;
- Dual channel with dual sensor measurement (except HART protocol device);
- Single channel with two sensors (same type) in differential measurement;
- Single channel with two sensors (same type) in backup measurement;

- Single channel with two sensors (same type) with maximum, minimum or average signal selection (only HART protocol device).

The Smar TT300 Series is a powerful and extremely versatile smart temperature transmitter. The digital technology used in the TT300 Series enables a single device to accept several types of sensors, wide ranges, single or multiple-ended measurement and an easy interface between the field and the control room. It also includes several features which reduce considerably the installation, operation and maintenance costs. The transmitter accepts two channels, i.e., two measurements. It reduces the cost per channel.

The TT300 Series is suitable for direct field installation, being weather proof and explosion proof, as well as intrinsically safe, for use in hazardous areas.



\* Please consult your Smar representative to check the option availability.



**TT300Series** is available in three different technologies: HART® (**TT301**), FOUNDATION™ fieldbus (**TT302**), and PROFIBUS PA (**TT303**). These instruments can be configured with Smar software and other manufacturer configuration tools. Local adjustment is available in all **TT300 Series**. It is possible

to configure zero and span, setpoint and other control functions using the magnetic tool (SD1). With Smar AssetView, an user-friendly Web Tool, user can access the plant assets anywhere and anytime using an Internet browser. It is designed for management and diagnostics of field devices to ensure reactive, preventive, predictive and proactive maintenance.

Local Adjustment

### HART® - TT301

**TT301** (HART® protocol) can be configured by:

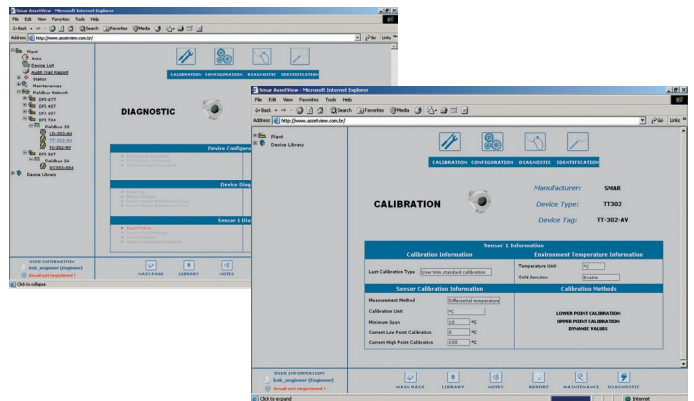
- Smar's DEVCOMDROID software, used with the HI331 Bluetooth interface;
  - Smar CONF401 for Windows;
  - Smar DDCON100 for Windows;
  - Other manufacturers' configuration tools based on DD (Device Description) or DTM (Device Type Manager), such as AMS™, FieldCare, PACTware™, HHT275, HHT375 and PRM Device Viewer.
- For management and diagnostics, AssetView ensures continuous information monitoring.

### FOUNDATION™ fieldbus - TT302

**TT302** utilizes the FOUNDATION™ fieldbus H1 protocol, an open technology that allows any H1 enabled configuration tool to configure this device.

Syscon (System Configuration Tool) is a software tool used to configure, and operate the field devices. Syscon offers efficient and friendly interaction with the user, using Windows. Configuration tools such as AMS™, FieldCare and HHT375 can configure **TT302** devices. DD (Device Description) and CF (Capability File) files can be downloaded at either the Smar or Fieldbus Foundation™ website.

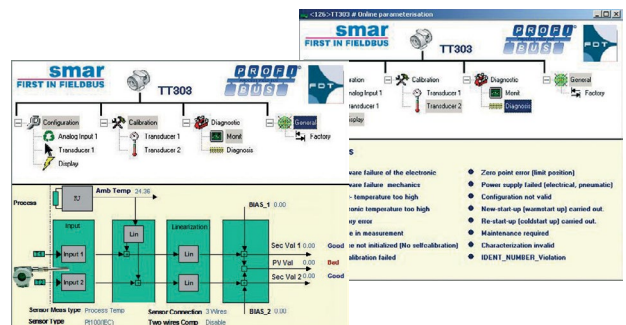
**TT302** supports complex strategies configuration due to the high capacity and variety of dynamic instantiable function blocks.



### PROFIBUS PA - TT303

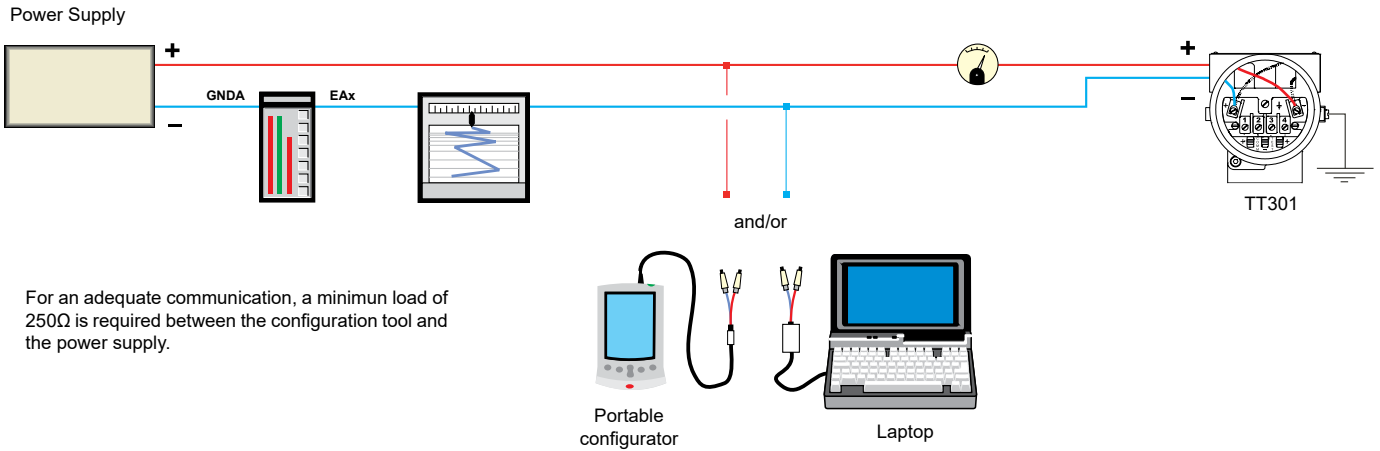
**TT303** (PROFIBUS PA protocol) can be configured using configuring Smar Profibus View, Simatic PDM, FDT (Field Device Tool) and DTM (Device Type Manager) concept tools, such as FieldCare and PACTware™. It can also be integrated by any PROFIBUS System using the GSD (General Station Description) file.

PROFIBUS PA also has quality and diagnostics information, improving plant management and maintenance.

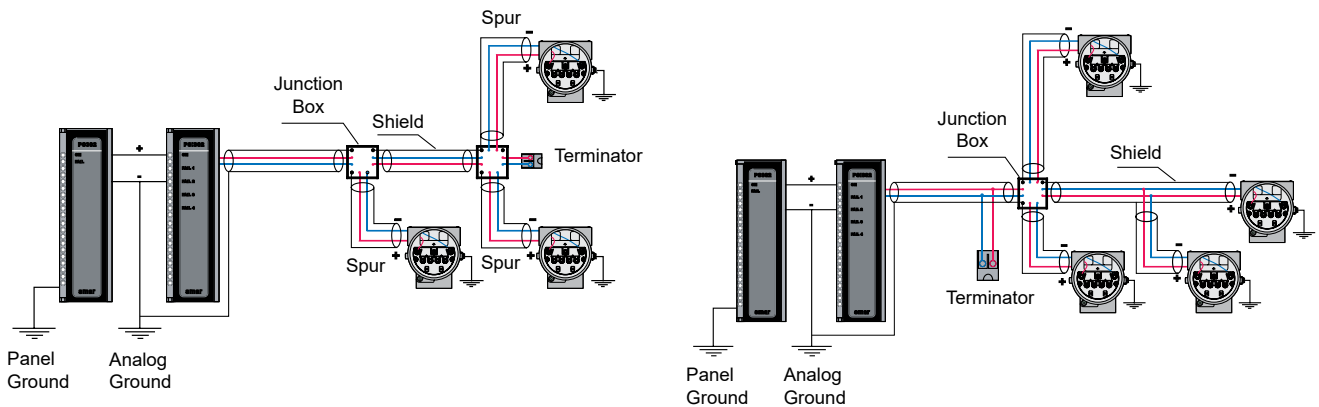


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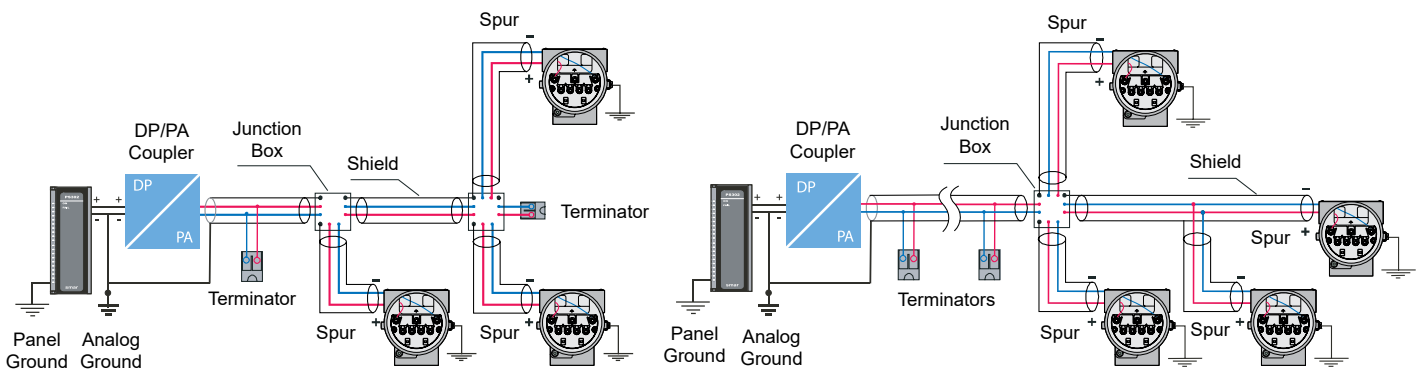
### HART® - TT301



### FOUNDATION™ fieldbus - TT302

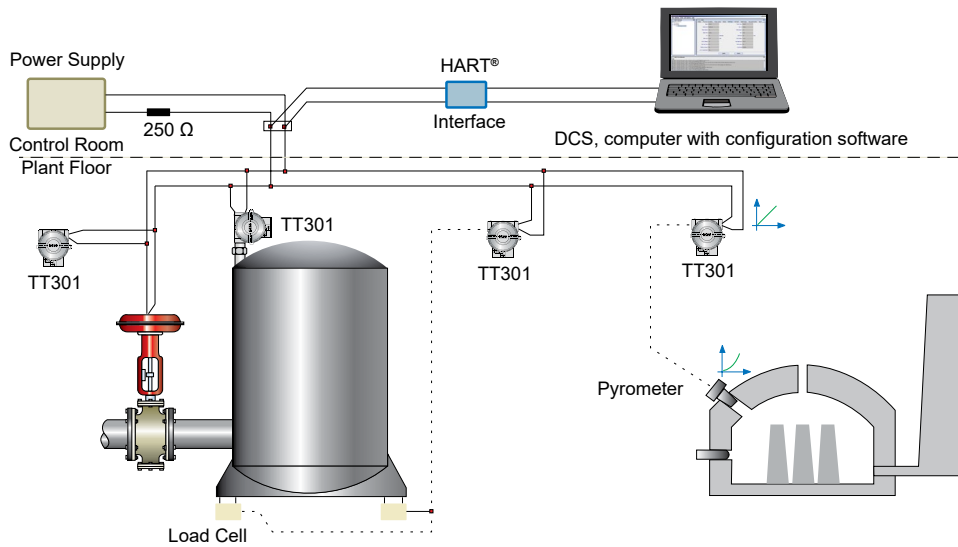


### PROFIBUS - TT303

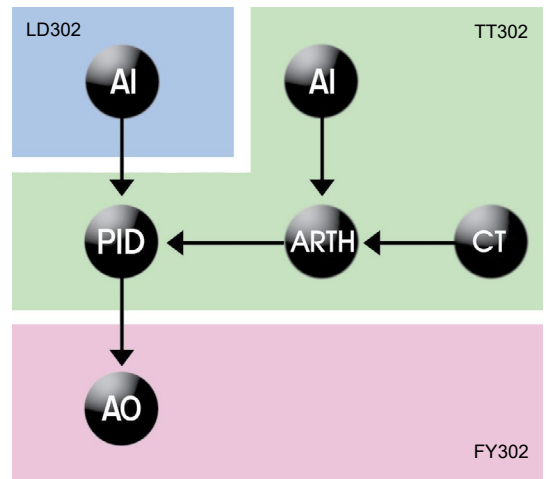
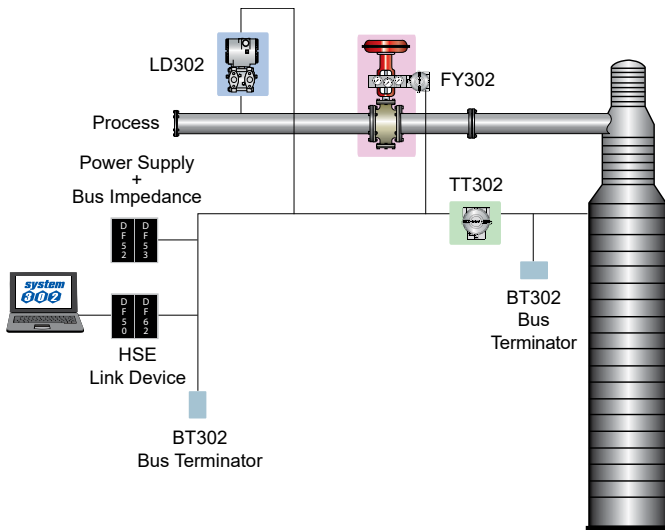


\* For some DP/PA couplers, the bus terminator is built-in.

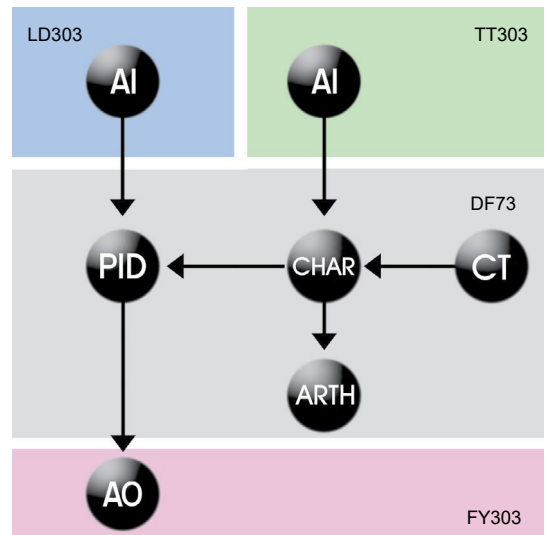
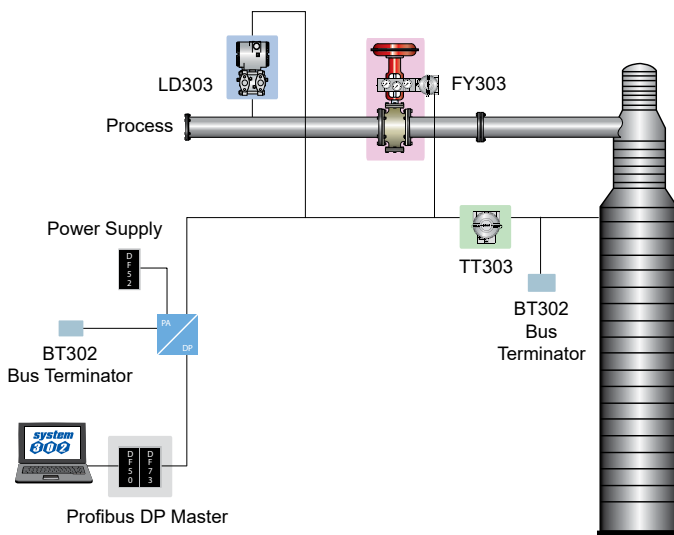
**HART® - TT301**



**FOUNDATION™ fieldbus - TT302**



**PROFIBUS - TT303**



**Functional Specifications**

<b>Inputs</b>	See table 1, 2 and 3.
<b>Output and Communication Protocol</b>	<p><b>HART®:</b> 2-wire, 4-20 mA according to NAMUR NE43 specification, with super-imposed digital communication (HART® Protocol).</p> <p><b>FOUNDATION™ fieldbus and PROFIBUS PA:</b> Digital only. Complies with IEC 61158-2: 2000 (H1): 31.25 kbit/s voltage mode, bus powered.</p>
<b>Power Supply / Current Consumption</b>	<p><b>HART®:</b> 12 to 45 Vdc.</p> <p><b>FOUNDATION™ fieldbus and PROFIBUS PA:</b> Bus powered: 9 - 32 Vdc. Quiescent current consumption: 12 mA.</p>
<b>Indicator</b>	4½-digit numerical and 5-character alphanumeric LCD indicator (optional).
<b>Hazardous Area Certifications</b>	<p><b>HART®, FOUNDATION™ fieldbus and PROFIBUS PA:</b> INMETRO certification (CEPEL), FM, ATEX and IECEX (Nemko-Presafe and Dekra-Exam) for intrinsically safe and explosion proof, INMETRO (CEPEL) and FM for dust ignition proof.</p> <p><b>FOUNDATION™ fieldbus and PROFIBUS PA:</b> FISCO Field Device Ex ia IIC T4 Ga FISCO Field Device Ex n1 IIC T4 Gc</p>
<b>European Directive Information</b>	<p><b>Authorized representative in European Community</b> Smar Gmbh-Rheingaustrasse 9-55545 Bad Kreuznach</p> <p><b>EMC Directive (2014/30/EU) - Electromagnetic Compatibility</b> For products evaluation the standard IEC 61326-1 were consulted and to comply with the EMC directive the installation must follow these special conditions: Use shielded, twisted-pair cable for powering the instrument and signal wiring. Keep the shield insulated at the instrument side, connecting the other one to the ground.</p> <p><b>ATEX Directive (2014/34/EU) - Equipment and protective systems intended for use in potentially explosive atmospheres.</b> The EC-Type Examination Certificate is released by DNV GL Presafe AS (CE2460) and DEKRA EXAM GmbH (CE0158). Designated certification body that monitors manufacturing and released QAN (Quality Assurance Notification) and QAR (Quality Assessment Report) is Nemko AS (CE0470).</p> <p><b>LVD Directive (2014/35/EU) - Low Voltage</b> According the LVD directive Annex II, electrical equipment for use in an explosive atmosphere is outside the scope of this directive. According to IEC 61010-1 - Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements.</p>
<b>Zero and Span Adjustments</b>	Noninteractive, via local adjustment and digital communication.
<b>Failure Alarm (Diagnostics)</b>	<p>Detailed diagnostics through communication for all protocols.</p> <p><b>HART®:</b> In case of sensor or circuit failure, the self diagnostics drives the output to 3.6 or 21.0 mA, according to the user's choice and NAMUR NE43 specification.</p> <p><b>FOUNDATION™ fieldbus:</b> For sensor circuit failures, events are generated and status is sent to link outputs. Detailed diagnostics are available in the contained parameters.</p> <p><b>PROFIBUS PA:</b> For sensor or circuit failures, status is sent to link outputs. Detailed diagnostics are available in the contained parameters.</p>
<b>Temperature Limits</b>	<p>Ambiente:        -40 °C to 85 °C        (-40 to 185 °F)</p> <p>Storage:         -40 °C to 120 °C       (-40 to 248 °F)</p> <p>Digital Display: -20 °C to 80 °C       (-4 to 176 °F) (normal operation)</p> <p>                      -40 °C to 85 °C        (-40 to 185 °F) (without damage)</p>

<b>Turn-on Time</b>	<p><b>HART®:</b> Performs within specifications in less than 10 seconds after power is applied to the transmitter.</p> <p><b>FOUNDATION™ fieldbus and PROFIBUS PA:</b> Performs within specifications in less than 10 seconds after power is applied to the transmitter.</p>
<b>Configuration</b>	<p><b>HART®:</b> Through digital communication, using DevComDroid configuration software (Android DDL Interpreter), used with HART interfaces, such as HI331 bluetooth interface. However, the old Palm with HPC301 or CONF401, which are obsolete, are still operable with the latest versions of HART transmitters. The FY300 HART can also be configured using third-party configuration tools, and can be partially configured through local adjustment using the Smar magnetic tool.</p> <p><b>FOUNDATION™ fieldbus and PROFIBUS PA:</b> Basic configuration may be done using the local adjustment magnetic tool if device is supplied with display. Complete configuration is possible using configuration tools such as Syscon (System Configuration Tool), AMS™, FieldCare and HHT375. The <b>TT303</b> can be configured via Smar Profibus View and Simatic PDM using EDDL.</p>
<b>Humidity Limits</b>	0 to 100% Relative Humidity.
<b>Damping Adjustment</b>	User configurable from 0 to 32 seconds (via digital communication).

**Performance Specifications**

<b>Accuracy</b>	See tables 1, 2, and 3.	
<b>Digital Stability</b>	<p>±0.1% of reading or 0.1 °C (0.18 °F), whichever is greater, for 2 years for RTDs;</p> <p>±0.1% of reading or 0.1 °C (0.18 °F), whichever is greater, for 1 year for thermocouples.</p>	
<b>Temperature Effect</b>	<p>For a 10 °C variation:</p> <p>mV (-6 to 22 mV), TC (NBS: B, R, S,T): ± 0.03% of the input millivoltage or 0.002 mV whichever is greater;</p> <p>mV (-10 to 100 mV), TC (NBS: E, J, K, N; DIN: L, U): ± 0.03% of the input millivoltage or 0.01 mV whichever is greater;</p> <p>mV (-50 to 500 mV): ± 0.03% of the input millivoltage or 0.05 mV whichever is greater;</p> <p>Ohm (0 to 100Ω), RTD (GE: Cu10): ± 0.03% of the input resistance or 0.01Ω whichever is greater;</p> <p>Ohm (0 to 400Ω), RTD (DIN: Ni120; IEC: Pt50, Pt100; JIS: Pt50, Pt100): ± 0.03% of the input resistance or 0.04Ω whichever is greater;</p> <p>Ohm (0 to 2000Ω), RTD (IEC: Pt500), RTD (IEC: Pt1000): ±0.03% of the input resistance or 0.2Ω whichever is greater;</p>	
<b>Power Supply Effect</b>	± 0.005% of calibrated span per volt.	
<b>Electromagnetic Interference Effect</b>	Approved according to IEC 61326: 2002.	
<b>Electrical Connection</b>	<p>1/2 - 14 NPT M20 X 1.5 PG 13.5 DIN</p>	<p>1/2 - 14 NPT X 3/4 NPT (316 SST) - with adapter 1/2 - 14 NPT X 3/4 BSP (316 SST) - with adapter 1/2 - 14 NPT X 1/2 BSP (316 SST) - with adapter</p>

**Note:** Explosion proof approvals do not apply to adapter, only to transmitter.



Physical Specifications

<b>Mounting</b>	Can be attached directly to the sensor. With an optional bracket can be installed on a 2" pipe or fixed on a wall or panel.
<b>Approximate Weights</b>	Without display and mounting bracket: 0.80 kg. Add for digital display: 0.13 kg. Add for mounting bracket: 0.60 kg.
<b>Control Functions Characteristics (Optional)</b>	<p><b>HART®:</b> PID Control, Alarm and Setpoint Ramp Generator.</p> <p><b>FOUNDATION™ fieldbus Function Blocks:</b> Resource, Transducer, Display Transducer, Diagnostic Transducer, Analog Input, PID Control, Enhanced PID Control, Arithmetic, Integrator, Input Selector, Signal Characterizer, Splitter, Analog Alarm, Timer, Lead Lag, Output Selector/Dynamic Limiter, Setpoint Generator and Constant.</p> <p><b>PROFIBUS PA Function Blocks:</b> Physical Block, Transducer, Display Transducer, and Analog Input.</p> <p><b>Note:</b> Additional information can be found in the Function Blocks Instruction Manual.</p>

Inputs

SENSOR	TYPE	2, 3, OR 4 WIRES				DIFFERENTIAL			
		RANGE °C	RANGE °F	MINIMUM SPAN °C	°C DIGITAL ACCURACY*	RANGE °C	RANGE °F	MINIMUM SPAN °C	°C DIGITAL ACCURACY*
RTD	Cu 10 GE	-20 to 250	-4 to 482	50	± 1.0	-270 to 270	-486 to 486	50	± 2.0
	Ni120 Edison Curve #7	-50 to 270	-58 to 518	5	± 0.1	-320 to 320	-576 to 576	5	± 0.5
	Pt50 IEC	-200 to 850	-328 to 1562	10	± 0.25	-1050 to 1050	-1890 to 1890	10	± 1.0
	Pt100 IEC	-200 to 850	-328 to 1562	10	± 0.2	-1050 to 1050	-1890 to 1890	10	± 1.0
	Pt500 IEC	-200 to 450	-328 to 842	10	± 0.2	NA	NA	NA	NA
	Pt1000 IEC	-200 to 300	-328 to 572	10	± 0.2	NA	NA	NA	NA
	Pt50 JIS	-200 to 600	-328 to 1112	10	± 0.25	-800 to 800	-1440 to 1440	10	± 1.0
	Pt100 JIS	-200 to 600	-328 to 1112	10	± 0.25	-800 to 800	-1440 to 1440	10	± 1.5
	Pt100 MILT	-40 to 540	-40 to 1000	10	± 0.2	-580 to 580	-1040 to 1040	10	± 1.0
	Ni120 MILT	-40 to 205	-40 to 400	5	± 0.13	-245 to 245	-440 to 440	5	± 0.5
	Pt100 IEC	-200 to 850	-328 to 1562	10	± 0.2	-1050 to 1050	-1890 to 1890	10	± 1.0
	Pt100 GOST	-200 to 850	-328 to 1562	10	± 0.2	-1050 to 1050	-1890 to 1890	10	± 1.0
	Pt50 GOST	-200 to 850	-328 to 1562	10	± 0.2	-1050 to 1050	-1890 to 1890	10	± 1.0
	Cu100 GOST	-50 to 200	-58 to 392	10	± 0.15	-350 to 350	-450 to 450	10	± 1.0
	Cu50 GOST	-50 to 200	-58 to 392	10	± 0.15	-350 to 350	-450 to 450	10	± 1.0
THERMO-COUPLE	B NBS	100 to 1800	212 to 3272	50	± 0.5**	-1700 to 1700	-3060 to 3060	60	± 1.0**
	E NBS	-100 to 1000	-148 to 1832	20	± 0.2	-1100 to 1100	-1980 to 1980	20	± 1.0
	J NBS	-150 to 750	-238 to 1382	30	± 0.3	-900 to 900	-1620 to 1620	30	± 0.6
	K NBS	-200 to 1350	-328 to 2462	60	± 0.6	-1550 to 1550	-2790 to 2790	60	± 1.2
	N NBS	-100 to 1300	-148 to 2372	50	± 0.5	-1400 to 1400	-2520 to 2520	50	± 1.0
	R NBS	0 to 1750	32 to 3182	40	± 0.4	-1750 to 1750	-3150 to 3150	40	± 2.0
	S NBS	0 to 1750	32 to 3182	40	± 0.4	-1750 to 1750	-3150 to 3150	40	± 2.0
	T NBS	-200 to 400	-328 to 752	15	± 0.15	-600 to 600	-1080 to 1080	15	± 0.8
	L DIN	-200 to 900	-328 to 1652	35	± 0.35	-1100 to 1100	-1980 to 1980	35	± 0.7
	U DIN	-200 to 600	-328 to 1112	50	± 0.5	-800 to 800	-1440 to 1440	50	± 2.5

Table 1 - Sensor Characteristics

SENSOR	RANGE mV	MINIMUM SPAN mV	DIGITAL* ACCURACY %
mV	-6 to 22	0.40	± 0.02% or ± 2 µV
	-10 to 100	2.00	± 0.02% or ± 10 µV
	-50 to 500	10.00	± 0.02% or ± 50 µV

Table 2 - mV Sensor Characteristics

SENSOR	RANGE Ohm	MINIMUM SPAN Ohm	DIGITAL* ACCURACY %
Ohm	0 to 100	1	± 0.02% or ± 0.01 Ohm
	0 to 400	4	± 0.02% or ± 0.04 Ohm
	0 to 2000	20	± 0.02% or ± 0.20 Ohm

Table 3 - Ohm Sensor Characteristics

\* Accuracy of value read on display and accessed by communication.

\*\* Not applicable for the first 20% of the range (up to 440°C).

NA: Not applicable.

MODEL	TEMPERATURE TRANSMITTER											
TT301 TT302 TT303	HART® & 4 to 20 mA FOUNDATION™ fieldbus PROFIBUS PA											
<b>COD. Local Indicator</b>												
0		Without Indicator			1		With Digital Indicator					
<b>COD. Mounting Bracket</b>												
A		Flat, 304 SST bracket and 316 SST accessories			1		Carbon Steel Bracket		7		Carbon Steel Bracket with 316 SST accessories	
0		Without Bracket			2		316 SST Bracket					
<b>COD. Set this code as "1" for TT301 and exclude for the others</b>												
<b>COD. Electrical Connections</b>												
0		1/2 - 14 NPT (8)			3		1/2 - 14 NPT X 1/2 BSP (316 SST) - With adapter (2)			Z		According to user's notes
1		1/2 - 14 NPT X 3/4 NPT (316 SST) - With adapter (9)			A		M20 x 1.5 (10)					
2		1/2 - 14 NPT X 3/4 BSP (316 SST) - With adapter (2)			B		PG 13.5 DIN (11)					
<b>COD. Housing Material (13) (14)</b>												
H0		Aluminum (IP/TYPE)			H3		Aluminum for saline atmosphere (IPW/TYPEX) (15)			H4		Copper Free Aluminium (IPW/TYPEX) (15)
H1		316 SST (IP/TYPE)			H3		316 SST for saline atmospheres (IPW/TYPEX) (15)					
<b>COD. Identification Plate (12)</b>												
I1		FM (XP, IS, NI, DIP)			I7		ATEX (EX I) MINNING					
I4		ATEX (EX I, EX D) GAS			I8		IECEX (EX D) GAS					
I5		INMETRO (EX D, EX I) GAS			I9		INMETRO (EX T) DUST					
I6		Without Certification										
<b>COD. Tag Plate (12)</b>												
J0		With tag, when specified (Default)			J1		Blank			J2		According to user's notes
<b>COD. Sensor Connection</b>												
L2		2-wire			L4		4-wire			LD		Double 2-wire (3)
L3		3-wire			LF		Differential			LB		Backup
<b>COD. PID Configuration - (4)</b>												
M0		With PID (Default)			M1		Without PID					
<b>COD. LCD1 Indication - (4)</b>												
Y0		LCD1: Percentage (Default)			Y3		LCD1: Temperature (Engineering Unit)					
Y1		LCD1: Current - I (mA)			YU		LCD1: According to user notes (1) (7)					
<b>COD. LCD2 Indication - (4)</b>												
Y0		LCD2: Percentage (Default)			Y6		LCD2: Temperature (Engineering Unit)					
Y4		LCD2: Current - I (mA)			YU		LCD2: According to user notes (1) (7)					
<b>COD. Painting</b>												
P0		Gray Munsell N 6.5 Polyester (Default)			P1		Safety Blue Epoxy – Imersion Condition – Petrobras N1021					
P2		Safety Blue Epoxy – Atmospheric Zone - Petrobras N1021			P3		Black Polyester					
P7		Beige Epoxy			P8		Without Painting					
P9		Safety Blue Epoxy - Electrostatic Painting			PC		Safety Blue Polyester					
PG		Safety Orange Epoxy			PH		Special Painting					
<b>COD. Sensor Type</b>												
T1		RTD Cu10 - GE			TB		Thermocouple type E - NBS			TQ		22 mV
T2		RTD Ni120 - Edison Curve #7			TC		Thermocouple type J - NBS			TR		100 mV
T3		RTD Pt50 - IEC			TD		Thermocouple type K - NBS			TS		500 mV
T4		RTD PT100 - IEC			TE		Thermocouple type N - NBS			TT		Special mV (4)
T5		RTD PT500 - IEC			TF		Thermocouple type R - NBS			TV		RTD Pt100 MILT
T6		RTD PT50 - JIS			TG		Thermocouple type S - NBS			TW		RTD Ni120 MILT
T7		RTD PT100 - JIS			TH		Thermocouple type T - NBS			TX		RTD Pt100 - IEC (4)
TU		RTD PT1000 - IEC (4)			TK		Thermocouple type L - DIN			10		RTD Pt100 - GOST (4)
T8		2K OHM			TP		Thermocouple type U - DIN			11		RTD Pt50 - GOST (4)
T9		400 OHM			TN		100 OHM			12		Cu100 - GOST (4)
TA		Thermocouple type B - NBS			TO		Special OHM (4)			13		Cu50 - GOST (4)
<b>COD. Burn-out (4)</b>												
BD		Down Scale			BU		Up Scale					

TT301	1	2	1	0	H1	I1	J0	L2	M0	Y0	Y0	P8	T1	BU
TT302	1	2		0	H1	I1	J0	L2				P8	T1	
TT303	1	2		0	H1	I1	J0	L2				P8	T1	

**Note:**

- (1) Values limited to 4 ½ digits; units limited to 5 characters.
- (2) Not certified for use in hazardous locations.
- (3) Only available for TT302 and TT303.
- (4) Only available for TT301.
- (5) Only available for TT301 and TT302.
- (6) Not available for Aluminum housing.
- (7) For TT301, this code will be available only if the chosen sensor is Ohm or mV special.
- (8) Certified for use in hazardous locations (CEPEL, CSA, FM, NEPSI, NEMKO, EXAM).
- (9) Certified for use in hazardous locations (CEPEL, CSA, FM).
- (10) Certified for use in hazardous locations (CEPEL, FM, NEPSI, NEMKO, EXAM).

- (11) Certified for use in hazardous locations (CEPEL, NEPSI, NEMKO, EXAM).
- (12) Rectangular plate in 316 SST.
- (13) IPX8 tested in 10 meters of water column for 24 hours.
- (14) Ingress Protection:

Product	CEPEL	NEMKO / EXAM	FM	CSA	NEPSI
TT300	IP66/68W	IP66/68W	Type 4X/6 (6P)	Type 4X	IP67

(15) IPW/TYPE testes for 200 hours according to NBR 8094 / ASTM B 117 standard.

# TT300 Series

Temperature Transmitters



Consult our  
representatives



Rua Dr. Antônio Furlan Junior, 1028 - Sertãozinho, SP - CEP: 14170-480  
insales@smar.com.br | +55 (16) 3946-3599 | www.smar.com