



# TT300 Series

3301-3302-3303

TEMPERATURE TRANSMITTERS

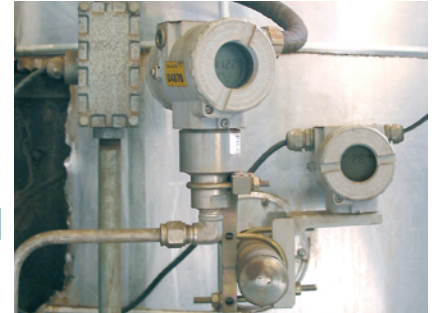


- 0.02% Basic Accuracy
- Single Unit and Several Options for Sensors and Connections
- Input Signal Isolation
- PID Control Capability
- Advanced Diagnostics
- Largest Library of Function Block Execution Capacity
- Supported by DD, EDDL, and FDT/DTM
- Dual Channel
- Sensor Backup
- Three Bus Technology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



smar

- 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 (IP67);
- 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 plus direct digital communication;
- Special 16-point sensor characterization;
- Update output current in 0.5 s with 1.5  $\mu$ A/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 was included in the sensor list\*;
- Setpoint generator function;
- Supports DTM, DD and EDDL.

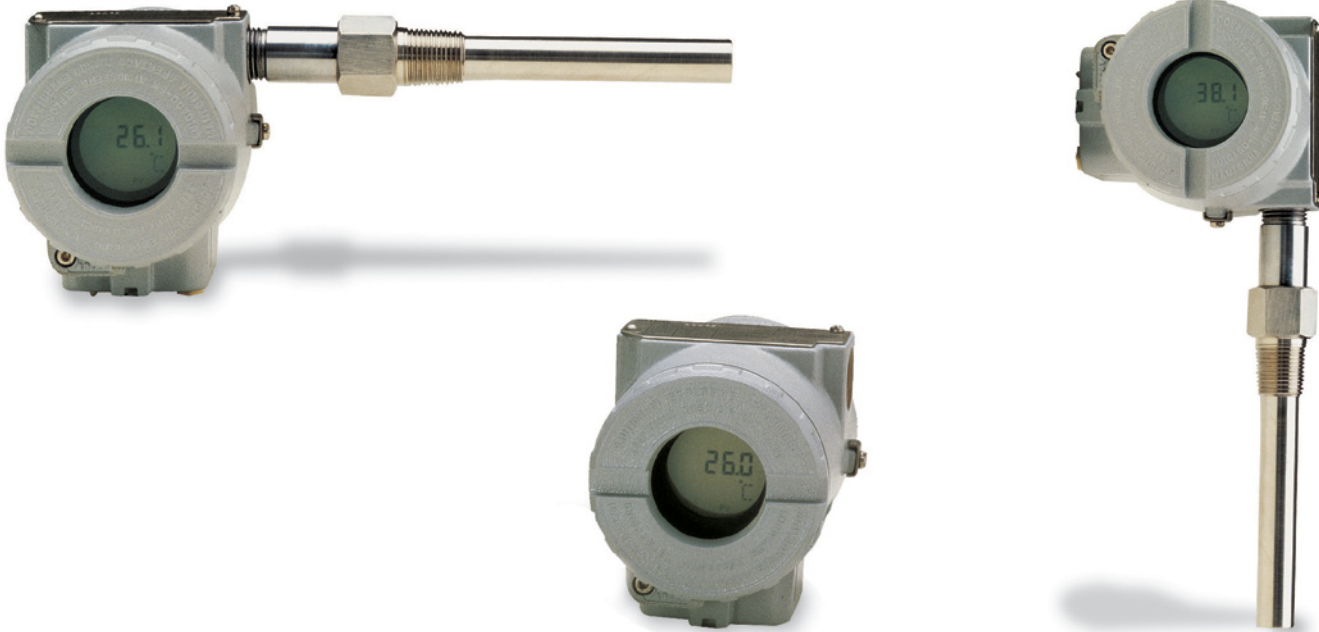
**FOUNDATION Fieldbus™**

- Self-diagnostics;
- 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 (Interoperability Test Kit) approved;
- LAS (Link Active Scheduler) Capability;
- MVC (Multivariable Container) enabled.

**PROFIBUS PA**

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

Please consult your Smar representative to check the option availability.



### TT300 Series offers:

- $\pm 0.02\%$  accuracy;
- Built-in thermocouples and RTDs linearization;
- Compactness and a lightweight;
- Interchangeable protocols.

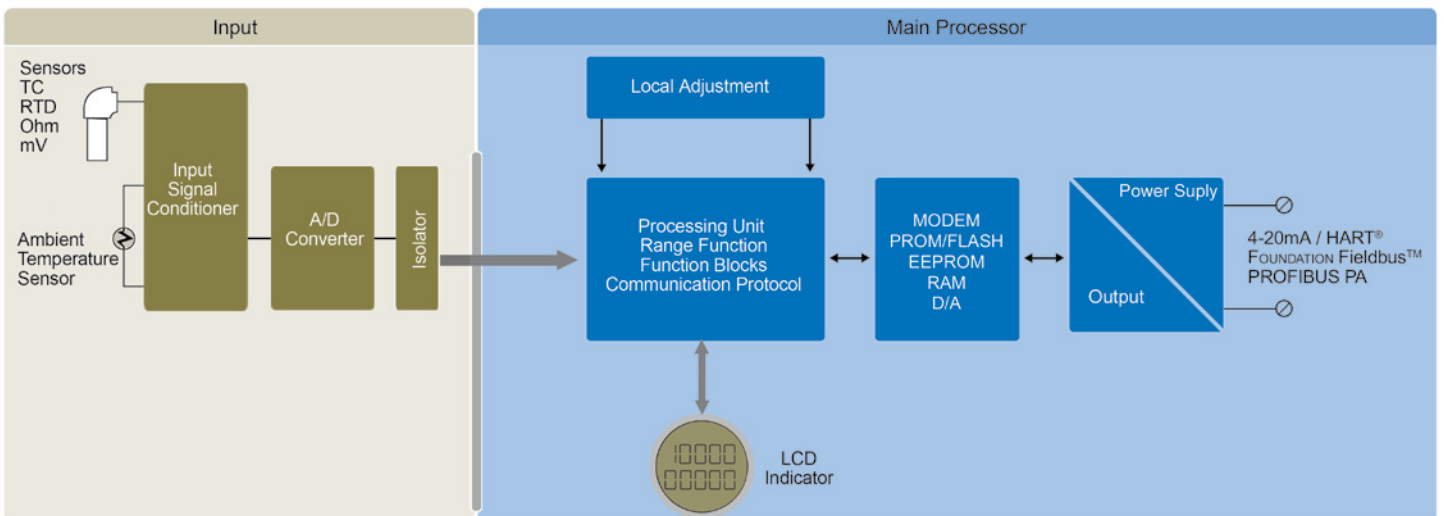
The Smar **TT300 Series** is a transmitter mainly intended for measurement of temperature using RTDs or thermocouples. However, it can also accept other sensors with resistance or mV output such as: pyrometers, load cells, resistance position indicators, etc. The **TT300 Series** accepts up to two sensors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

- 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 CONF401 for Windows and UNIX®;
- Smar DDCON100 for Windows and UNIX®;
- Smar HPC401 for several models of Palms\*;
- 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.

*\*Requires HI311 (HART Serial Interface).*



DDCON100 - Configuration Software



HPC401 - Configuration Software

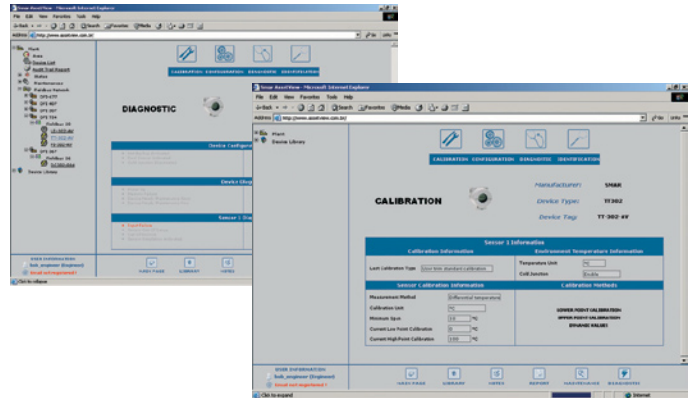
**FOUNDATION Fieldbus™ - TT302**

**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 2000 or Windows XP.

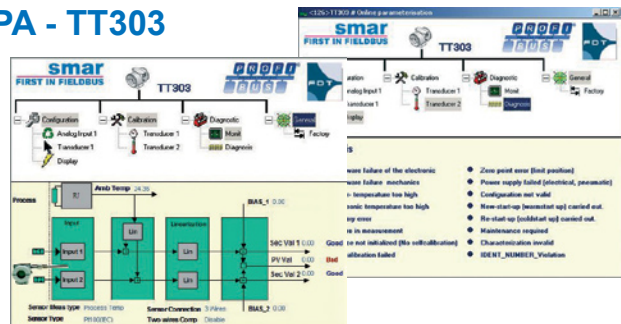
Configuration tools such as AMS™, FieldCare and HHT375 can configure **TT302** devices. DD (Device Description) and CF (Capability File) files can be downloaded at either the Smar or Fieldbus Foundation™ website.

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



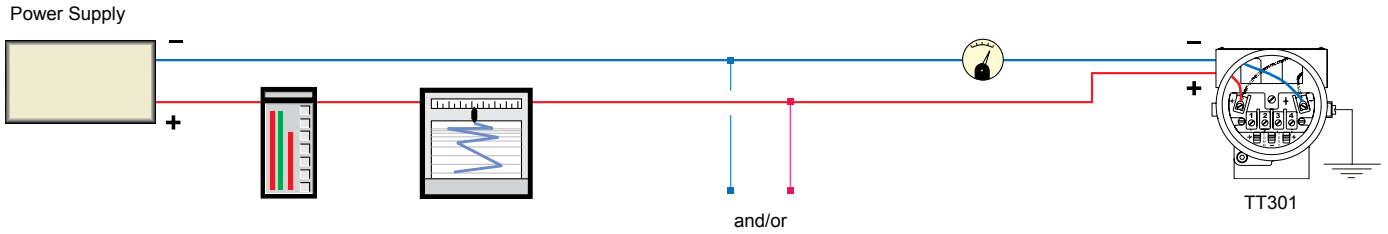
**PROFIBUS PA - TT303**

**TT303** (PROFIBUS PA protocol) can be configured using Simatic PDM and by the 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 diagnostic information, improving plant management and maintenance.

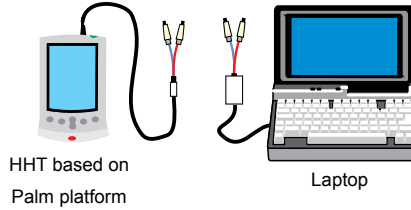


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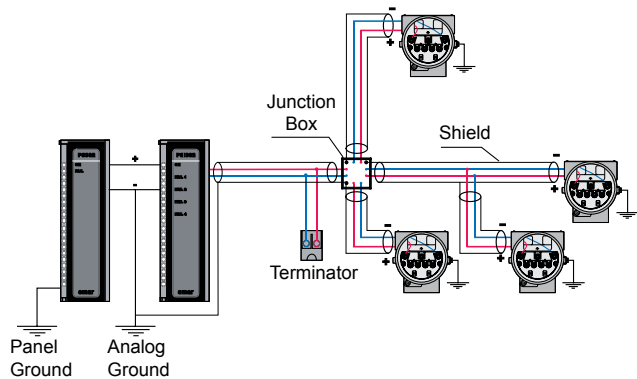
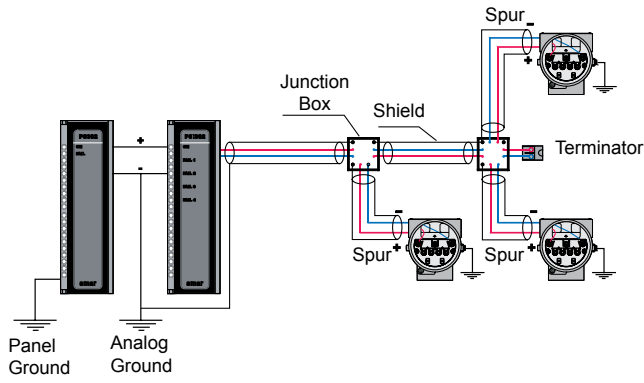
### HART® - TT301



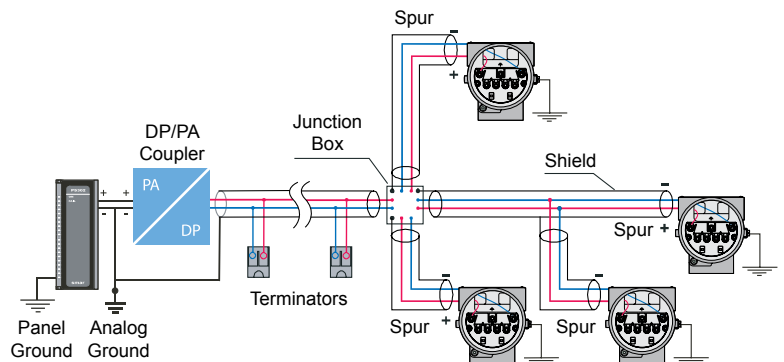
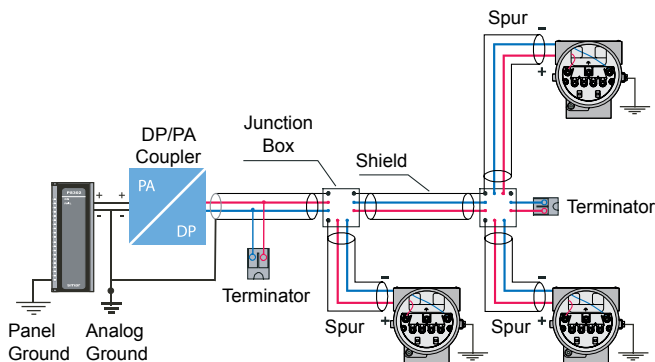
For an adequate communication, a minimum load of 250Ω is required between the configuration tool and the power supply.



### FOUNDATION Fieldbus™ - TT302

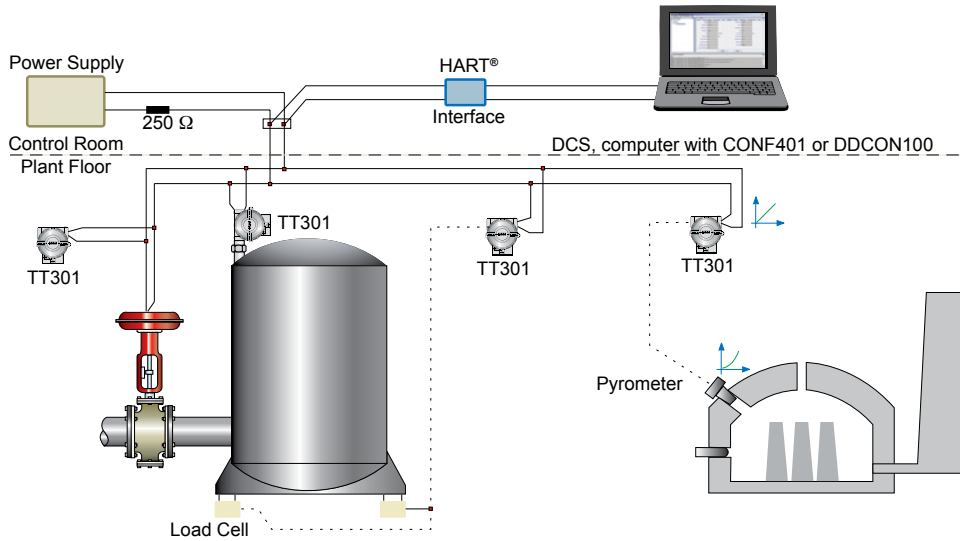


### PROFIBUS - TT303

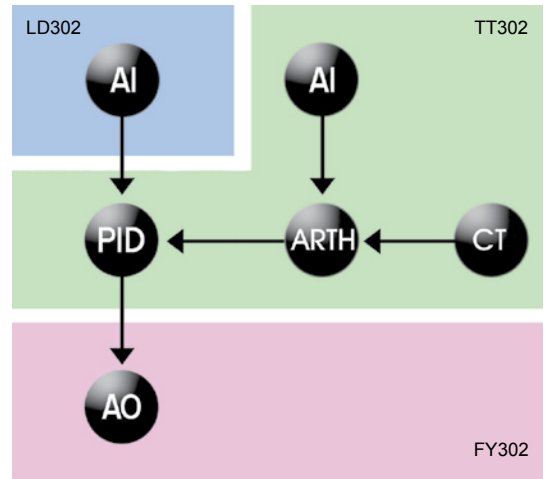
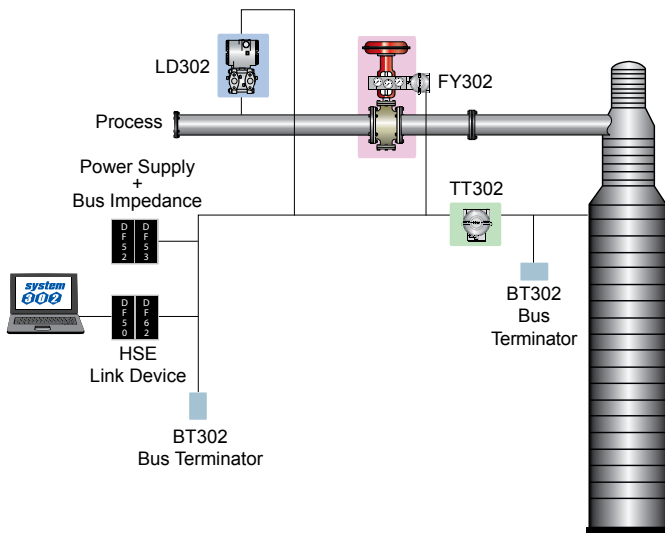


\* For some DP/PA couplers, the bus terminator is built-in.

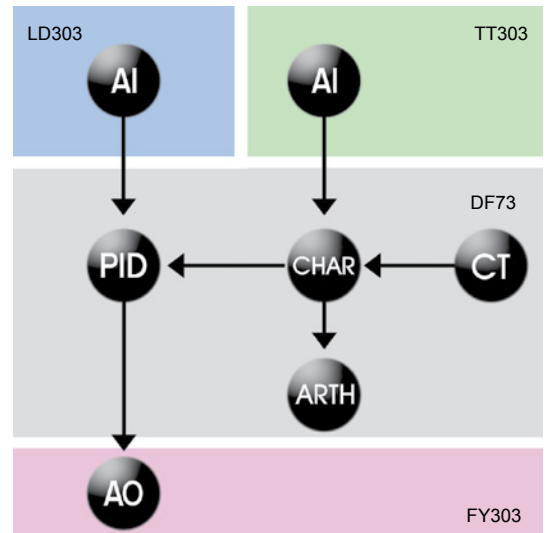
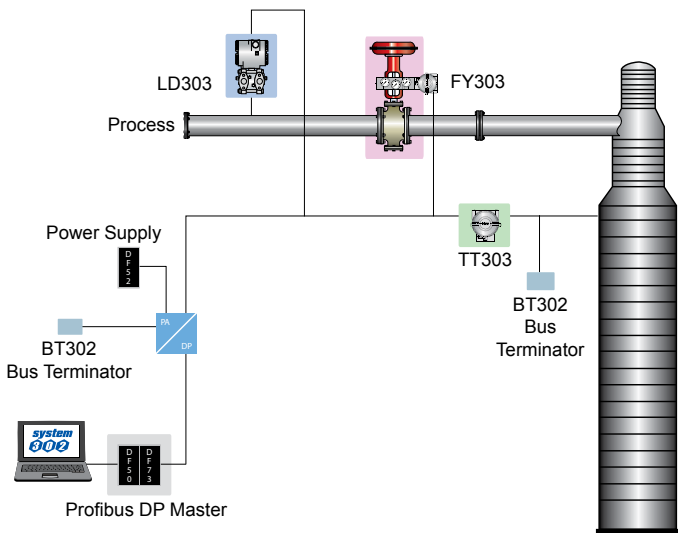
**HART® - TT301**



**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> Explosion proof, weather proof, intrinsically safe (CENELEC, NBR, CSA and FM standards), dust ignition proof for Class II and III (FM) and Class 2258 02 (CSA), non incandive (CSA and FM) and coal mines (CENELEC).</p> <p><b>FOUNDATION fieldbus™ and PROFIBUS PA:</b> Complies with FISCO (PTB-W-53e report).</p>
<b>European Directive Information</b>	<p><b>EMC Directive (89/336/EEC) - Electromagnetic Compatibility</b> The EMC test was performed according to standard IEC61326:2002.</p> <p><b>ATEX Directive (94/9/EC) - Explosive Atmosphere, Hazardous Location</b> This product was certified according to NEMKO and EXAM (old DMT) European Standards.</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>Operation:        -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: -10 °C to 60 °C       (-14 to 140 °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 5 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> By digital communication (HART® protocol) using the configuration software CONF401, DDCON100 (for Windows) or HPC301 (for Palms). It can also be configured using DD and FDT/DTM tools, and can be partially configured through local adjustment , since the transmitter is supplied with display.</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), AMST™, FieldCare and HHT375. The <b>TT303</b> can be configured via Simatic PDM using EDDL.</p>
<b>Humidity Limits</b>	0 to 100% RH.
<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 (Edison Curve #7: 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>Electro-magnetic Interference Effect</b>	Approved according to IEC 61000-6-2: 1999, IEC 61000-6-4: 1997 and 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>	<p><b>Note:</b> Explosion proof approvals do not apply to adapter, only to transmitter.</p>



### 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
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
mV DIF.	-28 to 28	0.40	± 0.1% or ± 10 µV
	-110 to 110	2.0	± 0.1% 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
Ohm DIF.	-100 to 100	1	± 0.08% or ± 0.04 Ohm
	-400 to 400	4	± 0.1% or ± 0.2 Ohm

Table 3 - Ohm Sensor Characteristics

\* Accuracy of value read on display and accessed by communication. The 4-20 mA accuracy is the digital accuracy ±0.03%.

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

NA: Not applicable.

MODEL	TEMPERATURE TRANSMITTER										
TT301	HART® & 4 to 20 mA										
TT302	FOUNDATION fieldbus™										
TT303	PROFIBUS PA										
<b>COD. Local Indicator</b>											
0 Without Indicator <span style="float:right">1 With Digital Indicator</span>											
<b>COD. Mounting Bracket</b>											
0 Without Bracket <span style="float:right">2 316 SST Bracket</span>											
1 Carbon Steel Bracket <span style="float:right">7 Carbon Steel Bracket with 316 SST Fasteners</span>											
<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 <span style="float:right">3 1/2 - 14 NPT X 1/2 BSP (316 SST) - With adapter (2) Z According to user's notes</span>											
1 1/2 - 14 NPT X 3/4 NPT (316 SST) - With adapter (2) A M20 x 1.5											
2 1/2 - 14 NPT X 3/4 BSP (316 SST) - With adapter (2) B Pg 13.5 DIN											
<b>COD. Housing Material</b>											
H0 Aluminum <span style="float:right">H1 316 SST</span>											
<b>COD. Identification Plate</b>											
I1 FM: XP, IS, NI, DI, IP <span style="float:right">I4 EXAM (DMT): Ex-ia, IP</span> <span style="float:right">IE NEPSI: Ex-ia (3)</span>											
I2 NEMKO: Ex-d, Ex-ia, IP <span style="float:right">I5 CEPEL: Ex-d, Ex-ia, IP</span> <span style="float:right">IF CEPEL: Ex-d, IP (4)</span>											
I3 CSA: XP, IS, NI, DI, IP (5) <span style="float:right">I6 Without Certification</span> <span style="float:right">IG CEPEL (Ex-d, Ex-ia) +IPW (6)</span>											
<b>COD. Tag Plate</b>											
J0 With tag, when specified (Default) <span style="float:right">J2 According to user's notes</span>											
J1 Blank											
<b>COD. Sensor Connection</b>											
L2 2-wire <span style="float:right">LF Differential</span>											
L3 3-wire <span style="float:right">LD Double 2-wire (3)</span>											
L4 4-wire <span style="float:right">LB Backup</span>											
<b>COD. PID Configuration - (4)</b>											
M0 With PID (Default) <span style="float:right">M1 Without PID</span>											
<b>COD. LCD1 Indication - (4)</b>											
Y0 LCD1: Percentage (Default) <span style="float:right">Y3 LCD1: Temperature (Engineering Unit)</span>											
Y1 LCD1: Current - I (mA) <span style="float:right">YU LCD1: According to user notes (1)</span>											
<b>COD. LCD2 Indication - (4)</b>											
Y0 LCD2: Percentage (Default) <span style="float:right">Y6 LCD2: Temperature (Engineering Unit)</span>											
Y4 LCD2: Current - I (mA) <span style="float:right">YU LCD2: According to user notes (1)</span>											
<b>COD. Painting</b>											
P0 Gray Munsell N 6,5 Polyester (Default) <span style="float:right">P5 Yellow Polyester</span>											
P3 Black Polyester <span style="float:right">P8 Without Painting</span>											
P4 White Epoxy <span style="float:right">P9 Safety Blue Epoxy - Electrostatic Painting</span>											
<b>COD. Sensor Type</b>											
T1 RTD Cu10 - GE <span style="float:right">TA Thermocouple type B - NBS</span> <span style="float:right">TJ Thermocouple type K - DIN</span>											
T2 RTD Ni120 - Edison Curve #7 <span style="float:right">TB Thermocouple type E - NBS</span> <span style="float:right">TL Thermocouple type S - DIN</span>											
T3 RTD PT50 - IEC <span style="float:right">TC Thermocouple type J - NBS</span> <span style="float:right">TM Thermocouple type T - DIN</span>											
T4 RTD PT100 - IEC <span style="float:right">TD Thermocouple type K - NBS</span> <span style="float:right">TN 100 OHM</span>											
T5 RTD PT500 - IEC <span style="float:right">TE Thermocouple type N - NBS</span> <span style="float:right">TO Special OHM</span>											
T6 RTD PT50 - JIS <span style="float:right">TF Thermocouple type R - NBS</span> <span style="float:right">TQ 22 mV</span>											
T7 RTD PT100 - JIS <span style="float:right">TG Thermocouple type S - NBS</span> <span style="float:right">TR 100 mV</span>											
TU RTD PT1000 - IEC (4) <span style="float:right">TH Thermocouple type T - NBS</span> <span style="float:right">TS 500 mV</span>											
T8 2K OHM <span style="float:right">TI Thermocouple type J - DIN</span> <span style="float:right">TT Special mV</span>											
T9 400 OHM											
<b>COD. Burn-out (4)</b>											
BD Up Scale											
BU Down 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 (3) Only available for TT302 and TT303 (5) Only available for TT301 and TT302

(2) Explosion proof approvals do not apply to adapter, only to transmitter (4) Only available for TT301 (6) Not available for Aluminum housing

# smar

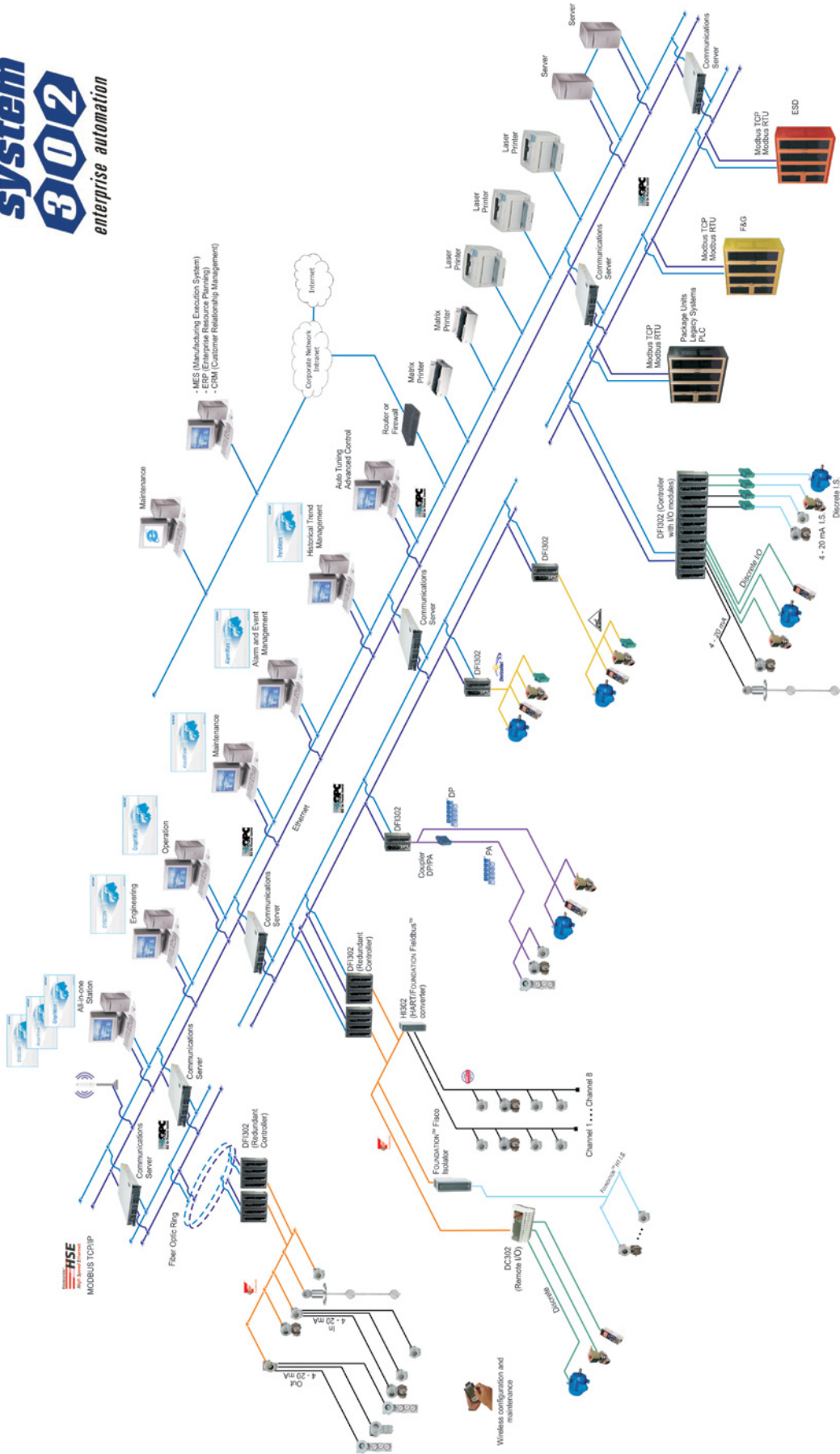
## First in Fieldbus

# system 302

enterprise automation

## SYSTEM302 Architecture

## TT300 Series



**Density/Concentration**



- DT301
- DT302
- DT303

**Intelligent Density / Concentration Transmitter**

**Position**



- FY400
- new**

**Valve Positioner**



- FY301
- FY302
- FY303

**Valve Positioner**



- TP301
- TP302
- TP303

**Position Transmitter**

**Pressure**



- LD400
- new**

**Pressure Transmitter**



- 4 to 20 mA LD290
- LD291 LD301
  - LD292 LD302
  - LD293 LD303

**Pressure Transmitter**

**Temperature**



- TT411

**Panel Mounting Temperature Transmitter**



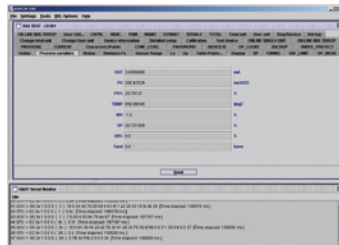
- TT421

**Head Mounting Temperature Transmitter**

**Configurators**



**CONF401 HART® Configurator Interface**



**DDCON100 HART® Configurator Interface**



**HPC401 HART® Pocket Configurator**

**Controllers**



**LC700 Programmable Logical Controller**



**CD600Plus Digital Controller**



**FR302 FOUNDATION Fieldbus™ Relay**



**DC302 FOUNDATION Fieldbus™ Remote I/O**



**Accessories**



**RP302**  
H1 Fieldbus Repeater



**SB312**  
Isolated Intrinsic Safety Barrier



**DF47**



**JM1**  
3 Ways Junction Box

4-20 mA



**JM400**  
4 Ways Junction Box

4-20 mA

**Converters**



**FP302**  
Fieldbus to Pneumatic Signal Converter



**IF302**  
Current to Fieldbus Converter



**FI302**  
Fieldbus to Current Converter

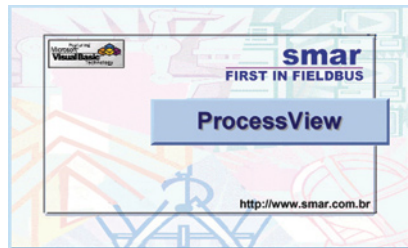


**HI302**  
HART® / Fieldbus Interface



**HCC301**  
HART® / Current Converter

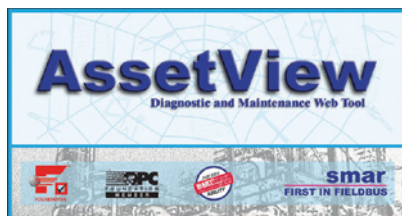
**Systems**



**ProcessView**  
Process Visualization Interface



**System302**  
Control System

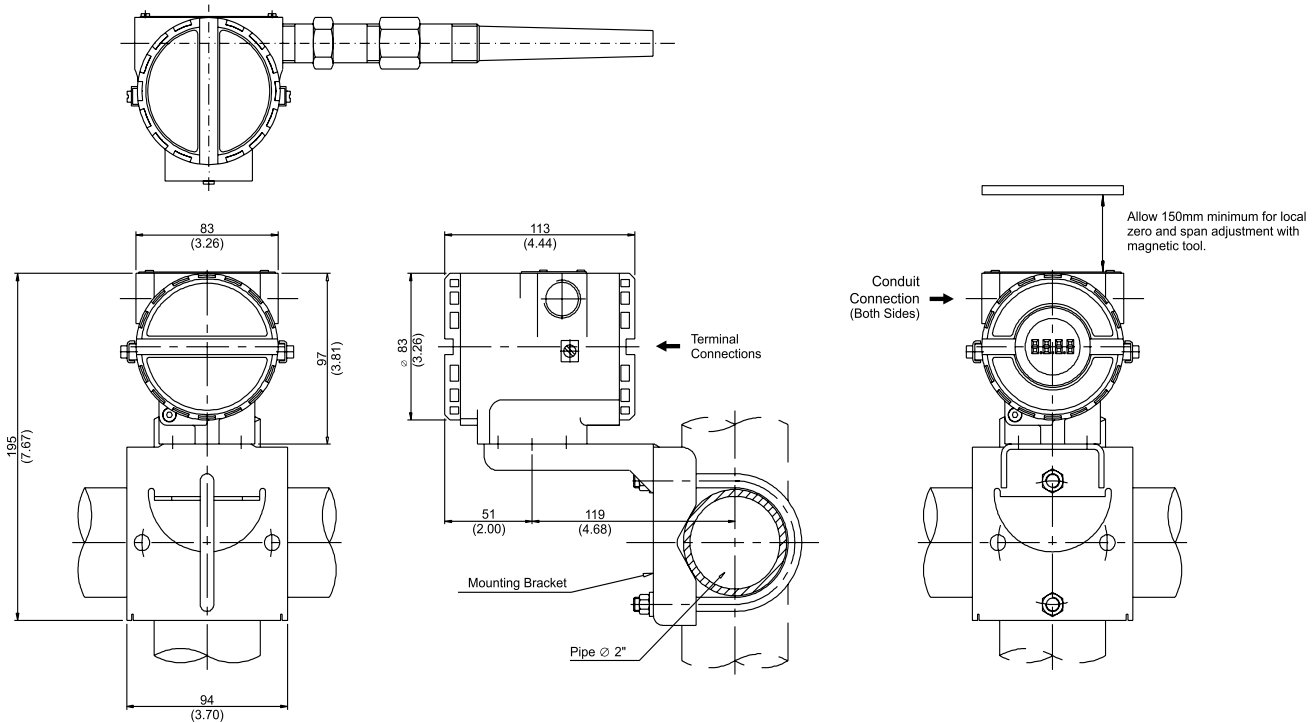


**AssetView**  
On Line Plant Asset Management Tool



**DFI302**  
FOUNDATION Fieldbus™  
Universal Interface





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