

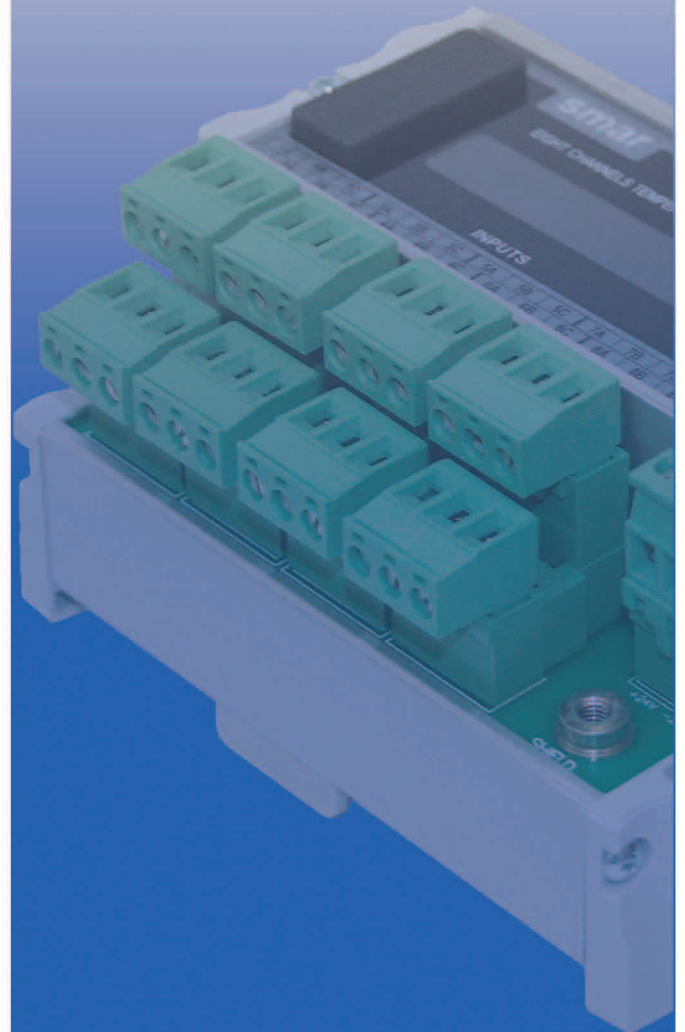


***TT383 Series***

## PROFIBUS PA

EIGHT INPUT TEMPERATURE TRANSMITTER

- Eight Input for Temperature Sensors
- $\pm 0.03\%$  Accuracy
- Several Options of Sensor Types
- 2 or 3-Wires Sensor Connection
- Input Signal Isolation
- Supported by DD, EDDL and FDT/DTM
- Sensor Backup
- Differential Measurement
- Profibus PA Digital Protocol



**smar**

**TT383** has 8 independent channels for temperature measurement, available in Profibus PA communication protocol.

**TT383** offers:

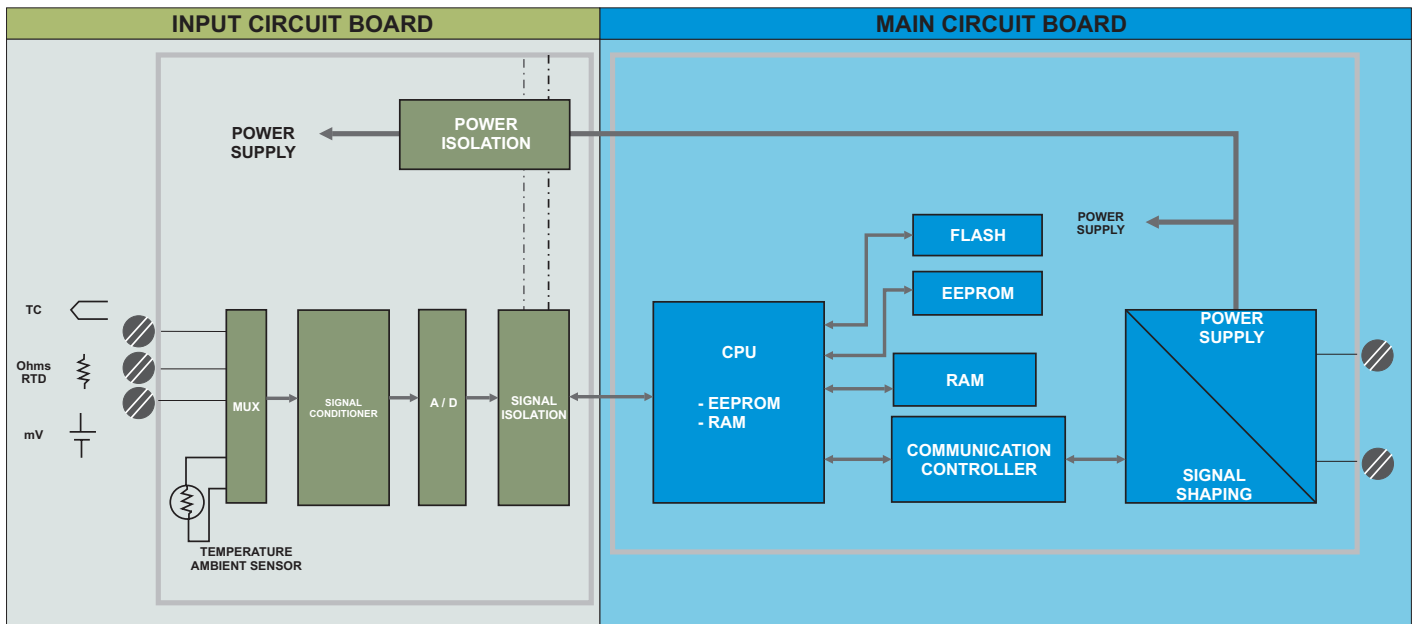
- $\pm 0.03\%$  accuracy;
- Built-in thermocouples and RTDs linearization;
- Compact and lightweightness.

The Smar **TT383** is a transmitter mainly intended for measurement of temperature using RTDs or thermocouples. It accepts up to eight sensors and can operate in one of the modes below:

- Simple measurement;
- Differential measurement;
- Backup measurement.

The Smar **TT383** is a powerful and extremely versatile smart temperature transmitter. The digital technology used in the **TT383** 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.

For more information, consult the **TT383** Operation and Maintenance Instruction Manual.



**TT383** is available in PROFIBUS PA technology. The **TT383** can be configured with Smar software and other manufacturer configuration tools. With Smar AssetView, an user-friendly Web Tool, user can access the plant

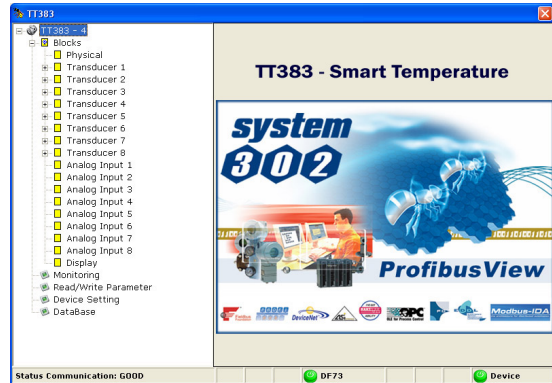
assets anywhere and anytime using an Internet browser. It is designed for management and diagnostics of field devices to ensure reactive, preventive, predictive and proactive maintenance.

### PROFIBUS PA

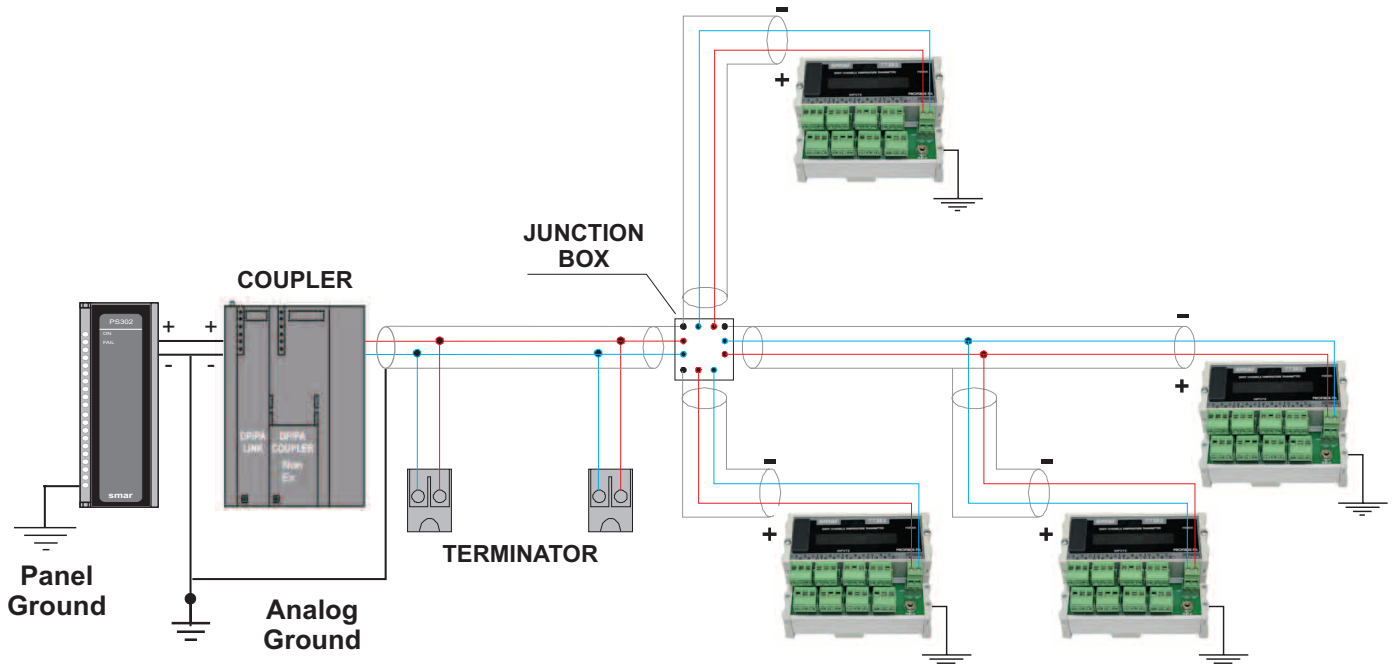
**TT383 PA** can be configured by:

- Profibus View;
- Asset View;
- Simatic PDM;
- Other manufactures' configuration tools based on FDT/DTM and DDL/EDDL.

For management and diagnostics, AssetView ensures continuous information monitoring.



### Wiring Connection



**Functional Specifications**

<b>Inputs</b>	See table 1, 2, 3 and 4.		
<b>Output and Communication Protocol</b>	Digital only. Complies with IEC 61158-2: 2000 (H1): 31.25 kbit/s voltage mode, bus powered.		
<b>Power Supply / Current Consumption</b>	Bus powered: 9 - 32 Vdc. Quiescent current consumption: 14 mA.		
<b>Failure Alarm</b>	For sensor or circuit failures, status is sent to output parameters. Detailed diagnostics are available in the contained parameters.		
<b>Temperature Limits</b>	Operation:	0 °C to 75 °C	32 °F to 167 °F
	Storage:	0 °C to 85 °C	32 °F to 185 °F
<b>Turn-on Time</b>	Performs within specifications in less than 12 seconds after power is applied to the transmitter.		
<b>Configuration</b>	Remote configuration using Profibus PA protocol, with AMS™, FieldCare™, HHT375, Profibus View or Simatic PDM.		
<b>Humidity Limits</b>	0 to 75 RH		

**Performance Specifications**

<b>Accuracy</b>	See tables 1, 2 and 3.		
<b>Ambient Temperature Effect</b>	<p>For a 10 °C variation: 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>Ohms (0 to 100 Ω), RTD (GE: Cu10): ± 0.03% of the input resistance or 0.01 Ω whichever is greater;</p> <p>Ohms (0 to 400 Ω), RTD (DIN: Ni120; IEC: Pt50, Pt100; JIS: Pt50, Pt100): ± 0.03% of the input resistance or 0.04 Ω whichever is greater;</p> <p>Ohms (0 to 2000 Ω), RTD (IEC: Pt500), RTD (IEC: Pt1000): ± 0.03% of the input resistance or 0.2 Ω whichever is greater;</p> <p><b>TC:</b> cold-junction compensation rejection 60:1 (Reference: 25.0 ± 0.3 °C).</p>		
<b>Power Supply Effect</b>	± 0.005% of calibrated span per volt.		
<b>Electromagnetic Interference Effect</b>	Approved according to IEC 61000-6-2:1999, IEC 61000-6-4:1997 and IEC 61326:2002.		

**Physical Specifications**

<b>Housing</b>	Housing made of Anodized Aluminum. Lateral caps are made of PA 6.6. IP20 protection.
<b>Terminal Block</b>	1 terminal for power supply connection and 8 terminals for sensor connection.
<b>Weight</b>	300 g.
<b>Mounting</b>	Using DIN rail EM 60715 (previously DIN EN 50022).
<b>Control Functions Characteristics</b>	Physical Block, Transducer and Analog Input.

		2 or 3-wires				
SENSOR	TYPE	RANGE °C	RANGE °F	MINIMUM SPAN °C	DIGITAL ACCURACY °C	
RTD	Cu10 GE	-20 to 250	-4 to 482	50	± 1.5	
	Ni120 DIN	-50 to 270	-58 to 518	5	± 0.2	
	Pt50 IEC	-200 to 850	-328 to 1562	10	± 0.32	
	Pt100 IEC	-200 to 850	-328 to 1562	10	± 0.3	
	Pt500 IEC	-200 to 450	-328 to 842	10	± 0.3	
	Pt1000 IEC	-200 to 300	-328 to 572	10	± 0.3	
	Pt50 JIS	-200 to 600	-328 to 1112	10	± 0.32	
	Pt100 JIS	-200 to 600	-328 to 1112	10	± 0.32	
THERMOCOUPLE	B NBS	100 to 1800	212 to 3272	50	± 1.5*	
	E NBS	-100 to 1000	-148 to 1832	20	± 0.3	
	J NBS	-150 to 750	-238 to 1382	30	± 0.4	
	K NBS	-200 to 1350	-328 to 2462	60	± 0.7	
	N NBS	-100 to 1300	-148 to 2372	50	± 0.6	
	R NBS	0 to 1750	32 to 3182	40	± 0.8	
	S NBS	0 to 1750	32 to 3182	40	± 1.0	
	T NBS	-200 to 400	-328 to 752	15	± 0.35	
	L DIN	-200 to 900	-328 to 1652	35	± 0.4	
U DIN	-200 to 600	-328 to 1112	50	± 0.5		

Table 1 - 2 or 3-wires Sensor Characteristics

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

SENSOR	RANGE mV	MINIMUM SPAN mV	DIGITAL ACCURACY %
mV	-6 to 22	0.40	± 0.02% or ± 10 µV
	-10 to 100	2.00	± 0.02% or ± 20 µV
	-50 to 500	10.00	± 0.02% or ± 50 µV
mV DIF.	-28 to 28	0.40	± 0.10% or ± 20 µV
	-110 to 110	2.00	± 0.10% or ± 50 µV

Table 2 - mV Sensor Characteristics

SENSOR	RANGE Ohm	MINIMUM SPAN Ohm	DIGITAL ACCURACY %
Ohm	0 to 100	1	± 0.02% or ± 0.05 Ohm
	0 to 400	4	± 0.02% or ± 0.08 Ohm
	0 to 2000	20	± 0.02% or ± 0.20 Ohm
Ohm DIF.	-100 to 100	1	± 0.08% or ± 0.08 Ohm
	-400 to 400	4	± 0.01% or ± 0.20 Ohm

Table 3 - Ohm Sensor Characteristics

MODEL		EIGHT CHANNELS TEMPERATURE TRANSMITTER	
TT383		PROFIBUS PA	
<b>COD.</b> Certification Type			
N	Without Certification	I	Ex-ia (Intrinsic Safe) (Pending)
<b>COD.</b> Organ Certifier			
0	Without Certification	5	CEPEL (Pending)
<b>COD.</b> Sensor Type (Sensor 1)			
1	RTD Cu10 – GE	D	Thermocouple type J – NBS
2	RTD Ni120 – Edison Curve 7	E	Thermocouple type K – NBS
3	RTD Pt50 – IEC	F	Thermocouple type N – NBS
4	RTD Pt100 – IEC	G	Thermocouple type R – NBS
5	RTD Pt500 – IEC	H	Thermocouple type S – NBS
6	RTD Pt50 – JIS	I	Thermocouple type T – NBS
7	RTD Pt100 – JIS	J	Thermocouple type L – DIN
8	100 Ohm	K	Thermocouple type U – DIN
9	400 Ohm	L	22 mV
A	2K Ohm	M	100 mV
B	Thermocouple type B – NBS	N	500 mV
C	Thermocouple type E – NBS		
<b>COD.</b> Sensor Connection (Sensor 1)			
2	2-wires		
3	3-wires		
<b>COD.</b> Sensor Type (Sensor 2)			
1	RTD Cu10 – GE	D	Thermocouple type J – NBS
2	RTD Ni120 – Edison Curve 7	E	Thermocouple type K – NBS
3	RTD Pt50 – IEC	F	Thermocouple type N – NBS
4	RTD Pt100 – IEC	G	Thermocouple type R – NBS
5	RTD Pt500 – IEC	H	Thermocouple type S – NBS
6	RTD Pt50 – JIS	I	Thermocouple type T – NBS
7	RTD Pt100 – JIS	J	Thermocouple type L – DIN
8	100 Ohm	K	Thermocouple type U – DIN
9	400 Ohm	L	22 mV
A	2K Ohm	M	100 mV
B	Thermocouple type B – NBS	N	500 mV
C	Thermocouple type E – NBS		
<b>COD.</b> Sensor Connection (Sensor 2)			
2	2-wires		
3	3-wires		
<b>COD.</b> Sensor Type (Sensor 3)			
1	RTD Cu10 – GE	D	Thermocouple type J – NBS
2	RTD Ni120 – Edison Curve 7	E	Thermocouple type K – NBS
3	RTD Pt50 – IEC	F	Thermocouple type N – NBS
4	RTD Pt100 – IEC	G	Thermocouple type R – NBS
5	RTD Pt500 – IEC	H	Thermocouple type S – NBS
6	RTD Pt50 – JIS	I	Thermocouple type T – NBS
7	RTD Pt100 – JIS	J	Thermocouple type L – DIN
8	100 Ohm	K	Thermocouple type U – DIN
9	400 Ohm	L	22 mV
A	2K Ohm	M	100 mV
B	Thermocouple type B – NBS	N	500 mV
C	Thermocouple type E – NBS		
<b>COD.</b> Sensor Connection (Sensor 3)			
2	2-wires		
3	3-wires		
<b>COD.</b> Sensor Type (Sensor 4)			
1	RTD Cu10 – GE	D	Thermocouple type J – NBS
2	RTD Ni120 – Edison Curve 7	E	Thermocouple type K – NBS
3	RTD Pt50 – IEC	F	Thermocouple type N – NBS
4	RTD Pt100 – IEC	G	Thermocouple type R – NBS
5	RTD Pt500 – IEC	H	Thermocouple type S – NBS
6	RTD Pt50 – JIS	I	Thermocouple type T – NBS
7	RTD Pt100 – JIS	J	Thermocouple type L – DIN
8	100 Ohm	K	Thermocouple type U – DIN
9	400 Ohm	L	22 mV
A	2K Ohm	M	100 mV
B	Thermocouple type B – NBS	N	500 mV
C	Thermocouple type E – NBS		
<b>COD.</b> Sensor Connection (Sensor 4)			
2	2-wires		
3	3-wires		
<b>COD.</b> Sensor Type (Sensor 5)			
1	RTD Cu10 – GE	D	Thermocouple type J – NBS
2	RTD Ni120 – Edison Curve 7	E	Thermocouple type K – NBS
3	RTD Pt50 – IEC	F	Thermocouple type N – NBS
4	RTD Pt100 – IEC	G	Thermocouple type R – NBS
5	RTD Pt500 – IEC	H	Thermocouple type S – NBS
6	RTD Pt50 – JIS	I	Thermocouple type T – NBS
7	RTD Pt100 – JIS	J	Thermocouple type L – DIN
8	100 Ohm	K	Thermocouple type U – DIN
9	400 Ohm	L	22 mV
A	2K Ohm	M	100 mV
B	Thermocouple type B – NBS	N	500 mV
C	Thermocouple type E – NBS		
<b>COD.</b> Sensor Connection (Sensor 5)			
2	2-wires		
3	3-wires		

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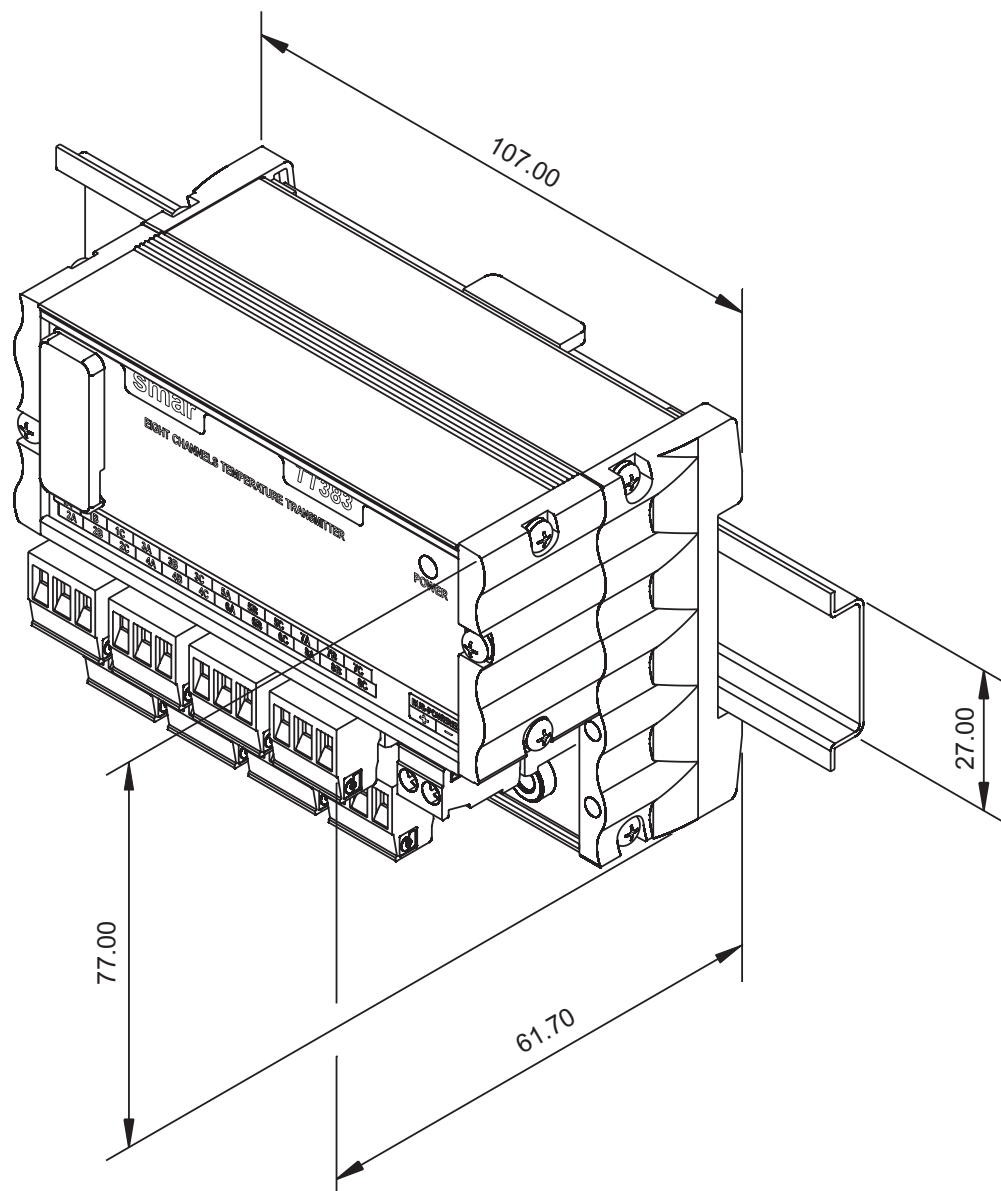
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TT383		EIGHT CHANNELS TEMPERATURE TRANSMITTER (CONTINUATION)	
<b>COD. Sensor Type (Sensor 6)</b>			
1	RTD Cu10 – GE	D	Thermocouple type J – NBS
2	RTD Ni120 – Edison Curve 7	E	Thermocouple type K – NBS
3	RTD Pt50 – IEC	F	Thermocouple type N – NBS
4	RTD Pt100 – IEC	G	Thermocouple type R – NBS
5	RTD Pt500 – IEC	H	Thermocouple type S – NBS
6	RTD Pt50 – JIS	I	Thermocouple type T – NBS
7	RTD Pt100 – JIS	J	Thermocouple type L – DIN
8	100 Ohm	K	Thermocouple type U – DIN
9	400 Ohm	L	22 mV
A	2K Ohm	M	100 mV
B	Thermocouple type B – NBS	N	500 mV
C	Thermocouple type E – NBS		
<b>COD. Sensor Connection (Sensor 6)</b>			
2	2-wires		
3	3-wires		
<b>COD. Sensor Type (Sensor 7)</b>			
1	RTD Cu10 – GE	D	Thermocouple type J – NBS
2	RTD Ni120 – Edison Curve 7	E	Thermocouple type K – NBS
3	RTD Pt50 – IEC	F	Thermocouple type N – NBS
4	RTD Pt100 – IEC	G	Thermocouple type R – NBS
5	RTD Pt500 – IEC	H	Thermocouple type S – NBS
6	RTD Pt50 – JIS	I	Thermocouple type T – NBS
7	RTD Pt100 – JIS	J	Thermocouple type L – DIN
8	100 Ohm	K	Thermocouple type U – DIN
9	400 Ohm	L	22 mV
A	2K Ohm	M	100 mV
B	Thermocouple type B – NBS	N	500 mV
C	Thermocouple type E – NBS		
<b>COD. Sensor Connection (Sensor 7)</b>			
2	2-wires		
3	3-wires		
<b>COD. Sensor Type (Sensor 8)</b>			
1	RTD Cu10 – GE	D	Thermocouple type J – NBS
2	RTD Ni120 – Edison Curve 7	E	Thermocouple type K – NBS
3	RTD Pt50 – IEC	F	Thermocouple type N – NBS
4	RTD Pt100 – IEC	G	Thermocouple type R – NBS
5	RTD Pt500 – IEC	H	Thermocouple type S – NBS
6	RTD Pt50 – JIS	I	Thermocouple type T – NBS
7	RTD Pt100 – JIS	J	Thermocouple type L – DIN
8	100 Ohm	K	Thermocouple type U – DIN
9	400 Ohm	L	22 mV
A	2K Ohm	M	100 mV
B	Thermocouple type B – NBS	N	500 mV
C	Thermocouple type E – NBS		
<b>COD. Sensor Connection (Sensor 8)</b>			
2	2-wires		
3	3-wires		
<b>COD. Tag Plate</b>			
0	With Tag when specified		
1	Blank		
2	User specification		

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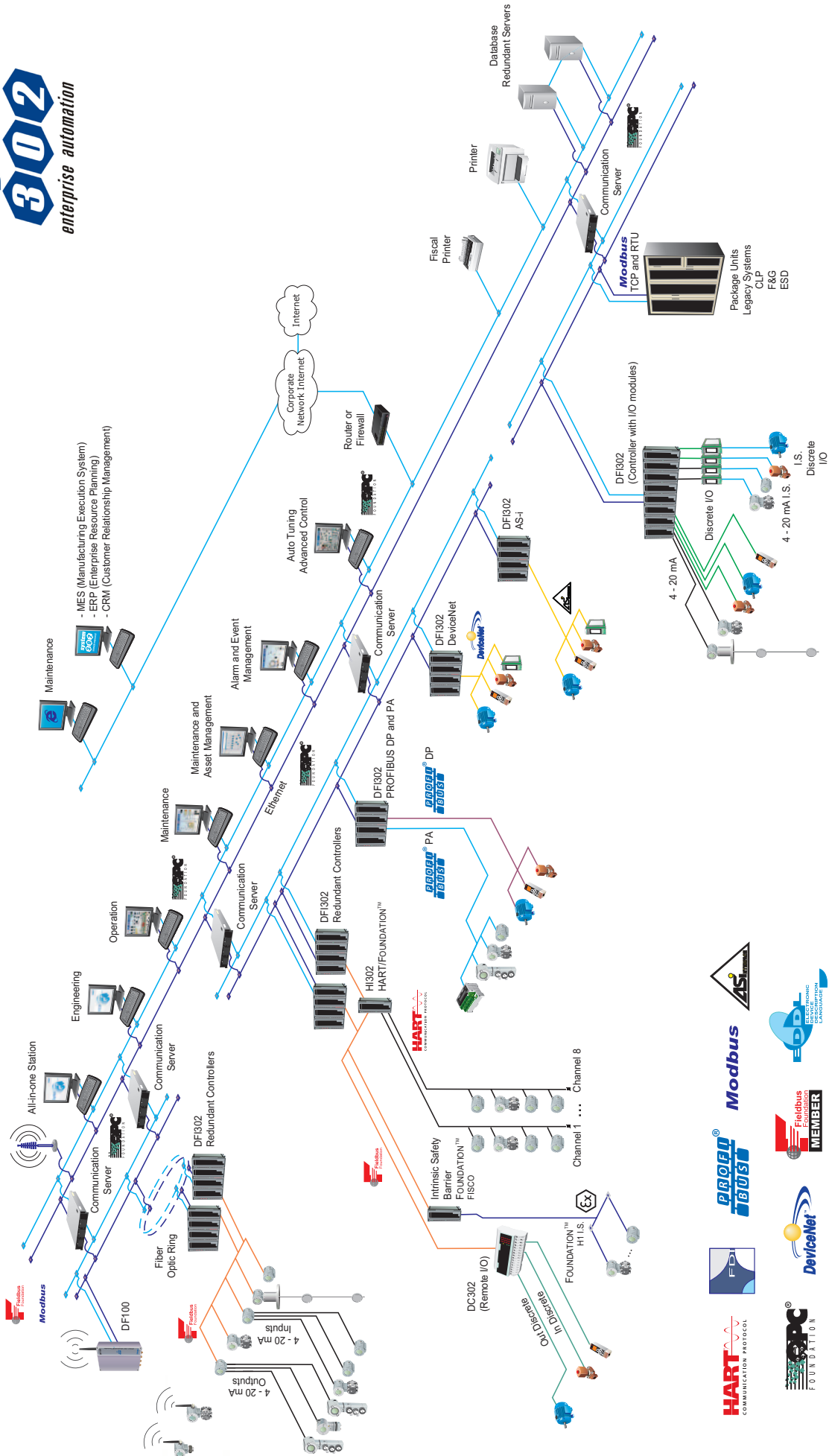
← TYPICAL MODEL

**NOTE**  
P.S.: For any blank fields for sensors options, it will be considered the PT100 IEC 3 Wires.



Note: Dimensions in mm.





**Pressure      Pressure and Level      Pressure, Level and Flow**

<p>4-20 mA LD290</p> <p>HART LD291 LD292 PROFIBUS LD293</p> <p><b>Pressure Transmitter "In Line"</b></p>	<p>Economic Capacitive Pressure Transmitter</p> <p>HART LD1.0</p>	<p>4-20 mA LD290</p> <p>HART LD291 LD292 PROFIBUS LD293</p> <p><b>Flanged Transmitter</b></p>	<p>4-20 mA LD290</p> <p>HART LD291 LD292 PROFIBUS LD293</p> <p><b>Pressure Transmitter with Extended Probe</b></p>	<p>Pressure Transmitter</p> <p>HART LD301 LD302 PROFIBUS LD303</p>	<p>Pressure Transmitter with High Performance</p> <p>HART LD400</p>	<p>WirelessHART Pressure Transmitter</p> <p>LD400</p>
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**Level      Density/Concentration      Position**

<p>RD400</p> <p><b>Guided Wave Level Transmitter</b></p>	<p>HART DT301 DT302 PROFIBUS DT303</p> <p><b>Intelligent Density / Concentration Transmitter</b></p>	<p>HART FY301 FY302 PROFIBUS FY303</p> <p><b>Valve Positioner</b></p>	<p>HART FY400</p> <p><b>Valve Positioner with Auto Tuning</b></p>
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**Position**

<p>HART FY400 FY301 FY302 PROFIBUS FY303</p> <p><b>Valve Positioner with Remote Sensor</b></p>	<p>HART ACP400 ACP301 ACP302 PROFIBUS ACP303</p> <p><b>Pneumatic Linear Cylindric Actuator</b></p>	<p>HART ACP400 ACP301 ACP302 PROFIBUS ACP303</p> <p><b>Pneumatic Rotary Cylindric Actuator</b></p>	<p>4-20 mA TP290 HART TP301 TP302 PROFIBUS TP303</p> <p><b>Position Transmitter</b></p>
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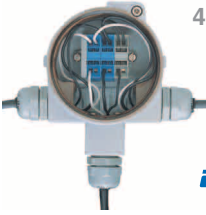
**Temperature**

<p>HART TT301 TT302 PROFIBUS TT303</p> <p><b>Temperature Transmitter</b></p>	<p>PROFIBUS TT383</p> <p><b>Eight Input Temperature Transmitter</b></p>	<p>HART TT400 HART® SIS</p> <p><b>Smart Temperature Transmitter</b></p>	<p>TT400</p> <p><b>WirelessHART Temperature Transmitter</b></p>	<p>HART TT411</p> <p><b>Panel Mounting Temperature Transmitter</b></p>	<p>HART TT421</p> <p><b>Head Mounting Temperature Transmitter</b></p>
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**Junction Box**

**Didactic Products**

**JM1**  
4-20 mA



**FOUNDATION**  
**PROFIBUS**

3 Ways Junction Box


**JM400**  
4-20 mA



**FOUNDATION**  
**PROFIBUS**

4 Ways Junction Box

**PD3**



**FOUNDATION**  
**PROFIBUS**

Didactic Plant



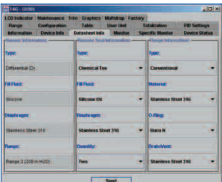
**FOUNDATION**  
**PROFIBUS**

Didactical Kits

**Configurators**

**Interfaces**

**HART** CONF401



HART® Configurator Interface

**HART** DDCON 100



HART® Configurator Interface

**HART** HI311/HI321



HART® Configurator

**HART** HI311/HI321



HART-USB Interface for PC


**PBI-PLUS**



Advanced PROFIBUS PA Interface

**Converters**

**FOUNDATION** FP302  
**PROFIBUS** FP303



FOUNDATION™ / PROFIBUS PA to Pneumatic Signal Converter

**FOUNDATION** IF302  
**PROFIBUS** IF303



Triple Channel Current to FOUNDATION™ / PROFIBUS PA Converters

**FOUNDATION** FI302  
**PROFIBUS** FI303



Triple Channel FOUNDATION™ / PROFIBUS PA to Current Converters

**FOUNDATION** FRI302  
**PROFIBUS** FRI303



FOUNDATION™ / PROFIBUS PA Relay and Digital Input

**HI302**



HART® / Fieldbus Interface


**HART** HCC301



HART® / Current Converter

**Controllers**

**DFI302**



**FOUNDATION**  
**PROFIBUS**

Interface Universal Fieldbus

**LC700**



**FOUNDATION**  
**Modbus**  
**OPC**

Programmable Logical Controller

**CD600Plus**



**OPC**

Digital Controller

**Controllers - Remote Input and Output**

DF100



HSE Controller and WirelessHART Gateway

DC303



FOUNDATION™ fieldbus / PROFIBUS PA Remote Input and Output

DC302



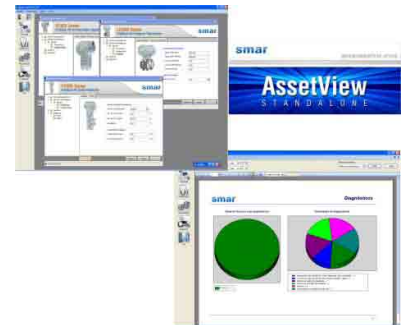
**SYSTEM302**



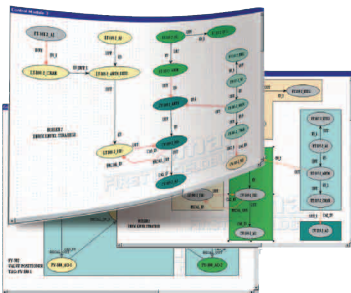
ProcessView Supervision / Operation System



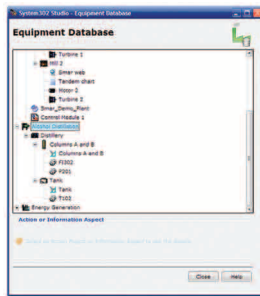
SimulationView Control Strategy Simulator



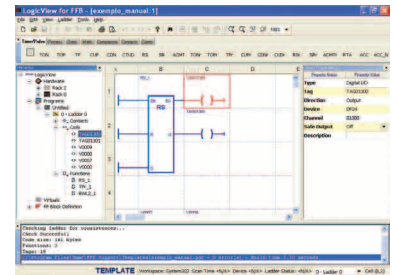
AssetView STANDALONE Asset Management System



Syscon Control Strategy and Industrial Network Configurator



Process Equipment Database Plant Information Management



LogicView for FFB IEC61131 Programming Tool



**smar**  
www.smar.com

Specifications and information are subject to change without notice.  
Up-to-date address information is available on our website.

web: [www.smar.com/contactus.asp](http://www.smar.com/contactus.asp)

