

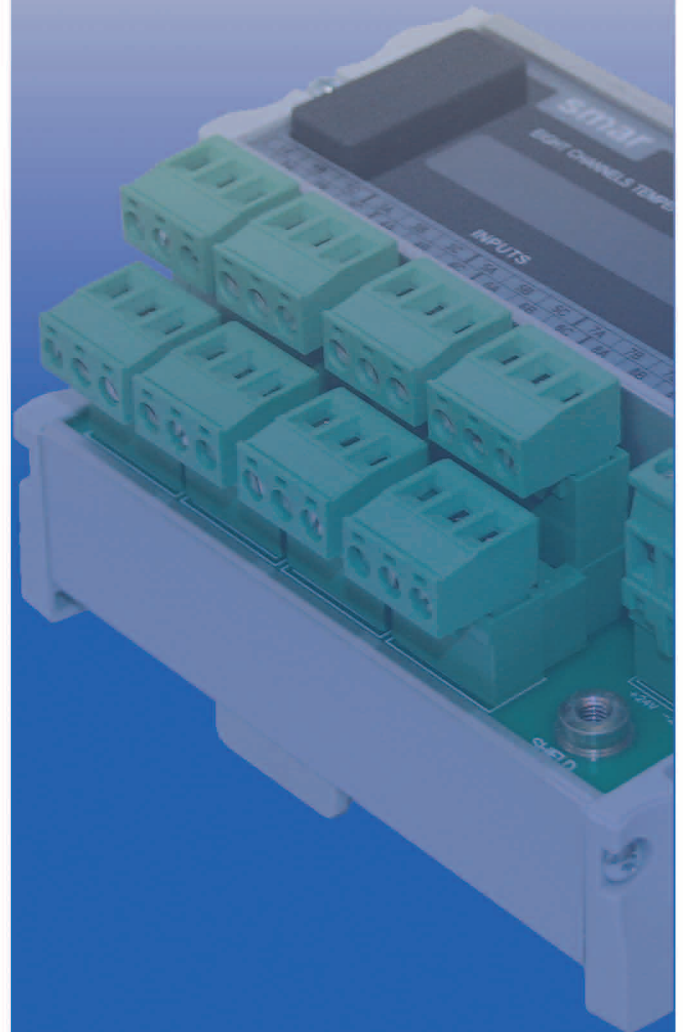


TT383 Series

PROFIBUS PA

EIGHT INPUT TEMPERATURE TRANSMITTER

- Eight Input for Temperature Sensors
- $\pm 0.03\%$ Accuracy
- Wide choice of Sensor type
- 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

The Smar **TT383** offers 8 independent channels for temperature measurement and Profibus PA communication protocol as output signal.

The **TT383** features:

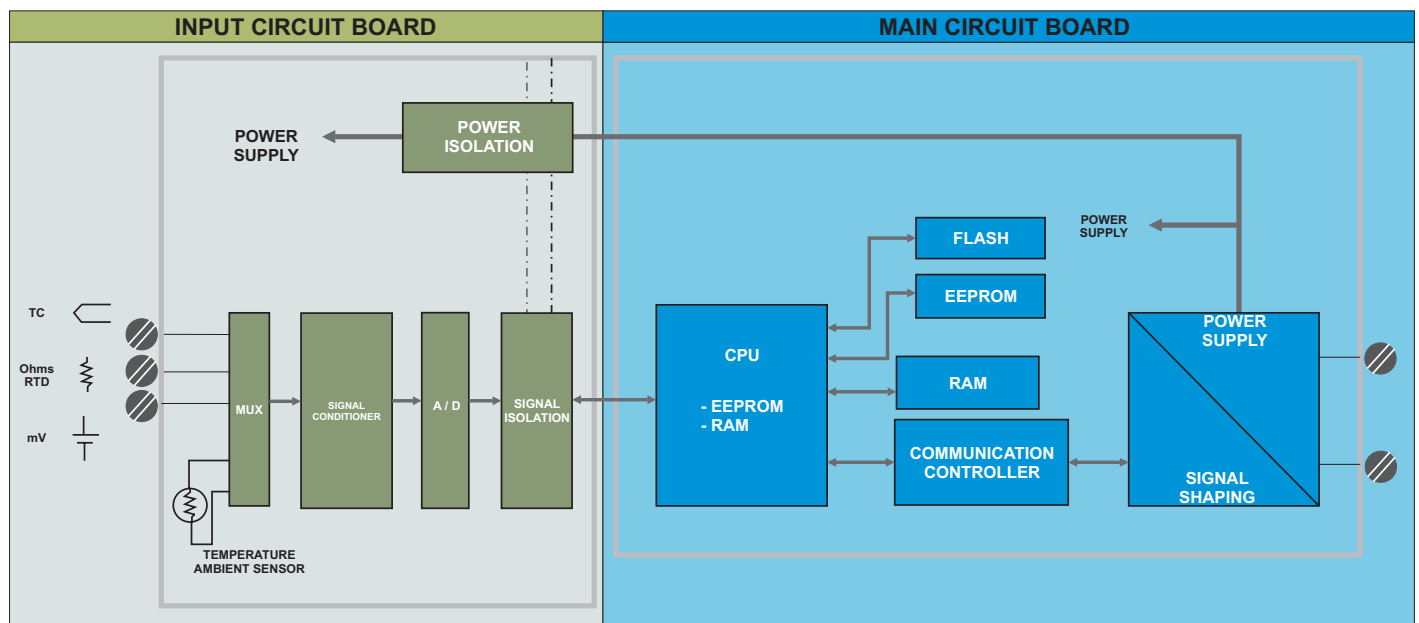
- $\pm 0.03\%$ accuracy;
- Built-in thermocouple and RTD linearization;
- Compact and lightweight design.

The Smar **TT383** is a transmitter intended for the measurement of temperature using RTD's or thermocouples. The transmitter accepts up to eight sensors and can operate in one of the following modes:

- 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, please consult the **TT383** Operation and Maintenance Instruction Manual.



The Smar **TT383** can be configured with Smar Profibus tools but also with other softwares available in the market. In addition, with web based Smar AssetView, a user can access the plant assets anywhere and

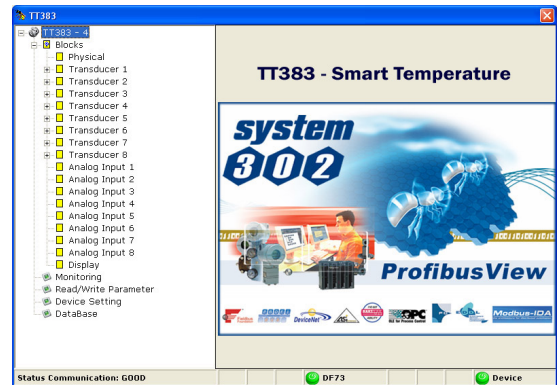
anytime using just an Internet browser. It is designed for the management and diagnostics of field devices to ensure better maintenance strategies, lower operating cost and higher plant availability.

PROFIBUS PA

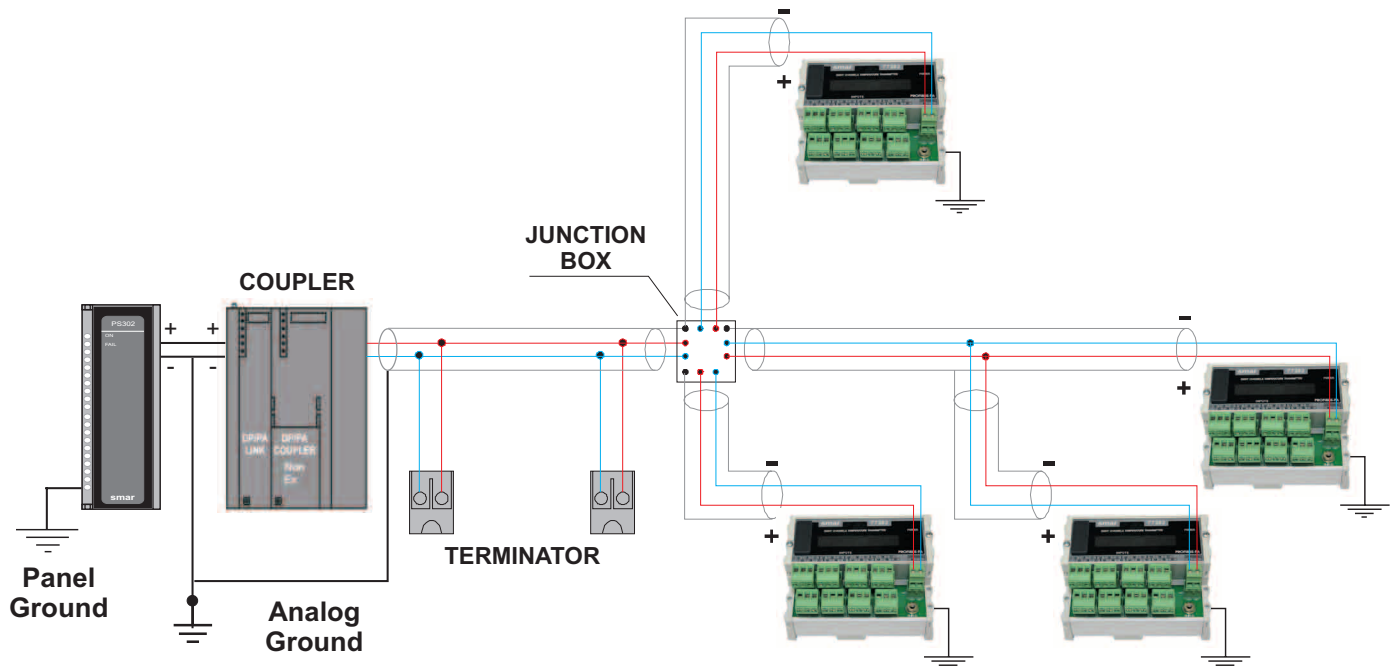
TT383 PA can be configured by:

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

For management and diagnostics, Smar AssetView ensures continuous information monitoring.



Wiring Connection



Functional Specifications

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

Performance Specifications

Accuracy	See tables 1, 2 and 3.		
Ambient Temperature Effect	For a 10 °C variation: mV (- 6 to 22 mV), TC (NBS: B, R, S,T): $\pm 0.03\%$ of the input millivoltage or 0.002 mV whichever is greater; mV (- 10 to 100 mV), TC (NBS: E, J, K, N; DIN: L, U): $\pm 0.03\%$ of the input millivoltage or 0.01 mV whichever is greater; mV (-50 to 500 mV): $\pm 0.03\%$ of the input millivoltage or 0.05 mV whichever is greater; Ohms (0 to 100 Ω), RTD (GE: Cu10): $\pm 0.03\%$ of the input resistance or 0.01 Ω whichever is greater; Ohms (0 to 400 Ω), RTD (DIN: Ni120; IEC: Pt50, Pt100; JIS: Pt50, Pt100): $\pm 0.03\%$ of the input resistance or 0.04 Ω whichever is greater; Ohms (0 to 2000 Ω), RTD (IEC: Pt500), RTD (IEC: Pt1000): $\pm 0.03\%$ of the input resistance or 0.2 Ω whichever is greater; TC: cold-junction compensation rejection 60:1 (Reference: 25.0 ± 0.3 °C).		
Power Supply Effect	$\pm 0.005\%$ of calibrated span per volt.		
Electromagnetic Interference Effect	Approved according to IEC 61000-6-2:1999, IEC 61000-6-4:1997 and IEC 61326:2002.		

Physical Specifications

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

SENSOR	2 or 3-wires					
	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									
COD.		Certification Type								
N		Without Certification			I	Ex-ia (Intrinsic Safe) (Pending)				
COD.		Organ Certifier								
0		Without Certification			5	CEPEL (Pending)				
COD.		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								
COD.		Sensor Connection (Sensor 1)								
2		2-wires								
3		3-wires								
COD.		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								
COD.		Sensor Connection (Sensor 2)								
2		2-wires								
3		3-wires								
COD.		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								
COD.		Sensor Connection (Sensor 3)								
2		2-wires								
3		3-wires								
COD.		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								
COD.		Sensor Connection (Sensor 4)								
2		2-wires								
3		3-wires								
COD.		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								
COD.		Sensor Connection (Sensor 5)								
2		2-wires								
3		3-wires								

TT383

- I | 5 - 1 | 2 - 1 | 2 - 1 | 2 - 1 | 2 - 1 | 2

CONTINUE IN THE NEXT PAGE

TT383		EIGHT CHANNELS TEMPERATURE TRANSMITTER (CONTINUATION)			
		COD. Sensor Type (Sensor 6)			
		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		
		COD. Sensor Connection (Sensor 6)			
		2	2-wires		
		3	3-wires		
		COD. Sensor Type (Sensor 7)			
		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		
		COD. Sensor Connection (Sensor 7)			
		2	2-wires		
		3	3-wires		
		COD. Sensor Type (Sensor 8)			
		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		
		COD. Sensor Connection (Sensor 8)			
		2	2-wires		
		3	3-wires		
		COD. Tag Plate			
		0	With Tag when specified		
		1	Blank		
		2	User specification		

TT383-J5-12-12-12-12-12

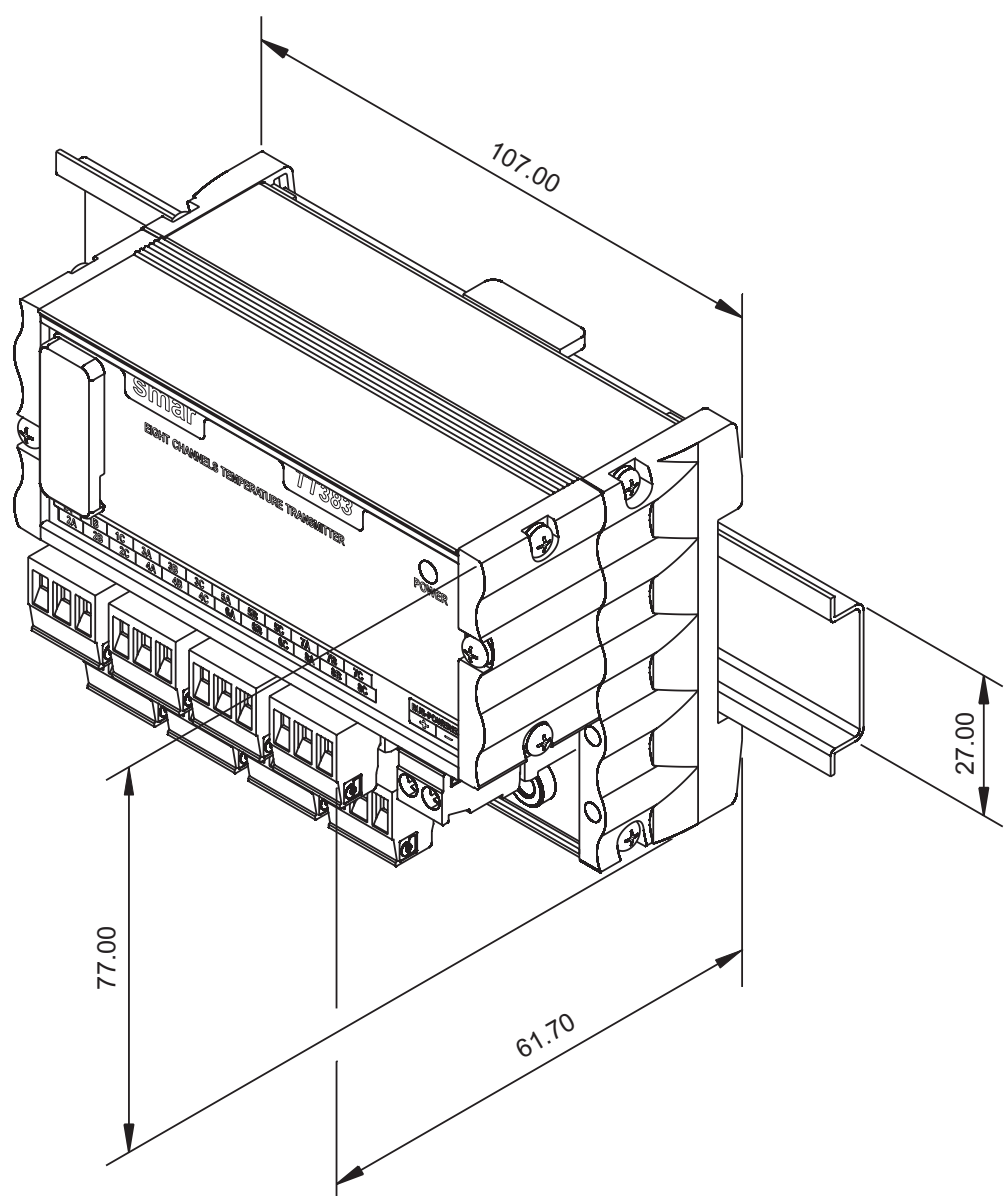
12-12

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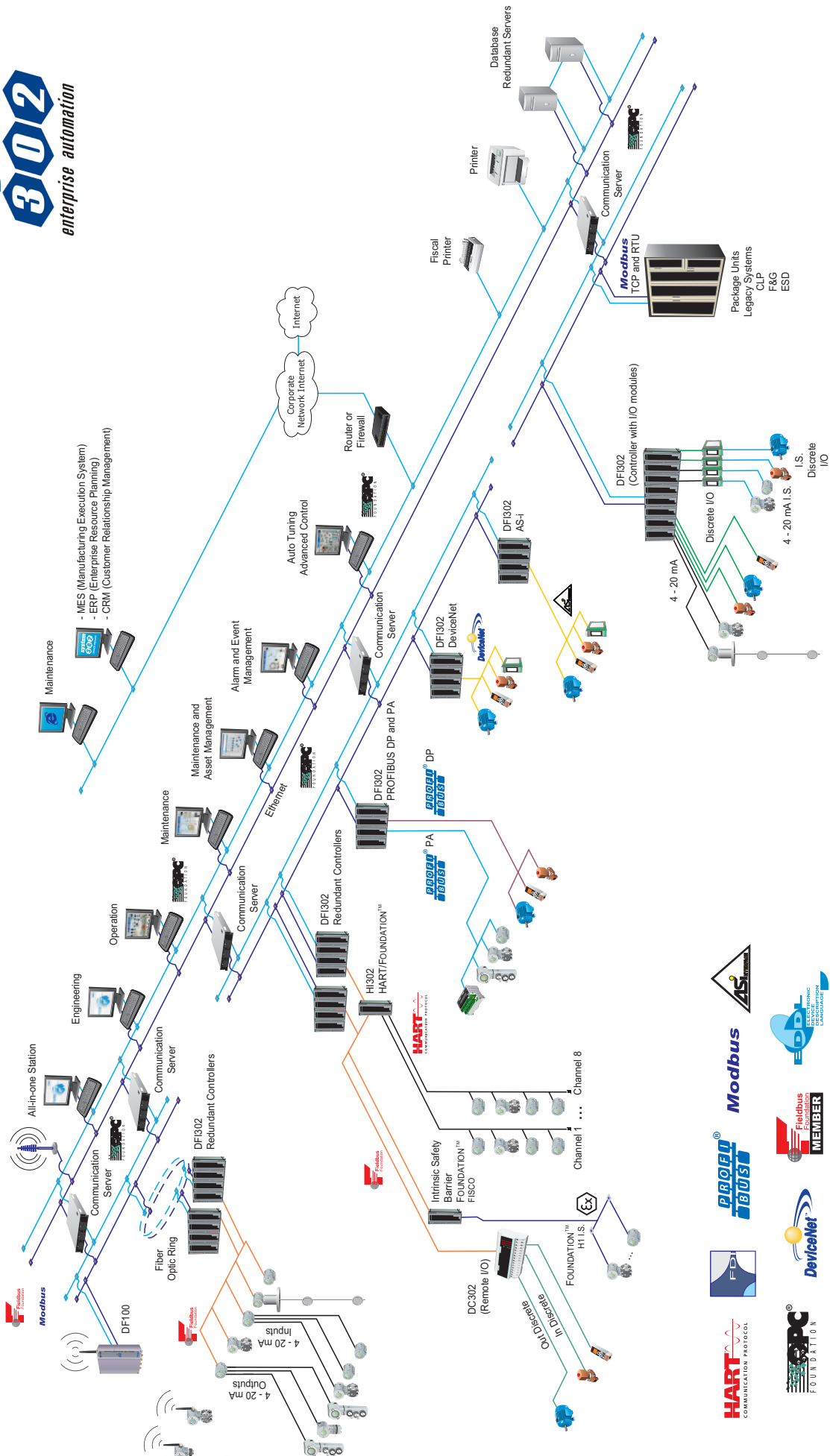
← TYPICAL MODEL

NOTE

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



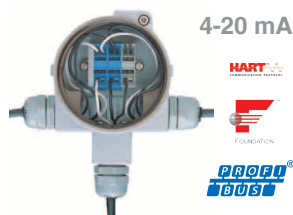
Note: Dimensions in mm.



Junction Box

JM1

4-20 mA



3 Ways Junction Box

JM400

4-20 mA



4 Ways Junction Box

Didactic Products

PD3



Didactic Plant



Didactical Kits

Configurators

HART® CONF401



HART® Configurator Interface

HART® DDCON 100



HART® Configurator Interface



HART® Configurator

HART® HI311/HI321



HART-USB Interface for PC

PBI-PLUS



Advanced PROFIBUS PA Interface

Converters



FOUNDATION™ / PROFIBUS PA to Pneumatic Signal Converter

IF302
PROFIBUS IF303

Triple Channel Current to FOUNDATION™ / PROFIBUS PA Converters

FI302
PROFIBUS FI303

Triple Channel FOUNDATION™ / PROFIBUS PA to Current Converters

FRI302
PROFIBUS FRI303

FOUNDATION™ / PROFIBUS PA Relay and Digital Input

HI302 HART® HCC301



HART® / Fieldbus Interface



HART® / Current Converter

Controllers

DFI302



Interface Universal Fieldbus

LC700



Programmable Logical Controller

CD600Plus



Digital Controller

Controllers - Remote Input and Output

DF100



HSE Controller and
WirelessHART Gateway

DC303



DC302



FOUNDATION™ fieldbus / PROFIBUS PA
Remote Input and Output

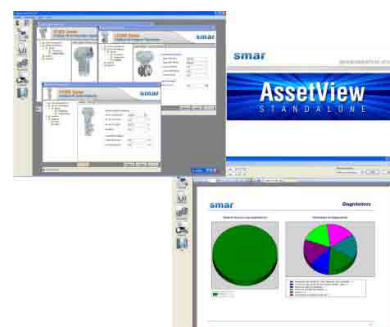
SYSTEM302



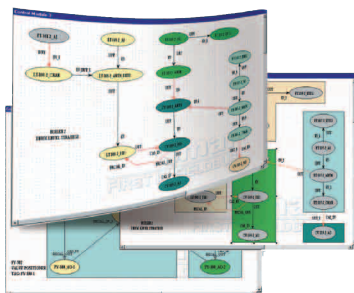
ProcessView
Supervision / Operation System



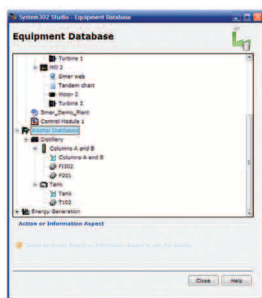
SimulationView
Control Strategy Simulator



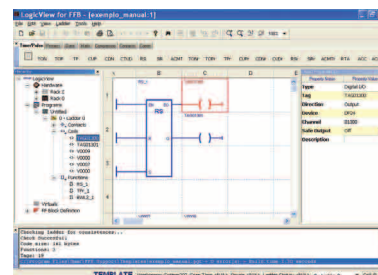
AssetView STANDALONE
Asset Management System



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



TT383CE