



DT300 Series

301-302-303

DENSITY TRANSMITTERS

FOR DENSITY AND CONCENTRATION APPLICATIONS

- Accuracy $\pm 0.0004 \text{ g/cm}^3$ ($\pm 0.1 \text{ }^\circ\text{Brix}$)
- Range $0.5 \text{ g/cm}^3 - 5 \text{ g/cm}^3$
- Direct density or concentration readout in engineering units such as g/cm^3 , Kg/m^3 , Specific Gravity, $^\circ\text{Brix}$, $^\circ\text{Baume}$, $^\circ\text{Plato}$, $^\circ\text{INPM}$, $^\circ\text{GL}$, $^\circ\text{API}$, % Solids, % Concentration, etc.
- Integral Temperature Sensor
- Suitable for Tank and Pipe Applications
- Factory Calibration and Self Calibration
- Advanced Diagnostics
- Largest Library of Function Block Execution Capacity
- Industrial and Sanitary Models
- Instantiable Function Blocks
- Supported by DD, EDDL and FDT/DTM
- Density, Concentration and Temperature in three Analog Input Blocks



www.contromat.com

info@contromat.com | +972-3-9744044



smar

- Accuracy $\pm 0.0004 \text{ g/cm}^3$ ($\pm 0.1 \text{ }^\circ\text{Brix}$);
- Temperature compensation;
- Range $0.5 \text{ g/cm}^3 - 5 \text{ g/cm}^3$;
- Standard industrial and sanitary process connection;
- Digital LCD indicator;
- Direct density or concentration readout in engineering units;
- Suitable for dynamic and static liquids;
- Two wire loop powered;
- Several different wetted materials;
- Single integrated unit without moving parts;
- Factory calibration and Self calibration;
- In field re-calibration:
 - ✓ No standard reference required;
 - ✓ No lab calibration required;
 - ✓ No process shutdown.
- Continuous/Self diagnostics;
- Weather proof, explosion proof and intrinsically safe;
- The control strategy is built from direct instantiation and deletion of function blocks;
- Configuration and Parameterization all through open and interoperable configuration tools available in the market, e.g., based on PC or PCMCIA Cards or operations by the local adjustment switches (should be used with a LCD display);
- Use of the Analog Input function;
- Totally digital; including sensor, electronics and communication;
- Configurable Local Adjustment (FOUNDATION fieldbus™ and PROFIBUS PA);
- Easy firmware upgrade (via Flash Memory Interface) for FOUNDATION fieldbus™ and PROFIBUS PA;
- Easy maintenance;
- Three technology options: HART®, FOUNDATION fieldbus™, PROFIBUS PA.



HART® - 4 to 20 mA

- Multi-drop operation mode;
- Supports DTM and EDDL.

FOUNDATION fieldbus™

- 17 different types of function blocks for control strategies and advanced diagnostics;
- Up to 20 function blocks;
- Two analog inputs: density and concentration or temperature;
- Execution of up to 31 external links (19 Publisher and 12 Subscriber);
- 12 mA consumption;
- Dynamic block instantiation improves interchangeability;
- FOUNDATION fieldbus™ registered and ITK approved;
- MVC (Multivariable Container) enabled.

PROFIBUS PA

- 12mA consumption;
- Three Function blocks for analog inputs: density, concentration and temperature;
- Integrated to Simatic PDM;
- Supports DTM and EDDL;
- Profile 3.0 improves interchangeability.

The DT300 “Touché” Intelligent Density Transmitter is an instrument developed for the continuous, online measurement of liquid density and concentration, directly in the industrial process.

Its pioneer technology consists of a capacitive type differential pressure sensor coupled to a pair of pressure repeaters immersed in the process. A temperature sensor located between the two pressure repeaters is used to compensate the temperature variations in the process fluid.

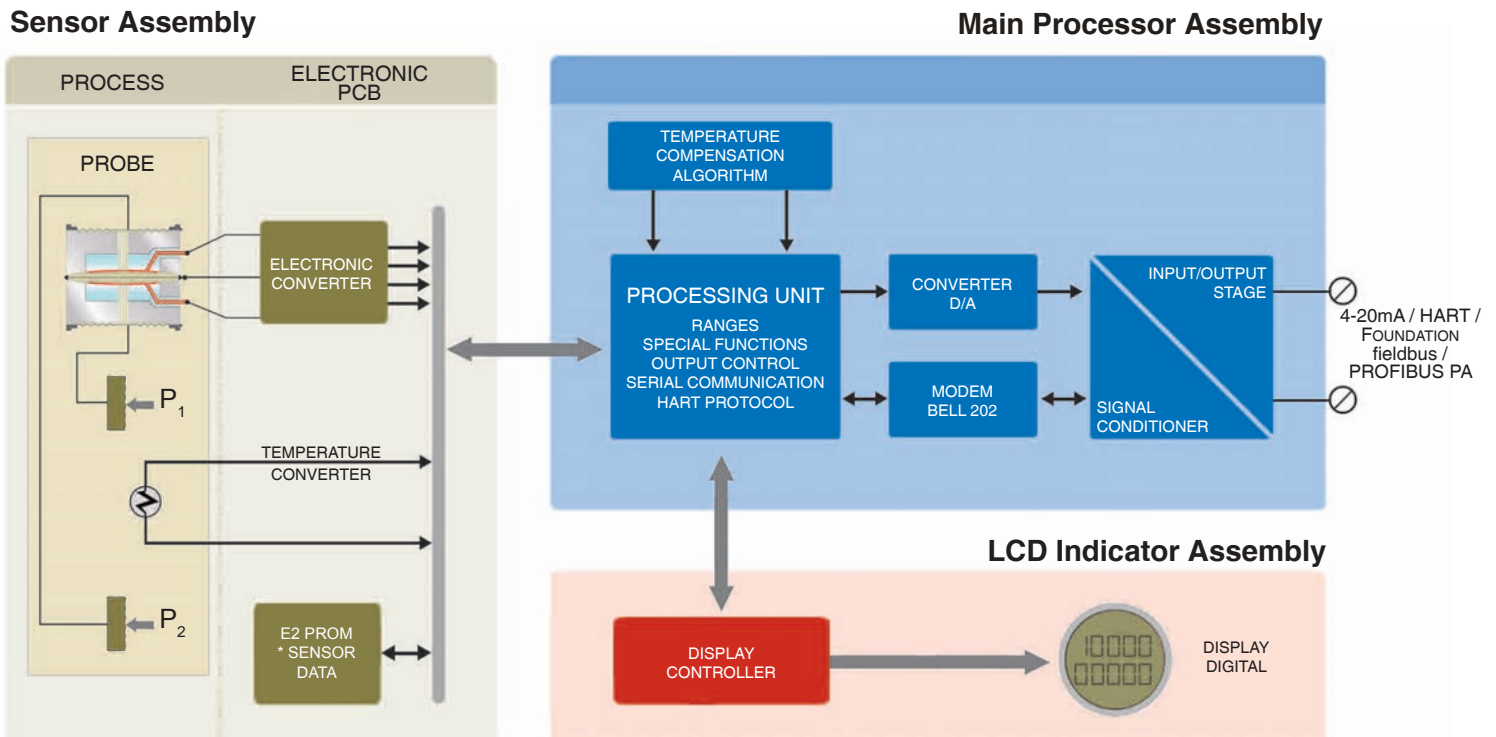
A dedicated software, by means of an algorithm, calculates the fluid density.

Depending on the industrial process, density may be expressed in g/cm^3 , Kg/m^3 , lb/ft^3 , Specific Gravity, Brix degree, Gay-Lussac degree, Baumé degree, Plato degree, INPM degree, API degree, Solids %, Concentration %, etc.

Designed for process control applications, these 2-wire transmitters generate a signal proportional to the concentration/density. Digital communication for remote calibration and monitoring is also provided.



Block Diagram



The DT300 “Touché” is available in two models:

- DT300I (Industrial Model) for general purpose;
- DT300S (Sanitary Model) for food and other applications where sanitary connections are required.

Both models have two mounting types: top mounting (straight type) and side mounting (curved type).

Installation may be done either in open or pressurized tanks, or directly in pipes since the DT300 is suitable for dynamic and static fluids.

The Sanitary model that meet 3-A Certification (Authorization N° 1399) uses a Tri-Clamp connection to allow a quick and easy connection and disconnection from the process. The wetted surface finish is polished and then is free of crevices where food or bacteria can be collected. 3A is the most widely accepted sanitary standard in the food, drug and beverage industry.

Applications

- **Sugar and Alcohol Processing Plants:**

Brix of the sugarcane juice, brix of the must, brix of the syrup, brix of the molasses, brix of the solved juice, calcium solution of the Baumé, interface level of the hexane cycle, lime density, INPM degree of the hydrated alcohol, INPM degree of the anhydrid alcohol, etc.

- **Dairy Product Industries:**

Condensed milk, Lactose, Yogurt, Cream cheeses, Lactic Acids, etc.

- **Food Industry:**

Vegetable oils, miscellaneous extractions, fruit syrup, starch dilution, glucose, jams, jellies, sweets, honey, tomato pulp, citrus juices, etc.

- **Pulp and Paper Industries:**

Black liquor, green liquor, white liquor, red liquor, caustic soda concentration, ash dilution, talc dilution, pulp dilution, ink concentration, potassium hydroxide, etc.

- **Beverage Industry:**

Beer (Plato degree in the fermentation process) Soft Drinks (brix of the liquid sugar, etc.), liquors, wines, soluble coffee, malt, tequila, etc.

- **Chemical Industry:**

Acids, concentration/mixture, caustic soda, glycol, salt solution, detergent, toluene, urea, potassium, etc.

- **Mining Slurries:**

Mineral pulp, extraction of thins, flotation, thickening, acid concentration, starch dilution, scrapers, lime mud.

- **Petrochemical Industry:**

Gas washing water, lubricant oils, aromatic extraction, fuel oils, gasoline, kerosene, water/oil interface level.



DT300 Series are available in three different technologies: HART® (DT301), FOUNDATION fieldbus™ (DT302) and PROFIBUS PA (DT303). These instruments can be configured with Smar software and other manufacturers' configuration tools.

Local adjustment is available in DT302 and DT303. For these models is possible to configure concentration adjust, self-calibration, direct density or concentration readout in engineering units and other control functions using the magnetic screwdriver. Smar has developed Asset View, which is a user-friendly Web Tool that can be accessed 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.

HART® - DT301

DT301 (HART® protocol) can be configured by:

- Smar CONF401 for Windows and UNIX;
- Smar DDCON100 for Windows and UNIX;
- Smar HPC301 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 and HHT375, PRM Device Viewer.

For DT301 management and diagnostics, Asset View ensures continuous information monitoring.

*Requires the HPI311 or HPI321 interface.



FOUNDATION fieldbus™ - DT302

DT302 utilizes the FOUNDATION fieldbus™ H1 protocol, an open technology that allows any H1 enabled configuration tool to configure this device.

Syscon302 (System Configuration Tool) is a software tool used to configure, maintain and operate the field devices. Syscon offers efficient and friendly interaction with the user, using Windows NT version 4.0 or later, Windows 2000 and Windows XP.

Configuration tools such as AMS™ and HHT375 can configure DT302 devices. DD (Device Description) and CF (Capability File) files can be downloaded at either the Smar or Fieldbus Foundation website.

DT302 supports complex strategies configurations due to the high capacity and variety of dynamic instantiable function blocks.

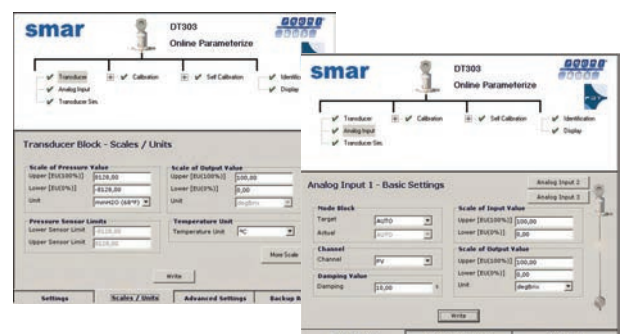
Seventeen different types of function blocks are supported, and up to 20 function blocks can be running simultaneously. Maintenance procedures with Asset View diagnostics and status information from FOUNDATION fieldbus™ result in a safer plant with longer availability.



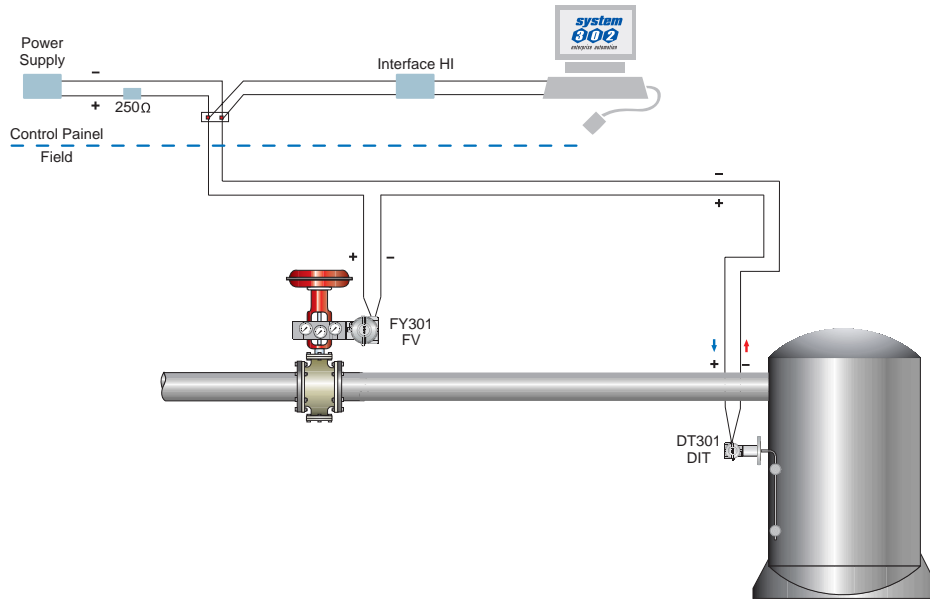
PROFIBUS PA - DT303

DT303 (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 file.

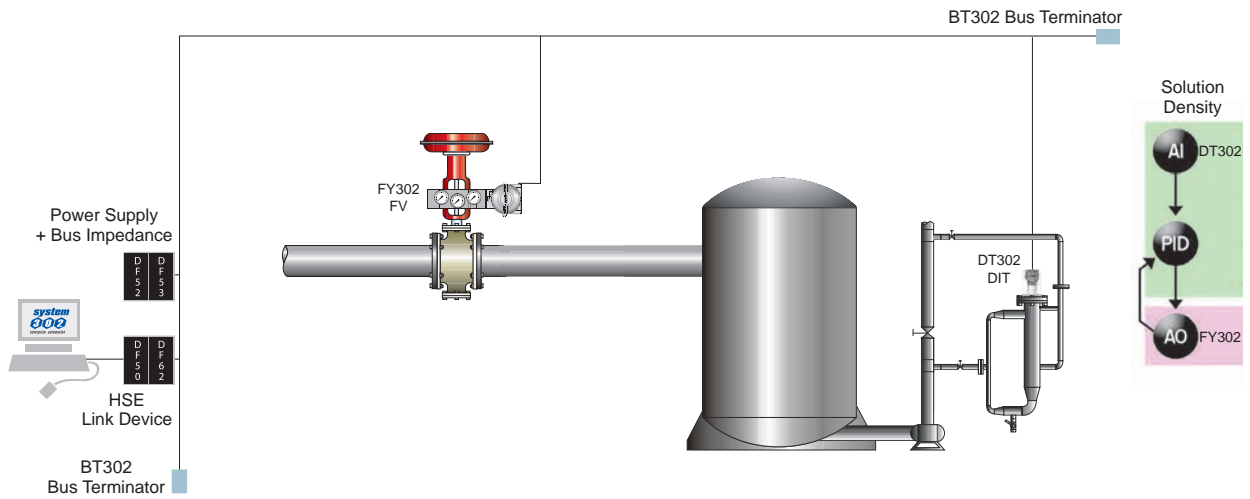
PROFIBUS PA also has quality and diagnostic information, improving plant management and maintenance.



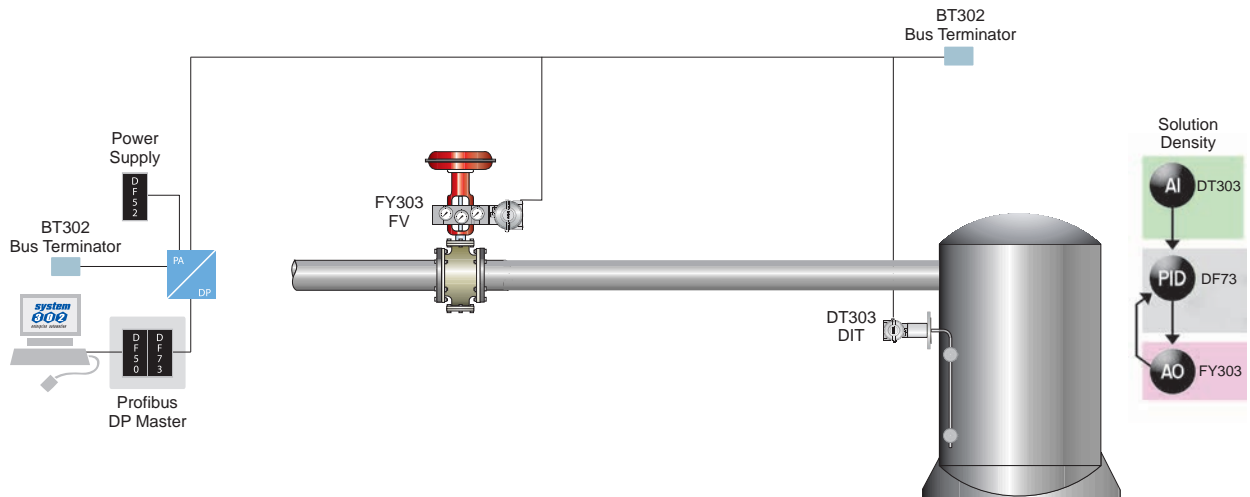
HART® - DT301



FOUNDATION fieldbus™ - DT302



PROFIBUS - DT303



Functional Specifications

Output and Communication Protocol	<p>HART®: Two-wire, 4-20 mA with super-imposed digital communication (HART® Protocol).</p> <p>FOUNDATION fieldbus™ and PROFIBUS PA: Digital only. Complies with IEC 61158-2:2000 (H1): 31.25 kbit/s voltage mode, bus powered.</p>
Power Supply/ Current Consumption	<p>HART®: 12 to 45 Vdc.</p> <p>FOUNDATION fieldbus™ and PROFIBUS PA: Bus powered: 9 to 32 Vdc. Quiescent current consumption: 12 mA.</p>
Indicator	4½-digit numerical and 5-character alphanumeric LCD indicator (optional).
Hazardous Area Certifications	<p>HART®, FOUNDATION fieldbus™ and PROFIBUS PA: Explosion proof, weather proof, intrinsically safe, CEPEL, Dekra/EXAM, FM, NEMKO and NEPSI.</p> <p>FOUNDATION fieldbus™ and PROFIBUS PA: FISCO Field Device Ex ia IIC T4 (CEPEL, Dekra/EXAM, NEPSI) and FNICO Field Device Ex nl IIC T4 (CEPEL, Dekra/EXAM).</p>
Other Certification	HART®, FOUNDATION fieldbus™ and PROFIBUS PA: 3A Sanitary Standard.
Zero and Span Adjustments	Noninteractive, via digital communication or local adjustment.
Failure Alarm (Diagnostics)	<p>Detailed diagnostics through communication for all protocols.</p> <p>HART®: 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.</p> <p>FOUNDATION fieldbus™: For sensor circuit failures, events are generated and status is sent to link outputs. Detailed diagnostics are available in the contained parameters.</p> <p>PROFIBUS PA: For sensor or circuit failures, status is sent to output parameters. Detailed diagnostics are available in the contained parameters.</p>
Temperature Limits	<p>Ambient: -40 to 85 °C (-40 to 185 °F) Process: -20 to 150 °C (-04 to 302 °F) Storage: -40 to 100 °C (-40 to 212 °F) Digital Display: -10 to 60 °C (14 to 140 °F)</p>
Turn-on Time	<p>HART®: Performs within specifications in less than 5 seconds after power is applied to the transmitter.</p> <p>FOUNDATION fieldbus™ and PROFIBUS PA: Performs within specifications in less than 10 seconds after power is applied to the transmitter.</p>
Configuration	<p>HART®: By digital communication (HART® protocol) using the configuration software CONF401, DDCON (for windows), HPC301 or HPC401 (for Palms). It can also be configured using DD and FDT/DTM tools.</p> <p>FOUNDATION fieldbus™ and PROFIBUS PA: Basic configuration may be done using the local adjustment magnetic tool if device is fitted with display. Complete configuration is possible using configuration tools.</p>
Static Pressure Limit	7 MPa (70 kgf/cm ²) (1015 psi).
Humidity Limits	0 to 100% RH.
Damping Adjustment	0 to 32 seconds in addition to intrinsic sensor response time (0.2 s) via digital communication.

Performance Specifications

Reference Conditions	Temperature of 25 °C (77 °F), atmospheric pressure, power supply of 24 Vdc, silicone oil fill fluid, isolating diaphragms in 316L SST and digital trim equal to lower and upper range values.
Accuracy	For range 1: $\pm 0.0004 \text{ g/cm}^3$ ($\pm 0.1 \text{ }^\circ\text{Bx}$) For range 2: $\pm 0.0007 \text{ g/cm}^3$ For range 3: $\pm 0.0016 \text{ g/cm}^3$ Linearity, hysteresis and repeatability effects are included.
Stability (for 12 months)	For range 1: $0.021 \times 10^{-3} \text{ g/cm}^3$ For range 2: $0.083 \times 10^{-3} \text{ g/cm}^3$ For range 3: $0.521 \times 10^{-3} \text{ g/cm}^3$
Ambient Temperature Effect (per 10 °C)	For range 1: $0.003 \times 10^{-3} \text{ g/cm}^3$ For range 2: $0.013 \times 10^{-3} \text{ g/cm}^3$ For range 3: $0.041 \times 10^{-3} \text{ g/cm}^3$
Static Pressure Effect	Zero Static Pressure For range 1: $0.001 \times 10^{-3} \text{ g/cm}^3$ For range 2: $0.004 \times 10^{-3} \text{ g/cm}^3$ For range 3: $0.007 \times 10^{-3} \text{ g/cm}^3$
Power Supply Effect	$\pm 0.005\%$ of calibrated span per volt.
Mounting Position Effect	It can be eliminated after installation. No span effect.
Electro-Magnetic Interference Effect	Designed to comply with IEC 61326-1:2006, IEC 61326-2-3:2006, IEC 61000-6-4:2006 and IEC 61000-6-2:2005.

Physical Specifications

Electrical Connection	1/2 - 14 NPT M20 X 1.5 PG 13.5 DIN
Process Connection	Industrial Model: 316 SST Flange ANSI B16.5 4". Sanitary Model: 304 SST Tri-clamp 4".
Wetted Parts	Isolating Diaphragms: 316L SST or Hastelloy C276. Wetted O-Rings (For Sanitary Model): Buna N, Viton™ or Teflon™.
Nonwetted Parts	Electronic Housing: Injected aluminum with polyester painting or 316 SST. Complies with NEMA 4X, IP66/68 W. Fill Fluid: Silicone (DC200/20, DC704), Glycerin and Water, Neobee M20 Propylene Glycol. Cover O-Rings: Buna N. Identification Plate: 316 SST.
Mounting	Side or top mounted.
Approximate Weights	8 kg (18 lb) – Sanitary Model. 12 kg (26 lb) – Industrial Model.

Viton and Teflon are trademarks of E. I. DuPont de Nemours & Co.

HART® is a trademark of HART® Communication Foundation.

Foundation is a trademark of Fieldbus Foundation.

Profibus is a trademark of Profibus International.

This product is protected by US patent numbers 6,234,019 and D439,855.

MODEL	INDUSTRIAL CONCENTRATION/DENSITY TRANSMITTER					
DT301 I	HART® & 4-20 mA					
DT302 I	FOUNDATION fieldbus™					
DT303 I	PROFIBUS PA					
COD.	Range	Minimum Span				
1	0.5 to 1.8 g/cm³	0.025 g/cm³		Note: For the concentration units: °Brix, °Plato, °INPM, °GL and °Baumé, specify code 1.		
2	1.0 to 2.5 g/cm³	0.050 g/cm³				
3	2.0 to 5.0 g/cm³	0.250 g/cm³				
COD.	Wetted Parts Material					
H	Hastelloy C276 / Hastelloy C276					
I	316L SST / 316L SST					
U	Hastelloy C276 / 316L SST					
X	316L SST / 316L SST with plated TEFZEL (ETFE)					
Z	Others - Specify					
COD.	Fill Fluid					
N	Neobee- M20 Propylene Glycol - Food Grade					
D	DC-704 Silicone Oil					
S	DC 200/20 Silicone Oil					
G	Glycerin and Water - Food Grade					
T	Syltherm 800					
Z	Others - Specify					
COD.	Local Indicator					
0	Without Indicator					
1	With Digital Indicator					
COD.	Electrical Connection					
0	½ - 14 NPT (4)				A	M20 X 1.5 (7)
1	1/2 - 14 NPT X 3/4 NPT (AI 316) - With Adapter (5)				B	PG 13.5 DIN (7)
2	1/2 - 14 NPT X 3/4 BSP (AI316) - With Adapter (6)				Z	Others – Specify
3	1/2 - 14 NPT X 1/2 BSP (AI 316) - With Adapter (6)					
COD.	Mounting					
1	Top					
2	Side					
COD.	Process Connection Size, Rating and Standard					
5	1	4" 150# ANSI B-16.5				
5	2	4" 300# ANSI B-16.5				
5	3	4" 600# ANSI B-16.5				
A	C	DN 100 PN25/40 DIN 2526 - FORM D				
Z	Z	Others - Specify				
COD.	Continues Next Page					

DT301I	-	1		I		S	-	1		0		1	-	5		1	/	*
DT302I	-	1		I		S	-	1		0		1	-	5		1	/	*
DT303I	-	1		I		S	-	1		0		1	-	5		1	/	*

← TYPICAL MODEL NUMBER

* Leave it blank for no optional items.

MODEL		INDUSTRIAL CONCENTRATION/DENSITY TRANSMITTER (CONTINUATION)	
COD.	Identification Plate		
I1	FM: XP, IS, NI, DI		
I4	EXAM (DMT): EX-IA; NEMKO: EX-D		
I5	CEPEL: EX-D, EX-IA		
I6	Without Certification		
I7	EXAM (DMT) GRUPO I, M1 EX-IA		
IE	NEPSI: EX-IA		
COD.	Housing Material (1) (2)		
H0	Aluminum (IP/Type)		
H1	316 SST (IP/Type)		
H2	Aluminum for Saline Atmosphere (IPW/TypeX) (3)		
H3	316 SST for Saline Atmosphere (IPW/TypeX) (3)		
H4	Copper Free Aluminum (IPW/TypeX) (3)		
COD.	Tag Plate		
J0	With Tag		
J1	Blank		
J2	User's Specification		
COD.	Display Unit		
Y0	Percentage		
Y1	1: Current – I (mA)		
Y2	1: Density/Concentration (Eng. Unit)		
Y3	1: Temperature (Temperature)		
Y4	2: Current – I (mA)		
Y5	2: Density/Concentration (Eng. Unit)		
Y6	2: Temperature (Temperature)		
YU	2: User's Specification		
COD.	Painting		
P0	Gray Munsell N 6,5		
P3	Black Polyester		
P4	White Epoxy		
P5	Yellow Polyester		
P8	Without Painting		
P9	Blue Safety Epoxy – Electrostatic Painting		
PC	Blue Safety Polyester – Electrostatic Painting		
COD.	Optional Item (*)		
ZZ	Special Options		

DT301-1IS-101-51	/	I6	H0	J0	Y0	P0	*
DT302-1IS-101-51	/	I6	H0	J0		P0	*
DT303-1IS-101-51	/	I6	H0	J0		P0	*

← TYPICAL MODEL NUMBER

* Leave it blank for no optional items.

Optional Items

Diaphragm Thickness	N0 - Standard
	N1 - 0.1 mm
Strengthening of the Probe	R1 - with strengthening of the probe
Mounting Position	E1 - reverse position

Notes																		
(1) IPX8 tested in 10 meters of water column for 24 hours.			(4) Certified for use in Explosive Atmosphere (CEPEL, FM, CSA, NEPSI, NEMKO and EXAM).															
(2) Ingress Protection:			(5) Certified for use in Explosive Atmosphere (CEPEL and CSA).															
			(6) Options not certified for Explosive Atmosphere.															
			(7) Certified for use in Explosive Atmosphere (CEPEL, NEPSI, NEMKO and EXAM).															
<table border="1"> <thead> <tr> <th>Product</th> <th>CEPEL</th> <th>NEMKO / EXAM</th> <th>FM</th> <th>CSA</th> <th>NEPSI</th> </tr> </thead> <tbody> <tr> <td>DT30X</td> <td>IP66/68/W</td> <td>IP66/68/W</td> <td>Type 4X/6</td> <td>Type 4X</td> <td>IP67</td> </tr> </tbody> </table>							Product	CEPEL	NEMKO / EXAM	FM	CSA	NEPSI	DT30X	IP66/68/W	IP66/68/W	Type 4X/6	Type 4X	IP67
Product	CEPEL	NEMKO / EXAM	FM	CSA	NEPSI													
DT30X	IP66/68/W	IP66/68/W	Type 4X/6	Type 4X	IP67													
(3) IPW / TypeX tested for 200 hours according to NBR 8094 / ASTM B 117 standard.																		

MODEL	SANITARY CONCENTRATION/DENSITY TRANSMITTER	
DT301 S	HART® & 4-20 mA	
DT302 S	FOUNDATION fieldbus™	
DT303 S	PROFIBUS PA	
COD.	Range	Minimum Span
1	0.5 to 1.8 g/cm³	0.025 g/cm³
2	1.0 to 2.5 g/cm³	0.050 g/cm³
3	2.0 to 5.0 g/cm³	0.250 g/cm³
Note: For the concentration units: °Brix, °Plato, °INPM, °GL and °Baumé, specify code 1.		
COD.	Wetted Parts Material	
H	Hastelloy C276	
I	316L SST	
U	Probe in 316L SST and Diaphragms in Hastelloy C276	
Z	Others - Specify	
COD.	Fill Fluid	
N	Neobee- M20 Propylene Glycol - Food Grade (8)	
D	DC-704 Silicone Oil	
S	DC 200/20 Silicone Oil	
G	Glycerin and Water - Food Grade	
T	Syltherm 800	
Z	Others - Specify	
COD.	Local Indicator	
0	Without Indicator	
1	With Digital Indicator	
COD.	Electrical Connection	
0	½ - 14 NPT (4)	A M20 X 1.5 (7)
1	1/2 - 14 NPT X 3/4 NPT (Al 316) - With Adapter (5)	B PG 13.5 DIN (7)
2	1/2 - 14 NPT X 3/4 BSP (Al316) - With Adapter (6)	Z Others - Specify
3	1/2 - 14 NPT X 1/2 BSP (Al 316) - With Adapter (6)	
COD.	Mounting	
1	Top	
2	Side	
COD.	Process Connection	
J	Tri-clamp - 4" 300# (8)	
Z	Others - Specify	
COD.	Wetted O-Rings Material	
B	Buna-N (8)	
V	Viton (8)	
T	Teflon (8)	
Z	Others - Specify	
COD.	Tank Adapter	
0	Without Tank Adapter (Supplied by Customer)	
1	With Tank Adapter 316 SST	
COD.	Tri-Clamp	
0	Without Tri-clamp	
1	With Tri-clamp in 304 SST	
COD.	Continues Next Page	

DT301S	1	I	N	1	0	2	J	B	1	1	/	*
DT302S	1	I	N	1	0	2	J	B	1	1	/	*
DT303S	1	I	N	1	0	2	J	B	1	1	/	*

← TYPICAL MODEL NUMBER

* Leave it blank for no optional items.

MODEL	SANITARY CONCENTRATION/DENSITY TRANSMITTER (CONTINUATION)	
	COD.	Identification Plate
	I1	FM: XP, IS, NI, DI
	I4	EXAM (DMT): EX-IA; NEMKO: EX-D
	I5	CEPEL: EX-D, EX-IA
	I6	Without Certification
	I7	EXAM (DMT) GRUPO I, M1 EX-IA
	IE	NEPSI: EX-IA
	COD.	Housing Material (1) (2)
	H0	Aluminum (IP/Type)
	H1	316 SST (IP/Type)
	H2	Aluminum for Saline Atmosphere (3) (IPW/TypeX)
	H3	316 SST for Saline Atmosphere (3) (IPW/TypeX)
	H4	Copper Free Aluminum (3) (IPW/TypeX)
	COD.	Tag Plate
	J0	With Tag
	J1	Blank
	J2	User's Specification
	COD.	Display Unit
	Y0	Percentage
	Y1	1: Current – I (mA)
	Y2	1: Density/Concentration (Eng. Unit)
	Y3	1: Temperature (Temperature)
	Y4	2: Current – I (mA)
	Y5	2: Density/Concentration (Eng. Unit)
	Y6	2: Temperature (Temperature)
	YU	2: User's Specification
	COD.	Painting
	P0	Gray Munsell N 6,5
	P3	Black Polyester
	P4	White Epoxy
	P5	Yellow Polyester
	P8	Without Painting
	P9	Blue Safety Epoxy – Electrostatic Painting
	PC	Blue Safety Polyester – Electrostatic Painting
	COD.	Optional Item (*)
	ZZ	Special Options

DT301S-1IN-102-JB11	/	I6	H0	J0	Y0	P0	*
DT302S-1IN-102-JB11	/	I6	H0	J0		P0	*
DT303S-1IN-102-JB11	/	I6	H0	J0		P0	*

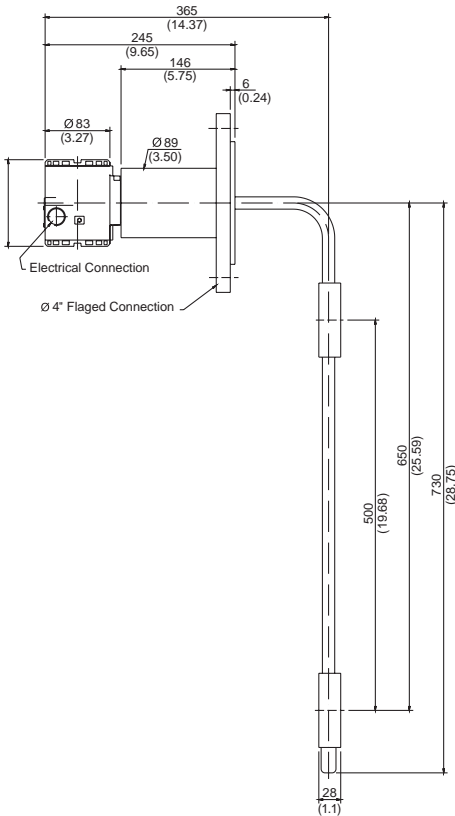
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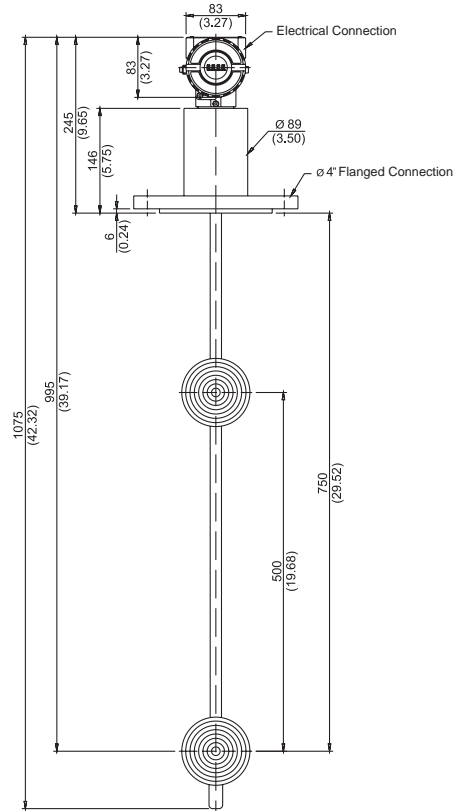
Notes					
(1) IPX8 tested in 10 meters of water column for 24 hours.		(5) Certified for use in Explosive Atmosphere (CEPEL and CSA).			
(2) Ingress Protection:		(6) Options not certified for Explosive Atmosphere.		(7) Certified for use in Explosive Atmosphere (CEPEL, NEPSI, NEMKO and EXAM).	
Product	CEPEL	NEMKO / EXAM	FM	CSA	NEPSI
DT30X	IP66/68/W	IP66/68/W	Type 4X/6	Type 4X	IP67
(3) IPW / TypeX tested for 200 hours according to NBR 8094 / ASTM B 117 standard.		(8) Compliant with 3A-7403 standard for food and other applications where sanitary connections are required.			
(4) Certified for use in Explosive Atmosphere (CEPEL, FM, CSA, NEPSI, NEMKO and EXAM).		- Neobee M20 Fill Fluid			
		- Finishing wet Face: 0.8 µm Ra (32 µ" AA)			
		- Wet O-Ring: Viton Teflon and Buna-N			

Industrial Model - 500 mm

Dimensions are millimeters (inches)

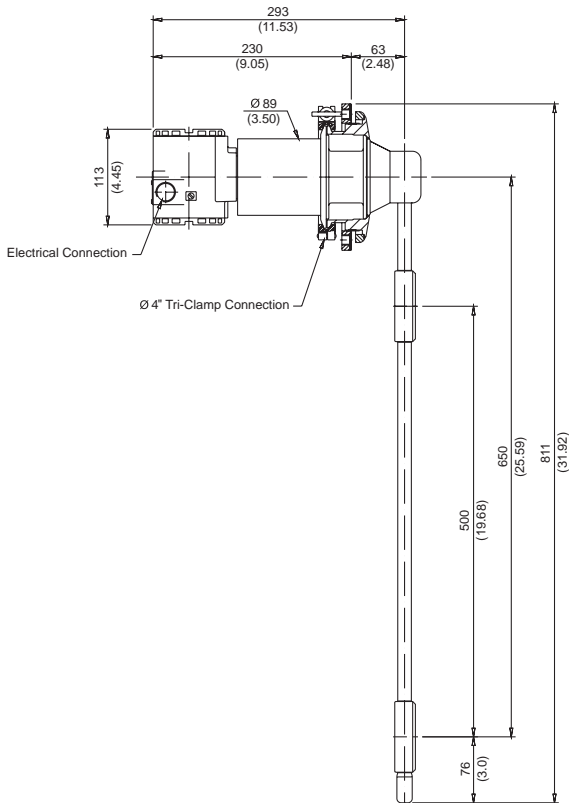


Side Mounting Type

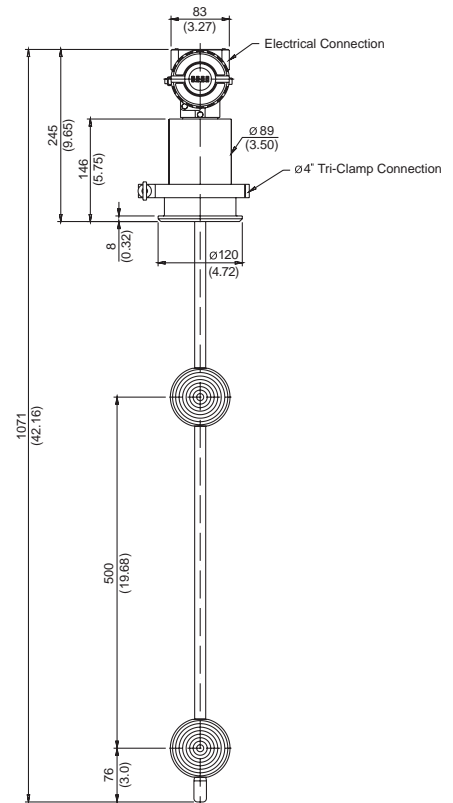


Top Mounting Type

Sanitary Model - 500 mm

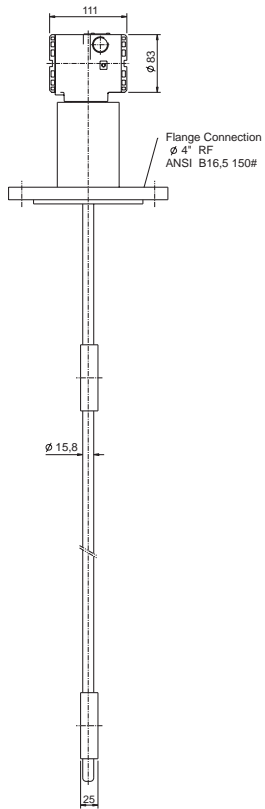


Side Mounting Type

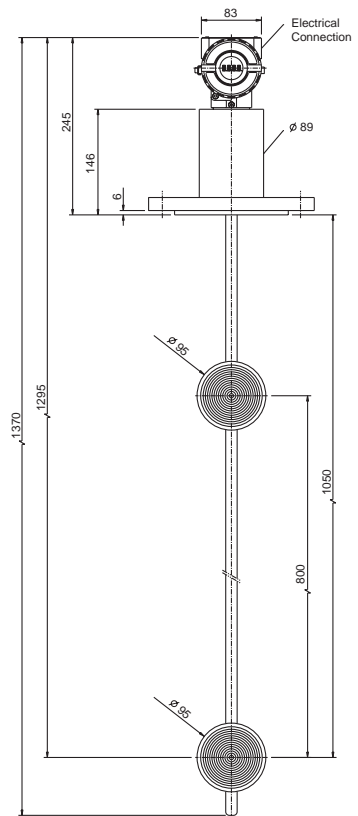


Top Mounting Type

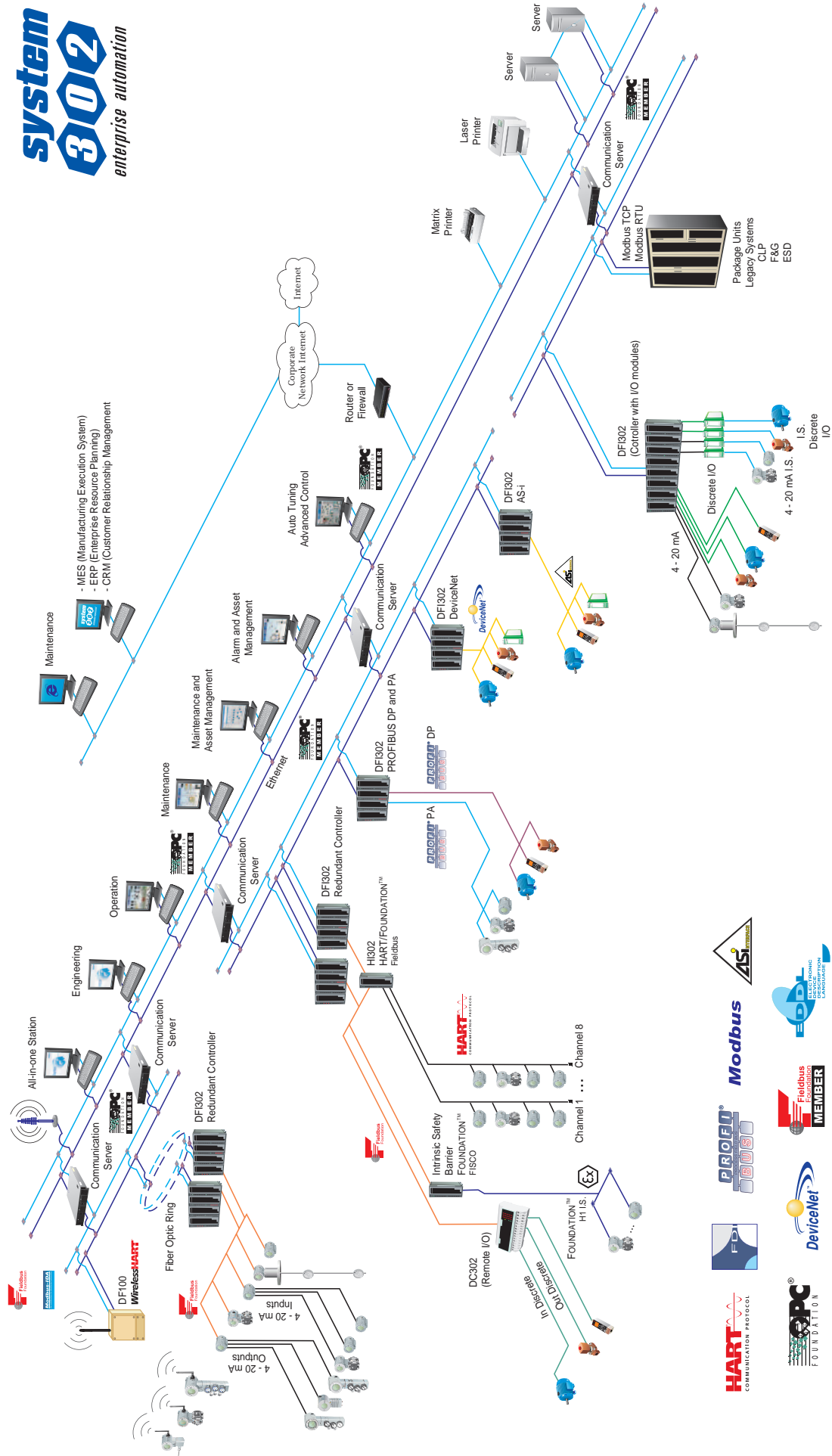
Industrial Model - 800 mm



Side Mounting Type



Top Mounting Type






Pressure Pressure, Level and Flow Level Density/Concentration

<p>4-20 mA LD290</p>  <p>LD291 LD292 LD293</p>	<p>LD1.0</p>  <p>LD301 LD302 LD303</p>	<p>LD400</p> 	<p>RD400</p> 	 <p>DT301 DT302 DT303</p>	
<p>Pressure Transmitter</p>	<p>Gauge Economic Capacitive Pressure Transmitter</p>	<p>Pressure Transmitter</p>	<p>Pressure Transmitter with high performance</p>	<p>Level Transmitter</p>	<p>Intelligent Density / Concentration Transmitter</p>

Position

 <p>FY301 FY302 FY303</p>	 <p>FY400</p>	 <p>FY301 FY302 FY303</p>	 <p>TP301 TP302 TP303</p>
<p>Valve Positioner</p>	<p>Valve Positioner with auto tuning</p>	<p>Valve Positioner with remote sensor</p>	<p>Position Transmitter</p>




Temperature

 <p>TT301 TT302 TT303</p>	 <p>TT411</p>	 <p>TT421</p>
<p>Temperature Transmitter</p>	<p>Panel Mounting Temperature Transmitter</p>	<p>Head Mounting Temperature Transmitter</p>

Junction Box

 <p>4-20 mA JM1</p>	 <p>4-20 mA JM400</p>
<p>3 Ways Junction Box JM1</p>	<p>4 Ways Junction Box JM400</p>

Configurators

		
<p>HART® Configurator Interface CONF401</p>	<p>HART® Configurator Interface DDCON 100</p>	<p>HART® Configurator for Palm HPC301</p>

Interfaces

	
<p>HART-RS232 Interface HI311</p>	<p>HART-USB Interface HI321</p>

Converters



FOUNDATION
FI302
FI303

Fieldbus to Pneumatic
Signal Converter



FOUNDATION
FI302
FI303

Current to Fieldbus
Converter



FOUNDATION
FI302
FI303

Fieldbus to Current
Converter



HART® / Fieldbus
Interface HI302



HART® / Current
Converter HCC301

Controllers



Programmable Logical
Controller
LC700

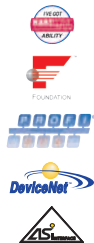
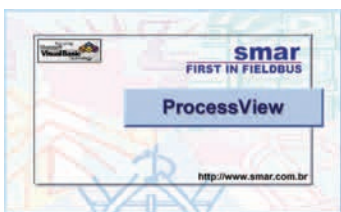


Digital Controller
CD600Plus

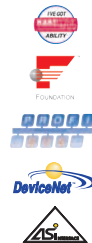


Interface Universal Fieldbus
DFI302

Systems



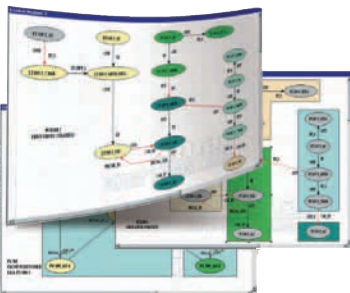
ProcessView
Process Visualization Tool



Studio302
System302 Management Tool



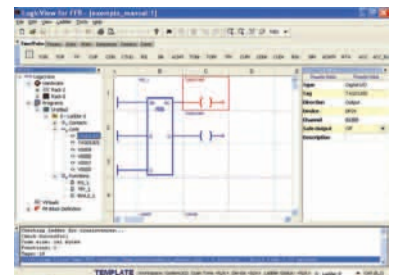
AssetView
On Line Plant Asset
Management Tool



Syscon
System Configurator



Equipment Database
Plant Information Management



LogicView
IEC61131
Programming Tool

smar
www.smar.com

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Up-to-date address information is available on our website.

web: www.smar.com/contactus.asp



DT300CE