

**ST100** - 

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Block No.      1   2   3   4   5   6   7   8      9   10   11   12   13      14   15   16   17   18      19

**INSTRUCTIONS:** To order an **ST100**, please fill in each numbered block above by selecting required codes from the corresponding categories below. Use of any "W" or "\*" codes requires prior approval from FCI. For special data, documentation, test reports or required quality reports, refer to FCI's Engineering and Quality Assurance Order Information Sheets (OIS).

Flow Element			
Code [BLOCK 1] Flow Element: Temperature Service, Type and Materials of Construction			
350°F [177°C]	500°F [260°C]	850°F [454°C]	
1	2	3 <sup>1</sup>	-FPC style; 316L stainless steel
A	B	C <sup>1</sup>	-FPC style; Hastelloy C276
4	5	6 <sup>1</sup>	-FP style; 316L stainless steel
D	E	F <sup>1</sup>	-FP style; Hastelloy C276
7	8	9 <sup>1</sup>	-S style; 316L stainless steel
G	H	J <sup>1</sup>	-S style; Hastelloy C276
W	W	W <sup>1</sup>	Agency approved, customer specified
*	*	*	Other, not agency approved
Code [BLOCK 2]			
0 Block 2 Code is always "0"			
Code [BLOCKS 3-4] Process Connections			
BLOCK 3	BLOCK 4		
Compression Fitting, Teflon Ferrule <sup>3</sup>			
C	0	3/4 inch, male NPT <sup>4</sup>	
D	0	1 inch, male NPT <sup>4</sup>	
G	Table A	Flange, tapped and threaded for 3/4 inch fitting <sup>15</sup>	
Compression Fitting, Metal Ferrule <sup>3</sup> Metal ferrule permanent locks after tightening			
M	0	3/4 inch, male NPT <sup>4</sup>	
N	0	1 inch, male NPT <sup>4</sup>	
J	Table A	Flange, tapped and threaded for 3/4 inch fitting <sup>15</sup>	
Retractable Packing Gland, Low Pressure; 50 psig [3.5 bar (g)] <sup>2</sup>			
P	0	1 1/4 inch, male NPT; graphite packing	
H	0	1 1/4 inch, male NPT; Teflon packing	
Q	Table A	Flange <sup>5,15</sup> ; graphite packing	
K	Table A	Flange <sup>5,15</sup> ; Teflon packing	
Retractable Packing Gland, Medium Pressure; 500 psig [34 bar (g)] <sup>2,17</sup>			
R	0	1 1/4 inch, male NPT; graphite packing	
L	0	1 1/4 inch, male NPT; Teflon packing	
T	Table A	Flange <sup>5,15</sup> ; graphite packing	
V	Table A	Flange <sup>5,15</sup> ; Teflon packing	
Fixed			
Y	0	1 inch, male NPT	
F	Table A	Flange <sup>15</sup>	
Other or Special			
W	W	Agency approved, customer specified	
*	*	Other, not agency approved	
Code [BLOCKS 5-7] Insertion Length			
BLOCK 5	BLOCK 6	BLOCK 7	
0	6	0	Variable length: 1 inch to 6 inch [25 mm to 152 mm]
1	2	0	Variable length: 1 inch to 12 inch [25 mm to 305 mm]
2	1	0	Variable length: 1 inch to 21 inch [25 mm to 533 mm]
3	6	0	Variable length: 1 inch to 36 inch [25 mm to 914 mm]
6	0	0	Variable length: 1 inch to 60 inch [25 mm to 1524 mm]
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fixed length (required if Code Y or F in Block 3) or custom variable length; specify req'd length to 0.1 inch E.g. 18 inches = 18.0, max. length is 99.9 inches

Code [BLOCK 8] Pipe Mounting and Flow Direction	
1	Horizontal, flow right-to-left or vertical up
2	Horizontal, flow left-to-right or vertical down

**Transmitter and Electronics**

Code [BLOCK 9] Transmitter Mounting, Enclosure Material and Cable Entry Threading	
1	Integral mount, aluminum; NPT cable entries <sup>6</sup>
A	Integral mount, aluminum; metric cable entries <sup>6</sup>
2	Remote mount, aluminum; NPT cable entries <sup>6</sup>
B	Remote mount, aluminum; metric cable entries <sup>6</sup>
3	Integral mount, stainless steel; NPT cable entries <sup>6</sup>
C	Integral mount, stainless steel; metric cable entries <sup>6</sup>
4	Remote mount, stainless steel; NPT cable entries <sup>6</sup>
D	Remote mount, stainless steel; metric cable entries <sup>6</sup>
W	Agency approved, customer specified
*	Other, not agency approved

Table A - Flange [BLOCK 4]			
CS <sup>15</sup>	316L SS	Hast C	Material
D	1	C	ANSI 1 inch 150 lb
E	A	G	ANSI 1 inch 300 lb
F	2	H	ANSI 1 1/2 inch 150 lb
K	B	J	ANSI 1 1/2 inch 300 lb
P	3	M	ANSI 2 inch 150 lb
R	L	N	ANSI 2 inch 300 lb
	T		DIN DN25 PN40
	V		DIN DN40 PN40
	6		DIN DN50 PN16
	Y		DIN DN50 PN40
	W		Agency appvd, customr spec'd

(continued next page)

**Notes**

- Compression fitting process connections not valid with 850 °F [454 °C] service. Process connection (Block 3) must be fixed type (Code Y or F) or retractable packing gland type. Transmitter maximum temperature is 140 °F [60 °C]; remote mounting (Block 9, Code 2 or B) and use of Teflon jacketed cable (Block 10, Code 1, 2, 3 or 4) is recommended.
- Teflon packing material must be ordered when the process media is ozone, chlorine or bromine. Contact FCI.
- Teflon ferrule maximum is 200 °F [93 °C], 150 psig [10 bar (g)]. Metal ferrule maximum is 500 °F [260 °C], 1000 psig [69 bar (g)].
- S style sensor is retractable (will recess) into both 3/4" and 1" NPT. -FP style sensor is retractable (will recess) into 1" NPT only.
- Minimum flange size is 1 1/2" or DN40.
- Transmitter enclosure has four (4) conduit ports, NPT = 1/2", metric = M20x1.5. Local enclosure (attached to flow element) conduit ports vary by base model and process connection selected:

Model	Process Connection	NPT	Metric
ST100, ST100L, ST102	All, except with medium pressure packing gland, stainless steel enclosure, or 850 °F [454 °C] temperature service	(2) 1/2"	(2) M20x1.5
ST100, ST102	With medium pressure packing gland, stainless steel enclosure and/or 850 °F [454 °C] temperature service	(1) 1"	(1) M20x1.5
ST110, ST112, all STP	All	(1) 1"	(1) M20x1.5
- Cannot select carbon steel flange when Hastelloy type flow element is selected in Block 1.
- Selection of medium pressure packing gland requires remote mount configuration. Block 9 must be Code 2, B, 4 or D.

(continued from previous page)

Code	[ BLOCK 10 ] Interconnecting Cable Length for Remote Configuration
0	Not required. Specify with integral configurations, user supplied cable, or if cable ordered as separate line item from ST100 series accessories. <sup>7,16</sup>
A	10 feet [3 meters] PVC jacketed <sup>8</sup>
B	25 feet [7,6 meters] PVC jacketed <sup>8</sup>
C	50 feet [15 meters] PVC jacketed <sup>8</sup>
D	100 feet [30 meters] PVC jacketed <sup>8</sup>
1	10 feet [3 meters] Teflon jacketed <sup>8</sup>
2	25 feet [7,6 meters] Teflon jacketed <sup>8</sup>
3	50 feet [15 meters] Teflon jacketed <sup>8</sup>
4	100 feet [30 meters] Teflon jacketed <sup>8</sup>
W	Other
*	Non agency approved cable type or length other than above

Code	[ BLOCK 11 ] Transmitter Power Supply and Display
A	24 Vdc power (19.2 Vdc to 28.8 Vdc); no digital display
B	24 Vdc power (19.2 Vdc to 28.8 Vdc); with display
C	85 Vac to 265 Vac power; no display
D	85 Vac to 265 Vac power; with digital display

Code	[ BLOCK 12 ] Transmitter Outputs and Communications
1	(3) 4-20 mA outputs, one with HART; (1) frequency/pulse output
F	FOUNDATION™ fieldbus H1 <sup>9</sup>
M	Modbus 485 <sup>9</sup>
P	PROFIBUS-PA <sup>9</sup>
W	Other
*	Other, not agency approved

Code	[ BLOCK 13 ]
E	Always "E"

**Calibration**<sup>10, 11, 12</sup>

Code	[ BLOCK 14 ] Calibration Application
<b>Standard Calibration: General Purpose</b>	
A	Air: 1.25 SFPS to 125 SFPS [0,4 NMPS to 38 NMPS]
D	Compressed air: 6 SFPS to 600 SFPS [1,8 NMPS to 180 NMPS]

Custom Calibration: Calibration matched to user specified gas, flow range and conditions	
B	Air
C	Specific gas equivalency (digester gas, flue gas, etc.)
E	Nitrogen, helium, argon, CO <sub>2</sub> , compressed air, digester gas
1	Natural gas (90% or greater methane content)
F	Hydrocarbons (methane, ethane, propane, etc.)
G	Hydrogen or hydrogen mixture
W <sup>13</sup>	Agency approved, customer specified

Code	[ BLOCK 15 ] Calibrations, Setup and Conditions
0	Standard
A	Extended temperature compensation
B	Extended range (> 100:1 turndown)
C	Vortab (VEL, VFK, VIS, VMR or VSR)
1	Vortab (VIP)
D	Flat velocity profile
E	Extended temperature compensation and extended range
F	Extended temperature compensation and Vortab (VEL, VFK, VIS, VMR or VSR)
2	Extended temperature compensation and Vortab (VIP)
G	Extended temperature compensation and flat velocity profile
H	Extended range and Vortab (VEL, VFK, VIS, VMR or VSR)
3	Extended range and Vortab (VIP)
K	Extended temperature compensation, extended range and Vortab (VEL, VFK, VIS, VMR or VSR)
4	Extended temperature compensation, extended range and Vortab (VIP)
L	Extended temperature compensation, extended range and flat velocity profile

Code	[ BLOCKS 16-17 ] Second Calibration
0 0	Not required
<input type="checkbox"/> <input type="checkbox"/>	Select from Codes shown in Blocks 14-15

Code	[ BLOCK 18 ] Additional Calibration Groups
0	Not required
X	More than two calibrations <sup>10, 11, 12, 14</sup>
S	SR2x (split-range, double calibration points, max. 5% rdg accuracy. See specifications)

**General**

Code	[ BLOCK 19 ] Agency Approval
<i>CE Mark always included</i>	
0	Not required
1	FM, FMc
3	ATEX, IECEx <sup>16</sup>
5	GOST
6	Inmetro
7	NEPSI
*	Other. Contact FCI for other approvals and conditions of use

**Notes**

- Remote cable in an ST100 Series model is 8-conductor; remote cable in an STP100 Series model is 10-conductor. For user-supplied cable, overall shielded conductor type is required and wire resistance must be less than 8 Ohms.
- Cable suitable for conduit and some cable gland systems. For other cable gland system choices, see ST100 accessories list or contact FCI to supply separately. PVC cable maximum temperature 176°F [80°C]; Teflon cable maximum temperature 392°F [200°C].
- No analog, frequency/pulse, relay outputs or other digital bus communications.
- FCI standard conditions are 14.7 psia [1,01 bar(a)] and 70°F [21.1°C].
- Calibration codes must be selected using FCI's proprietary AVAL application evaluation software.
- Transmitter setup, changes to factory supplied standard settings, verification or modification to calibration parameters or diagnostics requires external source communication with the transmitter.
- Customer specified calibration must not exceed temperature and pressure limitations of the ST100 Series product specifications.
- May specify up to three (3) additional calibrations for a total of five (5). Contact FCI for instructions on how to specify third, fourth and/or fifth calibration.
- ATEX/IECEx rated remote requires cable glands or conduit fittings which meet or exceed the installation area's required rating. When rated cable glands, armored cables and non-armored cable supplied are user supplied or selected from ST100 accessories list and ordered separately, enter Code 0 in Block 10.

**Accessories**

Part Number	Description
<b>Sun Shield Kits</b> Shades main transmitter, electronics, and/or display from direct sunlight; 316L stainless steel; attached directly to housing; kit includes shield, all hardware for attachment and instruction sheet	
023241-01	For use with <b>integral</b> mount transmitter
023237-01	For use with <b>remote</b> mount transmitter

Refer to separate ST100 Series Accessories List for a complete listing of all accessories such as cabling, ball valves, documentation test and QA documents and certificates, and spare parts.

