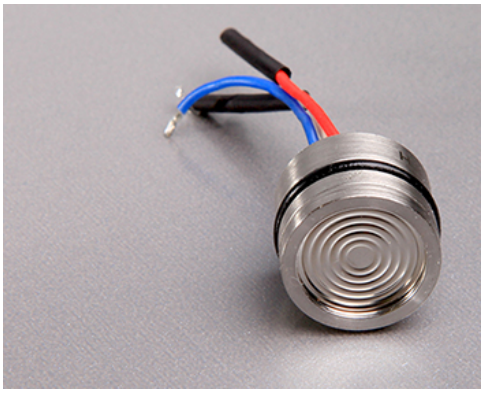
Accessories for EST4 Series

Metallic Capacitance Sensor

Introduction



Capacitance sensor is a passive transducer, which converts the non-electric physical quantity into corresponding capacitance. The capacitance is changed to a voltage or current signal, and is then amplified and processed. Capacitance sensor features stable temperature, simple structure, good dynamic response and non-contact measurements.

Metallic capacitance sensor is utilized where small distance or displacement is to be measured and higher resolution is required.

Technologies

Precision	±0.1%, ±0.2% of Calibrated span	Zero shifts caused by static pressure	0.5%;	
Stability	±0.2% of URL;	Overpressure Limits	For AP/GP, 13.8MPa; For DR/DP/HP, the same as static pressure range	
Temp. Limits	-40～104℃	Zero shifts caused by overpressure	<1.5%;	
Temperature Effects	At 55℃, zero error is 0.25% of the span	Static pressure range	DP：	13.8MPa
	At 55℃, span error is 0.25% of the		HP：	31.2 MPa；
Isolating diaphragm materials	316 SST, Alloy C, Monel and Tantalum		DR：	6.9 MPa；

Span and Measuring Range

Span Code	Measuring Range KPa	DR	AP	GP	DP	HP
2	-0.6~1.6	●				
3	1.0~6			●	●	
4	6.0~40		●	●	●	●
5	40~200		●	●	●	●
6	160~700		●	●	●	●
7	400~2100		●	●	●	●
8	1600~7000			●	●	
9	4000~21000			●		
0	7000~42000			●		

Circuit board: A

Introduction

EST4300-A circuit board, available for small capacitance sensor, transmits differential capacitance signals to two-wire 4--20 mA with stable and reliable performance. Compatible with ROSEMOUNT ’ s 275/375 communication interface and conforming to the HART protocol, EST4300-A can perform temperature compensation at two pressure points and three temperature points.

Circuit board: B

Introduction

EST4300-B circuit board, available for small capacitance sensor, is the upgrade of EST4300-A. With the sensor circuitry completely isolated from the housing and the feedthru-capacitor bypass technology, EST 4300-B can effectively avoid the effects of external high-voltage signal or interference to the measurements, and perform multidrop temperature compensation. Features

1. World-leading direct digital synthesis (DDS) technology which ensures high accuracy
2. Completely isolation and up to 500VRMS (707VDC)) isolation voltage between the sensor and the terminals
3. Built-in anti-interference component and multi-level protection circuit that ensure high reliability in the field.
4. Data backup and restoration function ensuring no field maintenance
5. Three-buttons on-site commissioning that grantees active shift, passive shift (span setup), zero setting (zero trim), damping setting and data restoration.
6. The multi-function and full-view LCD display featuring emerald backlight can rotate 360 degrees and display up to 4 variations.
7. Specially designed for 2E-span transmitter with the stability up to 2/100,000, and can be used by 2E or 3E+ transmitters in applications of high compression ratio (up to 1:100).

HART475 Field Communicator

Introduction

HART 388 field communicator enabling commissioning, setup and other operations to HART-compliant smart instruments. Both Chinese and English menu guaranteeing easier operation. Main Characteristics

1. Delay shutdown. Push and hold the I/O button for at least one second to turn on / turn off the power of the field communicator.
2. HART output amplitude autocontrol. If the field is noisy, the HART output amplitude will be doubled automatically, and the a active process circuit of the bus noise will be added to ensure better communication;
3. Longer working time. Work continuously for 150 ~200H with three AA Nan Fu batteries
4. Emerald backlight ensuring clearer display (applicable for operation in dark/night environment)
5. Compatible with more than 10 instruments: Rosemount1151, Rosemount3051, ABB, BJZRZC, Yokokawa EJA and etc. (Little difference with the compatible instruments for Chinese or English version)
6. Support fast keys. Users may enter corresponding fast keys for a certain function.

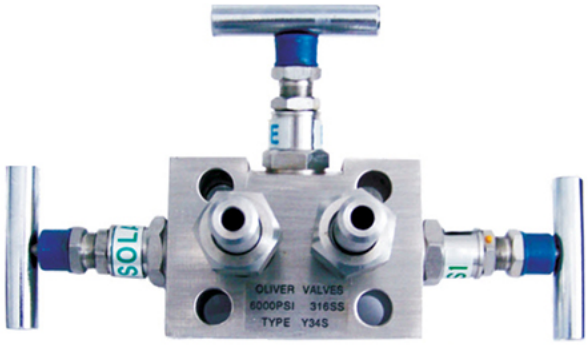
7. Improved housing design highlights the international features.

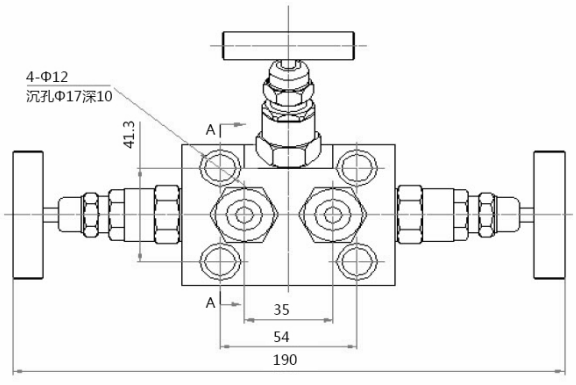
Features of Distributing Output Module (optional)

The field communicator with distributing output module can distribute output of 24V, which can power a HART transmitter, and is configured with 250 ohm communication resistance, and features overcurrent and short circuit protection.

Three-valve Manifold

Introduction





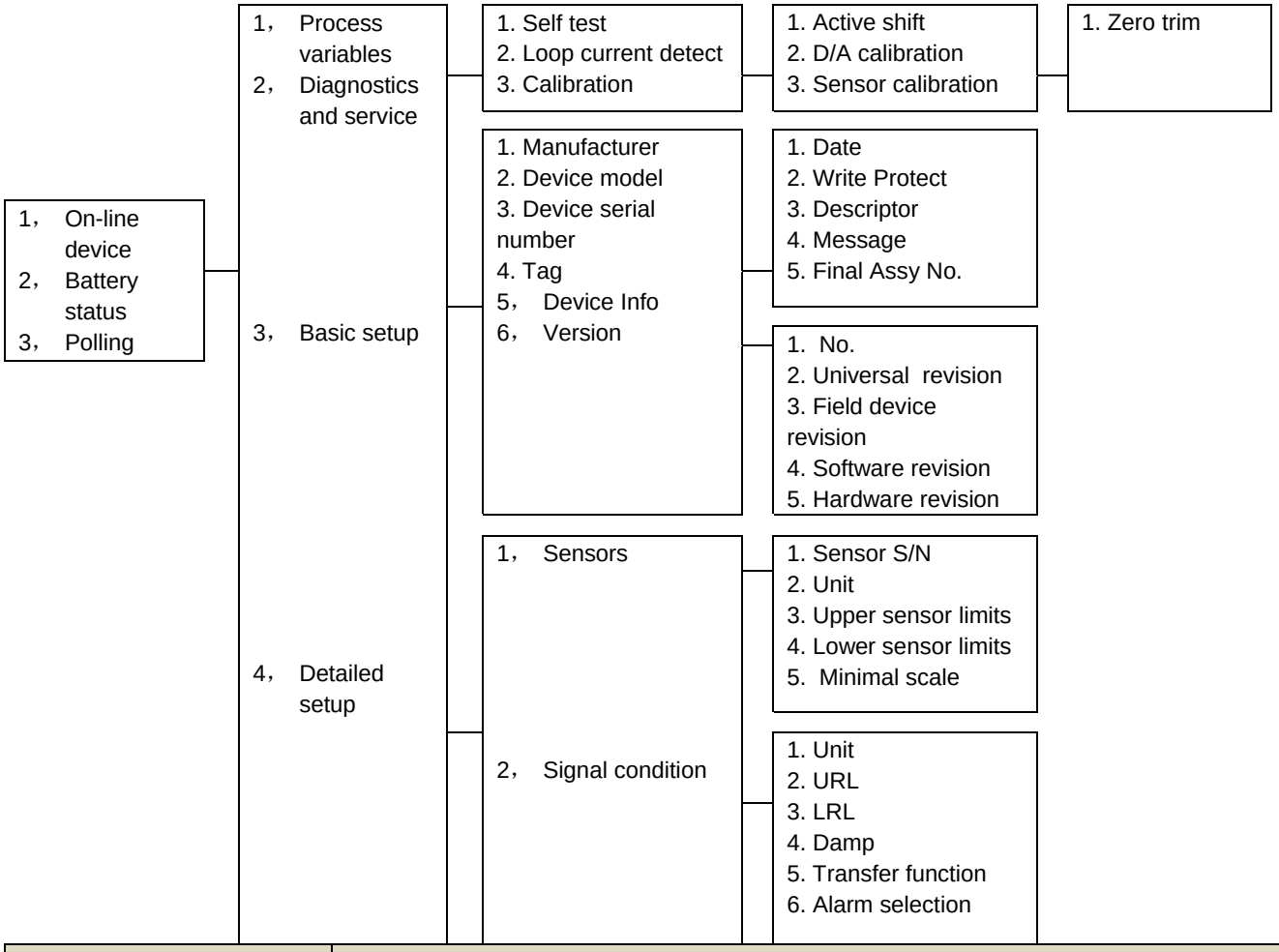
Used in such applications as metallurgy, chemical industry, pharmacy and instrument, as on-off device for controlling the process flow in pipeline engineering.

Appendix 1 Conversion Table of Pressure Unit

	inH2O(20℃)	Atm	Bar	KPa	Kf/cm2	MmH2O (20℃)	MmHg (0℃)	InHg(0 ℃)	Psi
inH2O (20℃)	1	0.00245	0.00249	0.24864	0.00254	25.4	1.86497	0.07342	0.03606

Atm	407.513	1	1.01325	101.325	1.03323	10350.8	759.999	29.9213	14.6959
Bar	402.185	0.98692	1	100	1.01972	10215.5	750.062	29.53	14.5038
KPa	4.02185	0.00987	0.01	1	0.0102	102.155	7.50062	0.2953	0.14504
Kf/cm2	394.407	0.96784	0.98066	98.0662	1	10017.9	735.558	28.959	14.2233
MmH2O (20℃)	0.03937	0.0001	0.0001	0.00979	0.0001	1	0.07342	0.00289	0.00142
MmHg (0℃)	0.5362	0.00132	0.00133	0.13332	0.00136	13.6195	1	0.03937	0.01934
InHg (0℃)	13.6195	0.3342	0.03386	3.8638	0.03453	345.935	25.4	1	0.49115
Psi	27.7296	0.06805	0.06895	6.89475	0.07031	704.333	51.7149	2.03602	1

Appendix 2 Field communicator menu trees



Function	HART Fast Key Sequence
D/A trim	2,3,4
Zero main variation	2,3,3,1
Span Unit	4,2,1
URL	4,2,2
LRL	4,2,3
Damping	4,2,4

Appendix 3 Corrosion-resistance reference sheet of diaphragms

△ Excellent, ⊙ Good, X Bad

Process	Concentration (%)	Temperature (℃)	316	Alloy C	Monel	Tantalum
Sulfuric acid	5	R.T	△	△	△	△
		B.T	X	⊙	⊙	△
	10	R.T	X	△	△	△
		B.T	X	X	⊙	△
	60	R.T	X	△	△	△
		B.T		⊙	⊙	△
	80	R.T	X	△	△	△
		B.T	X	X		⊙
	95	R.T	△	△	X	△
		B.T	X	X		X
Hydrochloric acid	5	R.T	X	⊙	X	△
		B.T	X	X	X	X
	10	R.T	X	⊙	X	△
		B.T	X	X	X	△
	20	R.T	X	⊙	X	⊙
		B.T	X	X	X	⊙
	35	R.T	X	⊙	X	⊙
		B.T	X	X	X	⊙
Nitric acid	10	R.T	△	⊙	X	△
		B.T	△	⊙	X	△
	30	R.T	△	⊙	X	△
		B.T	⊙	X	X	△
	68	R.T	△	⊙	X	△
		B.T	⊙	X	X	△
	Fuming	R.T				△
Phosphoric acid	30	R.T	△	△	X	△
		B.T	⊙	△	X	△
	60	R.T	△	△	X	△
		B.T	⊙	△	X	△
	70	R.T	△	△	X	△
		B.T	X	⊙	X	△
	80	R.T	△	△	X	△
		B.T	X	X	X	△
sulfuric acid+Nitric		R.T				△
Hafnium	20	R.T		△		△
		B.T				△
Aqua regia		R.T	X	△		△
		B.T	X	X		△
x	Wet	R.T	△		△	△
Ammonium hydroxide	<100	50℃	△	△		
		100℃	⊙	△		

Process	Concentration (%)	Temperature (℃)	316	Alloy C	Monel	Tantalum
x	5	R.T	X	X	△	X
	48	B.T		X	⊙	X
Acetic acid	100	R.T	△	△	△	△
		B.T		△	△	△
Formic acid	50	R.T	X	△	⊙	△
		B.T	X	△		△
Oxalic acid	10	R.T	⊙	⊙	⊙	△
		B.T	X	⊙	⊙	⊙
Citric acid	50	R.T	△	△	⊙	△
		B.T	△	△	⊙	△
Caustic soda	20	R.T	△	△	△	X
		B.T			⊙	X
	40	R.T	△	△	△	X
		B.T			⊙	X
Potassium hydroxide	50	R.T	⊙	⊙	△	△
Ferric chloride	30	R.T	X	⊙	X	△
		B.T	X	X	X	△
Sodium chloride	20 (saturation)	R.T	⊙	△		△
		B.T		⊙		△
Ammonium chloride	25	R.T	⊙	△	⊙	△
		B.T			⊙	△
Calcium chloride	25	R.T	⊙	△	△	△
		B.T			△	△
Magnesium chloride	42	R.T	⊙	△	⊙	△
		B.T	⊙	△	⊙	△
Ammonium sulfate	20 (saturation)	R.T	△	△	△	△
		B.T		⊙	⊙	△
Sodium chloride	10	R.T	△	△	△	△
		B.T	⊙	△	△	△
Sodium sulfate	50	R.T	△	△	△	△
		B.T	△	△	⊙	△
Ammonium nitrate	10	R.T	△	△	X	△
		B.T	△	△		△
Potassium nitrate	All	R.T	⊙	⊙	⊙	△
		B.T			⊙	△
Chlorine	Dry	R.T	△	△	⊙	△
	Wet	R.T	X	⊙		△
Chlorine water	Saturation	R.T	X	⊙	⊙	△
Sulfur dioxide	Wet	R.T				△
		B.T				