CE15 Electronic Pressure Switch

Fluids and gases measurement
(Featuring stainless diaphragm)

For lot production

RoHS

CE

Overview

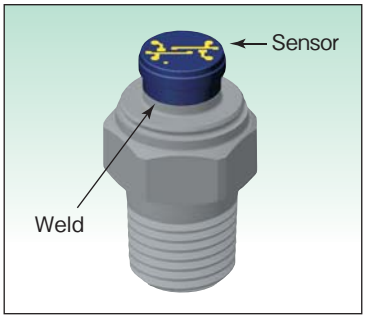
CE15 is an electronic pressure switch using a "vapor deposition semiconductor strain gauge type sensor" which is widely used in various industrial applications. Since the pressure sensor is welded to the fitting, durability is excellent.

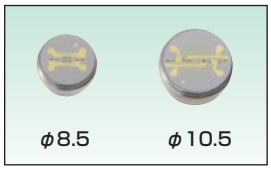
Features

- Wide Temperature Capability
- All-welded pressure construction
- Applicable to a wide range of applications from low pressure to high pressure
- IP67

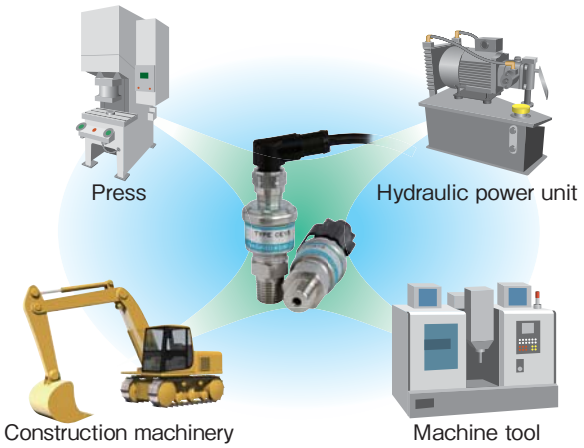
Features of sensor

Since the sensor is electron beam welded to a stainless steel fitting, use with water, oil, air, and a wide range of other process media is possible. High pressure resistant and high durable pressure sensor with excellent shock and vibration resistance.





For use with a variety of industries and applications



CE15 is electronic pressure switch of one contact type (NPN open collector or PNP open collector output) Two contacts type is also available upon request.

Specifications

Measurement range	Pressure range※1 (MPa)	Switching accuracy※2	Availability: Direct connector type Lead type (Sealed pressure)	Availability: Shielded cable type (Gauge pressure)	Allowable maximum pressure
	-0.1 to 0	±2.0%F.S. (23±2℃) ±3.5%F.S. (Within compensated temperature range)	—	○	200% of pressure range
	-0.1 to 0.1		—	○	
	0 to 0.1		—	○	
	0 to 0.2		—	○	
	0 to 0.3		—	○	
	0 to 0.4		—	○	
	0 to 0.5		—	○	
	-0.1 to 1	[Atmospheric pressure 1013hPa] ±1.0%F.S. (23±2℃) ±3.0%F.S. (Within compensated temperature range)	○	○	
	-0.1 to 2		○	○	
	0 to 1		○	○	
	0 to 1.6		○	○	
	0 to 2		○	○	
	0 to 2.5		○	○	
	0 to 3.5		○	○	
	0 to 4		○	○	
	0 to 5		○	○	
	0 to 6		○	○	
	0 to 10		○	○	
	0 to 16		○	○	
	0 to 20		○	○	
	0 to 25		○	○	150% of pressure range
	0 to 35		○	○	
	0 to 40		○	○	
	0 to 50		○	○	

Supply voltage	10 to 30V DC	
Output	Open collector output (Selectable)	Rating
	NPN Open collector or PNP Open collector output	30V DC, 150mA DC and under (-20 to 70℃) 30V DC, 50mA DC and under (-30 to -20℃, 70 to 120℃)
Setting	Type of contacts	Setting range
	Please select it from Upper limit type with one contact, Lower limit type with one contact, Reverse upper limit type with one contact, Reverse lower limit type with one contact. ＊Factory default setting	10 to 90%F.S. of Pressure range
Deadband	Standard: 2.0%±1.0%F.S. or select.	

Environmental performance	Withstand voltage	150V AC (1 minutes between case to circuit)	
	Insulation resistance	Greater than 100MΩ (Circuit to case 50Vac/1 min.)	
		Pressure range 3.5MPa and under	Pressure range 4MPa and over
	Compensated temp. range	-20 to 70℃	-30 to 120℃ (Cable type -30 to 105℃)
	Operating temp.range	-20 to 70℃	-40 to 120℃ (Cable type -30 to 105℃)
	Storage temp.range	-30 to 80℃	-40 to 140℃ (Cable type -40 to 120℃)
	Shock resistance	1000m/s² (6ms or less, X, Y, Z 3 times for each at constant temp.)	
	Vibration resistance	300m/s² (20 to 1000Hz, X: 4h, Y: 2h, Z: 2h at constant temp.)	
	Durability	More than 10,000,000 times. (10 to 100%F.S.)	
	Protection	IP67 (JIS C 0920:2003) ＊For the direct connector type with mating connector. For cable type and lead type body section only. Harness end is excluded.	
Material	Diaphragm	SUS630 (17-4PH) Welded to a fitting	
	Fitting	SUS304※3	
	Case	SUS304	
Fitting	7/16-20UNF flared 37°, 7/16-20UNF flared 45°	Maximum pressure range 5MPa	
	R1/8, R1/4, R3/8, G1/4A※3, G3/8A, 1/8NPT, 1/4NPT, G1/4A DIN3852 Form A, G1/4A DIN3852 Form E, 7/16-20UNF-2A SAE J1926-2※3 9/16-18UNF-2A SAE J1926-2	Maximum pressure range 50MPa	
Electrical connection	Connector direct type	・HW090 ・EJⅡ(+) ・METRI-PACK 150 ・M12×1(4pin) ・Deutsche DT04-3P	
	Lead type	Flying leads 0.3m (Standard) Econoseal J series 〈MARK Ⅱ (+)〉 (Tyco Electronics Japan G.K.)	
	Shielded cable type	Shielded cable 1m (Standard) Econoseal J series 〈MARK Ⅱ (+)〉 (Tyco Electronics Japan G.K.)	
Weight	Approx. 60g (Connector direct type, R1/4) Approx. 110g (Cable type, R1/4)		

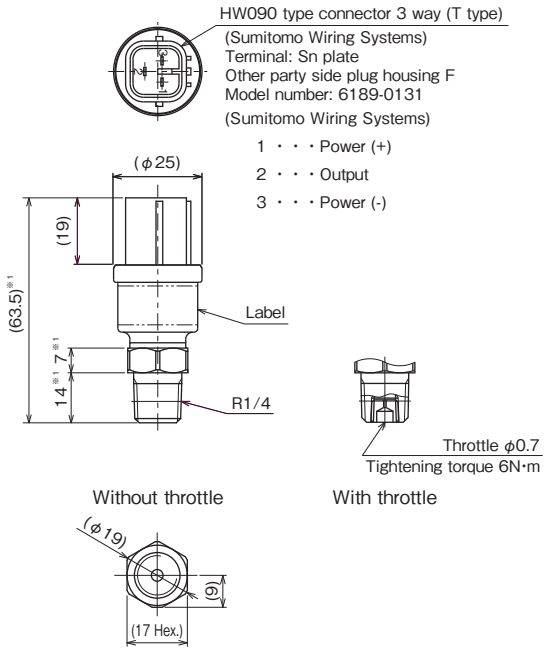
※1 Psi and bar units can also be manufactured. Use is limited to applications specified by Measurement Law. For more information, please contact us.
※2 Switching accuracy includes the right shown ①Linearity ②Hysteresis ③Repeatability
※3 For G1/4A、7/16-20UNF-2A SAE J1926-2 connection, fitting is heat-treated for range 10MPa and above.

Dimensions 1

Unit: mm

DIRECT CONNECTOR TYPE

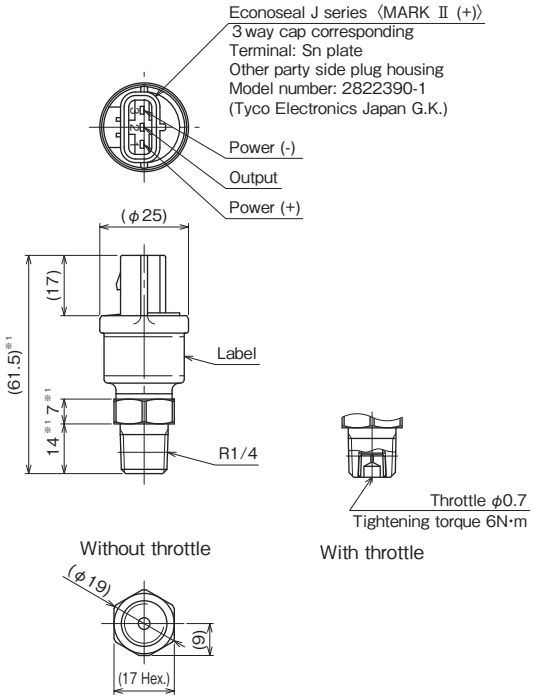
HW090 type connector 3 way (T type) (Sumitomo Wiring Systems)



※1 Case of R1/4
For other fittings, please refer Dimensions 3.

CE15-174

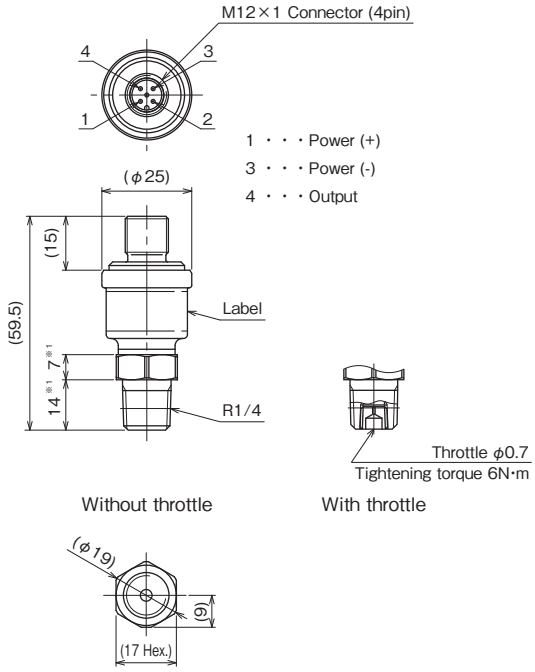
Econoseal J series 〈MARK Ⅱ (+)〉 3 way cap corresponding



※1 Case of R1/4
For other fittings, please refer Dimensions 3.

CE15-574

M12×1 Connector (4pin)



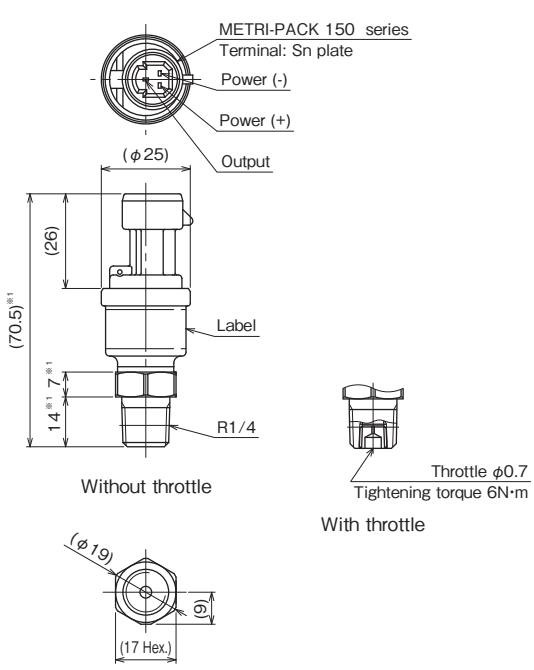
※1 Case of R1/4
For other fittings, please refer Dimensions 3.

CE15-M74

Dimensions2

Unit: mm

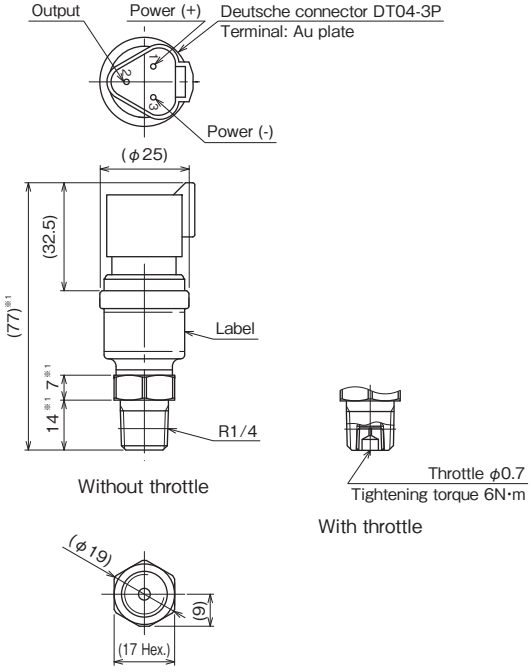
DIRECT CONNECTOR TYPE
METRI-PACK 150 series



※1 Case of R1/4
For other fittings, please refer Dimensions 3.

CE15-874

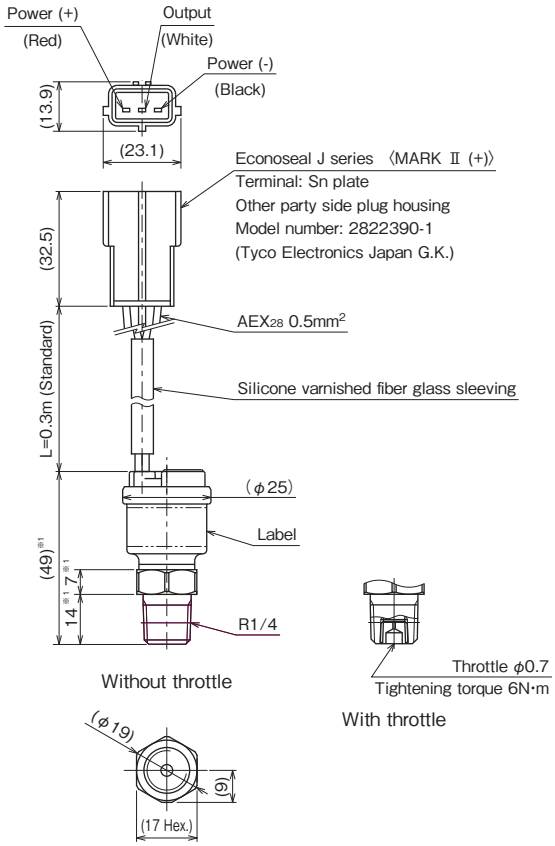
Deutsche DT04-3P



※1 Case of R1/4
For other fittings, please refer Dimensions 3.

CE15-474

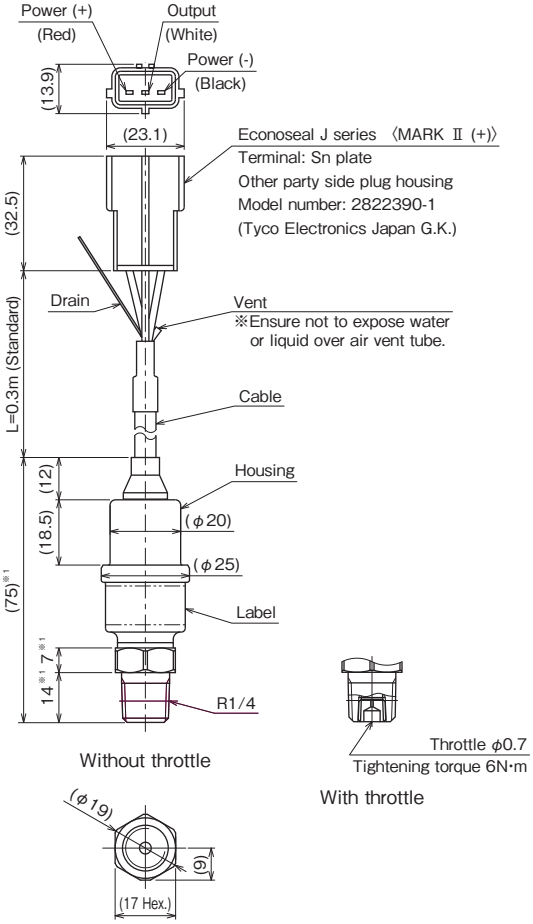
Lead type



※1 Case of R1/4
For other fittings, please refer Dimensions 3.

CE15-274

Shielded cable type



※1 Case of R1/4
For other fittings, please refer Dimensions 3.

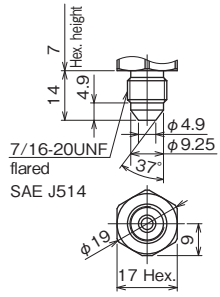
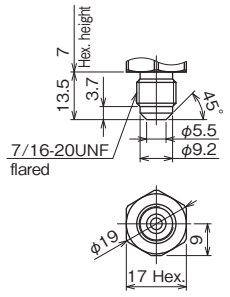
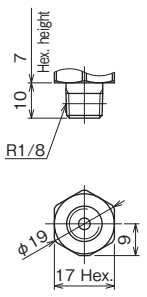
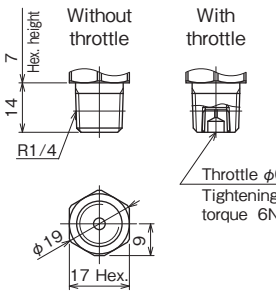
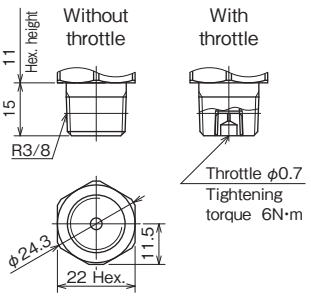
CE15-374

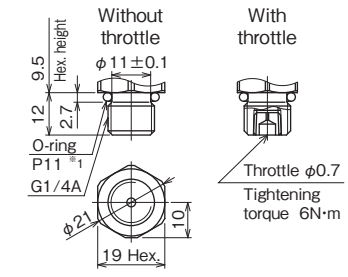
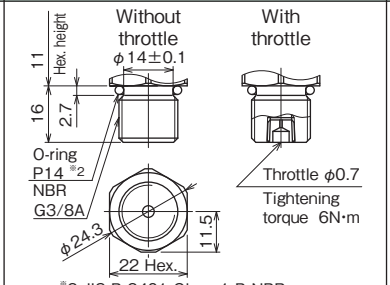
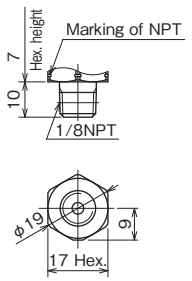
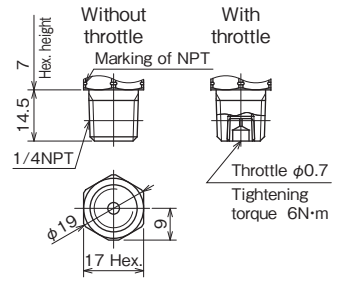
※The drain line is not grounded to the case.

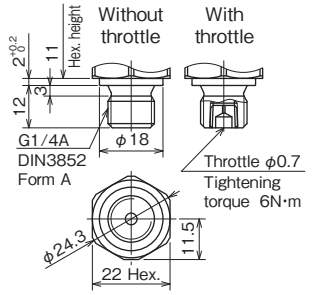
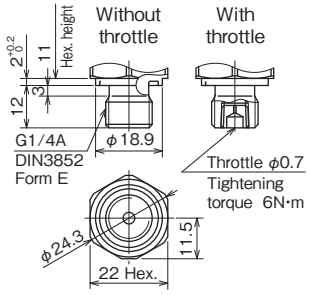
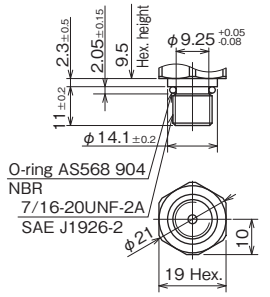
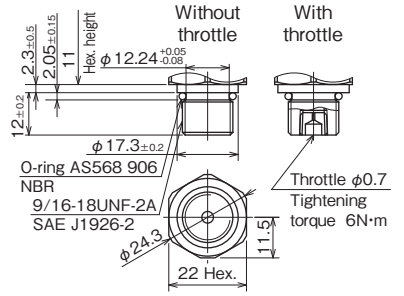
Dimensions3

Unit: mm

Fitting

CE15-□4□	CE15-□5□	CE15-□6□	CE15-□7□	CE15-□8□
				
Maximum pressure range: 5MPa (50bar, 750psi)		Maximum pressure range: 50MPa (500bar, 7500psi)		

CE15-□B□	CE15-□C□	CE15-□J□	CE15-□K□
			
※1 JIS B 2401 Class 1 B NBR	※2 JIS B 2401 Class 1 B NBR		
Maximum pressure range: 50MPa (500bar, 7500psi)			

CE15-□P□	CE15-□T□	CE15-□W□	CE15-□X□
			
Maximum pressure range: 50MPa (500bar, 7500psi)			

Units of psi and bar can also be manufactured. Use is limited to applications specified by Measurement Law. For more information, please contact us.

Option

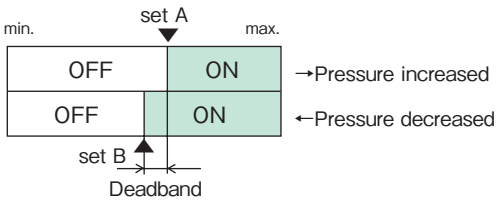
Surge pressure countermeasure: Throttle plug installed into orifice.

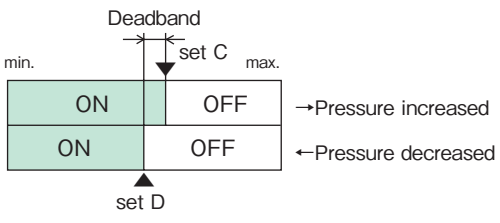
Surge pressure can be reduced by installing a throttle at the pressure orifice port.

Switch action

Logic that transistor will be ON (or OFF) status at setting point

Upper limit type: set A (Transistor will be ON status at setting point when pressure increased)
Reverse upper limit type: set C (Transistor will be OFF status at setting point when pressure increased)
Reverse lower limit type: set B (Transistor will be OFF status at setting point when pressure decreased)
Lower limit type: set D (Transistor will be ON status at setting point when pressure decreased)





Model number configuration

Please specify the model number, each specs and the range for ordering.

Model

C E 1 5	—	①	②	③	—	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
Electronic Pressure Switch				4				M						×	×	×	

Model number | Product specifications | Additional specifications (Optional)

① Type

	Direct connector type HW090	Sealed pressure type (Pressure range: 1MPa and over)
1		
2	Lead type (0.3m Standard)	Sealed pressure type (Pressure range: 1MPa and over)
3	Shielded cable type (1m Standard)	Gauge pressure type
4	Direct connector type Deutsche DT04-3P	Sealed pressure type (Pressure range: 1MPa and over)
5	Direct connector type EJ II (+)	Sealed pressure type (Pressure range: 1MPa and over)
8	Direct connector type METRI-PACK 150	Sealed pressure type (Pressure range: 1MPa and over)
M	Direct connector type M12×1 (4pin)	Sealed pressure type (Pressure range: 1MPa and over)

② Fitting

	Fitting type	Maximum pressure range
4	7/16-20UNF flared 37° (With throttle cannot be selected)	5MPa
5	7/16-20UNF flared 45° (With throttle cannot be selected)	
6	R1/8 (With throttle cannot be selected)	50MPa
7	R1/4	
8	R3/8	
B	G1/4A ※SUS416 for the range 10MPa and above	
C	G3/8A	
J	1/8NPT (With throttle cannot be selected)	
K	1/4NPT	
P	G1/4A DIN3852 Form A	
T	G1/4A DIN3852 Form E	
W	7/16-20UNF-2A SAE J1926-2 (With throttle cannot be selected) ※SUS416 for the range 10MPa and above	
X	9/16-18UNF-2A SAE J1926-2	

③ Wetted parts

4	Diaphragm material: SUS630 (17-4PH) Fitting: SUS304 □B4 and □W4 are SUS416(Heat treated type) for the range 10MPa (100bar, 1500psi) and above

Please specify pressure range and unit of measure along with corresponding ordering code.

※Psi and bar units are available (For export only).

④ Pressure range (MPa) / ⑤ Switching accuracy

④	⑤	④Pressure range (MPa)	⑤Switching accuracy	Availability: Direct connector type, Lead type	Availability: Shielded cable type
0	8	-0.1 to 0	±2.0%F.S. (23±2℃)	—	○
1	8	-0.1 to 0.1	±2.0%F.S. (23±2℃)	—	○
A	8	0 to 0.1	±2.0%F.S. (23±2℃)	—	○
B	8	0 to 0.2	±2.0%F.S. (23±2℃)	—	○
C	8	0 to 0.3	±2.0%F.S. (23±2℃)	—	○
D	8	0 to 0.4	±2.0%F.S. (23±2℃)	—	○
E	8	0 to 0.5	±2.0%F.S. (23±2℃)	—	○
6	7	-0.1 to 1	±1.0%F.S. (23±2℃)	○	○
7	7	-0.1 to 2	±1.0%F.S. (23±2℃)	○	○
G	7	0 to 1	±1.0%F.S. (23±2℃)	○	○
H	7	0 to 1.6	±1.0%F.S. (23±2℃)	○	○
J	7	0 to 2	±1.0%F.S. (23±2℃)	○	○
V	7	0 to 2.5	±1.0%F.S. (23±2℃)	○	○
K	7	0 to 3.5	±1.0%F.S. (23±2℃)	○	○
W	7	0 to 4	±1.0%F.S. (23±2℃)	○	○
L	7	0 to 5	±1.0%F.S. (23±2℃)	○	○
M	7	0 to 6	±1.0%F.S. (23±2℃)	○	○
N	7	0 to 10	±1.0%F.S. (23±2℃)	○	○
X	7	0 to 16	±1.0%F.S. (23±2℃)	○	○
Q	7	0 to 20	±1.0%F.S. (23±2℃)	○	○
P	7	0 to 25	±1.0%F.S. (23±2℃)	○	○
R	7	0 to 35	±1.0%F.S. (23±2℃)	○	○
Y	7	0 to 40	±1.0%F.S. (23±2℃)	○	○
S	7	0 to 50	±1.0%F.S. (23±2℃)	○	○

⑥ Supply voltage

M	10 to 30V DC

⑦ Switch action

A	H : Upper limit type with one contact
B	L : Lower limit type with one contact
C	HR : Reverse upper limit type with one contact
D	LR : Reverse lower limit type with one contact

⑧ Output

1	PNP Open collector output
3	NPN Open collector output

⑨ Leads / Cable length

0	Direct connector type ／ Lead type Leads 0.3m (Standard) Shielded cable type Cable 1m (Standard)
9	Lead type Specify lead length Shielded cable type Specify cable length.

※For lead type the lead length can be made from 0.3 to 1m. Order by 0.1m length.

※Shielded cable type can be made from 1 to 5m. Order by 0.5m length.

⑩ Surge pressure protection (Throttle)

0	Not required
F	S45C
G	SUSXM7 (Water measurement application)

⑪ Treatment

0	Not required
A	Use no oil
B	Use no water
4	Use no oil & water

⑮ Documents

0	Not required
1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Calibration test report (One-part one sheet)

Treatment against wetted parts

■**Use no oil**
Oil used in manufacturing the gauges had been flushed out & no oil residue remained inside its wetted parts.

■**Use no water**
Water used in manufacturing the gauges had been flushed out & no water residue remained inside its wetted parts.

■**Use no oil & water**
Oil/Water used in manufacturing the gauges had been flushed out & no oil/water residue remained inside its wetted parts.

＊Specify code "X" to refer N/A