The high performance differential pressure transmitter EJX110A features single crystal silicon resonant sensor and is suitable to measure liquid, gas, or steam flow as well as liquid level, density and pressure. EJX110A outputs a 4 to 20 mA DC signal corresponding to the measured differential pressure. Its highly accurate and stable sensor can also measure the static pressure which can be shown on the integral indicator or remotely monitored via BRAIN or HART communications. Other key features include quick response, remote set-up using communications, diagnostics and optional status output for pressure high/low alarm. The multi-sensing technology provides the advanced diagnostic function to detect such abnormalities as an impulse line blockage or heat trace breakage. FOUNDATION Fieldbus and PROFIBUS PA protocol types are also available. All EJX series models in their standard configuration, with the exception of the Fieldbus and PROFIBUS types, are certified as complying with SIL 2 for safety requirement.

**STANDARD SPECIFICATIONS**

Refer to GS 01C25T02-01EN for Fieldbus communication type and GS 01C25T04-01EN for PROFIBUS PA communication type for the items marked with "◊."

**SPAN AND RANGE LIMITS**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Span/Range</th>
<th>kPa (D1)</th>
<th>inH2O (D2)</th>
<th>mbar (D3)</th>
<th>mmH2O (D4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F* Span</td>
<td>0.1 to 5</td>
<td>0.4 to 20</td>
<td>1 to 50</td>
<td>10 to 500</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>-5 to 5</td>
<td>-20 to 20</td>
<td>-50 to 50</td>
<td>-500 to 500</td>
<td></td>
</tr>
<tr>
<td>L* Span</td>
<td>0.1 to 10</td>
<td>0.4 to 40</td>
<td>1 to 100</td>
<td>10 to 1000</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>-10 to 10</td>
<td>-40 to 40</td>
<td>-100 to 100</td>
<td>-1000 to 1000</td>
<td></td>
</tr>
<tr>
<td>M Span</td>
<td>0.5 to 100</td>
<td>2 to 400</td>
<td>5 to 1000</td>
<td>50 to 10000</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>-100 to 100</td>
<td>-400 to 400</td>
<td>-1000 to 1000</td>
<td>-10000 to 10000</td>
<td></td>
</tr>
<tr>
<td>H Span</td>
<td>2.5 to 500</td>
<td>10 to 2000</td>
<td>25 to 5000</td>
<td>0.025 to 5 kgf/cm²</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>-500 to 500</td>
<td>-2000 to 2000</td>
<td>-5000 to 5000</td>
<td>-5 to 5 kgf/cm²</td>
<td></td>
</tr>
<tr>
<td>V Span</td>
<td>0.07 to 14</td>
<td>10 to 2000</td>
<td>0.7 to 140 bar</td>
<td>0.7 to 140 kgf/cm²</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>-0.5 to 14</td>
<td>-71 to 2000</td>
<td>-5 to 140 bar</td>
<td>-5 to 140 kgf/cm²</td>
<td></td>
</tr>
</tbody>
</table>

*: F capsule is applicable for wetted parts material code S. L capsule is applicable for wetted parts material code other than S and L.

**PERFORMANCE SPECIFICATIONS**

Zero-based calibrated span, linear output, wetted parts material code S and silicone oil, unless otherwise mentioned.

For Fieldbus and PROFIBUS PA communication types, use calibrated range instead of span in the following specifications.

**Specification Conformance**

EJX series ensures specification conformance to at least ±3σ.

**Reference Accuracy of Calibrated Span**

(includes terminal-based linearity, hysteresis, and repeatability)

<table>
<thead>
<tr>
<th>Measurement span</th>
<th>F</th>
<th>M</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference accuracy</td>
<td>±0.04% of Span</td>
<td>±0.04% of Span</td>
<td>±0.04% of Span</td>
</tr>
<tr>
<td>X ≤ span</td>
<td>±(0.015+0.01 URL/span)% of Span</td>
<td>±(0.002+0.0019 URL/span)% of Span</td>
<td>±(0.005+0.0049 URL/span)% of Span</td>
</tr>
<tr>
<td>X &gt; span</td>
<td>±(0.015+0.01 URL/span)% of Span</td>
<td>±(0.002+0.0019 URL/span)% of Span</td>
<td>±(0.005+0.0049 URL/span)% of Span</td>
</tr>
<tr>
<td>X 2 kPa (8 inH2O)</td>
<td>2 kPa (8 inH2O)</td>
<td>5 kPa (20 inH2O)</td>
<td>100 kPa (400 inH2O)</td>
</tr>
<tr>
<td>URL (upper range limit)</td>
<td>5 kPa (20 inH2O)</td>
<td>10 kPa (40) kgf/cm²</td>
<td>500 kPa (2000 inH2O)</td>
</tr>
</tbody>
</table>
### Measurement span

<table>
<thead>
<tr>
<th>Reference accuracy</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>X ≤ span</td>
<td>±0.04% of Span</td>
</tr>
<tr>
<td>X &gt; span</td>
<td>±(0.005+0.00125 URL/span)% of Span</td>
</tr>
<tr>
<td>URL (Upper Range Limit)</td>
<td>500 kPa (2000 inH2O)</td>
</tr>
</tbody>
</table>

### Reference accuracy

- **X ≤ span**:
  - ±0.025% of Span
  - ±(0.0015x0.001 URL/Span)% of Span

- **X > span**:
  - ±0.025% of Span
  - ±(0.0035 URL/Spans) % of Span

### URL (Upper Range Limit)

- F capsule: ±0.055% of Span ± 0.18% URL
- M capsule: ±0.04% of Span ± 0.009% URL
- H, V capsule: ±0.04% of Span ± 0.0125% URL

### Square Root Output Accuracy

The square root accuracy is a percent of flow span.

<table>
<thead>
<tr>
<th>Output</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>50% or Greater</td>
<td>Same as reference accuracy</td>
</tr>
<tr>
<td>50% to Dropout point</td>
<td>Reference accuracy × 50 Square root output (%)</td>
</tr>
</tbody>
</table>

### Ambient Temperature Effects per 28°C (50°F) Change

<table>
<thead>
<tr>
<th>Capsule</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>±(0.055% Span + 0.18% URL)</td>
</tr>
<tr>
<td>M</td>
<td>±(0.04% Span + 0.009% URL)</td>
</tr>
<tr>
<td>H, V</td>
<td>±(0.04% Span + 0.0125% URL)</td>
</tr>
</tbody>
</table>

### Total Probable Error (M capsule)

\[
\text{Total Probable Error} = \pm \sqrt{E_1^2 + E_2^2 + E_3^2}
\]

- **E1**: Reference Accuracy of Calibrated Span
- **E2**: Ambient Temperature Effects per 28°C change
- **E3**: Static Span Effects per 6.9 MPa change

### Total Accuracy (M capsule)

\[
\text{Total Accuracy} = \pm \sqrt{E_1^2 + E_2^2 + (E_3 + E_4)^2 + E_5^2}
\]

- **E1**: Reference Accuracy of Calibrated Span
- **E2**: Ambient Temperature Effects per 28°C change
- **E3**: Static Span Effects per 6.9 MPa change
- **E4**: Static Zero Effects per 6.9 MPa change
- **E5**: Overpressure Effects upto overpressure 25MPa

Not only a day-to-day changes in temperature can affect the measurement and lead to unnoticed errors; fluctuation of line pressure, incorrect operation of three/five valve manifold leading to over-pressure events, and other phenomena can have the similar result. Total Accuracy factors in such changes and errors and provides much comprehensive and practical determination of how a transmitter will perform under actual plant operation.

### Static Pressure Effects per 6.9 MPa (1000 psi) Change

#### Span Effects

- F, M, H and V capsules: ±0.075% of span

#### Effect on Zero

<table>
<thead>
<tr>
<th>Capsule</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>±0.1% URL</td>
</tr>
<tr>
<td>M</td>
<td>±0.02% URL</td>
</tr>
<tr>
<td>H, V</td>
<td>±0.028% URL</td>
</tr>
</tbody>
</table>

### Overpressure Effects

Overpressure condition: up to maximum working pressure

- ±0.03% of URL

### Stability (All normal operating condition, including overpressure effects)

- M, H and V capsules: ±0.1% of URL per 15 years
- F capsule: ±0.1% of URL per one year

### Power Supply Effects (Output signal code D, E and J)

±0.005% per Volt (from 21.6 to 32 V DC, 350Ω)
Vibration Effects
Amplifier housing code 1 and 3:
Less than 0.1% of URL when tested per the requirements of IEC60770-1 field or pipeline with high vibration level (10-60 Hz, 0.21 mm displacement/60-2000 Hz 3 g)
Amplifier housing code 2:
Less than ±0.1% of URL when tested per the requirements of IEC60770-1 field with general application or pipeline with low vibration level (10-60 Hz 0.15mm displacement /60-500 Hz 2g)

Mounting Position Effects
Rotation in diaphragm plane has no effect. Tilting up to 90 degree will cause zero shift up to 0.4 kPa (1.6 inH2O) which can be corrected by the zero adjustment.

Response Time (Differential pressure) "◊"
90 ms for Wetted Parts material code S and L, except for Measuring span code F. 150 ms for Wetted Parts Material Code H, M, T, A, B, D and W or Measuring span code F.
When amplifier damping is set to zero and including dead time of 45 ms (nominal)

Static Pressure Signal Range and Accuracy (For monitoring via communication or on indicator. Includes terminal-based linearity, hysteresis, and repeatability)
Range
Upper Range Value and Lower Range Value of the static pressure can be set in the range between 0 and Maximum Working Pressure(MWPs). The upper range value must be greater than the lower range value. Minimum setting span is 0.5 MPa(73 psi).
Measuring either the pressure of high pressure side or low pressure side is user-selectable.

Accuracy
Absolute Pressure
1 MPa or higher: ±0.2% of span
Less than 1 MPa: ±0.2%×(1 MPa/span) of span
Gauge Pressure Reference
Gauge pressure reference is 1013 hPa (1 atm)
Note: Gauge pressure variable is based on the above fixed reference and thus subject to be affected by the change of atmospheric pressure.

Output "◊"
Two wire 4 to 20 mA DC output with digital communications, linear or square root programmable. BRAIN or HART FSK protocol are superimposed on the 4 to 20 mA signal.
Output range: 3.6 mA to 21.6 mA
Output limits conforming to NAMUR NE43 can be pre-set by option code C2 or C3.

Failure Alarm (Output signal code D, E and J)
Analog output status at CPU failure and hardware error;
Up-scale: 110%, 21.6 mA DC or more (standard)
Down-scale: ~5%, 3.2 mA DC or less
Analog output status at process abnormality (Option code /DG6):
The result of process abnormality detected by the advanced diagnostic function can be reflected to an analog alert status. The following three setting modes are available.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Burnout</th>
<th>Fall back</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal output</td>
<td>110%, 21.6 mA or more</td>
<td>Holds to a specified value within the output range from 3.6 mA to 21.6 mA</td>
<td>Normal output (No analog output alarm)</td>
</tr>
<tr>
<td>Standard</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option Code</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/C1</td>
<td>-2.5%, 3.6 mA or less</td>
<td></td>
<td></td>
</tr>
<tr>
<td>/C2</td>
<td>-1.25%, 3.8 mA or less</td>
<td></td>
<td></td>
</tr>
<tr>
<td>/C3</td>
<td>103.1%, 20.5 mA or more</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Damping Time Constant (1st order)
Amplifier damping time constant is adjustable from 0.00 to 100.00 s by software and added to response time.
Note: For BRAIN protocol type, when amplifier software damping is set to less than 0.5 s, communication may occasionally be unavailable during the operation, especially while output changes dynamically. The default setting of damping ensures stable communication.

Update Period "◊"
Differential pressure: 45 ms
Static pressure: 360 ms

Zero Adjustment Limits
Zero can be fully elevated or suppressed, within the lower and upper range limits of the capsule.

External Zero Adjustment
External zero is continuously adjustable with 0.01% incremental resolution of span. Re-range can be done locally using the digital indicator with rangesetting switch.

Integral Indicator (LCD display, optional) "◊"
5-digit numerical display, 6-digit unit display and bar graph.
The indicator is configurable to display one or up to four of the following variables periodically.; Measured differential pressure, differential pressure in %, scaled differential pressure, measured static pressure. See also “Factory Setting.”

Local Parameter Setting (Output signal code D, E, and J)
Parameter configuration by the external zero adjustment screw and push button (Integral indicator code E) offers easy and quick setup for parameters of Loop test, Tag number, Unit, LRV, URV, Damping, Output mode (linear/square root), Display out 1, and Re-range by applying actual pressure (LRV/URV) and Device Information.

Burst Pressure Limits
69 MPa (10,000 psi) for wetted parts material S and L, except for Measurement span F.
47 MPa (6,800 psi) for wetted parts material other than S and L, or Measurement span F.

Self Diagnostics
CPU failure, hardware failure, configuration error, and over-range error for differential pressure, static pressure and capsule temperature.
User-configurable process high/low alarm for differential pressure and static pressure is also available, and its status can be output when optional status output is specified.
Advanced Diagnostics (optional) “◊”
Applicable for Output signal code E, J and F.
• Impulse line blockage detection
  The impulse line condition can be calculated and
detected by extracting the fluctuation component
from the differential pressure and static pressure
signals. The EJX110A detects the impulse line
abnormality particularly which side of impulse line is
plugged.
• Heat trace monitoring
  The change of the flange temperature calculated by
using the two temperature sensors built in the EJX
enables to detect the heat trace breakage or the
abnormal temperature due to the failure.

Signal Characterizer (Output signal code D, E
and J)
User-configurable 10-segment signal characterizer
for 4 to 20 mA output.

Status Output (optional, output signal code D, E
and J)
One transistor contact output (sink type) to output
the status of user configurable high/low alarm for
differential pressure/static pressure.
Contact rating: 30 V DC, 120 mA DC max.
Refer to ‘Terminal Configuration’ and ‘Wiring Example
for Analog Output and Status Output.’

SIL Certification
EJX series transmitters except Fieldbus and
PROFIBUS PA communication types are certified in
compliance with the following standards;
IEC 61508: 2010;
Functional Safety of Electrical/electronic/
programmable electronic related systems; SIL 2
capability for single transmitter use, SIL 3 capability
for dual transmitter use.
Reliability Data different depending on hardware
and software revision.
For details, refer to Functional Safety Data Sheet.
(Document number: TI 01C25A05-01EN or TI
01C25A05-21EN for option code SLT )
The document can be downloaded from the website
of Yokogawa.
(Website address: https://www.yokogawa.com/
solutions/products-platforms/field-instruments/)

NORMAL OPERATING CONDITION
(Optional features or approval codes may
affect limits.)

Ambient Temperature Limits
−40 to 85°C (−40 to 185°F)
−30 to 80°C (−22 to 176°F) with LCD display

Process Temperature Limits
−40 to 120°C (−40 to 248°F)

Ambient Humidity Limits
0 to 100% RH

Working Pressure Limits (Silicone oil)

<table>
<thead>
<tr>
<th>Capsule</th>
<th>MWP</th>
</tr>
</thead>
<tbody>
<tr>
<td>F, L</td>
<td>16 MPa (2300 psi)</td>
</tr>
<tr>
<td>M, H, V</td>
<td>Wetted Parts Material: S and L 25 MPa (3600 psi)</td>
</tr>
<tr>
<td></td>
<td>Wetted Parts Material: H, T, M, A, D, B and W 16 MPa (2300 psi)</td>
</tr>
</tbody>
</table>

Minimum Pressure Limit
See graph below

![Graph showing working pressure and process temperature limits.]

Figure 1. Working Pressure and Process Temperature

Supply & Load Requirements
(Output signal code D, E and J. Optional
features or approval codes may affect electrical
requirements.)
With 24 V DC supply, up to a 550Ω load can be
used. See graph below.

![Graph showing relationship between power supply voltage and external load resistance.]

Figure 2. Relationship Between Power Supply Voltage and External Load Resistance

Supply Voltage “◊”
10.5 to 42 V DC for general use and flameproof type.
10.5 to 32 V DC for lightning protector
(option code /A.)
10.5 to 30 V DC for intrinsically safe, type n, or
nonincendive.
Minimum voltage limited at 16.6 V DC for digital
communications, BRAIN and HART

Load (Output signal code D, E and J)
0 to 1290Ω for operation
250 to 600Ω for digital communication
Communication Requirements "◊"
(Approval codes may affect electrical requirements.)

BRAIN

Communication Distance
Up to 2 km (1.25 miles) when using CEV polyethylene-insulated PVC-sheathed cables. Communication distance varies depending on type of cable used.

Load Capacitance
0.22 µF or less

Load Inductance
3.3 mH or less

Input Impedance of communicating device
10 kΩ or more at 2.4 kHz.

EMC Conformity Standards
EN 61326-1 Class A, Table 2
EN 61326-2-3
EN 61326-2-5 (for fieldbus)

European Pressure Equipment Directive 2014/68/EU
Sound Engineering Practice (for all capsules)
With option code /PE3 (for M, H and V capsules and wetted parts material code S.)

Category III, Module H, Type of Equipment: Pressure Accessory-Vessel, Type of Fluid: Liquid and Gas, Group of Fluid: 1 and 2

EU RoHS Directive
EN 50581

Safety Requirement Standards
EN 61010-1, C22.2 No.61010-1
• Installation category: I
• (Anticipated transient overvoltage 330 V)
• Pollution degree: 2
• Indoor/Outdoor use

□ PHYSICAL SPECIFICATIONS

Wetted Parts Materials
Diaphragm, cover flange, process connector, capsule gasket, and vent/drain plug
Refer to "MODEL AND SUFFIX CODES."

Process connector gasket
PTFE Teflon
Fluorinated rubber for option code N2 and N3

Non-wetted Parts Materials

Bolting
B7 carbon steel, 316L SST or 660 SST

Housing
• Low copper cast aluminum alloy
• Low copper cast aluminum alloy with corrosion resistance properties (copper content ≤ 0.03%, iron content ≤ 0.15%) (optional)
• ASTM CF-8M Stainless steel (optional)

Coating of housing
[for aluminum housing]
Polyester resin powder coating
Mint-green paint (Munsell 5.6BG 3.3/2.9 or its equivalent)
[for option code /PE3 or /X2]
Epoxy and polyurethane resin solvent coating

Degrees of protection
IP66/IP67, Type 4X

Cover O-rings
Buna-N, fluoro-rubber (optional)

Name plate and tag
316 SST

Fill fluid
Silicone, fluorinated oil (optional)

Weight
[Installation code 7, 8 and 9]
2.8 kg (6.2 lb) for measurement span code M, H and V, wetted parts material code S and L without integral indicator, mounting bracket, and process connector.
3.7 kg (8.2 lb) for measurement span code F without integral indicator, mounting bracket, and process connector.
Add 1.5 kg (3.3 lb) for Amplifier housing code 2.

Connections
Refer to "MODEL AND SUFFIX CODES."
Process connection of cover flange: IEC61518

< Related Instruments>
FieldMate Versatile Device Management Wizard:
Refer to GS 01R01A01-01E.
BRAIN TERMINAL: Refer to GS 01C00A11-00E
Power Distributor: Refer to GS 01B04T01-02E or GS 01B04T02-02E

< Reference >
1. ★ is a registered trademark of Yokogawa Electric Corporation.
2. FieldMate; Trademark of Yokogawa Electric Corporation.
3. Teflon; Trademark of E.I. DuPont de Nemours & Co.
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7. PROFIBUS; Registered trademark of Profibus Nutzerorganisation e.v., Karlsruhe, Germany.
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## MODEL AND SUFFIX CODES

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EJX110A</td>
<td>-D, -E, -J</td>
<td>Differential pressure transmitter</td>
</tr>
<tr>
<td>Output signal</td>
<td>-F, -G</td>
<td>4 to 20 mA DC with digital communication (BRAIN protocol)</td>
</tr>
<tr>
<td>Measurement span (capsule)</td>
<td>F, L, M, H, V</td>
<td>0.1 to 5 kPa (0.4 to 20 inH2O) (For Wetted parts material code S)</td>
</tr>
<tr>
<td>Wetted parts material</td>
<td></td>
<td>Refer to &quot;Wetted Parts Material&quot; Table.</td>
</tr>
<tr>
<td>Process connections</td>
<td></td>
<td>without process connector (Rc1/4 female on the cover flanges)</td>
</tr>
<tr>
<td>Bolts and nuts material</td>
<td>J, G, C</td>
<td>B7 carbon steel</td>
</tr>
<tr>
<td>Installation</td>
<td>-F, -G</td>
<td>Vertical piping, left side high pressure, and process connection downside</td>
</tr>
<tr>
<td>Amplifier housing</td>
<td>1, 2</td>
<td>Cast aluminum alloy</td>
</tr>
<tr>
<td>Electrical connection</td>
<td>0, 1, 2, 4, 5, 6</td>
<td>1/2 NPT female, one electrical connection without blind plugs</td>
</tr>
<tr>
<td>Integral indicator</td>
<td>D, E</td>
<td>Digital indicator with the range setting switch (push button)</td>
</tr>
<tr>
<td>Mounting bracket</td>
<td>B, D, J, M</td>
<td>304 SST 2-inch pipe mounting, flat type (for horizontal piping)</td>
</tr>
</tbody>
</table>

The *►* marks indicate the most typical selection for each specification.

*1: Users must consider the characteristics of selected wetted parts material and the influence of process fluids. The use of inappropirate materials can result in the leakage of corrosive process fluids and cause injury to personnel and/or damage to plant facilities. It is also possible that the diaphragm itself can be damaged and that material from the broken diaphragm and the fill fluid can contaminate the user's process fluids. Be very careful with highly corrosive process fluids such as hydrochloric acid, sulfuric acid, hydrogen sulfide, sodium hypochlorite, and high-temperature steam (150°C [302°F] or above). Contact Yokogawa for detailed information of the wetted parts material.

*2: Only applicable for Wetted parts material code S.

*3: Not applicable for measurement span code F.

*4: Not applicable for electrical connection code 0, 5, 7, 9 and A.

*5: Not applicable for electrical connection code 0, 5, 7 and 9.

*6: Material of a blind plug; aluminum alloy for code 5 and 9, and SUS304 for code 7.

*7: Not applicable for output signal code G.

*8: Not applicable for output signal code F.
Table. Wetted Parts Materials

<table>
<thead>
<tr>
<th>Wetted parts material code</th>
<th>Cover flange and process connector</th>
<th>Capsule</th>
<th>Capsule gasket</th>
<th>Vent/Drain plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>S #</td>
<td>ASTM CF-8M *1</td>
<td>Hastelloy C-276 (^2) (Diaphragm) F316L SST, 316L SST (Others)</td>
<td>Teflon-coated 316L SST</td>
<td>316 SST</td>
</tr>
<tr>
<td>L #</td>
<td>ASTM CF-3M *7</td>
<td>Hastelloy C-276 (^2) (Diaphragm) F316L SST, 316L SST (Others)</td>
<td>Teflon-coated 316L SST</td>
<td>316L SST</td>
</tr>
<tr>
<td>H #</td>
<td>ASTM CF-8M *1</td>
<td>Hastelloy C-276 (^2)</td>
<td>PTFE Teflon</td>
<td>316 SST</td>
</tr>
<tr>
<td>M #</td>
<td>ASTM CF-8M *1</td>
<td>Monel</td>
<td>PTFE Teflon</td>
<td>316 SST</td>
</tr>
<tr>
<td>T #</td>
<td>ASTM CF-8M *1</td>
<td>Tantalum</td>
<td>PTFE Teflon</td>
<td>316 SST</td>
</tr>
<tr>
<td>A #</td>
<td>Hastelloy C-276 equivalent *3</td>
<td>Hastelloy C-276 (^2)</td>
<td>PTFE Teflon</td>
<td>Hastelloy C-276 (^2)</td>
</tr>
<tr>
<td>D #</td>
<td>Hastelloy C-276 equivalent *3</td>
<td>Tantalum</td>
<td>PTFE Teflon</td>
<td>Hastelloy C-276 (^2)</td>
</tr>
<tr>
<td>B #</td>
<td>Monel equivalent *4</td>
<td>Monel</td>
<td>PTFE Teflon</td>
<td>Monel</td>
</tr>
<tr>
<td>W #</td>
<td>Super Duplex SST equivalent *5</td>
<td>Hastelloy C-276 (^2)</td>
<td>PTFE Teflon</td>
<td>Super Duplex SST *6</td>
</tr>
</tbody>
</table>

*1: Cast version of 316 SST. Equivalent to SCS14A.  
*2: Hastelloy C-276 or ASTM N10276.  
*3: Indicated material is equivalent to ASTM CW-12MW.  
*4: Indicated material is equivalent to ASTM M03-2.  
*5: Indicated material is equivalent to ASTM A995 Grade5A.  
*6: ASTM S32750 or EN 10272 1.4410.  
*7: Cast version of 316L SST. Equivalent to SCS16A.  

The #marks indicate the construction materials conform to NACE material recommendations per MR0175/ISO15156. Please refer to the latest standards for details. Selected materials also conform to NACE MR0103.

[Process Connections Code for Diaphragm Seal System]

The table below shows the codes dedicated for the combination with a diaphragm seal system. They are only available when the transmitter is ordered in combination with a diaphragm seal system. Please also refer to GS 01C25W01-01EN.

<table>
<thead>
<tr>
<th>Process Connections Code</th>
<th>High Pressure Side</th>
<th>Low Pressure Side</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>With C80F(\square), C81F(\square), C82F(\square) or C70S(\square) diaphragm seal</td>
<td>With C80F(\square), C81F(\square), C82F(\square) or C70S(\square) diaphragm seal</td>
</tr>
<tr>
<td>C</td>
<td>With C80F(\square), C82F(\square) or C70S(\square) diaphragm seal</td>
<td>Rc 1/4 female on the cover flange</td>
</tr>
<tr>
<td>D</td>
<td>With C80F(\square), C82F(\square) or C70S(\square) diaphragm seal</td>
<td>1/4 NPT female on the cover flange</td>
</tr>
<tr>
<td>E</td>
<td>Rc 1/4 female on the cover flange</td>
<td>With C80F(\square), C82F(\square) or C70S(\square) diaphragm seal</td>
</tr>
<tr>
<td>F</td>
<td>1/4 NPT female on the cover flange</td>
<td>With C80F(\square), C82F(\square) or C70S(\square) diaphragm seal</td>
</tr>
<tr>
<td>G</td>
<td>With C80F(\square), C81F(\square) or C82F(\square) diaphragm seal for high vacuum use</td>
<td>With C80F(\square), C81F(\square) or C82F(\square) diaphragm seal for high vacuum use</td>
</tr>
<tr>
<td>Q</td>
<td>With C20F(\square) or C30S(\square) direct mount seal</td>
<td>Rc 1/4 female on the cover flange</td>
</tr>
<tr>
<td>R</td>
<td>With C20F(\square) or C30S(\square) direct mount seal</td>
<td>1/4 NPT female on the cover flange</td>
</tr>
<tr>
<td>P</td>
<td>With C20F(\square) or C30S(\square) direct mount seal</td>
<td>With C80F(\square) or C70S(\square) diaphragm seal</td>
</tr>
<tr>
<td>T</td>
<td>With C20F(\square) direct mount seal</td>
<td>With C80F(\square) compensation capillary system diaphragm seal</td>
</tr>
</tbody>
</table>

C80F\(\square\), C81F\(\square\), C82F\(\square\), C20F\(\square\), C70S\(\square\) and C30S\(\square\) stand for C80FW or C80FE remote mount flanged diaphragm seal, C81FA or C82FA inner diaphragm adapter connection seal, C81FD or C82FD inner diaphragm flanged seal, C20FW or C20FE direct mount seal, C70SW or C70SE remote mount hygienic diaphragm seal, and C30SW or C30SE direct mount hygienic seal respectively.
## OPTIONAL SPECIFICATIONS (For Explosion Protected type) “◊”

For other agency approvals and marine approvals, please refer to GS 01C25A20-01EN.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
</table>
| Factory Mutual (FM)       | **FM Explosionproof Approval** $^{*1}$  
Explosionproof for Class I, Division 1, Groups B, C and D, Dust-ignitionproof for Class II/III, Division 1,  
Groups E, F and G, in Hazardous locations, indoors and outdoors (Enclosure: Type 4X)  
FACTORY SEALED, CONDUIT SEAL NOT REQUIRED.  
Temperature class: T6, Amb. Temp.: –40 to 60°C (–40 to 140°F) | FF1  |
Intrinsically Safe for Class I, Division 1, Groups A, B, C & D, Class II, Division 1,  
Groups E, F & G and Class III, Division 1, Class I, Zone 0, in Hazardous Locations, AEx ia IIC  
Nonincendive for Class I, Division 1, Groups A, B, C & D, Class II, Division 2,  
Groups F & G, Class I, Zone 2, Group IIC, in Hazardous Locations  
Enclosure: Type 4X, Temp. Class: T4, Amb. Temp.: –60 to 60°C (–75 to 140°F)  
Intrinsically Safe Apparatus Parameters  
([Groups A, B, C, D, E, F and G] Vmax=30 V, Imax=200 mA, Pmax=1 W, Ci=6 nF, Li=0 µH)  
([Groups C, D, E, F and G] Vmax=30 V, Imax=225 mA, Pmax=1 W, Ci=6 nF, Li=0 µH) | FS1  |
| **Combined FF1 and FS1** $^{*1*2}$ | | FU1  |
| ATEX                      | **ATEX Flameproof Approval** $^{*1}$  
Certificate: KEMA 07ATEX0109 X  
II 2G, 2D Ex db IIC T6...T4 Gb, Ex tb IIIC T85°C Db  
Degree of protection: IP66/IP67  
Amb. Temp. (Tamb) for gas-proof:  
T4: –50 to 75°C (–58 to 167°F), T5: –50 to 80°C (–58 to 176°F), T6: –50 to 75°C (–58 to 167°F)  
Process Temp. for gas-proof (Tp):  
T4: –50 to 120°C (–58 to 248°F), T5: –50 to 100°C (–58 to 212°F), T6: –50 to 85°C (–58 to 185°F)  
Max. surface Temp. for dust-proof: T85°C (Tamb: –30 to 75°C, Tp: –30 to 85°C) $^{*3}$ | KF22  |
Certificate: DEKRA 11ATEX0228 X  
II 1G, 2D Ex ia IIC T4 Ga, Ex tb IIIC T85°C Db  
Degree of protection: IP66/IP67  
Amb. Temp. (Tamb) for EPL Ga: –50 to 60°C (–58 to 140°F)  
Maximum Process Temp. (Tp) for EPL Ga: 120°C  
Electrical data: Ui=30 V, Ii=200 mA, Pi=0.9 W, Ci=27.6 nF, Li=0 µH  
Amb. Temp. for EPL Db: –30 to 80°C $^{*3}$  
Max. surface Temp. for EPL Db: T85°C (Tp: 80°C), T100°C (Tp: 100°C), T120°C (Tp: 120°C) | KS21  |
| **Combined KF22, KS21 and ATEX Intrinsic safety Ex ic** $^{*1*2}$ | [ATEX Intrinsic safety Ex ic]  
II 3G Ex ic IIC T4 Gc, Amb. Temp.: –30 to 60°C (–22 to 140°F) $^{*3}$  
Ui=30 V, Ci=27.6 nF, Li=0 µH | KU22  |
## Canadian Standards Association (CSA)

### CSA Explosionproof Approval
- **Certificate:** 2014354
- **Applicable Standard:** C22.2 No.0, C22.2 No.0.4, C22.2 No.0.5, C22.2 No.25, C22.2 No.30, C22.2 No.94, C22.2 No.60079-0, C22.2 No.60079-1, C22.2 No.61010-0, C22.2 No.61010-2-030
- **Explosion-proof for Class I, Groups B, C and D.**
- **Dustignition-proof for Class II/III, Groups E, F and G.**
- When installed in Division 2, “SEAL NOT REQUIRED” Enclosure: Type 4X, Temp. Code: T6...T4
- **Max. Process Temp.:** T4; 120°C (248°F), T5; 100°C (212°F), T6; 85°C (185°F)
- **Amb. Temp.:** –50 to 75°C (–58 to 167°F) for T4, –50 to 80°C (–58 to 176°F) for T5, –50 to 75°C (–58 to 167°F) for T6

### CSA Intrinsically safe Approval
- **Certificate:** 1606623
  - **Intrinsically Safe for Class I, Division 1, Groups A, B, C & D, Class II, Division 1, Groups E, F & G, Class III, Division 1, Nonincendive for Class I, Division 2, Groups A, B, C & D, Class II, Division 2, Groups F & G, Class III, Division 1**
  - **Amb. Temp.:** –50 to 60°C (–58 to 140°F) for Ex ia, –50 to 75°C (–58 to 167°F) for Ex nL
  - **Electrical Parameters:**
    - **Ex ia:**Ui=30V, Ii=200mA, Pi=0.9W, Ci=27.6nF, Li=0µH
    - **Ex nL:** Ui=30V, Ci=27.6nF, Li=0µH

### IECEx Scheme

#### IECEx Flameproof Approval
- **Certificate:** IECEx DEK 11.0081X
- **Flameproof for Zone 1, Ex d IIC T6...T4 Gb Enclosure: IP66/IP67**
- **Amb. Temp.:** –50 to 60°C (–58 to 140°F) for Ex ia, –50 to 75°C (–58 to 167°F) for Ex nL
  - **Electrical Parameters:**
    - **Ex ia:**Ui=30V, Ii=200mA, Pi=0.9W, Ci=27.6nF, Li=0µH
    - **Ex nL:** Ui=30V, Ci=27.6nF, Li=0µH

#### IECEx Intrinsically safe and Flameproof Approval
- **Certificate:** IECEx DEK 13.0061X
- **Intrinsically safe Ex ia**
  - **Certificate:** IECEx DEK 11.0081X
  - **Ex ia IIC T4 Ga Enclosure: IP66/IP67**
  - **Amb. Temp.:** –50 to 60°C (–58 to 140°F)
  - **Electrical Parameters:** Ui=30V, Li=200mA, Pi=0.9W, Ci=27.6nF, Li=0µH
- **Intrinsically safe Ex ic**
  - **Certificate:** IECEx DEK 13.0061X
  - **Ex ic IIC T4 Gc IP code: IP66**
  - **Amb. Temp.:** –50 to 60°C (–58 to 140°F)
  - **Electrical Parameters:**
    - **Ex ia:**Ui=30V, Ii=200mA, Pi=0.9W, Ci=27.6nF, Li=0µH
    - **Ex nL:** Ui=30V, Ci=27.6nF, Li=0µH

#### Flameproof
- **Certificate:** IECEx CSA 07.0008
- **Flameproof for Zone 1, Ex d IIC T6...T4 Gb Enclosure: IP66/IP67**
- **Max. Process Temp.:** T4; 120°C (248°F), T5; 100°C (212°F), T6; 85°C (185°F)
  - **Amb. Temp.:** –50 to 75°C (–58 to 167°F) for Ex ia, –50 to 80°C (–58 to 176°F) for Ex nL, –50 to 75°C (–58 to 167°F) for T6

### Combination of Approval
- **Combination of KU22, FU1 and CU1**

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*1: Applicable for Electrical connection code 2, 4, 7, 9, C and D.
*2: Not applicable for option code /AL.
*3: Lower limit of temperature is –15°C (5°F) when /HE is specified.
*4: When this option code is specified, a wired tag plate (as of N4 option) shall be used.
## OPTIONAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Accuracy type</td>
<td>Reference accuracy: ±0.025% of Span</td>
<td>HAC</td>
</tr>
<tr>
<td>Painting</td>
<td>Color change</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Amplifier cover only</td>
<td>P □</td>
</tr>
<tr>
<td></td>
<td>Amplifier cover and terminal cover, Munsell 7.5 R4/14</td>
<td>PR</td>
</tr>
<tr>
<td></td>
<td>Coating change</td>
<td>X2</td>
</tr>
<tr>
<td>316 SST exterior parts</td>
<td>316 SST zero-adjustment screw and setscrews</td>
<td>HC</td>
</tr>
<tr>
<td>Fluororo rubber O-ring</td>
<td>All O-rings of amplifier housing. Lower limit of ambient temperature: −15°C (5°F)</td>
<td>HE</td>
</tr>
<tr>
<td>Lightning protector</td>
<td>Transmitter power supply voltage: 10.5 to 32 V DC (10.5 to 30 V DC for intrinsically safe type.) Allowable current: Max. 6000 A (1×40 µs), Repeating 1000 A (1×40 µs) 100 times</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Status output</td>
<td>AL</td>
</tr>
<tr>
<td></td>
<td>Contact rating: 30 V DC, 120 mA DC(max) Low level: 0 to 2 V DC</td>
<td>AL</td>
</tr>
<tr>
<td></td>
<td>Oil-prohibited use</td>
<td>PR</td>
</tr>
<tr>
<td></td>
<td>Degrease cleansing treatment</td>
<td>K1</td>
</tr>
<tr>
<td></td>
<td>Degrease cleansing treatment and fluorinated oilfilled capsule. Operating temperature −20 to 80°C (−4 to 176°F)</td>
<td>K2</td>
</tr>
<tr>
<td></td>
<td>Lightning protector</td>
<td>Transmitter power supply voltage: 10.5 to 32 V DC (10.5 to 30 V DC for intrinsically safe type.) Allowable current: Max. 6000 A (1×40 µs), Repeating 1000 A (1×40 µs) 100 times</td>
</tr>
<tr>
<td></td>
<td>Status output</td>
<td>AL</td>
</tr>
<tr>
<td></td>
<td>Contact rating: 30 V DC, 120 mA DC(max) Low level: 0 to 2 V DC</td>
<td>AL</td>
</tr>
<tr>
<td></td>
<td>Oil-prohibited use</td>
<td>K1</td>
</tr>
<tr>
<td></td>
<td>Degrease cleansing treatment</td>
<td>K1</td>
</tr>
<tr>
<td></td>
<td>Degrease cleansing and dehydrating treatment</td>
<td>K5</td>
</tr>
<tr>
<td></td>
<td>Degrease cleansing and dehydrating treatment with fluorinated oil filled capsule. Operating temperature −20 to 80°C (−4 to 176°F)</td>
<td>K6</td>
</tr>
<tr>
<td></td>
<td>Oil-prohibited use with dehydrating treatment</td>
<td>K1</td>
</tr>
<tr>
<td></td>
<td>Degrease cleansing and dehydrating treatment</td>
<td>K5</td>
</tr>
<tr>
<td></td>
<td>Degrease cleansing and dehydrating treatment with fluorinated oil filled capsule. Operating temperature −20 to 80°C (−4 to 176°F)</td>
<td>K6</td>
</tr>
<tr>
<td></td>
<td>Capsule fill fluid</td>
<td>PR</td>
</tr>
<tr>
<td></td>
<td>Fluorinated oil filled in capsule Operating temperature −20 to 80°C (−4 to 176°F)</td>
<td>K3</td>
</tr>
<tr>
<td>Calibration units</td>
<td>P calibration (psi unit)</td>
<td>D1</td>
</tr>
<tr>
<td></td>
<td>bar calibration (bar unit)</td>
<td>D3</td>
</tr>
<tr>
<td></td>
<td>M calibration (kgf/cm² unit)</td>
<td>D4</td>
</tr>
<tr>
<td>Plug option</td>
<td>Long vent: Total length: 119 mm (standard: 34 mm); Total length when combining with option code K1, K2, K5, and K6: 130 mm. Material: 316 SST U1 Without vent and drain plugs</td>
<td>U1</td>
</tr>
<tr>
<td></td>
<td>Gold-plated capsule gasket</td>
<td>GS</td>
</tr>
<tr>
<td></td>
<td>Gold-plated 316L SST capsule gasket. Without vent and drain plugs.</td>
<td>A1</td>
</tr>
<tr>
<td></td>
<td>Gold plate thickness: 3 μm</td>
<td>A2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gold plate thickness: 10 μm</td>
</tr>
<tr>
<td></td>
<td>Operation</td>
<td>Output limits and failure operation</td>
</tr>
<tr>
<td></td>
<td>Failure alarm down-scale: Output status at CPU failure and hardware error is −5%, 3.2mA DC or less.</td>
<td>C2</td>
</tr>
<tr>
<td></td>
<td>NAMUR NE43 Compliant Output signal limits: 3.8 mA to 20.5 mA Failure alarm down-scale: Output status at CPU failure and hardware error is −5%, 3.2 mA DC or less.</td>
<td>C3</td>
</tr>
<tr>
<td></td>
<td>Body option</td>
<td>Right side high pressure, without vent and drain plug</td>
</tr>
<tr>
<td></td>
<td>N1 and Process connection, based on IEC61518 with female thread on both sides of cover flange, with blind kidney flanges on back.</td>
<td>N2</td>
</tr>
<tr>
<td></td>
<td>N2, and Material certificate for cover flange, diaphragm, capsule body, and blind kidney flange</td>
<td>N3</td>
</tr>
<tr>
<td></td>
<td>Wired tag plate</td>
<td>316 SST tag plate wired onto transmitter</td>
</tr>
<tr>
<td></td>
<td>Data configuration at factory</td>
<td>Data configuration for HART communication type Software damping, Descriptor, Message</td>
</tr>
<tr>
<td></td>
<td>Data configuration for BRAIN communication type Software damping</td>
<td>CB</td>
</tr>
<tr>
<td>Advanced diagnostics</td>
<td>Multi-sensing process monitoring Impulse line blockage detection Heat trace monitoring</td>
<td>DG6</td>
</tr>
<tr>
<td>European Pressure Equipment Directive</td>
<td>PED 2014/68/EU Category III, Module H, Type of Equipment: Pressure Accessory-Vessel, Type of Fluid: Liquid and Gas, Group of Fluid: 1 and 2 Lower limit of ambient and process temperature: −29°C</td>
<td>PE3</td>
</tr>
<tr>
<td>Material certificate</td>
<td>Cover flange</td>
<td>M01</td>
</tr>
<tr>
<td></td>
<td>Cover flange, Process connector</td>
<td>M11</td>
</tr>
<tr>
<td></td>
<td>Cover flange, Diaphragm, Capsule body</td>
<td>MA1</td>
</tr>
<tr>
<td></td>
<td>Cover flange, Process connector, Diaphragm, Capsule body</td>
<td>MC1</td>
</tr>
<tr>
<td></td>
<td>Cover flange, Bolt and Nut for cover flange, Diaphragm, Capsule body, Vent and Drain plug, Vent screw, Capsule gasket</td>
<td>MG1</td>
</tr>
<tr>
<td></td>
<td>Cover flange, Process connector, Bolt and nut for cover flange, Bolt for process connector, Diaphragm, Capsule body, Vent and Drain plug, Vent screw, Capsule gasket</td>
<td>MH1</td>
</tr>
<tr>
<td>Pressure test/Leak test certificate</td>
<td>Test Pressure: 16 MPa(2300 psi) Nitrogen Gas</td>
<td>T12</td>
</tr>
<tr>
<td></td>
<td>Test Pressure: 25 MPa(3600 psi) Retention time: one minute</td>
<td>T13</td>
</tr>
<tr>
<td>Parameter list</td>
<td>List of setting and adjustment parameters</td>
<td>YP</td>
</tr>
<tr>
<td>----------------</td>
<td>------------------------------------------</td>
<td>----</td>
</tr>
<tr>
<td>Functional safety (SIL)*29</td>
<td>Low temperature expansion of functional safety</td>
<td>Amb. Temp.: −55 to 85°C</td>
</tr>
</tbody>
</table>

*1: Not applicable with color change option. Not applicable for amplifier housing code 2.
*2: Check terminals cannot be used when this option code is specified. Not applicable for output signal code F and G.
*3: Applicable for Wetted parts material code S, M, H and T.
*4: The unit of MWP (Max. working pressure) on the name plate of a housing is the same unit as specified by option codes D1, D3, and D4.
*5: Applicable for vertical impulse piping type (Installation code 7) and Wetted parts material code S, H, M and T.
*6: Applicable for output signal codes D, E and J. The hardware error indicates faulty amplifier or capsule.
*7: Applicable for wetted parts material code S, M, H and T; process connection codes 3, 4, and 5; installation code 9; and mounting bracket code N. Process connection faces on the other side of zero adjustment screw.
*8: Also see 'Ordering Information'.
*9: Not applicable for amplifier housing code 2 and 3.
*10: 316 or 316L SST. The specification is included in amplifier housing code 2.
*11: Applicable for wetted parts material code S; process connection code 0 and 5; and installation code 8 and 9. Not applicable for option code U1, N2, N3 and M11. No PTFE is used for wetted parts.
*12: Applicable for wetted parts material code S or L. /A2 is not applicable with FM approval.
*13: Applicable for measurement span code M, H and V and wetted parts material code S. If compliance with category III is needed, specify this option code.

*14: Material traceability certification, per EN 10204 3.1B.
*15: Applicable for process connections codes 0 and 5.
*16: Applicable for process connections codes 1, 2, 3, and 4.
*17: The unit on the certificate is always Pa unit regardless of selection of option code D1, D3 or D4.
*18: Applicable for capsule code F and L. Also applicable for capsule M, H and V when combined with Wetted Parts Material code H, M, T, A, D, B or W.
*19: Applicable for capsule codes M, H and V when combined with Wetted Parts Material code S or L.
*20: Dry nitrogen gas is used for oil-prohibited use (option codes K1, K2, K5, and K6).
*21: Applicable only for output signal code E and J.
*22: The change of pressure fluctuation is monitored and then detects the impulse line blockage. See TI 01C25A31-01E for detailed technical information required for using this function.
*23: Maximum number of characters to be engraved on N4 tag plate is 16. Not applicable when option code V1U1 is specified.
*24: Refer to "PERFORMANCE SPECIFICATIONS:" Applicable for measurement span code M, H or V, and wetted parts material code S or L. Not applicable for option code /A1, /A2, /K2, /K3 and /K6. When the specified range values for V capsule include negative value, the accuracy shall be the standard accuracy, even if /HAC is specified.
*25: Not applicable with plug option code UN.
*26: Not applicable for installation code -U.
*27: Not applicable with option code N1, N2, N3 and GS.
*28: Applicable for option code UN and N1.
*29: Not applicable for output signal code F, G, and process connections code for diaphragm seal system.
*30: Not applicable with process connections code for diaphragm seal system B, C, D, E, F, G, Q, R, P and T.
*31: Not applicable with process connections code for diaphragm seal system B, G, P, and T.
*32: Applicable for option code UN, N1, and GS.
### OPTIONAL SPECIFICATIONS (FOR DIAPHRAGM SEAL SYSTEM)

The table below shows the codes dedicated for the combination with a diaphragm seal system. They are only available when the transmitter is ordered in combination with a diaphragm seal system. Please also refer to GS 01C25W01-01EN.

<table>
<thead>
<tr>
<th>Item</th>
<th>Descriptions</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil-prohibited use</td>
<td>Degrease cleansing treatment</td>
<td>K11</td>
</tr>
<tr>
<td></td>
<td>Degrease cleansing treatment and fluorinated oil-filled capsule.</td>
<td>K12</td>
</tr>
<tr>
<td></td>
<td>Operating temperature −20 to 80°C (−4 to 176°F)</td>
<td></td>
</tr>
<tr>
<td>Oil-prohibited use with</td>
<td>Degrease cleansing and dehydrating treatment</td>
<td>K15</td>
</tr>
<tr>
<td>dehydrating treatment</td>
<td>Degrease cleansing and dehydrating treatment with fluorinated oil-filled</td>
<td>K16</td>
</tr>
<tr>
<td></td>
<td>capsule. Operating temperature −20 to 80°C (−4 to 176°F)</td>
<td></td>
</tr>
<tr>
<td>Capsule fill fluid</td>
<td>Fluorinated oil filled in capsule.</td>
<td>K13</td>
</tr>
<tr>
<td></td>
<td>Operating temperature −20 to 80°C (−4 to 176°F)</td>
<td></td>
</tr>
<tr>
<td>Material certificate</td>
<td>[Low pressure side] Cover flange*1</td>
<td>M02</td>
</tr>
<tr>
<td></td>
<td>[High pressure side] Cover flange*2</td>
<td>M03</td>
</tr>
<tr>
<td></td>
<td>Bolt and nut for cover flange</td>
<td>M04</td>
</tr>
<tr>
<td></td>
<td>[Low pressure side] Cover flange, bolt and nut for cover flange*1</td>
<td>M05</td>
</tr>
<tr>
<td></td>
<td>[High pressure side] Cover flange, bolt and nut for cover flange*2</td>
<td>M06</td>
</tr>
<tr>
<td></td>
<td>[Low pressure side] Cover flange, Diaphragm, Capsule gasket</td>
<td>MC2</td>
</tr>
<tr>
<td></td>
<td>[High pressure side] Cover flange, Diaphragm, Capsule gasket</td>
<td>MC3</td>
</tr>
<tr>
<td></td>
<td>Capsule body*1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[High pressure side] Cover flange, Diaphragm, Vent and Drain plug, Vent</td>
<td>MD2</td>
</tr>
<tr>
<td></td>
<td>screw, Capsule gasket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bolt and nut for cover flange, Capsule body*1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[High pressure side] Cover flange, Diaphragm, Vent and Drain plug, Vent</td>
<td>MD3</td>
</tr>
<tr>
<td></td>
<td>screw, Capsule gasket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bolt and nut for cover flange, Capsule body*2</td>
<td></td>
</tr>
</tbody>
</table>

*1: Applicable with process connections code for diaphragm seal system C, D, Q, and R.
*2: Applicable with process connections code for diaphragm seal system E and F.
**DIMENSIONS**

**Vertical Impulse Piping Type**


- **Process connection downside** (Installation code 7)
- **Electrical connection for code 5, 9, A, and D.**
- **Mounting bracket (L-type, optional)**
- **Integral indicator (optional)**
- **Conduit connection (optional)**
- **Zero adjustment**
- **Ground terminal**

**Horizontal Impulse Piping Type (Installation code 9)**


- **Process connection downside** (Installation code 7)
- **Electrical connection for code 5, 9, A, and D.**
- **Mounting bracket (Flat-type, optional)**
- **Conduit connection**
- **Zero adjustment**
- **Ground terminal**

*1: When Installation code 2, 3, or 8 is selected, high and low pressure side on the above figure are reversed. (i.e. High pressure side is on the right side.)

*2: When Option code K1, K2, K5, or K6 is selected, add 15 mm (0.59 inch) to the value in the figure.

*3: When Option code K1, K2, K5, or K6 is selected, add 30 mm (1.18 inch) to the value in the figure.

*4: Not available when option code GS is specified.

*5: When electrical connection code 7 or C is selected, a blind plug is protruded up to 8 mm (0.31 inch) from the conduit connection.

*6: When option code UN is specified, Vent/Drain holes and plugs are not applicable.
**Vertical Impulse Piping Type**


**Horizontal Impulse Piping Type (Installation code 9)**


---

*1: When Installation code 2, 3, or 8 is selected, high and low pressure side on the above figure are reversed.
   (i.e. High pressure side is on the right side.)

*2: When Option code K1, K2, K5, or K6 is selected, add 15 mm (0.59 inch) to the value in the figure.

*3: When Option code K1, K2, K5, or K6 is selected, add 30 mm (1.18 inch) to the value in the figure.

*4: 15 mm (0.59 inch) for right side high pressure.

*5: When electrical connection code 7 or C is selected, a blind plug is protruded up to 8 mm (0.31 inch) from the conduit connection.

*6: When option code UN is specified, Vent/Drain holes and plugs are not applicable.
- Universal Flange (INSTALLATION CODE ‘U’)
  Measurement span code M, H and V

- Universal Flange (INSTALLATION CODE ‘U’)
  Measurement span code F

*1: When Option code K1, K2, K5, or K6 is selected, add 30 mm (1.18 inch) to the value.
*2: When electrical connection code 7 or C is selected, a blind plug is protruded up to 8 mm (0.31 inch) from the conduit connection.
- **Bottom Process Connection (Installation code B)**

Measurement span code M, H and V, except for option code /HD and /HD2

![Diagram of Bottom Process Connection]

- **Measurement span code F or option code /HD, /HD2**

![Diagram of Measurement span code F or option code /HD, /HD2]

---

*1: A transmitter with SST housing is not applicable for mounting to horizontal 2-inch pipe.

*2: When option code K1, K2, K5 or K6 is selected, add 30 mm (1.18 inch) to the value in the figure.

*3: When electrical connection code 7 or C is selected, a blind plug is protruded up to 8 mm (0.31 inch) from the conduit connection.

*4: When option code UN is specified, Vent holes and plugs are not applicable.
### Terminal Configuration

- Terminal ①
- Terminal ②

### Terminal Wiring

<table>
<thead>
<tr>
<th>Connection</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog output</td>
<td>EJX electrical terminal</td>
</tr>
<tr>
<td></td>
<td>SUPPLY +</td>
</tr>
<tr>
<td></td>
<td>CHECK A</td>
</tr>
<tr>
<td></td>
<td>Distributor</td>
</tr>
<tr>
<td></td>
<td>+ 24V DC</td>
</tr>
<tr>
<td></td>
<td>– 250Ω</td>
</tr>
<tr>
<td>Analog and status output</td>
<td>EJX electrical terminal</td>
</tr>
<tr>
<td>(when /AL is specified)</td>
<td>Shielded cable</td>
</tr>
<tr>
<td></td>
<td>Distributor</td>
</tr>
<tr>
<td></td>
<td>+ 24V DC</td>
</tr>
<tr>
<td></td>
<td>– 250Ω</td>
</tr>
<tr>
<td></td>
<td>External power supply 30V DC, 120mA max</td>
</tr>
</tbody>
</table>

- **SUPPLY +** Power supply and output terminals
- **CHECK A** External indicator (ammeter) terminals
- **ALARM A** Status contact output terminals (when /AL is specified)
- **Ground terminal**

*1: When using an external indicator or check meter, the internal resistance must be 10 Ω or less. A check meter or indicator cannot be connected when /AL option is specified.

*2: Not available for FOUNDATION Fieldbus and PROFIBUS PA communication types.

### Wiring Example for Analog Output and Status Output

- Use two-wire separately shielded cables.

If shield cable is not used, communication is not possible.
<Ordering Information> “◊”
Specify the following when ordering:
For output signal code –J, refer to GS 01C25T01-01EN.
1. Model, suffix codes, and option codes
2. Calibration range and units
   1) Calibration range can be specified with range value specifications up to 5 digits (excluding any decimal point) for low or high range limits within the range of -32000 to 32000. When reverse range is designated, specify Lower Range Value(LRV) as greater than Upper Range Value(URV). When square root output mode is specified, LRV must be “0 (zero) ”.
   2) Specify only one unit from the table, ‘Factory setting.’
3. Select linear or square root for output mode and display mode.
   Note: If not specified, the instrument is shipped set for linear mode.
4. Display scale and units (for transmitters equipped with the integral indicator only)
   Specify either 0 to 100 % or ‘Range and Unit’ for engineering units scale:
   Scale range can be specified with range limit specifications up to 5 digits (excluding any decimal point) for low or high range limits within the range of -32000 to 32000. Unit display consists of 6-digit, therefore, if the specified scaling unit excluding ‘/’ is longer than 6-characters, the first 6 characters will be displayed on the unit display.
5. Tag Number (if required)
   Specified characters (up to 16 characters for BRAIN, 22 characters for HART, or 16 characters for /N4 tag) are engraved on the stainless steel tag plate fixed on the housing.
6. SOFTWARE TAG (for HART only. If required)
   Specified characters (up to 32 characters) are set as “Tag” (the first 8 characters) and “Long tag”*1 (32 characters) in the amplifier memory. Use alphanumeric capital letters.
   When the “SOFTWARE TAG” is not specified, specified “TAG NO” is set as “Tag” (the first 8 characters) and “Long tag”*1 (22 characters) in the amplifier memory.
   *1: applicable only when HART 7 is selected.
7. Other factory configurations (if required)
   Specifying option code CA or CB will allow further configuration at factory. Following are configurable items and setting range.
   [CA : For HART communication type]
   1) Descriptor (up to 16 characters)
   2) Message (up to 30 characters)
   3) Software damping in second (0.00 to 100.00)
   [CB : For BRAIN communication type]
   1) Software damping in second (0.00 to 100.00)

<Factory Setting> “◊”
<table>
<thead>
<tr>
<th>Tag number</th>
<th>As specified in order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software damping</td>
<td>‘2.00 s’ or as specified in order</td>
</tr>
<tr>
<td>Output mode</td>
<td>‘Linear’ unless otherwise specified in order</td>
</tr>
<tr>
<td>Calibration range lower range value</td>
<td>As specified in order</td>
</tr>
<tr>
<td>Calibration range upper range value</td>
<td>As specified in order</td>
</tr>
<tr>
<td>Calibration range unit</td>
<td>Selected from mmH2O, mmH2O(68°F), mmAq, mmWG, mmHg, Pa, kPa, MPa, mbar, bar, gf/cm², kgf/cm², inH2O, inH2O(68°F), inHg, ftH2O, ftH2O(68°F) or psi. (Only one unit can be specified.)</td>
</tr>
<tr>
<td>Display setting</td>
<td>Designated differential pressure value specified in order. (% or user scaled value.) Display mode ‘Linear’ or ‘Square root’ is also as specified in order.</td>
</tr>
<tr>
<td>Static pressure display range</td>
<td>0 to 25 MPa for M, H, and V capsule with wetted parts material S or L, and 0 to 16 MPa for F capsule with wetted parts material S and all capsules with wetted parts material other than S and L, absolute value. Measuring high pressure side.</td>
</tr>
</tbody>
</table>

<Material Cross Reference>
<table>
<thead>
<tr>
<th>ASTM</th>
<th>JIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>316</td>
<td>SUS316</td>
</tr>
<tr>
<td>F316</td>
<td>SUSF316</td>
</tr>
<tr>
<td>316L</td>
<td>SUS316L</td>
</tr>
<tr>
<td>F316L</td>
<td>SUSF316L</td>
</tr>
<tr>
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<td>SUS304</td>
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<tr>
<td>F304</td>
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<tr>
<td>660</td>
<td>SUH660</td>
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<td>B7</td>
<td>SNB7</td>
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<td>CF-8M</td>
<td>SCS14A</td>
</tr>
</tbody>
</table>

<Information on EU WEEE Directive>
EU WEEE (Waste Electrical and Electronic Equipment) Directive is only valid in the EU.
This instrument is intended to be sold and used only as a part of equipment which is excluded from WEEE Directive, such as large-scale stationary industrial tools, a large-scale fixed installation and so on, and, therefore, subjected to the exclusion from the scope of the WEEE Directive. The instrument should be disposed of in accordance with local and national legislation/regulations.