

CS

CODE AND SPECIFICATIONS SHEET

Intelligent Pressure Transmitter with Remote-Sealed Diaphragm EPR-N8S



EPR-N8S Pressure Transmitter with Remote-Sealed Diaphragm incorporates semiconductor sensors and a microcomputer and converts measured differential pressures to 4 to 20mA DC signals with high accuracy.

EPR-N8S is suitable for measuring pressures of various types of process fluids such as gas, liquid and steam and also supports various installation environments such as explosion-prevented areas.

STANDARD SPECIFICATIONS

Model EPR-N8S

Pressure range

Range Code	Measuring Span	Settable Range Limits
G20	98kPa to 2MPa	$-101.3\text{kPa} \leq \text{LRV} \leq 2\text{MPa}$, $-101.3\text{kPa} \leq \text{URV} \leq 2\text{MPa}$
G100	0.98 to 10MPa	$-101.3\text{kPa} \leq \text{LRV} \leq 10\text{MPa}$, $-101.3\text{kPa} \leq \text{URV} \leq 10\text{MPa}$
G500*	10 to 30MPa	$-101.3\text{kPa} \leq \text{LRV} \leq 30\text{MPa}$, $-101.3\text{kPa} \leq \text{URV} \leq 30\text{MPa}$

* When working pressure is more than 30MPa in range code G500, Please contact us separately.

Note) URV is the input differential pressure to give 100% output (20mA DC)
LRV is the input differential pressure to give 0% output (4mA DC)

Output signal 4 to 20mA DC
Output signal range 3.6 to 21.6mA DC (–2.5 to 110%)
Power supply voltage 11.4 to 42.0V DC
Allowable load resistance 600Ω (at 24V DC power supply voltage)
Communication protocol Hitachi communication

Communication line conditions

Power supply voltage 16.7 to 42.0V DC
 Load resistance 250 to 1.2kΩ

External adjustment/Configuration Zero point adjustment ($\pm 100\%$ of measured span), LRV and URV adjustment and configuration and damping time constant are configurable (however, only with indicator and when the function is enabled).

Burn-out at error Burn-up, burn-down or no burn-out can be selected. (No burn-out is configured at shipment.)

Accuracy

●Material Code: Standard, 316L

Range Code	Accuracy	
G20	$\pm 0.15\%$ $\pm [0.1 + (0.05 \times 0.2/X)]\%$	X is 0.2MPa or higher X is less than 0.2MPa
G100	$\pm 0.15\%$	
G500	$\pm 0.2\%$	

Note) Accuracy is the percentage to X. X is the absolute value of URV, LRV or the biggest value of measured span.
X's unit is MPa.

Response time

Dead time 0.15s (Minimum)
 Damping time Electrically configurable from 0.1 to 102.4s (at 0.1s step) by using a communicator.
 (Amplifier time constant)
 •Response time is the sum of time constants of the Sensor body and damping time constant (amplifier time constant) and dead time.

Storage temperature range –40 to 85°C

Operating humidity range 0 to 100%RH

Operating temperature range

Ambient temperature range –40 to 85°C
 Wetted parts temperature range –40 to 180°C

Maximum operating pressure The highest or below operating pressure of flange (See Fig. 2 for negative pressure.)

Site vibration Continuous vibration below 29.4m/s²

Temperature characteristics (at -20 to 60°C)

●Material Code:Standard, 316L

Range Code	Temperature characteristics		
G20	Zero shift	$\pm[0.05+(0.3 \times T/50)]\%$	X is 1MPa or higher
		$\pm[0.05+(0.15+0.15 \times 1/X) \times T/50]\%$	X is less than 1MPa
	Total shift	$\pm[0.05+(0.55 \times T/50)]\%$	X is 1MPa or higher
		$\pm[0.05+(0.4+0.15 \times 1/X) \times T/50]\%$	X is less than 1MPa
G100	Zero shift	$\pm[0.05+(0.3 \times T/50)]\%$	X is 5MPa or higher
		$\pm[0.05+(0.15+0.15 \times 5/X) \times T/50]\%$	X is less than 5MPa
	Total shift	$\pm[0.05+(0.55 \times T/50)]\%$	X is 5MPa or higher
		$\pm[0.05+(0.4+0.15 \times 5/X) \times T/50]\%$	X is less than 5MPa
G500	Zero shift	$\pm[0.05+(0.3 \times T/50)]\%$	X is 10MPa or higher
	Total shift	$\pm[0.05+(0.55 \times T/50)]\%$	X is 10MPa or higher

Note) Temperature characteristic is the percentage to X.
X is the absolute value of URV, LRV or the biggest value of measured span. X's unit is MPa.
T (°C) is temperature variation width.

Materials

Diaphragm	SUS316L
Wetted parts other than diaphragm	SUS316
Standard flange	SUS304 or SUSF304
Capillary	SUS316(polyethylene-covered) Note) No polyethylene cover for Wetted parts condition Code: WVT
Sensor body flange bolt	SCM435
Amplifier case	Aluminum alloy
Mounting plate	SPCC (anti-acid painting)
U-bolt	SUS304

Sealed liquid Silicone oil
(Relative density: 0.955 at 25°C)

Process connection JIS 10K 80A RF (similar flange)

Length of protruding part of flange 0mm

Capillary length 5m

Capillary ejection direction Wafer type
(Horizontal to side of diaphragm)

Wire connection G1/2

Check terminal Current output (Ampere meter is required for measurement.)

Protection grade JIS C 0920 IP67

Surge absorber Incorporated into the power input circuit
Surge tolerance:1,000A (8/20 μ s)
Impact test voltage:15,000V (1.2/50 μ s)

Color Light gray (anti-acid painting)

Weight Approx. 10kg

Mounting Use U-bolts for 50A pipes, etc.

Accessories A set of 50A pipe mounting plate and U-bolts,
External adjustment/configuration magnet

ADDITIONAL SPECIFICATIONS

Communication protocol HART communication

TIIS flameproof, Oil-immersion

Applicable Standard Exdo II CT4 X ^{Note)}
Available for use at Zone1, Zone2 groups of hazardous place.
Note) If the indicator is not equipped, please construct an external alarm indication system by scaling out of the output signal.

Operating temperature range Ambient temperature range:-20 to 55°C
System surface temperature:-20 to 100°C

Wire connection Please use X-EXRCA pressure proof packing brackets (or EXPC-16B by Shimada Electric Co.,Ltd).

FM explosionproof approval (Arranging)

Applicable Standard Explosionproof CLI, DIV 1, GPS B, C&D
Dust-ignition proof CL II / III, GPS E, F&G
Temperature Code T4

Applicable Standard Explosionproof CLI, DIV 1, GPS B, C&D
Dust-ignition proof CL II / III, GPS E, F&G
Temperature Code T4

NEPSI explosionproof approval (Arranging)

Applicable Standard Explosionproof Ex d II C T4

Operating temperature range Ambient temperature range:
-40 to 60°C
Wetted parts temperature range:
-40 to 120°C

Indicator

Digital indicator
Indication 5 digits, unit 7 digits, bar graph
Indication items
Individual enable/disable indication of the following items:
Automatic switching when selecting the items
Differential pressure%,
Differential pressure value,
Actual scale of differential pressure,
Static pressure%, Static pressure value
Actual scale
Unit is selected from pressure, flow volume, height or discretionary configuration.
Configuration range: -99,999 to 99,999
Ambient temperature range: -20 to 85°C

Process connection JIS 20K, ANSI 150, ANSI 300,
JPI 150, JPI 300, etc.
Connection aperture:80A(3B), 100A(4B)
(See Code table for details.)

Length of protruding part of flange 50mm, 100mm, 150mm

Diaphragm for protection and adherence prevention Material:FEP
(Operating pressure:Atmospheric pressure or higher, operating temperature: -10 to 120°C)
±0.5% is added to the accuracy when the diaphragm cover is used.
(Only for aperture 80A(3B) without protruding part)

Capillary length 1 to 10m (Unit: 1m)

Capillary ejection direction Back ejection (Vertical to side of diaphragm)

Sealed liquid

Fluorine oil	Wetted parts temperature range: -20 to 120°C Relative density: 1.860(at 20°C) (See Fig. 3 for negative pressure.) Specify also the oil-prohibitive finish together for oxygen measurement.
Sanitary Silicone oil	Wetted parts temperature range: -20 to 150°C Relative density: 0.965(at 25°C) (See Fig. 4 for negative pressure.)
Propylene glycol	Wetted parts temperature range: -20 to 150°C Relative density: 1.037(at 25°C) (Not available for negative pressure.)

Wetted parts finish Oil prohibitive or oil and water prohibitive finish

Wetted parts condition

High temperature type (Code:HT)	Wetted parts temperature range: -10 to 310°C Ambient temperature range: -10 to 85°C Relative density of sealed liquid: 1.065(at 25°C) (Operating pressure is atmospheric pressure or higher)
Low temperature type (Code:LT)	Wetted parts temperature range: -70 to 60°C Ambient temperature range: -20 to 60°C Relative density of sealed liquid: 0.873(at 25°C) (See Fig. 5 for negative pressure.)
Vacuum type (Code:V)	Wetted parts temperature range: -40 to 180°C Ambient temperature range: -20 to 85°C Sealed liquid is the same as standard specifications. (Operable pressure varies depending on the temperature. See Fig. 2 for proper usage.)
Wafer type High temperature vacuum type (Code:WVT)	Wetted parts temperature range: -10 to 310°C Ambient temperature range: -10 to 85°C Relative density of sealed liquid: 1.065(at 25°C) (Operable pressure varies depending on the temperature. See Fig. 6 for proper usage.) Note) Capillary is not polyethylene-covered.
High temperature vacuum type (Code:VT)	Wetted parts temperature range: -10 to 310°C Ambient temperature range: -10 to 85°C Relative density of sealed liquid: 0.955(at 25°C) However, 1.065 at the tip (Operable pressure varies depending on the temperature. See Fig. 6 for proper usage.)
High Temperature / high vacuum type (Code:SVT)	Wetted parts temperature range: 10 to 310°C Ambient temperature range: -10 to 85°C Relative density of sealed liquid: 0.955(at 25°C) However, 1.079 at the tip Negative pressure is allowed up to 0.0133 kPa abs. (See Fig. 7.)

Wetted parts materials

Material Code	Diaphragm	Wetted parts except for diaphragm
316L	SUS316L	SUS316L
HC	Hastelloy C	Hastelloy C
TA	Tantalum	Tantalum

Note) Protruding part length of 0mm is only manufactured for the Material Code TA.

* Select a material considering the anti-corrosion characteristics. Using gold-plated diaphragm (Code: Z52) or embedded with gold-plated diaphragm + hydrogen absorbing alloy (Code: Z72) is recommended if there is any concern about the error caused by hydrogen permeation of diaphragm due to hydrogen in the measured fluid, etc. (However, it is difficult for Z52 and Z72 to completely prevent the error caused by hydrogen permeation.)

Bolt material Sensor body flange bolt: SUS630

Accuracy

●Material Code: HC, TA

(Wetted parts condition Code: VT, SVT are not included)

Range Code	Accuracy
G20	$\pm 0.2\%$ X is 0.2MPa or higher $\pm [0.15 + (0.05 \times 0.2/X)]\%$ X is less than 0.2MPa
G100	$\pm 0.2\%$

Note) Accuracy is the percentage to X. X is the absolute value of URV, LRV or the biggest value of measured span. X's unit is MPa.

●Wetted parts condition Code: VT, SVT

Range Code	Accuracy
G20	$\pm 0.5\%$
G100	
G500	

Temperature characteristics (at -20 to 60°C)

●Material Code: HC, TA

Range Code	Temperature characteristics
G20	Zero shift $\pm [0.1 + (0.5 \times T/50)]\%$ X is 1MPa or higher $\pm [0.1 + (0.25 + 0.25 \times 1/X) \times T/50]\%$ X is less than 1MPa Total shift $\pm [0.1 + (1.0 \times T/50)]\%$ X is 1MPa or higher $\pm [0.1 + (0.5 + 0.5 \times 1/X) \times T/50]\%$ X is less than 1MPa
G100	Zero shift $\pm [0.1 + (0.5 \times T/50)]\%$ X is 5MPa or higher $\pm [0.1 + (0.25 + 0.25 \times 5/X) \times T/50]\%$ X is less than 5MPa Total shift $\pm [0.1 + (1.0 \times T/50)]\%$ X is 5MPa or higher $\pm [0.1 + (0.5 + 0.5 \times 5/X) \times T/50]\%$ X is less than 5MPa

Note) Temperature characteristic is the percentage to X. X is the absolute value of URV, LRV or the biggest value of measured span. X's unit is MPa.
T (°C) is temperature variation width.

SMALL APERTURE FLANGE CONNECTION

Pressure range

Range Code	Measuring Span	Settable Range Limits
G20	0.2 to 2MPa	-98kPa ≤ LRV ≤ 2MPa, -98 kPa ≤ URV ≤ 2MPa
G100	1 to 10MPa	-98kPa ≤ LRV ≤ 1MPa, -98 kPa ≤ URV ≤ 1MPa
G500*	10 to 30MPa	-98kPa ≤ LRV ≤ 30MPa, -98kPa ≤ URV ≤ 30MPa

* Consult our nearest agency, distributor, or sales office when the operating pressure for the Range Code of G500 is 30 MPa or higher.

Accuracy

Aperture	Accuracy (Measuring Span or higher)	Operating temperature Range		Protruding part length
		Wetted parts temperature	Ambient temperature	
25A(1B)	±0.5%	-20 to 180°C	-10 to 60°C	Only E0 (Protruding not allowed)
40A(1.5B)	±0.5%	-20 to 180°C	-10 to 60°C	E0, E>0
50A(2B)	±0.2%	-20 to 180°C	-20 to 85°C	E0
	±0.5%		-10 to 60°C	E>0

Temperature characteristics

Aperture	Temperature characteristics	Protruding part length
25A(1B)	Standard specifications × 3	Only E0
40A (1.5B)	Standard specifications × 2	E0
	Standard specifications × 3	E>0
50A (2B)	Same as standard specifications	E0
	Standard specifications × 2	E>0

Effect of temperature difference

Aperture	Effect value		Protruding part length
	Wetted parts temperature difference (varied at 10°C)	Capillary temperature difference (1m, 10°C varied)	
25A(1B)	1.6kPa	1.3kPa	Only E0
40A (1.5B)	0.6kPa	0.4kPa	E0
	2.0kPa	1.3kPa	E>0
50A (2B)	0.2kPa	0.1kPa	E0
	0.8kPa	0.4kPa	E>0

Operating temperature range

Ambient temperature range -10 to 60°C
(-20 to 85°C for aperture 50 (2B), E0)

Wetted parts temperature range -20 to 180°C

Storage temperature range -40 to 85°C

Process connection

JIS 10K, 20K, 30K, 63K
ANSI 150, 300
JPI 150, 300, etc.
Connection aperture: 25A(1B), 40A(1.5B), 50A(2B)
(See Code table for details.)

Length of protruding part of flange 0mm, 50mm, 100mm, 150mm
(Only 0mm is available for 25A (1B).)

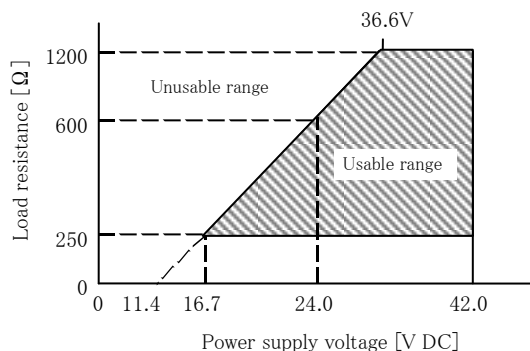
Diaphragm cover Material: FEP
(Only for aperture 2B(50A) without protruding part)
(Operating pressure: atmospheric pressure or higher, Operating temperature: -10 to 120°C)
±0.8% is added to the accuracy when the diaphragm cover is used.

Wetted parts conditions

High temperature type (Code: HT) Wetted parts temperature range: -10 to 310°C
Ambient temperature range: -10 to 60°C
Relative density of sealed liquid: 1.065(at 25°C)
(Operating pressure is atmospheric pressure or higher)

Low temperature type (Code: LT) Wetted parts temperature range: -70 to 60°C
Ambient temperature range: -20 to 60°C
Relative density of sealed liquid: 0.873(at 25°C)
(See Fig. 5 for negative pressure.)

Vacuum type (Code: V) Wetted parts temperature range: -40 to 180°C
Ambient temperature range: -10 to 60°C
Sealed liquid is the same as standard specifications.
(Operating pressure varies depending on the temperature. See Fig. 2 for proper usage.)



The minimum load resistance of 250 Ω is required to communicate by connecting the communicator.

Fig. 1 Power supply voltage / load resistance characteristics

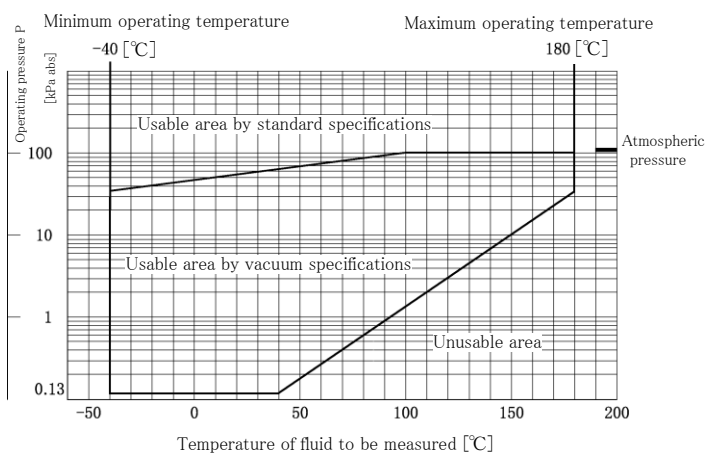


Fig. 2 Operating pressure and wetted parts temperature
(Standard / Vacuum type specifications)

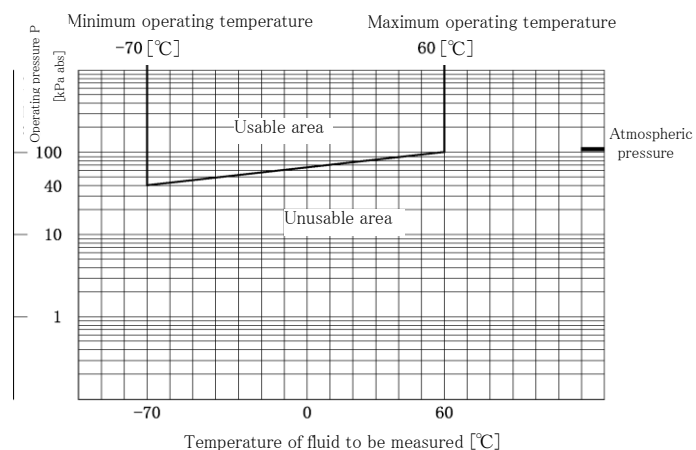


Fig. 5 Operating pressure and wetted parts temperature (Low temperature type specifications)

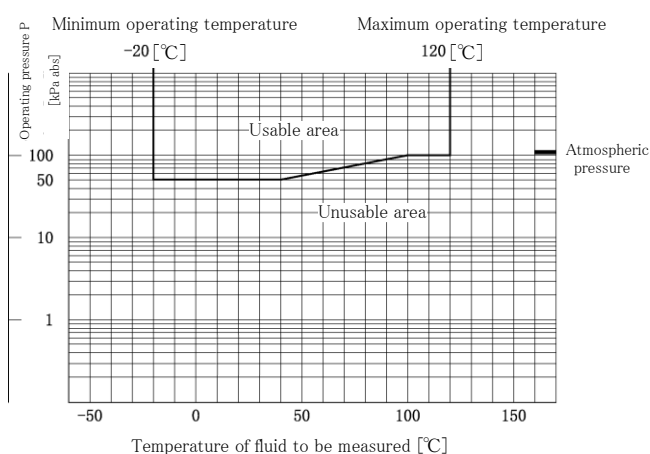


Fig. 3 Operating pressure and wetted parts temperature
(Sealed liquid: Fluorine oil)

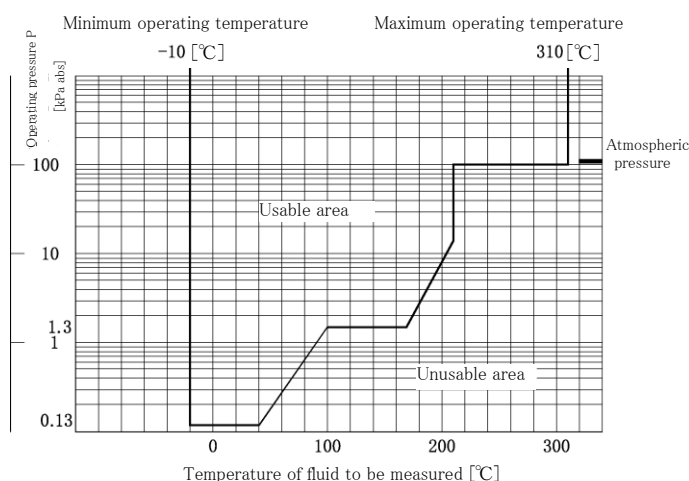


Fig. 6 Operating pressure and wetted parts temperature
(High temperature vacuum type specifications)

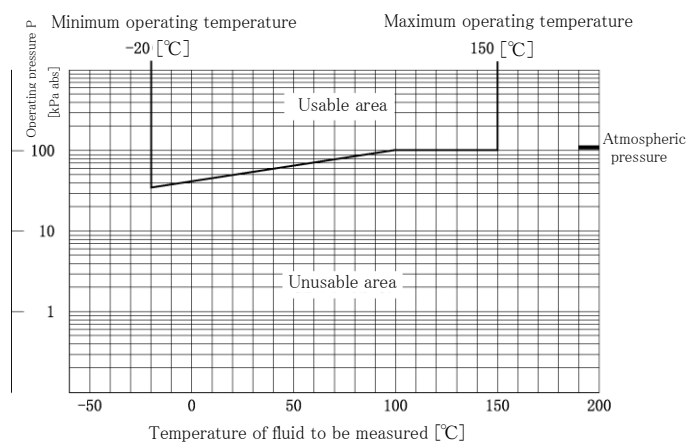


Fig. 4 Operating pressure and wetted parts temperature
(Sealed liquid: Sanitary silicone oil)

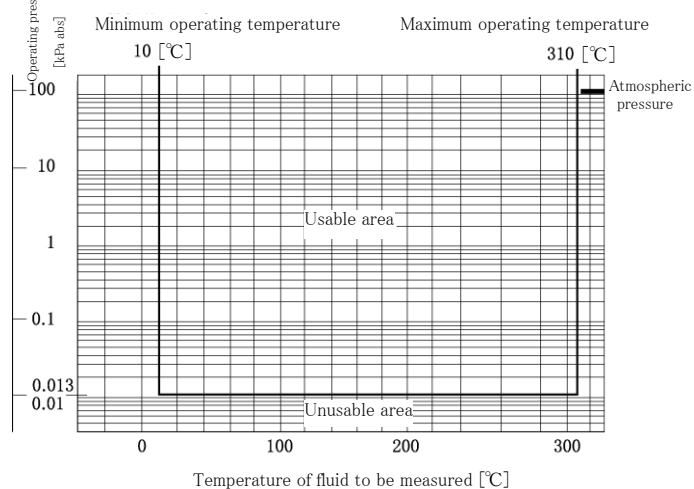
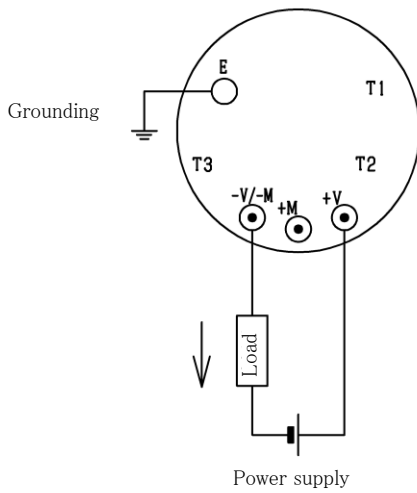


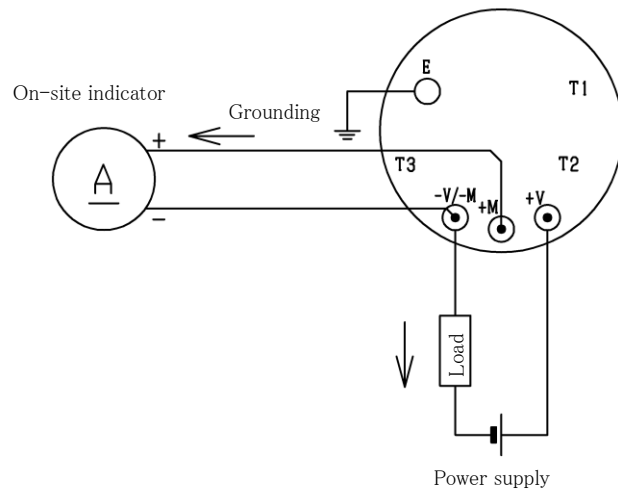
Fig. 7 Operating pressure and wetted parts temperature
(High temperature / high vacuum type specifications)

EXTERNAL CONNECTION DRAWING

Without on-site indicator



Connected with on-site indicator



Note1) Perform Class D grounding work (ground resistance of $100\ \Omega$ or less) for grounding.

Note2) Ground either the transmitter or the receiving instrument. Be careful not to be dual-grounded.

Note3) Grounding terminals on the transmitter are located inside the terminal box and outside the amplifier case.

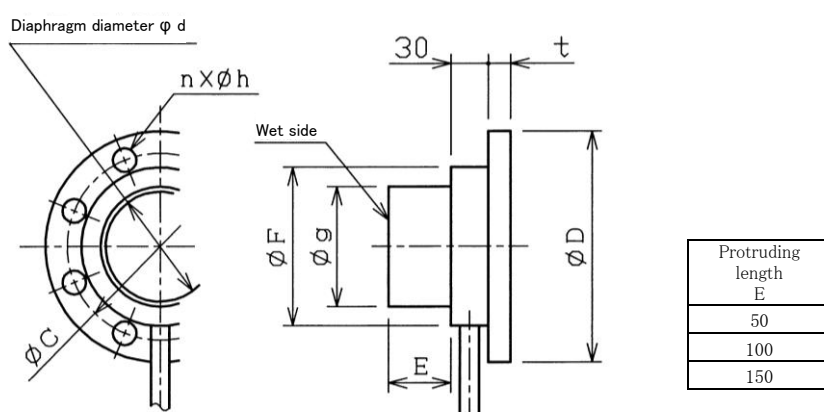
You can use either of the groundings.

Note4) T1, T2 and T3 terminals are not connected.

Note5) The resistance value needs to be $20\ \Omega$ or less including wire resistance to connect an on-site indicator.

Wafer type

With protruding part (E50, E100, E150)



Wafer type

Without protruding part (E0)

Flange standard (similar flange)		φ D	φ F	φ d	φ C	n × φ h	t
25A	JIS10K	125	63	30	90	4 × 19	14
	JIS20K	125	63	30	90	4 × 19	16
	JIS30K	130	63	30	95	4 × 19	20
	JIS40K	130	63	30	95	4 × 19	22
	JIS63K	140	63	30	100	4 × 23	27
40A	JIS10K	140	80	42	105	4 × 19	16
	JIS20K	140	80	42	105	4 × 19	18
	JIS30K	160	80	42	120	4 × 23	22
	JIS40K	160	80	42	120	4 × 23	24
	JIS63K	175	80	42	130	4 × 25	32
50A	JIS10K	155	98	64	120	4 × 19	16
	JIS20K	155	98	64	120	8 × 19	18
	JIS30K	165	98	64	130	8 × 19	22
	JIS40K	165	98	64	130	8 × 19	26
	JIS63K	185	98	64	145	8 × 23	34
80A	JIS10K	185	127	88	150	8 × 19	18
	JIS20K	200	127	88	160	8 × 23	22
	JIS30K	210	127	88	170	8 × 23	28
	JIS40K	210	127	88	170	8 × 23	32
	JIS63K	230	127	88	185	8 × 25	40
100A	JIS10K	210	154	88	175	8 × 19	18
	JIS20K	225	154	88	185	8 × 23	24
	JIS30K	240	154	88	195	8 × 25	32
	JIS40K	250	154	88	205	8 × 25	36
	JIS63K	270	154	88	220	8 × 27	44
25A (1B)	ANSI150	108	63	30	79.4	4 × 16	14.5
	ANSI300	124	63	30	88.9	4 × 20	17.5
	ANSI600	124	63	30	88.9	4 × 20	17.5
	ANSI900	149	63	30	101.6	4 × 26	29
	ANSI1500	149	63	30	101.6	4 × 26	29
40A (1.5B)	ANSI2500	159	63	30	107.9	4 × 26	35
	ANSI150	127	80	42	98.4	4 × 16	17.5
	ANSI300	156	80	42	114.3	4 × 23	21
	ANSI600	156	80	42	114.3	4 × 23	22.5
	ANSI900	178	80	42	123.8	4 × 29	32
50A (2B)	ANSI1500	178	80	42	123.8	4 × 29	32
	ANSI2500	203	80	42	146	4 × 32	44.5
	ANSI150	152	98	64	120.6	4 × 20	19.5
	ANSI300	165	98	64	127	8 × 20	22.5
	ANSI600	165	98	64	127	8 × 20	25.5
80A (3B)	ANSI900	216	98	64	165.1	8 × 26	38.5
	ANSI1500	216	98	64	165.1	8 × 26	38.5
	ANSI2500	235	98	64	171.4	8 × 29	51
	ANSI150	191	127	88	152.4	4 × 20	24
	ANSI300	210	127	88	168.3	8 × 23	29
100A (4B)	ANSI600	210	127	88	168.3	8 × 23	32
	ANSI900	241	127	88	190.5	8 × 26	38.5
	ANSI1500	267	127	88	203.2	8 × 32	48
	ANSI2500	305	127	88	228.6	8 × 35	67
	ANSI150	229	154	88	190.5	8 × 20	24
	ANSI300	254	154	88	200	8 × 23	32
	ANSI600	273	154	88	215.9	8 × 26	38.5
	ANSI900	292	154	88	235	8 × 32	44.5
	ANSI1500	311	154	88	241.3	8 × 35	54
	ANSI2500	356	154	88	273	8 × 42	76.5

* JPI flange is the same size as ANSI flange.

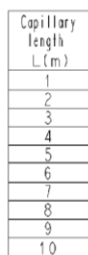
* φ d is for diaphragm material of SUS316L

With protruding part (E50, E100, E150)

Flange standard (similar flange)		φ D	φ F	φ g	φ d	φ C	n × φ h	t
40A	JIS10K	140	80	37	30	105	4 × 19	16
	JIS20K	140	80	37	30	105	4 × 19	18
	JIS30K	160	80	37	30	120	4 × 23	22
	JIS40K	160	80	37	30	120	4 × 23	24
	JIS63K	175	80	37	30	130	4 × 25	32
50A	JIS10K	155	98	48	42	120	4 × 19	16
	JIS20K	155	98	48	42	120	8 × 19	18
	JIS30K	165	98	48	42	130	8 × 19	22
	JIS40K	165	98	48	42	130	8 × 19	26
	JIS63K	185	98	48	42	145	8 × 23	34
80A	JIS10K	185	127	72	64	150	8 × 19	18
	JIS20K	200	127	72	64	160	8 × 23	22
	JIS30K	210	127	72	64	170	8 × 23	28
	JIS40K	210	127	72	64	170	8 × 23	32
	JIS63K	230	127	72	64	185	8 × 25	40
100A	JIS10K	210	154	96	88	175	8 × 19	18
	JIS20K	225	154	96	88	185	8 × 23	24
	JIS30K	240	154	96	88	195	8 × 25	32
	JIS40K	250	154	96	88	205	8 × 25	36
	JIS63K	270	154	96	88	220	8 × 27	44
40A (1.5B)	ANSI150	127	80	37	30	98.4	4 × 16	17.5
	ANSI300	156	80	37	30	114.3	4 × 23	21
	ANSI600	156	80	37	30	114.3	4 × 23	22.5
	ANSI900	178	80	37	30	123.8	4 × 29	32
	ANSI1500	178	80	37	30	123.8	4 × 29	32
50A (2B)	ANSI2500	203	80	37	30	146	4 × 32	44.5
	ANSI150	152	98	48	42	120.6	4 × 20	19.5
	ANSI300	165	98	48	42	127	8 × 20	22.5
	ANSI600	165	98	48	42	127	8 × 20	25.5
	ANSI900	216	98	48	42	165.1	8 × 26	38.5
80A (3B)	ANSI1500	216	98	48	42	165.1	8 × 26	38.5
	ANSI2500	235	98	48	42	171.4	8 × 29	51
	ANSI150	191	127	72	64	152.4	4 × 20	24
	ANSI300	210	127	72	64	168.3	8 × 23	29
	ANSI600	210	127	72	64	168.3	8 × 23	32
100A (4B)	ANSI900	241	127	72	64	190.5	8 × 26	38.5
	ANSI1500	267	127	72	64	203.2	8 × 32	48
	ANSI2500	305	127	72	64	228.6	8 × 35	67
	ANSI150	229	154	96	88	190.5	8 × 20	24
	ANSI300	254	154	96	88	200	8 × 23	32
	ANSI600	273	154	96	88	215.9	8 × 26	38.5
	ANSI900	292	154	96	88	235	8 × 32	44.5
	ANSI1500	311	154	96	88	241.3	8 × 35	54
	ANSI2500	356	154	96	88	273	8 × 42	76.5

* JPI flange is the same size as ANSI flange.

* φ d is for diaphragm material of SUS316L



Technical drawings of two types of diaphragm valves:

- a) Valve with circular diaphragm:**
 - Top view: Shows a circular diaphragm with diameter ϕd and n bolts spaced at $X\phi h$.
 - Bottom view: Shows the valve body with dimensions ϕD (outer diameter), ϕF (inner diameter), and $\phi 72$ (diaphragm diameter). The valve body height is E , and the diaphragm thickness is t .
- b) Valve with rectangular diaphragm:**
 - Top view: Shows a rectangular diaphragm with diameter ϕd and n bolts spaced at $X\phi h$.
 - Bottom view: Shows the valve body with dimensions ϕD (outer diameter), ϕF (inner diameter), and $\phi 100$ / $\phi 98$ (diaphragm diameter). The valve body height is E , and the diaphragm thickness is t .

Protruding length E
50
100
150

Back ejection type

Without protruding part (E=0)

Flange standard (similar flange)		φ D	φ F	φ d	φ C	n× φ h	t	f
50A	JIS10K	155	96	64	120	4×19	16	2
	JIS20K	155	96	64	120	8×19	18	2
	JIS30K	165	105	64	130	8×19	22	2
	JIS40K	165	105	64	130	8×19	26	2
	JIS63K	185	105	64	145	8×23	34	2
80A	JIS10K	185	127	88	150	8×19	18	2
	JIS20K	200	127	88	160	8×23	22	2
	JIS30K	210	127	88	170	8×23	28	2
	JIS40K	210	127	88	170	8×23	32	2
	JIS63K	230	127	88	185	8×25	40	2
100A	JIS10K	210	151	88	175	8×19	18	2
	JIS20K	225	160	88	185	8×23	24	2
	JIS30K	240	160	88	195	8×25	32	2
	JIS40K	250	165	88	205	8×25	36	2
	JIS63K	270	165	88	220	8×27	44	2
50A (2B)	ANSI150	152	92	64	120.6	4×19	19.1	1.6
	ANSI300	165	92	64	127	8×19	22.4	1.6
	ANSI600	165	92	64	127	8×19	31.8	6.4
	ANSI900	216	92	64	165	8×26	44.5	6.4
	ANSI1500	216	92	64	165	8×26	44.5	6.4
80A (3B)	ANSI2500	235	92	64	171.4	8×29	58	6.4
	ANSI150	191	127	88	152.4	4×20	23.9	1.6
	ANSI300	210	127	88	168.1	8×23	28.5	1.6
	ANSI600	210	127	88	168.1	8×23	38.3	6.4
	ANSI900	241	127	88	190.5	8×26	44.5	6.4
100A (4B)	ANSI1500	267	127	88	203.2	8×32	54.2	6.4
	ANSI2500	305	127	88	228.6	8×35	73	6.4
	ANSI150	229	157	88	190.5	8×20	23.9	1.6
	ANSI300	254	157	88	200.2	8×23	31.8	1.6
	ANSI600	273	157	88	215.9	8×26	44.5	6.4
	ANSI900	292	157	88	235	8×32	50.9	6.4
	ANSI1500	311	157	88	241.3	8×35	60.4	6.4
	ANSI2500	356	157	88	273	8×42	82.6	6.4

* JPI flange is the same size as ANSI flange.

* φ d is for diaphragm material of SUS316L

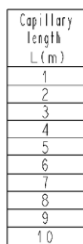
With protruding part (E>0)

Flange standard (similar flange)		φ D	φ F	φ d	φ C	n× φ h	t	f
80A	JIS10K	185	127	64	150	8×19	18	2
	JIS20K	200	127	64	160	8×23	22	2
	JIS30K	210	127	64	170	8×23	28	2
	JIS40K	210	127	64	170	8×23	32	2
	JIS63K	230	127	64	185	8×25	40	2
100A	JIS10K	210	151	88	175	8×19	18	2
	JIS20K	225	160	88	185	8×23	24	2
	JIS30K	240	160	88	195	8×25	32	2
	JIS40K	250	165	88	205	8×25	36	2
	JIS63K	270	165	88	220	8×27	44	2
80A (3B)	ANSI150	191	127	64	152.4	4×20	23.9	1.6
	ANSI300	210	127	64	168.1	8×23	28.5	1.6
	ANSI600	210	127	64	168.1	8×23	38.3	6.4
	ANSI900	241	127	64	190.5	8×26	44.5	6.4
	ANSI1500	267	127	64	203.2	8×32	54.2	6.4
100A (4B)	ANSI2500	305	127	64	228.6	8×35	73	6.4
	ANSI150	229	157	88	190.5	8×20	23.9	1.6
	ANSI300	254	157	88	200.2	8×23	31.8	1.6
	ANSI600	273	157	88	215.9	8×26	44.5	6.4
	ANSI900	292	157	88	235	8×32	50.9	6.4
	ANSI1500	311	157	88	241.3	8×35	60.4	6.4
	ANSI2500	356	157	88	273	8×42	82.6	6.4

* JPI flange is the same size as ANSI flange.

* φ d is for diaphragm material of SUS316L

Item	Code	S
Wet condition	No additional specifications	70
	HT	170
	LT	120
	V	70



Technical drawing of a diaphragm assembly. The top part is a plan view showing a circular diaphragm with diameter ϕD , a central hole of diameter $\phi 100$, and an inner hole of diameter $\phi 98$. There are n holes of diameter ϕh arranged in a circle of diameter ϕC . The bottom part is a side view showing the diaphragm thickness E , a gap f , and a total height t .

Protruding length E
50
100
150

Without protruding part (E=0)

Flange standard (similar flange)		φ D	φ F	φ d	φ C	n× φ h	t	f
80A	JIS10K	185	127	88	150	8×19	18	2
	JIS20K	200	127	88	160	8×23	22	2
	JIS30K	210	127	88	170	8×23	28	2
	JIS40K	210	127	88	170	8×23	32	2
	JIS63K	230	127	88	185	8×25	40	2
100A	JIS10K	210	151	88	175	8×19	18	2
	JIS20K	225	160	88	185	8×23	24	2
	JIS30K	240	160	88	195	8×25	32	2
	JIS40K	250	165	88	205	8×25	36	2
	JIS63K	270	165	88	220	8×27	44	2
80A (3B)	ANSI150	191	127	88	152.4	4×20	23.9	1.6
	ANSI300	210	127	88	168.1	8×23	28.5	1.6
	ANSI600	210	127	88	168.1	8×23	38.3	6.4
	ANSI900	241	127	88	1905	8×26	44.5	6.4
	ANSI1500	267	127	88	203.2	8×32	54.2	6.4
100A (4B)	ANSI2500	305	127	88	228.6	8×35	73	6.4
	ANSI150	229	157	88	190.5	8×20	23.9	1.6
	ANSI300	254	157	88	200.2	8×23	31.8	1.6
	ANSI600	273	157	88	215.9	8×26	44.5	6.4
	ANSI900	292	157	88	235	8×32	50.9	6.4
	ANSI1500	311	157	88	241.3	8×35	60.4	6.4
	ANSI2500	356	157	88	273	8×42	82.6	6.4

* JPI flange is the same size as ANSI flange.
 * φ d is for diaphragm material of SUS316L.

With protruding part (E>0)

Flange standard (similar flange)		φ D	φ F	φ d	φ C	n× φ h	t	f
100A	JIS10K	210	151	88	175	8×19	18	2
	JIS20K	225	160	88	185	8×23	24	2
	JIS30K	240	160	88	195	8×25	32	2
	JIS40K	250	165	88	205	8×25	36	2
	JIS63K	270	165	88	220	8×27	44	2
100A (4B)	ANSI150	229	157	88	190.5	8×20	23.9	1.6
	ANSI300	254	157	88	200.2	8×23	31.8	1.6
	ANSI600	273	157	88	215.9	8×26	44.5	6.4
	ANSI900	292	157	88	235	8×32	50.9	6.4
	ANSI1500	311	157	88	241.3	8×35	60.4	6.4
	ANSI2500	356	157	88	273	8×42	82.6	6.4

* JPI flange is the same size as ANSI flange.
 * φ d is for diaphragm material of SUS316L.

CODE TABLES

EPR-N8S Intelligent Pressure Transmitter with Remote-Sealed Diaphragm

Model					
EPR-N8S					
No.	Item	Code	Remarks		
1	Range Code	G20	Measuring span 98kPa to 2MPa		
		G100	Measuring span 0.98 to 10MPa		
		G500	Measuring span 10 to 30MPa		
2	Communication	-	Hitachi communication		
		H	HART communication		
3	Functional safety	-	None		
4	Adjustment range	-	Adjust between 0 and Maximum range		
		C()	Describe adjustment range and unit sign in ()		
5	Certification	-	None		
		XC	TIS flameproof, Oil-immersion		
		FM	FM explosionproof approval (Arranging)		
		NEPSI	NEPSI explosionproof approval (Arranging)		
6	Indicator	-	None		
		M	With digital indicator (Indication 0 to 100%)		
		MJ()	With digital indicator, describe indication scale and unit sign in actual scale indication ()		
7	Flange standard	JIS	25J10	Flange standard JIS 10K 25A RF-equivalent	Only E0
			25J20	Flange standard JIS 20K 25A RF-equivalent	Only E0
			25J30	Flange standard JIS 30K 25A RF-equivalent	Only E0
			25J40	Flange standard JIS 40K 25A RF-equivalent	Only E0
			25J63	Flange standard JIS 63K 25A RF-equivalent	Only E0
			40J10	Flange standard JIS 10K 40A RF-equivalent	E0/E50 to E150
			40J20	Flange standard JIS 20K 40A RF-equivalent	E0/E50 to E150
			40J30	Flange standard JIS 30K 40A RF-equivalent	E0/E50 to E150
			40J40	Flange standard JIS 40K 40A RF-equivalent	E0/E50 to E150
			40J63	Flange standard JIS 63K 40A RF-equivalent	E0/E50 to E150
			50J10	Flange standard JIS 10K 50A RF-equivalent	E0/E50 to E150
			50J20	Flange standard JIS 20K 50A RF-equivalent	E0/E50 to E150
			50J30	Flange standard JIS 30K 50A RF-equivalent	E0/E50 to E150
			50J40	Flange standard JIS 40K 50A RF-equivalent	E0/E50 to E150
			50J63	Flange standard JIS 63K 50A RF-equivalent	E0/E50 to E150
			80J10	Flange standard JIS 10K 80A RF-equivalent	E0/E50 to E150
			80J20	Flange standard JIS 20K 80A RF-equivalent	E0/E50 to E150
			80J30	Flange standard JIS 30K 80A RF-equivalent	E0/E50 to E150
			80J40	Flange standard JIS 40K 80A RF-equivalent	E0/E50 to E150
			80J63	Flange standard JIS 63K 80A RF-equivalent	E0/E50 to E150
			100J10	Flange standard JIS 10K 100A RF-equivalent	E0/E50 to E150
			100J20	Flange standard JIS 20K 100A RF-equivalent	E0/E50 to E150
			100J30	Flange standard JIS 30K 100A RF-equivalent	E0/E50 to E150
			100J40	Flange standard JIS 40K 100A RF-equivalent	E0/E50 to E150
			100J63	Flange standard JIS 63K 100A RF-equivalent	E0/E50 to E150
		ANSI	25A150	Flange standard ANSI 150 1B RF-equivalent	Only E0
			25A300	Flange standard ANSI 300 1B RF-equivalent	Only E0
			25A400	Flange standard ANSI 400 1B RF-equivalent	Only E0
			25A600	Flange standard ANSI 600 1B RF-equivalent	Only E0
			25A900	Flange standard ANSI 900 1B RF-equivalent	Only E0
			25A1500	Flange standard ANSI 1500 1B RF-equivalent	Only E0
			25A2500	Flange standard ANSI 2500 1B RF-equivalent	Only E0
			40A150	Flange standard ANSI 150 1.5B RF-equivalent	E0/E50 to E150
			40A300	Flange standard ANSI 300 1.5B RF-equivalent	E0/E50 to E150
			40A400	Flange standard ANSI 400 1.5B RF-equivalent	E0/E50 to E150
			40A600	Flange standard ANSI 600 1.5B RF-equivalent	E0/E50 to E150
			40A900	Flange standard ANSI 900 1.5B RF-equivalent	E0/E50 to E150
			40A1500	Flange standard ANSI 1500 1.5B RF-equivalent	E0/E50 to E150
			40A2500	Flange standard ANSI 2500 1.5B RF-equivalent	E0/E50 to E150
			50A150	Flange standard ANSI 150 2B RF-equivalent	E0/E50 to E150
			50A300	Flange standard ANSI 300 2B RF-equivalent	E0/E50 to E150
			50A400	Flange standard ANSI 400 2B RF-equivalent	E0/E50 to E150
			50A600	Flange standard ANSI 600 2B RF-equivalent	E0/E50 to E150
			50A900	Flange standard ANSI 900 2B RF-equivalent	E0/E50 to E150
			50A1500	Flange standard ANSI 1500 2B RF-equivalent	E0/E50 to E150
			50A2500	Flange standard ANSI 2500 2B RF-equivalent	E0/E50 to E150
			80A150	Flange standard ANSI 150 3B RF-equivalent	E0/E50 to E150
			80A300	Flange standard ANSI 300 3B RF-equivalent	E0/E50 to E150
			80A400	Flange standard ANSI 400 3B RF-equivalent	E0/E50 to E150
			80A600	Flange standard ANSI 600 3B RF-equivalent	E0/E50 to E150
			80A900	Flange standard ANSI 900 3B RF-equivalent	E0/E50 to E150
			80A1500	Flange standard ANSI 1500 3B RF-equivalent	E0/E50 to E150
			80A2500	Flange standard ANSI 2500 3B RF-equivalent	E0/E50 to E150
			100A150	Flange standard ANSI 150 4B RF-equivalent	E0/E50 to E150
			100A300	Flange standard ANSI 300 4B RF-equivalent	E0/E50 to E150
			100A400	Flange standard ANSI 400 4B RF-equivalent	E0/E50 to E150
			100A600	Flange standard ANSI 600 4B RF-equivalent	E0/E50 to E150
			100A900	Flange standard ANSI 900 4B RF-equivalent	E0/E50 to E150
			100A1500	Flange standard ANSI 1500 4B RF-equivalent	E0/E50 to E150
			100A2500	Flange standard ANSI 2500 4B RF-equivalent	E0/E50 to E150

7	Flange standard	JPI	25JP150	Flange standard	JPI	150	1B	RF-equivalent	Only E0	
			25JP300	Flange standard	JPI	300	1B	RF-equivalent	Only E0	
			25JP400	Flange standard	JPI	400	1B	RF-equivalent	Only E0	
			25JP600	Flange standard	JPI	600	1B	RF-equivalent	Only E0	
			25JP900	Flange standard	JPI	900	1B	RF-equivalent	Only E0	
			25JP1500	Flange standard	JPI	1500	1B	RF-equivalent	Only E0	
			25JP2500	Flange standard	JPI	2500	1B	RF-equivalent	Only E0	
			40JP150	Flange standard	JPI	150	1.5B	RF-equivalent	E0/E50 to E150	
			40JP300	Flange standard	JPI	300	1.5B	RF-equivalent	E0/E50 to E150	
			40JP400	Flange standard	JPI	400	1.5B	RF-equivalent	E0/E50 to E150	
			40JP600	Flange standard	JPI	600	1.5B	RF-equivalent	E0/E50 to E150	
			40JP900	Flange standard	JPI	900	1.5B	RF-equivalent	E0/E50 to E150	
			40JP1500	Flange standard	JPI	1500	1.5B	RF-equivalent	E0/E50 to E150	
			40JP2500	Flange standard	JPI	2500	1.5B	RF-equivalent	E0/E50 to E150	
			50JP150	Flange standard	JPI	150	2B	RF-equivalent	E0/E50 to E150	
			50JP300	Flange standard	JPI	300	2B	RF-equivalent	E0/E50 to E150	
			50JP400	Flange standard	JPI	400	2B	RF-equivalent	E0/E50 to E150	
			50JP600	Flange standard	JPI	600	2B	RF-equivalent	E0/E50 to E150	
			50JP900	Flange standard	JPI	900	2B	RF-equivalent	E0/E50 to E150	
			50JP1500	Flange standard	JPI	1500	2B	RF-equivalent	E0/E50 to E150	
			50JP2500	Flange standard	JPI	2500	2B	RF-equivalent	E0/E50 to E150	
			80JP150	Flange standard	JPI	150	3B	RF-equivalent	E0/E50 to E150	
			80JP300	Flange standard	JPI	300	3B	RF-equivalent	E0/E50 to E150	
			80JP400	Flange standard	JPI	400	3B	RF-equivalent	E0/E50 to E150	
			80JP600	Flange standard	JPI	600	3B	RF-equivalent	E0/E50 to E150	
			80JP900	Flange standard	JPI	900	3B	RF-equivalent	E0/E50 to E150	
			80JP1500	Flange standard	JPI	1500	3B	RF-equivalent	E0/E50 to E150	
			80JP2500	Flange standard	JPI	2500	3B	RF-equivalent	E0/E50 to E150	
			100JP150	Flange standard	JPI	150	4B	RF-equivalent	E0/E50 to E150	
			100JP300	Flange standard	JPI	300	4B	RF-equivalent	E0/E50 to E150	
			100JP400	Flange standard	JPI	400	4B	RF-equivalent	E0/E50 to E150	
			100JP600	Flange standard	JPI	600	4B	RF-equivalent	E0/E50 to E150	
			100JP900	Flange standard	JPI	900	4B	RF-equivalent	E0/E50 to E150	
			100JP1500	Flange standard	JPI	1500	4B	RF-equivalent	E0/E50 to E150	
			100JP2500	Flange standard	JPI	2500	4B	RF-equivalent	E0/E50 to E150	
8	Protruding flange part and diaphragm cover	E0	Protruding part length 0mm							
		E50	Protruding part length 50mm Aperture 100A or 4B Aperture 25A, 1B not allowed.							
		E100	Protruding part length 100mm Aperture 100A or 4B Aperture 25A, 1B not allowed.							
		E150	Protruding part length 150mm Aperture 100A or 4B Aperture 25A, 1B not allowed.							
		E0TDS	Protruding part length 0mm with FEP diaphragm cover(Operating pressure: atmospheric pressure or higher, Operating temperature -10 to 120℃) Apertures 100A, 4B, 40A, 1.5B, 25A, 1B is not allowed.							
9	Capillary length	Wafer type	1	Capillary length	1m					
			2	Capillary length	2m					
			3	Capillary length	3m					
			4	Capillary length	4m					
			5	Capillary length	5m					
			6	Capillary length	6m	E>0 for aperture 25A, 1B and 40A, 1.5B not allowed.				
			7	Capillary length	7m	E>0 for aperture 25A, 1B and 40A, 1.5B not allowed.				
			8	Capillary length	8m	E>0 for aperture 25A, 1B and 40A, 1.5B not allowed.				
			9	Capillary length	9m	E>0 for aperture 25A, 1B and 40A, 1.5B not allowed.				
			10	Capillary length	10m	E>0 for aperture 25A, 1B and 40A, 1.5B not allowed.				
		Back ejection type	1U	Capillary back ejection	Length	1m	Specify side ejection when VT or SVT is specified.			
			2U	Capillary back ejection	Length	2m	Specify side ejection when VT or SVT is specified.			
			3U	Capillary back ejection	Length	3m	Specify side ejection when VT or SVT is specified.			
			4U	Capillary back ejection	Length	4m	Specify side ejection when VT or SVT is specified.			
			5U	Capillary back ejection	Length	5m	Specify side ejection when VT or SVT is specified.			
			6U	Capillary back ejection	Length	6m	E>0 for aperture 25A, 1B and 40A, 1.5B not allowed, Specify side ejection when VT or SVT is			
			7U	Capillary back ejection	Length	7m	E>0 for aperture 25A, 1B and 40A, 1.5B not allowed, Specify side ejection when VT or SVT is			
			8U	Capillary back ejection	Length	8m	E>0 for aperture 25A, 1B and 40A, 1.5B not allowed, Specify side ejection when VT or SVT is			
			9U	Capillary back ejection	Length	9m	E>0 for aperture 25A, 1B and 40A, 1.5B not allowed, Specify side ejection when VT or SVT is			
			10U	Capillary back ejection	Length	10m	E>0 for aperture 25A, 1B and 40A, 1.5B not allowed, Specify side ejection when VT or SVT is			
10	Material	-	Diaphragm:SUS316L Wetted parts:SUS316							
		316L	Diaphragm:SUS316L Wetted parts:SUS316L							
		HC	Diaphragm:Hastelloy C Wetted parts:Hastelloy C							
		TA	Diaphragm:Tantalum Wettd parts:Tantalum Only E0							
11	Bolt/mounting plate material	-	Sensor body flange bolt: SCM435 Mounting plate: SPCC U-bolt: SUS304							
		S630	Sensor body flange bolt: SUS630 Mounting plate: SUS304 U-bolt: SUS304							
12	Sealed liquid	-	Silicone oil							
		FO	Fluorine oil							
		100CS	Sanitary Silicone oil							
		PG	Propylene glycol							
13	Oil prohibition	-	No finish							
		NL	Oil prohibitive finish							
		NLW	Oil and water prohibitive finish							

14	Wetted parts conditions	-	Standard
		HT	High temperature type Wetted parts temperature -10 to 310°C * Sealed liquid code cannot be specified.
		LT	Low temperature type Wetted parts temperature -70 to 60°C * Sealed liquid code cannot be specified.
		V	Vacuum type Wetted parts temperature -20 to 180°C * Sealed liquid code cannot be specified.
		WVT	Wafer type high temperature vacuum type. Wetted parts temperature -10 to 310°C * Sealed liquid code cannot be specified. Only side ejection is available for capillary.
		VT	High temperature vacuum type Wetted parts temperature -10 to 310°C * Sealed liquid code cannot be specified. Only flange size E0 for 80A and 100A are supported, Only back ejection is available for capillary.
		SVT	High temperature / high vacuum type Wetted parts temperature 10 to 310°C Operable vacuum 0.0133KPa abs. * Sealed liquid code cannot be specified. Only flange sizes E0 of 80A and 100A are supported. The material of the diaphragm is limited to Hastelloy C. Only backside extraction of capillary is supported.

Example of Code description:EPR-N8S-G20-XC-M-80J10-E0-5

- HART® is a registered trademark of the Field Comm Group.
- Please read the “Instruction Manual” carefully before use.
- Appearance and specifications are subject to change partially for improvement.