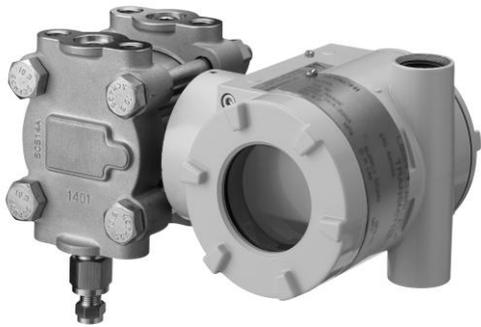


CS

CODE AND SPECIFICATIONS SHEET

Intelligent Pressure Transmitter (High Accuracy Type) EPR-N8E



EPR-N8E Pressure Transmitter incorporates semiconductor sensors and a microcomputer and converts measured pressures to 4 to 20mA DC signals with high accuracy. EPR-N8E 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-N8E

Pressure range

Range Code	Measuring Span	Settable Range Limits
G20	19.6kPa to 2MPa	-101.3kPa ≤ LRV ≤ 2MPa, -101.3kPa ≤ URV ≤ 2MPa
G100	98kPa to 10MPa	-101.3kPa ≤ LRV ≤ 10MPa, -101.3kPa ≤ URV ≤ 10MPa

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 600 Ω (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 1.2k Ω
See Fig. 1 for the relationship between power supply voltage and load resistance.

External adjustment /configuration Zero point adjustment (±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

Range Code	Accuracy	
G20	±0.04%	X is 0.2MPa or higher
	± [0.005+(0.035×0.2/X)]%	X is less than 0.2MPa
G100	±0.04%	X is 1MPa or higher
	± [0.005+(0.035×1/X)]%	X is less than 1MPa

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 constant 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 (See Fig. 2.)

Wetted parts temperature range -40 to 120°C

Maximum operating pressure Upper limit value of the configurable range (See Fig. 3 for negative pressure.)

Withstanding pressure 1.5 times the upper limit value of the configurable range

Site vibration Continuous vibration below 29.4 m/s²

Temperature characteristics (at -20 to 60°C)

Range Code	Temperature characteristics	
G20	Zero shift	± [0.05+(0.2×T/50)]%
		X is 0.8MPa or higher
		X is less than 0.8MPa
G100	Zero shift	± [0.05+(0.15+0.05×0.8/X)×T/50]%
		X is 0.8MPa or higher
		X is less than 0.8MPa
G20	Total shift	± [0.05+(0.45×T/50)]%
		X is 0.8MPa or higher
		X is less than 0.8MPa
G100	Total shift	± [0.05+(0.4+0.05×0.8/X)×T/50]%
		X is 4MPa or higher
		X is less than 4MPa
G100	Total shift	± [0.05+(0.15+0.05×4/X)×T/50]%
		X is 4MPa or higher
		X is less than 4MPa
G100	Total shift	± [0.05+(0.45×T/50)]%
		X is 4MPa or higher
		X is less than 4MPa

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.

Long-term stability (zero point) ±0.1% / 10 year (for the maximum span)
Varied volume under the basic operable requirements (23±2°C, under atmospheric pressure)

Materials

Diaphragm	SUS316L
Sensor body	SUS316L
Sensor body flange	SCS14A(SUS316-equivalent casting)
Sensor body flange bolt	SCM435
Sensor body flange O-ring	EPDM
Amplifier case	Aluminum alloy
Mounting plate	SPCC (anti-acid painting)
U-bolt	SUS304
Sealed liquid	Silicone oil
Pressure inlet	Upper inlet Rc1/4
Wire connection	G1/2
Check terminal	Electric 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. 3.8kg
Mounting	Use U-bolts for 50A pipes, etc.
Accessories	A set of 50 A 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 Wetted parts temperature range: -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

Sealed liquid

Fluorine oil
Wetted parts temperature range: -20 to 120°C
(See Fig. 4 for negative pressure.)
Specify also the oil-prohibitive finish together for oxygen measurement.

Wetted parts finish

Oil prohibitive or oil and water prohibitive finish

Pressure inlet

(with adapter)

Rc1/4, Rc1/2, 1/4NPT, 1/2NPT, 15A socket welding (socket screw-in type)

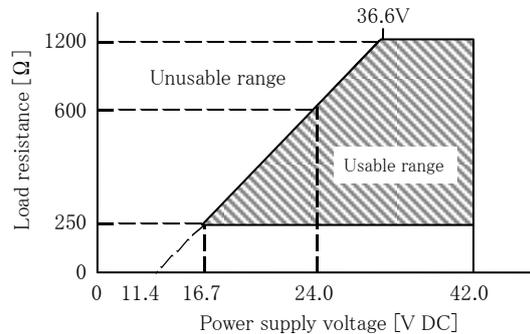
Wetted parts conditions

Vacuum type
(Code: V)

Wetted parts temperature: -40 to 120°C
Sealed liquid is the same as the standard specifications.
(Operable pressure varies depending on the temperature. See Fig. 3 for proper usage.)

Bolt material

Sensor body flange bolt: SUS630



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

Fig. 1 Power supply voltage / load resistance characteristics

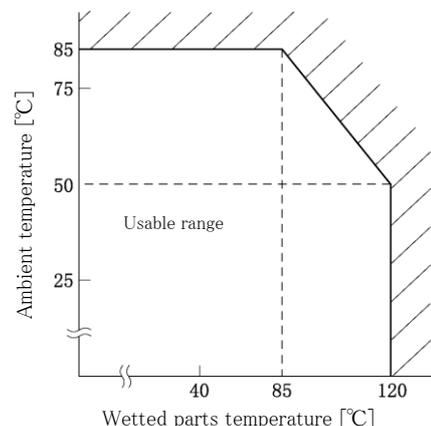


Fig. 2 Wetted parts temperatures and ambient temperature

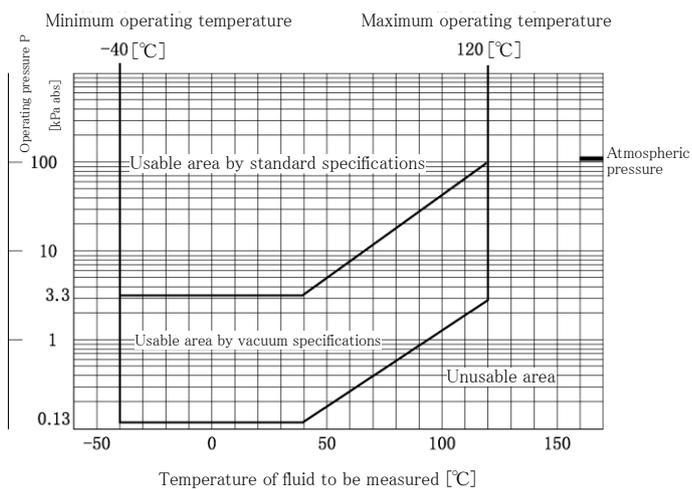


Fig. 3 Operating pressure and wetted parts temperature (Standard / Vacuum type specifications)

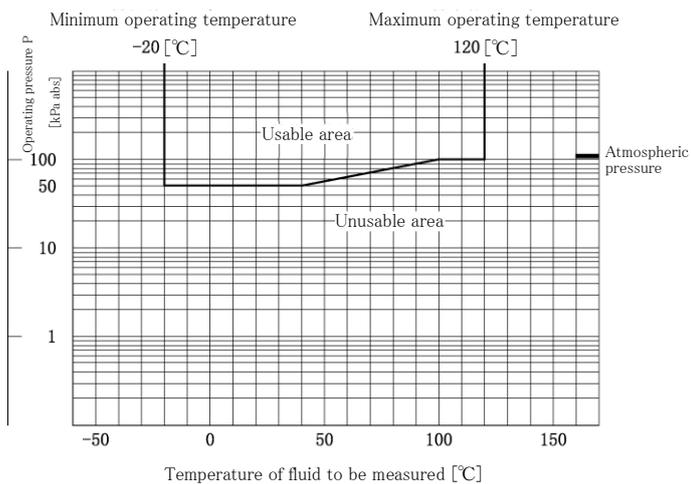
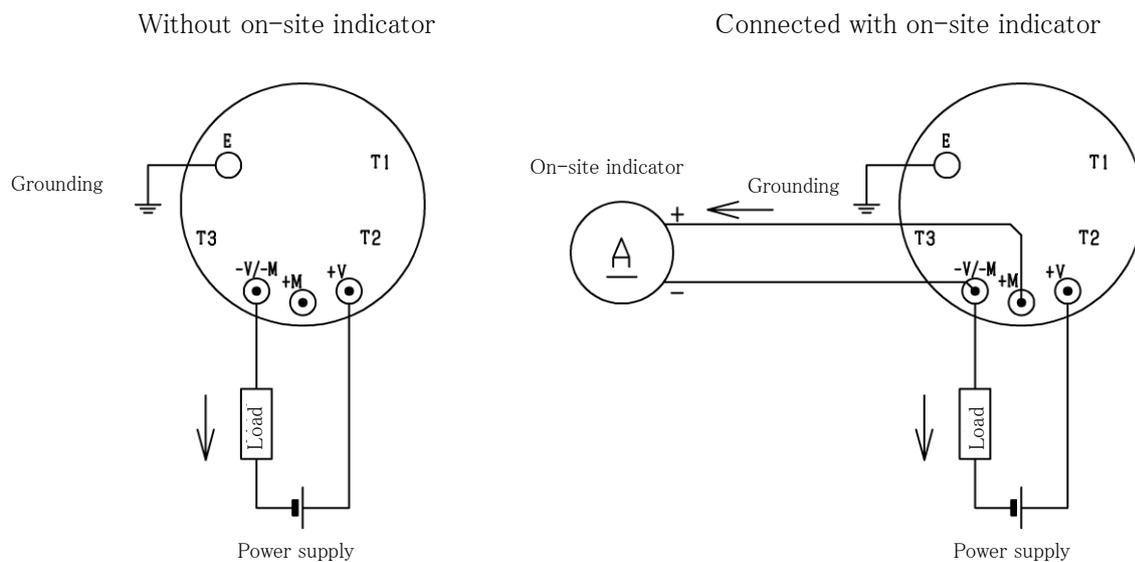


Fig. 4 Operating pressure and wetted parts temperature (Sealed liquid: Fluorine oil)

EXTERNAL CONNECTION DRAWING



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

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

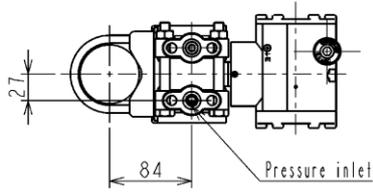
Note3) Grounding terminals on the transmitter are located inside the terminal box and outside the amplifier case.

You can use either of the groundings.

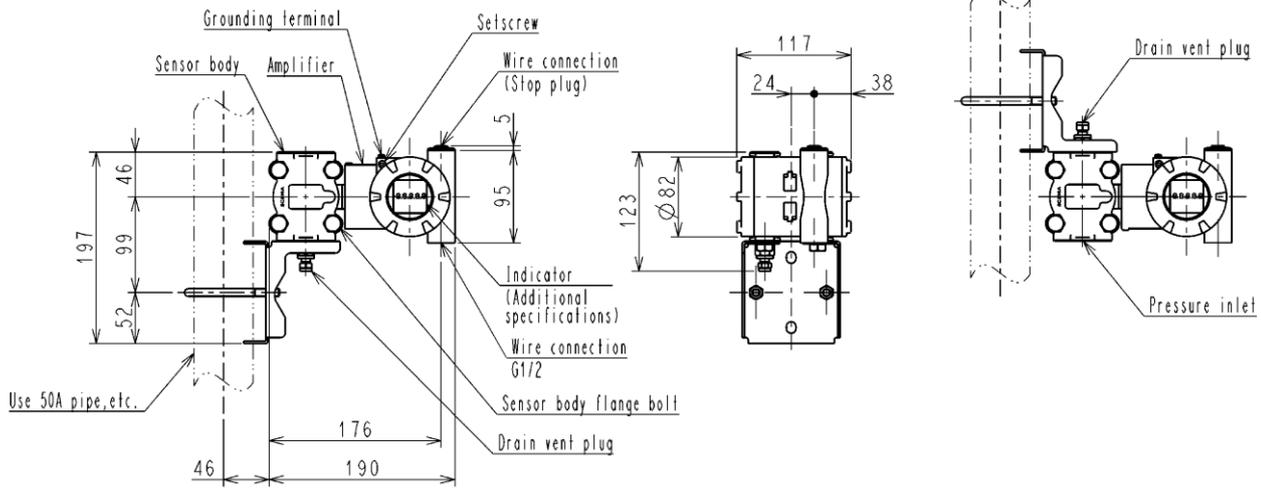
Note4) T1, T2 and T3 terminals are not connected.

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

DIMENSIONS (Unit: mm)



When the bottom connection



CODE TABLES

EPR-N8E Intelligent Pressure Transmitter (High Accuracy Type)

Model		EPR-N8E	
No.	Item	Code	Remarks
1	Range Code	G20	Measuring span 19.6kPa to 2MPa
		G100	Measuring span 98kPa to 10MPa
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	TIIS 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	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
8	Sealed liquid	-	Silicone oil
		FO	Fluorine oil
9	Oil prohibition	-	No finish
		NL	Oil prohibitive finish
		NLW	Oil and water prohibitive finish
10	Pressure inlet	T0	Top connection Rc1/4
		R2	Top connection Rc1/2 with adapter
		N2	Top connection 1/2NPT with adapter
		N4	Top connection 1/4NPT with adapter
		S2	Top connection 15A pipe insertion welding with adapter (socket screw-in type)
		B0	Bottom connection Rc1/4
		BR2	Bottom connection Rc1/2 with adapter
		BN2	Bottom connection 1/2NPT with adapter
		BN4	Bottom connection 1/4NPT with adapter
		BS2	Bottom connection 15A pipe insertion welding with adapter (socket screw-in type)
11	Wetted parts conditions	-	Standard
		V	Vacuum type

Example of Code description: EPR-N8E-G20-XC-M-R2

- 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.