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CODE AND SPECIFICATIONS SHEET

Intelligent Absolute Pressure Transmitter

EDR-N8A

EDR-N8A Absolute Pressure Transmitter incorporates semiconductor sensors and a microcomputer and converts measured pressures to 4 to 20mA DC signal with high accuracy. EDR-N8A is suitable for measuring absolute pressures of process lines and also supports various installation environments including explosion-prevented areas.

STANDARD SPECIFICATIONS

Model EDR-N8A

Pressure range

Range Code	Measuring Span	Settable Range Limitts
200	0.53 to 27kPa abs.	0≦LRV≦27kPa abs., 0≦URV≦27kPa abs.
1000	6.7 to 133kPa abs.	0≦LRV≦133kPa abs., 0≦URV≦133kPa abs.
6000	106.7 to 800kPa abs.	0≦LRV≦800kPa abs., 0≦URV≦800kPa abs.

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
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

●Material Code: Standard, 316L

Range Code	Accuracy	
200	±0.2%	X is 5.4kPa abs. or higher
	±[0.1+(0.1×5.4/X)]%	X is less than 5.4kPa abs.
1000	±0.2%	X is 13.3kPa abs. or higher
	±[0.1+(0.1×13.3/X)]%	X is less than 13.3kPa abs.
6000	±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 kPa abs.

Response time

Dead time 0.15s(Minimum)

Damping time constant (Amplifier time constant) Electrically configurable from 0.1 to 102.4s (at 0.1s step) by using a communicator.
・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℃

Operating humidity range 0 to 100%RH

Operating temperature range

Ambient temperature range -40 to 85℃ (See Fig. 2.)

Wetted parts temperature range -40 to 120℃

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

Withstanding pressure 1.0MPa

Site vibration Continuous vibration below 29.4m/s^2

Temperature characteristics (at -20 to 60℃)

●Material Code: Standard, 316L

Range Code	Temperature characteristics		
200	Zero shift	±[0.05+(0.4×T/50)]%	X is 5.4kPa abs. or higher
		±[0.05+(0.25+0.15×5.4/X)×T/50]%	X is less than 5.4kPa abs.
	Total shift	±[0.05+(0.7×T/50)]%	X is 5.4kPa abs. or higher
		±[0.05+(0.55+0.15×5.4/X)×T/50]%	X is less than 5.4kPa abs.
1000	Zero shift	±[0.05+(0.4×T/50)]%	X is 27kPa abs. or higher
		±[0.05+(0.25+0.15×27/X)×T/50]%	X is less than 27kPa abs.
	Total shift	±[0.05+(0.7×T/50)]%	X is 27kPa abs. or higher
		±[0.05+(0.55+0.15×27/X)×T/50]%	X is less than 27kPa abs.
6000	Zero shift	±[0.05+(0.4×T/50)]%	X is 220kPa abs. or higher
		±[0.05+(0.25+0.15×220/X)×T/50]%	X is less than 220kPa abs.
	Total shift	±[0.05+(0.7×T/50)]%	X is 220kPa abs. or higher
		±[0.05+(0.55+0.15×220/X)×T/50]%	X is less than 220kPa abs.

Note) Temperature characteristics is the percentage to X.
X is the absolute value of URV, LRV or the biggest value of measured span. X's unit is kPa abs.
T (℃) is temperature variation width.

Material

Diagphram	SUS316L
Sensor body	SUS316L
Sensor body flange	SCSI4A (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 Lower inlet Rc1/4

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 μs)
Impact test voltage: 15,000V (1.2/50 μs)

Color Light gray (anti-acid painting)

Weight Approx. 3.8kg

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

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

ADDITIONAL SPECIFICATINS

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℃ Wetted parts temperature range: -20 to 100℃
Wire connecxtion	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 CLⅡ/Ⅲ,GPS E,F&G Temperature Code T4
Operating temperature range	Ambient temperature range: -40 to 60℃ Wetted parts temperature range: -40 to 120℃

NEPSI explosionproof approval (Arranging)

Applicable Standard	Explosionproof Ex d ⅡC T4
Operating temperature range	Ambient temperature range: -40 to 60℃ Wetted parts temperature range: -40 to 120℃

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℃

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 materials

Material Code	Diaphragm	Sensor body wetted parts	Sensor body flange
316L	SUS316L	SUS316L	SCS16A (SUS316L equivalent)
HC316	Hastelloy C	SUS316L	SCS14A (SUS316L equivalent)
HC316L	Hastelloy C	SUS316L	SCS16A (SUS316L equivalent)

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

Bolt material Sensor body flange bolt : SUS304

Accuracy

●Material Code: HC316, HC316L

Range Code	Accuracy	
200	±0.2% ±[0.1+(0.1×5.4/X)]%	X is 5.4kPa abs. or higher X is less than 5.4kPa abs.
1000	±0.2% ±[0.1+(0.1×13.3/X)]%	X is 13.3kPa abs. or higher X is less than 13.3kPa abs.
6000	±0.2%	

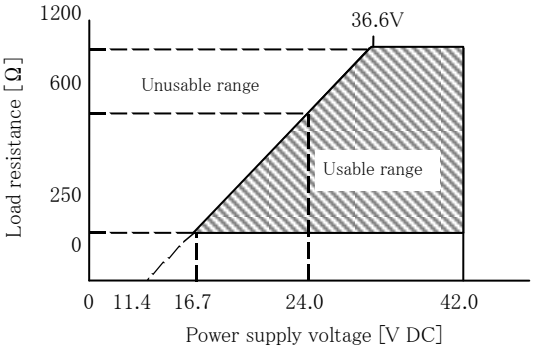
Note)Accuracy is the percentage to the X.
X is the absolute value of URV, LRV or the biggest value of measured span.
X's unit is kPa abs.

Temperature characteristics (at −20 to 60℃)

●Material Code: HC316, HC316L

Range Code	Temperature characteristics		
200	Zero shift	±[0.05+(0.4×T/50)]%	X is 5.4kPa abs. or higher
		±[0.05+(0.25+0.15×5.4/X)×T/50]%	X is less than 5.4kPa abs.
	Total shift	±[0.05+(0.7×T/50)]%	X is 5.4kPa abs. or higher
		±[0.05+(0.55+0.15×5.4/X)×T/50]%	X is less than 5.4kPa abs.
1000	Zero shift	±[0.05+(0.4×T/50)]%	X is 27kPa abs. or higher
		±[0.05+(0.25+0.15×27/X)×T/50]%	X is less than 27kPa abs.
	Total shift	±[0.05+(0.7×T/50)]%	X is 27kPa abs. or higher
		±[0.05+(0.55+0.15×27/X)×T/50]%	X is less than 27kPa abs.
6000	Zero shift	±[0.05+(0.4×T/50)]%	X is 220kPa abs. or higher
		±[0.05+(0.25+0.15×220/X)×T/50]%	X is less than 220kPa abs.
	Total shift	±[0.05+(0.7×T/50)]%	X is 220kPa abs. or higher
		±[0.05+(0.55+0.15×220/X)×T/50]%	X is less than 220kPa abs.

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



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

Fig. 1 Power supply voltage / load resistance characteristics

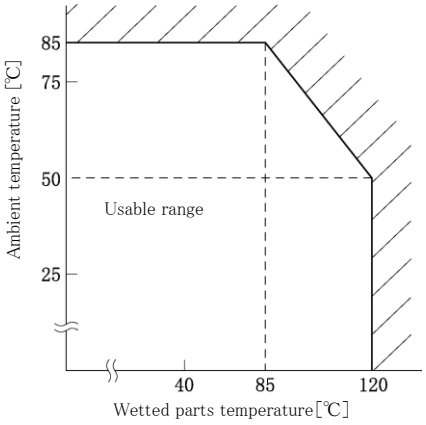


Fig. 2 Wetted parts temperature and ambient temperature

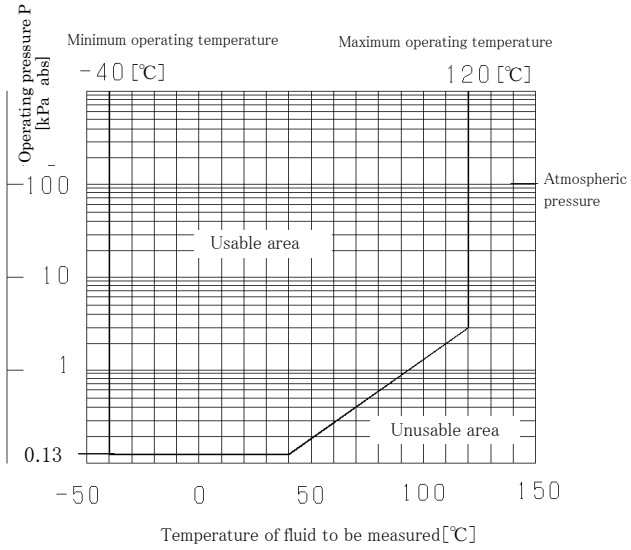
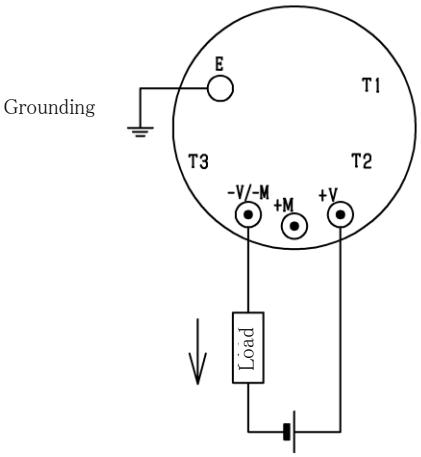


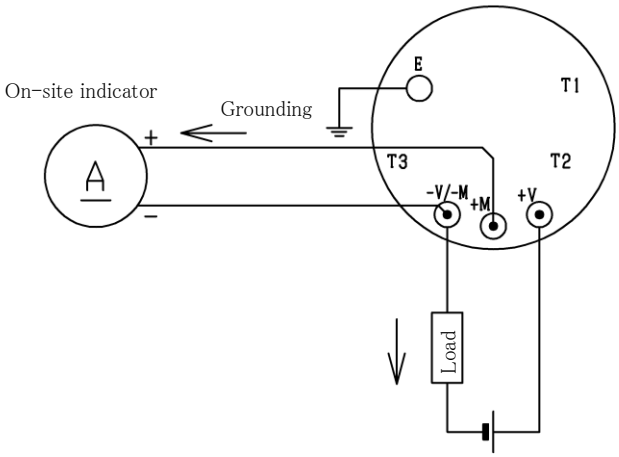
Fig. 3 Operating pressure and wetted parts temperature

EXTERNAL CONNECTION DRAWING

Without on-site indicator



Connected with on-site indicator



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

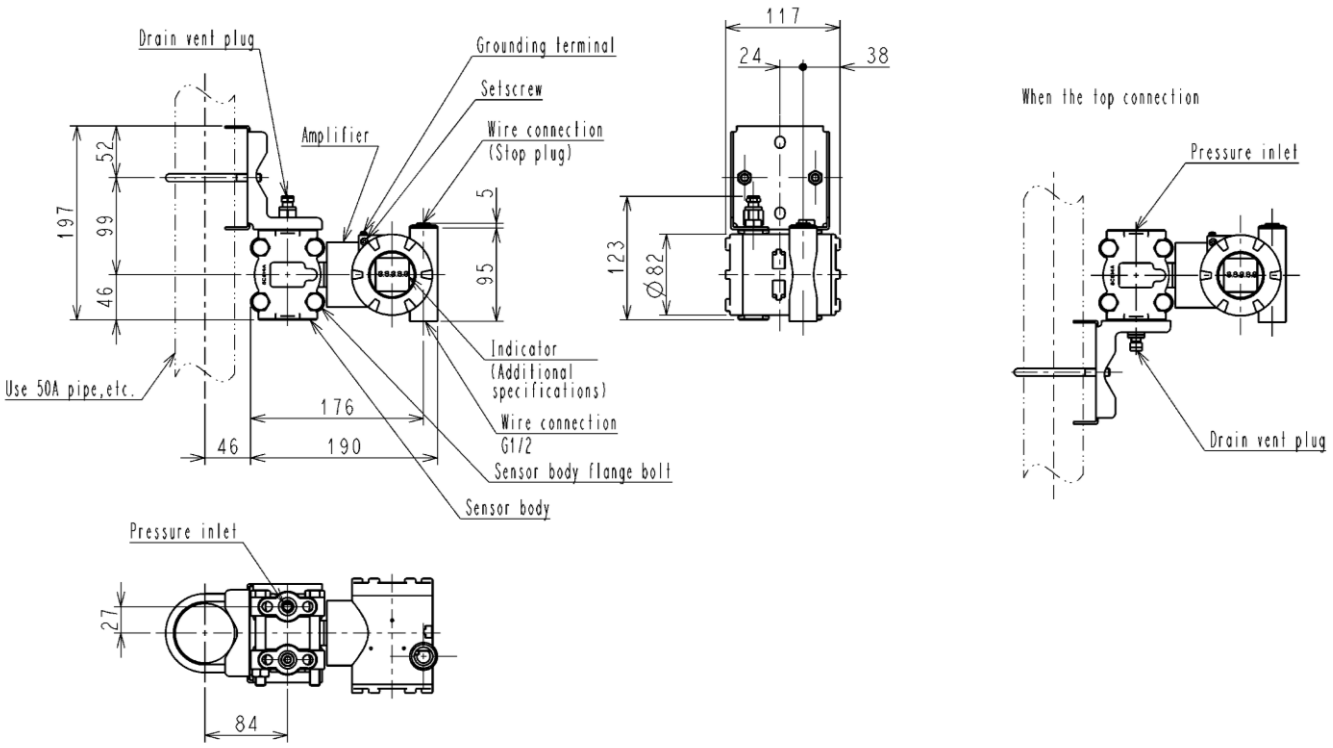
Note2) Ground either the transmitter or the receiving instrument. Be careful not to be dual-grounded.

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 20Ω or less including wire resistance to connect an on-site indicator.

DIMENSIONS (Unit: mm)



CODE TABLES

EDR-N8A Intelligent Absolute Pressure Transmitter

Model			
EDR-N8A			
No.	Item	Code	Remarks
1	Range Code	200	Measuring span 0.53 to 27kPa abs
		1000	Measuring span 6.7 to 133kPa abs
		6000	Measuring span 106.7 to 800kPa abs
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	Material	—	Diaphragm: SUS316L Sensor body : SUS316L Sensor body flange: SCS14A
		316L	Diaphragm: SUS316L Sensor body : SUS316L Sensor body flange: SCS16A
		HC316	Diaphragm: Hastelloy C Sensor body : SUS316L Sensor body flange: SCS14A
		HC316L	Diaphragm: Hastelloy C Sensor body : SUS316L Sensor body flange: SCS16A
8	Bolt/mounting plate material	—	Sensor body flange bolt: SCM435 Mounting plate: SPCC U-bolt: SUS304
		S304	Sensor body flange bolt: SUS304 Mounting plate: SUS304 U-bolt: SUS304
9	Oil prohibition	—	No finish
		NL	Oil prohibitive finish
		NLW	Oil and water prohibitive finish
10	Pressure inlet	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)
		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)

Example of Code description: EDR-N8A-200-XC-M-BR2

●Please read the “Instruction Manual” carefully before use.
●Appearance and specifications are subject to change partially for improvement.