Hitachi High-Tech
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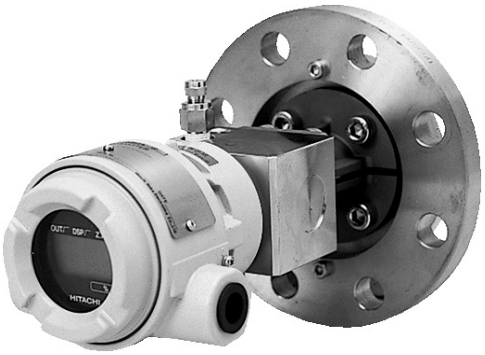
CODE AND SPECIFICATIONS SHEET

Absolute Pressure Transmitter with Flange

EDR-N7AF



EDR-N7AF is intelligent transmitter equipped with semiconductor sensers and micro processors.

STANDARD SPECIICATIONS

Model EDR-N7AF

Pressure range

Range Code	Measuring Span	Settable Range Limits
1000 H1000	13.3 to 133kPa abs.	0≦LRV≦133kPa abs. , 0≦URV≦133kPa abs.
6000 H6000	107 to 800kPa abs.	0≦LRV≦800kPa abs. , 0≦URV≦800kPa abs.

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

Output signal 4 to 20mA DC

Power supply voltage 11.4 to 42.0V DC

Allowable load resistance 600Ω (at 24V DC power supply voltage)

Communication line condition

Power supply voltage 16.7-42.0V DC

Load resistance 250Ω to 1.2kΩ
(Refer to Fig. 1 for the relation between power supply voltage and load resistance)

Accuracy ±0.5%

Zero adjustment Externally adjustable within ± 100% of measurement span.

Accidental burn out Can select any one among burn up, burn down and without burn out.

Dead time Approx. 0.4sec

Damping time constant (Amplifier time constant) Adjustable from to 0.2 to 102.4sec (0.1sec increment) electrically by the DCR of the HART® communicator.

Time constant Transmitter time constant equals sum of damping time constant (amplified time constant) and dead time.

Storage temperature limits -40 to 85℃

Operating humidity limits 5 to 100%RH

Operating temperature limits

Ambient temperature limits -20 to 85℃

Wetted parts temperature limits -20 to 180℃

Working pressure limits upper limit value of settable range limits.
(See Fig.2 for negative pressure working range)

Withstanding pressure 0.98MPa abs.

Site vibration less than 29.4m/s^2 continuous vibration

Influence of ambient temperature ±0.5% of span/50℃
(Zero shift for maximum span)

Influence of liquid contact temperature ±0.05kPa abs. /10℃
(±0.1kPa abs. /10℃ for diameter 50A (2B))

Material

Diaphragm SUS316L
(Diaphragm material shall be selected considering corrosion resistance, hydrogen transmission etc.)

Wetted parts other than diaphragm SUS316

Standard flange SUS304

Amplifier case Aluminum alloy

Filled liquid Silicone oil

Process connection JIS 10K 80A RF
(equivalent flange) wafer type

Flange extension length 0mm (connection diameter 80A)

Electrical connection G1/2

Check terminal With output check terminal (output voltage 40 to 200mV DC)

Certifications Degree of protection JIS C 0920 IP 67

Surge absorber	Built-in transmitter Surge capacity : 1,000A (8/20 μsec) Impulse test voltage : 15,000V (1.2/50 μsec)
Finish	Light gray (acid resistant coating)
Weight	Approx. 9.5kg
Installation	Directly fitted to the tank
Accessories	Zero adjustment magnet

ADDITIONAL SPECIFICATIONS

Communication method HART® protocol

Structure

TIIS Ex explosion proof type
Flameproof
Exdo II CT4
Exdo II CT4X
Note) X is for operating condition (as below)
With meter : Abnormality code is displayed on meter to alert winking, so it is no need to build external alarm display system.
Without meter : it is necessary to build external alarm display system, output exceeds 21mA
Ambient temperature limits : −20 to 55℃
Wetted parts temperature limits: −20 to 100℃
Electrical connection
X-RCAC type pressure resistant packing fixture must be used for using pressure resistant oil filled explosion proof type products. (also applicable to use SXBM-16B made by Shimada Electric Co., Ltd.)

Indicator Digital indicator 4.5figures display (0 to 100% scale standard)
(Can set to arbitrary scale within the range of −17,500 to 17,500)
Scale plates for various units to be sticked are supplied.

Flange standard JIS 20K,ANSI 150,ANSI 300,
JPI 150,JPI 300
Connection diameter 80A(3B),(Extension length 0mm)
100A(4B) (Extension length > 0mm)

Flange extension length 50mm,100mm,150mm

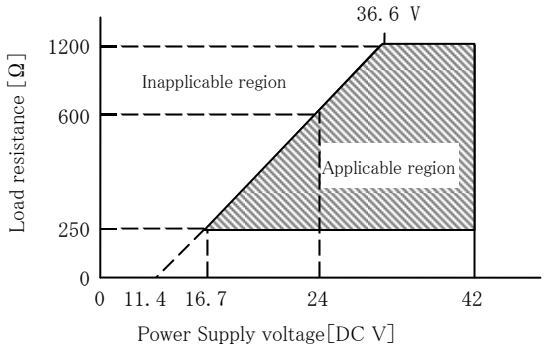
Material for wetted parts

Diaphragm	Wetted Parts Other Than Diaphragm
SUS316L	SUS316L
Hastelloy C	Hastelloy C
Tantalum	Tantalum
SUS316L (with gold plate)	SUS316

Note) Tantalum is available only for 0mm extension length.
※ Material shall be selected considering corrosion resistance. In case hydrogen is present in measuring fluid, it is possible hydrogen transmission can be generated through diaphragm. If corrosion resistance is not so important, we recommend SUS316L or SUS316 + gold plating because hydrogen transmission value of these material is relatively low. (But it is difficult to prevent hydrogen transmission completely even if diaphragm of SUS316L + gold plating is applied)

Wetted parts finish No oil finish or no-oil and no water finish

Replace fitting Metal fittings for renewal of old type Hitachi transmitter are supplied



A minimum load resistance of 250Ω shall be required to communicate by connecting to communicator.

Fig.1 Supply voltage / load resistance property of transmitter

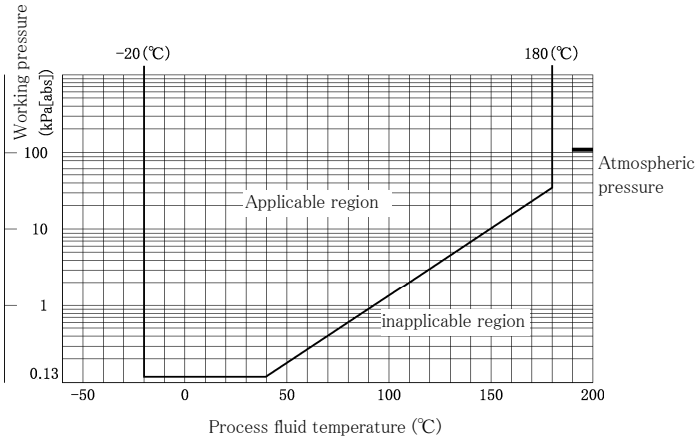
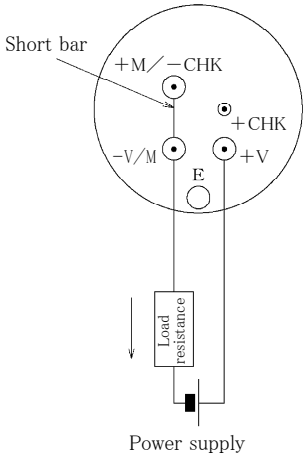


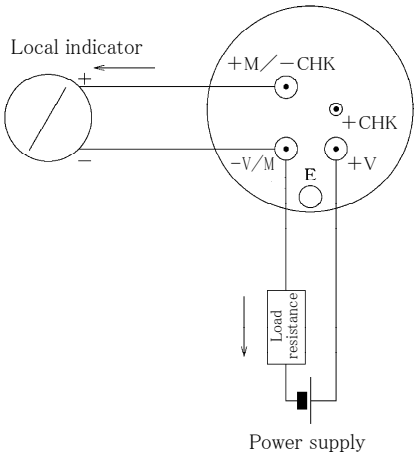
Fig.2 Working pressure and process fluid temperature (Specification for standard or vacumm type)

EXTERNAL CONNECTION

Without local indicator



With local indicator connected



Notes:

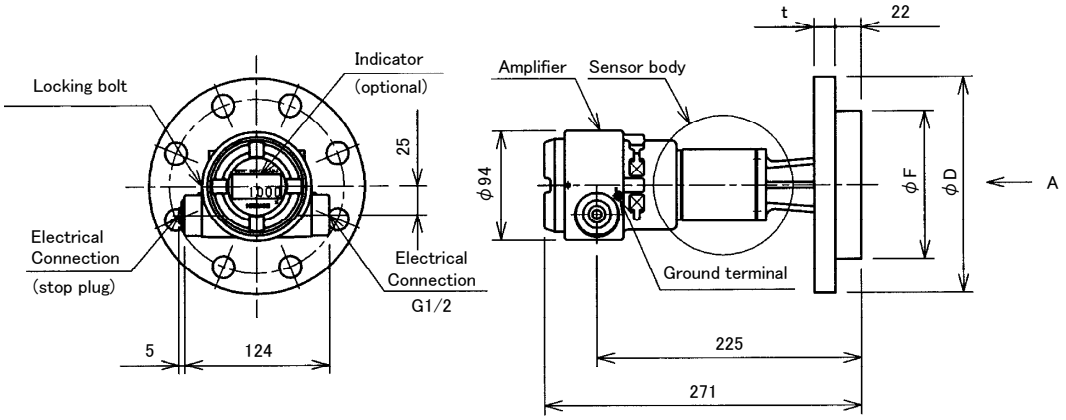
(1) Grounding shall be done according to class D grounding practice (grounding resistance less than 100Ω)

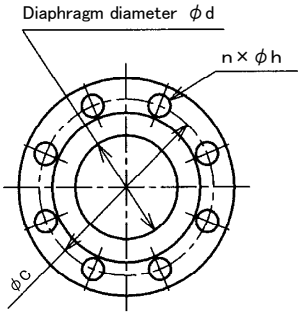
(2) Grounding shall be done at one point either transmitter side or receiver instrument side, Give attention to avoid grounding at two points.

(3) Grounding terminals on transmitter side are furnished inside of terminal box and outside of amplifier case.

DIMENSIONS (Unit : mm)

●Without extension (E0)

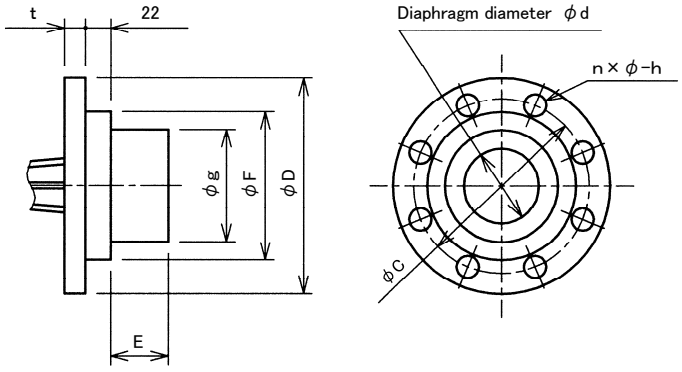




Flange standard (equivalent flange)	ϕD	ϕF	ϕd	ϕC	n×ϕh	t
JIS 10K 50A RF	155	98	64	120	4×19	16
JIS 20K 50A RF	155	98	64	120	8×19	18
JIS 10K 80A RF	185	127	88	150	8×19	18
JIS 20K 80A RF	200	127	88	160	8×23	22
JIS 10K 100A RF	210	154	88	175	8×19	18
JIS 20K 100A RF	225	154	88	185	8×23	24
ANSI 150 2 RF	152	98	64	120.6	4×20	19.5
ANSI 300 2 RF	165	98	64	127	8×20	22.5
ANSI 150 3 RF	191	127	88	152.4	4×20	24
ANSI 300 3 RF	210	127	88	168.3	8×23	29
ANSI 150 4 RF	229	154	88	190.5	8×20	24
ANSI 300 4 RF	254	154	88	200	8×23	32

※JPI flange is the same size as ANSI flange.
※ϕd is for diaphragm material SUS316L

●With extension (E50,E100,E150)



Flange standard (equivalent flange)	ϕd	ϕf	ϕg	ϕd	ϕc	n×ϕh	t
JIS 10K 80A RF	185	127	72	64	150	8×19	18
JIS 20K 80A RF	200	127	72	64	160	8×23	22
JIS 10K 100A RF	210	154	96	88	175	8×19	18
JIS 20K 100A RF	225	154	96	88	185	8×23	24
ANSI 150 3 RF	191	127	72	64	152.4	4×20	24
ANSI 300 3 RF	210	127	72	64	168.3	8×23	29
ANSI 150 4 RF	229	154	96	88	190.5	8×20	24
ANSI 300 4 RF	254	154	96	88	200	8×23	32

※JPI flange is the same size as ANSI flange.
※ϕd is for diaphragm material SUS316L

Length of extension E
50
100
150

CODE TABLES

No. Item	1	5	6	7	2～4,8～13	
Model	Range code	Flange standard	Flange extension	capillary length	Option code	Description
EDR-N7AF						Water-proof, diaphragm material ; SUS316L, wetted parts other than diaphragm ; SUS316, without indicator.
	1000					
	6000					
	H1000					HART® communication type
	H6000					
		80J10				Flange standard ; JIS 10K 80A RF wafer type equivalent flange
			E0			Flange extension length : 0mm
					－□－□	Select a necessary code alone among those in the optional code table below.

Option

No.	item	code		Description
2	Adjustable range	C( )		Enter adjustable range and unit in parenthesis.
3	Certification	XC		HIIS Explosion proof standard approval
		FM		FM explosion proof
4	Indicator	M		With Digital indicator
		MJ( )		With Digital indicator, Industrial unit and scale setting
5	Flange standard	JIS	50J10	JIS 10K 50A RF wafer type equivalent flange (only for E0)
			50J20	JIS 20K 50A RF wafer type equivalent flange (only for E0)
			80J20	JIS 20K 80A RF wafer type equivalent flange
			100J10	JIS 10K 100A RF wafer type equivalent flange
			100J20	JIS 20K 100A RF wafer type equivalent flange
		ANSI	50A150	ANSI 150 2B RF wafer type equivalent flange (only for E0)
			50A300	ANSI 300 2B RF wafer type equivalent flange (only for E0)
			80A150	ANSI 150 3B RF wafer type equivalent flange
			80A300	ANSI 300 3B RF wafer type equivalent flange
			100A150	ANSI 150 4B RF wafer type equivalent flange
			100A300	ANSI 300 4B RF wafer type equivalent flange
		JPI	50JP150	JPI 150 2B RF wafer type equivalent flange (only for E0)
			50JP300	JPI 300 2B RF wafer type equivalent flange (only for E0)
			80JP150	JPI 150 3B RF wafer type equivalent flange
			80JP300	JPI 300 3B RF wafer type equivalent flange
			100JP150	JPI 150 4B RF wafer type equivalent flange
			100JP300	JPI 300 4B RF wafer type equivalent flange
6	Flange extension length	E50		Extension length 50mm
		E100		Extension length 100mm
		E150		Extension length 150mm
7	Material	316L		Diaphragm : SUS316L, Other wetted parts ; SUS316L
		HC		Diaphragm : Hastelloy C, Other wetted parts ; Hard Hastelloy C
		TA		Diaphragm : Tantalum, Other wetted parts ; Tantalum
		AU316		Diaphragm : SUS316L with gold plate, Wetted parts other than diaphragm : SUS316
8	Non-oil	NL		No-oil finish
		NLW		No-oil and dehydrating finish

Note) Please select the material of the diaphragm in consideration of corrosion resistance.
Hastelloy C might generate the hydrogen permeation by the galvanizing steel pipe piping and the water quality, etc., and cause the output shift and the transformation of the diaphragm.
Please select small SUS316L of the hydrogen permeation when there is no problem in corrosion resistance.

●HART® is a registered trademark of the HART Communication Foundation.

●Be sure to read the User's Manual to ensure correct, safe use.

●Some specifications and design are subject to change with or without notice for improvement of quality and performance.

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