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RPI000 Series Smart Pressure Transmitter





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RP1001-A High Performance

Differential Pressure

Transmitter

The High Performance Differential Pressure Transmitter, RP1001-A, is suitable to measure liquid, gas, or steam flow as well as liquid level, density and pressure, and then outputs a 4~20 mADC HART signal output. The RP1001 can also communicate with RS295 modem for specification setting and process monitoring, etc.

STANDARD SPECIFICATIONS

(The adjustment of measuring range is based on the standard zero setting, Stainless Steel 316L diaphragm and silicon oil filling fluid)

1. PERFORMANCE SPECIFICATIONS

Reference Accuracy of Calibrated Span

(Including terminal-based linearity, hysteresis, and repeatability) ± 0.05%

If TD>10 (TD=URL/SPAN), ±(0.005×TD)%

The accuracy of square root output is 1.5 times of above Reference Linear Accuracy.

Ambient Temperature Effects

-25° ~ 65° C: ±(0.075×TD+0.025)%×Span Every 10° C is ±0.04% ×Span (TD=1)

-40° ~ -25° C & 65° ~ 85° C: ±(0.1×TD+0.025)%×Span

Over Range Effects ±0.05%×Span

Static Pressure Effects

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±(0.025%URL+0.05%Span)/ 10MPa

Over pressure Effects ±0.05%×Span /10MPa

Stability ±0.15%URL/ 10 years

Power Supply Effects ±0.001% /10V (12 ~ 36V DC)

Turndown Ratio

1:100

2. FUNCTIONAL SPECIFICATIONS

Span and Range

	ipan/ ange	kPa	inH ₂ O	mbar	mmH₂O
	Span	0.4 ~ 40	1.6 ~ 160	4 ~ 400	40 ~ 4000
C	Ran	-40~40	-160 ~ 160	-400 ~ 400	-4000 ~
	ge	-40 - 40	-100 - 100	-400 ** 400	4000
	Cron	2.5 ~	10 1000	25 2500	0.25 ~
	Span	250	10~1000	25 ~ 2500	25mH₂O
D	Ran	-250~	-1000 ~	-2500 ~	-25 ~
	ge	250	1000	2500	25mH₂O
	Cron	30 ~	120~	0.3 ~	3 ~
F	Span	3000	12000	30 bar	300mH₂O
	Ran	-500~	-2000 ~	-50 ~	-50 ~
	ge	3000	12000	30bar	300mH ₂ O

Range Limit

It can be randomly adjusted within the upper and lower limits of range. It is recommended to select the range code with as low as possible range ratio to optimize the performance.

Zero Setting

Zero Point and range can be adjusted to any value within the measure range in the form as long as Calibrating Span ≥ Maximum Range.

Mounting Position Effects

Rotation in diaphragm plane has no effect. Tilting up to 90° will cause zero shift up to 0.4 kPa (40 mmH2O) which can be corrected by the zero adjustment.

Output

2 wires type, 4 ~ 20mADC HART output, digital communication, linear or square root output can be chosen, HART protocol is added on the 4~20mADC signal.

Output Signal Limit: Imin=3.9mA, Imax=20.5mA

Failure Alarm (the mode can be selected)

Low Mode (min): 3.6 mA High Mode (max): 21 mA No Mode (hold): Keep the effective value before the fault. Note: The standard setting of failure alarm is

Response Time

High Mode.

The amplifier damping constant is 0.1s. The sensor damping constant is 0.1~1.6s. It depends on the range and range compression ratio. Amplifier damping time constant is adjustable from 0.1 to 60s by software and added to the response time.

The effect on nonlinear outputs, such as the square root function, depends on this function and can be calculated accordingly.

Preheat Time

< 15s

Ambient Temperature

-40° ~ 85° C -20° ~ 65° C (with LCD, Fluorine O-ring)

Storage/ Transportation Temperature

-50° ~ 85° C -25° ~ 85° C (with LCD)

Working Pressure

Rated working pressure is 16MPa, 25MPa & 40MPa

Static Pressure Limit

3.5kPa absolute to maximum working pressure. The protect pressure can be more than 1.5 times rated working pressure and added on both sides of the transmitter.

One-way Overload Pressure Limit

The maximum one-way overload pressure is maximum working pressure.

Explosion Proof Performance Intrinsic Safe NEPSI: Ex ia IIC T4 Ga Ta = $-40^{\circ} \sim +60^{\circ}$ C Explosion Proof NEPSI: Ex d IIC T4 ~ T6 Gb Ta = $-40^{\circ} \sim +60^{\circ}$ C Dust Explosion Proof NEPSI: Ex tb IIIC T80°/ T95°/ T130° Db Ta = $-40^{\circ} \sim +60^{\circ}$ C Explosion Proof ATEX/ IECEx II 2 G Ex db IIC T4/T5/T6 Gb Ta: $-40^{\circ} \sim +60^{\circ}$ C Intrinsic Safe ATEX/ IECEx II 2 G Ex ia IIC T4/T5/T6 Ga Ta : $-40^{\circ} \sim +85^{\circ}$ C/ $-40^{\circ} \sim +50^{\circ}$ C/ $-40^{\circ} \sim +40^{\circ}$ C Dust Explosion Proof ATEX/ IECEx: II 2 D Ex tb IIIC T80°/ T90°/ T130° Db Ta: $-40^{\circ} \sim +60^{\circ}$ C

Electromagnetic Compatibility (EMC)

Refer below EMC Performance Table.

Item	Test Items	Basic Standard	Test Conditions	Performing Level
1	Radiated interference (Housing)	GB/T 9254-2008 Table5	30MHz ~ 1000MHz	Qualified
2	Conducted interference (DC power port)	GB/T 9254-2008 Table1	0.15MHz ~ 30MHz	Qualified
3	Electrostatic Discharge (ESD) Immunity	GB/T 17626.2-2006	4kV(Line) 8kV(Air)	В
4	RF electromagnetic field immunity	GB/T 17626.3-2006	10V/m (80MHz ~ 1GHz)	А
5	Frequency magnetic field immunity	GB/T 17626.8-2006	30A/m	А
6	Electrical Fast Transient Burst Immunity	GB/T 17626.4-2008	2kV(5/50ns,5kHz)	В
7	Surge Immunity	GB/T 17626.5-2008	500V (line to line) 1kV(line to ground,1.2us/50us)	В
8	Conducted interference immunity induced by RF field	GB/T 17626.6-2008	3V (150KHz ~ 80MHz)	А

3. INSTALLATION

Supply & Load Requirements

Power Supply is 24V, $R \le (Us-12V)/I_{max} k\Omega$, $I_{max}=23$ mA, Max. Voltage: Limited: 4 5 VDC, Min.Voltage Limited: 9VDC (Low voltage type),13.5VDC (with LCD backlit or OLED display) Overload range of digital communication: 230 ~ 600\Omega

Electrical Connection

The electrical connection is made via cable entry M20x1.5. The screw terminals are suitable for wire cross-sections up to 2.5mm².

Process Connection

Flange with fixing thread 7/16 UNF and 1/4 NPT female thread on both sides.

4. PHYSICAL SPECIFICATIONS

Materials

• Measure Membrane: SS316L

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- Isolating Diaphragm: 316L Stainless Steel
 / Hastelloy C/ Gold plated on 316L/ FEP
 plated on 316L/Tantalum
- Process Flange: SS316L
- Bolts and Nuts: SS316 (A4)
- Process Connection: 316 Stainless Steel
- Fill fluid: Silicone oil/ Fluorinated oil
- Sealing ring: NBR, FKM, PTFE
- Housing: Aluminum with epoxy resin coat, and stainless steel material can be chosen as well
- Housing Gasket: Perbunan (NBR)
- Name plate and tag: Stainless Steel 304

Weight:

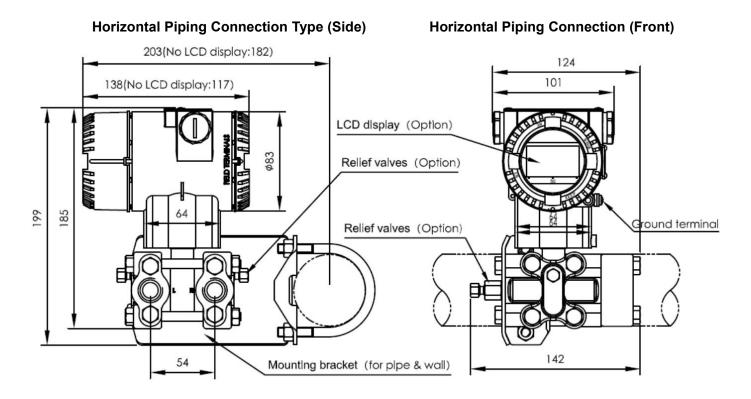
3.3kg (including Aluminum housing, no display, mounting bracket or process connection)

Housing Protection Level:

IP67

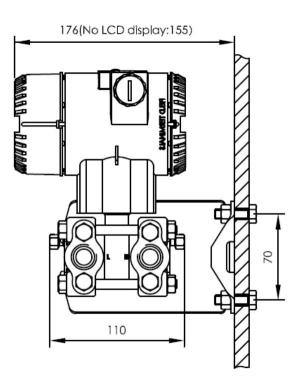
DIMENSIONS

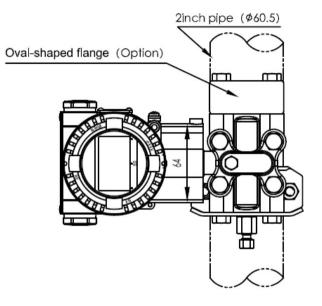
Unit (mm)



Wall Mounting Connection Type

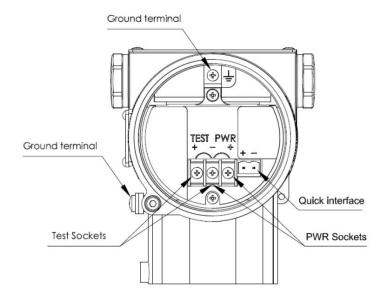
Vertical Piping Connection Type

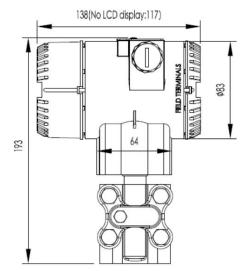




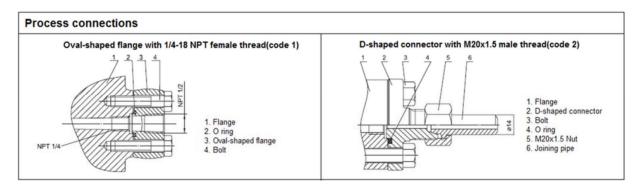
5. Terminal Configuration

6. Vertical mounting flange (Code V)





7. Process connections Description



8. Models and Specifications Code Table

High I	Perfor	manc	e Diffe	erentia	al Pressure Transmitter RP1001-								
10	Αссι	curacy											
	A	Bas	ic Acc	uracy	±0.05%								
20	Spar	1											
		С	0-40	0Pa~	40kPa(0-40~4000 mmH ₂ O)/(0-4~400mbar)								
		D	0-2.5	5kPa ∽	~ 250kPa (0-0.25 ~ 25 mH ₂ O) /(0-25 ~ 2500mbar)								
		F	0-30	kPa∼	3MPa (0-3 ~ 300 mH ₂ O) /(0-0.3 ~ 30bar)								
30	Stati	c Pre	ssure	Sens	or								
			1	40M	Ipa								
40	Diap	hragr	n Fill I	Fluid									
				Α	316L Stainless Steel Silicon oil								
				В	316L Stainless Steel Fluorine oil								
				с	Hastelloy C Silicon oil								

1		D	Hact	elloy (`		_	luorin	o oil	
		E		-		161		Silicon		
			Gold plated on 316L							
		F	Gold plated on 316L FEP plated on 316L			luorin				
		G			a on 3	16L		Silicon		
		T	Tanta	alum			S	Silicon	oil	
50	Rated Workin	ig Press	1							
			1	16M	Pa					
			2	25M	Pa					
			3	42M	Pa					
60	Process Conr	nections	;							
				Ν	7/16	5-20 U	NF ar	nd 1/4	-18 NPT	female thread, No relief valve
				В	7/16	5-20 U	NF ar	nd 1/4	-18 NPT	female thread, Relief valves at end of flanges
				U	7/16	-20 U	NF ar	nd 1/4	-18 NPT	female thread, Relief valves at the upper part of
					the f	flange	side			
				D	7/16	-20 U	NF ar	nd 1/4	-18 NPT	female thread, Relief valve at the lower part of
					the f	flange	side			
				V	Vert	ical m	ountir	ng flar	nge, 7/16	6-20 UNF and 1/4-18 NPT female thread, Relief
					valv	es at t	the up	per pa	art of the	e flange side
70	Process Conr	nection	Gaske	et						
					Ν	Pert	ounan	(NBI	R)	
					F	Vito	n(FKN	/)		
					Р	Teflo	on (P	ΓFE)		
80	Special Funct	tion	1	I						
						N	Non	е		
						F	Squ	are Ro	oot Outp	but
						о				ng treatment (Oxygen measurement must be with
							-			d capsule, Viton (FKM) gasket, <6MPa ,<60 $^\circ$ C
						Р			ing fund	
90	Mounting Bra	icket							0	
							N	Non	е	
							1	Stair	nless ste	eel
							2	Cart	on stee	l galvanized
100	Process Conr	nector A	ccess	sory						
								N	None	
								1		ess steel oval-shaped flange with 1/2 NPT female thread
								2	Stainle	ess steel D-shaped connector with M20x1.5 male thread
110	Integral Indica	ator								
									N I	None
									2 [LCD backlit display (-20 [°] C)
									3 (OLED display (-40 [°] C)
120	Explosion Pro	oof Opti	ons							
										N None
										A Intrinsically safe, NEPSI
										D Explosion proof, NEPSI
			1							

												B E			-	, ATEX
130	Tag	Name	Plate	 !	1	1	1	1	1	1			•			
													Ν	Nor	e	
													1	Pos	ition n	umber marked on the nameplate
													2	Har	iging s	stainless steel plate
140	Man	ual														
														С	Chin	ese
														Е	Engl	lish
150	Addi	tiona	Optio	ons (-)											
															s	Stainless Steel Housing
															V	Low Voltage Type
															Т	Electrical Connection NPT1/2 (No
																cable introduction device and
																blind plug)

Example: RP1001-AC1A1BNF112N1C-SV

- [A]: Basic accuracy ±0.05%
- [C]: The range is 0-400Pa ~ 40kPa (0-40 ~ 4000 mmH2O)
- [1]: Static pressure sensor is 40MPa
- [A]: The wetted part is stainless steel 316L diaphragm, and the filling liquid is silicone oil.
- [1]: Rated working pressure is 16MPa
- [B]: 1/4" NPT process connection interface, 7/16" UNF threaded mounting hole, bleed valve mounted to the rear end of
- the flange
- [N]: The wetted seal is Perbunan rubber (NBR)
- [F]: square root output
- [1]: Stainless steel mounting bracket
- [1]: with 1/2 inch NPT internal thread stainless steel oval flange
- [2]: LCD backlight LCD display
- [N]: Basic type (no explosion proof options)
- [1]: The number is marked on the nameplate
- [C]: Chinese manual
- [-SV]: Stainless steel housing, low voltage version

RP1002-A High Performance GaugePressure TransmitterRP1003-A High PerformanceAbsolute Pressure Transmitter

The Gauge/ Absolute Pressure Transmitter RP1002/3-A is suitable to measure liquid, gas, or steam flow as well as liquid level, density and pressure and then output a 4~20 mADC HART signal. The RP1002/3-A can also communicate with RS295 modem for specification setting and process monitoring, etc.

STANDARD SPECIFICATIONS

(The adjustment of measuring range is based on the standard zero setting, Stainless Steel 316L diaphragm and silicon oil filling fluid.)

1. PERFORMANCE SPECIFICATIONS Reference Accuracy of Calibrated Span

(Including terminal-based linearity, hysteresis, and repeatability) ± 0.05% If TD>10 (TD=URL/SPAN), ±(0.005×TD)%

Ambient Temperature Effects

-25° ~ 65° C: ±(0.075×TD+0.025)%×Span Every 10° C is ±0.04% ×Span (TD=1) -40° ~ -25° C & 65° ~ 85° C: ±(0.1×TD+0.025)%×Span

Over Range Effects

±0.05%×Span

Stability ±0.15%URL/10 years

Power Supply Effects

±0.001% /10V (12 ~ 36V DC)



2. FUNCTIONAL SPECIFICATIONS

Range Limit Span and Range (RP1002-A)

	Span/ Range	kPa	psi	bar	kgf/cm ²	
		0 40	0.29 ~	0.02 ~	0.02 ~	
	span	2 ~ 40	5.8	0.4	0.4	
С	rango	-40 ~ 40	-5.8 ~ 5.8	-0.4 ~	-0.4 ~	
	range	-40 ~ 40	-5.6 ~ 5.6	0.4	0.4	
	onon	2.5 ~ 250	0.3625 ~	0.025	0.025 ~	
	span	2.5~250	36.25	~ 2.5	2.5	
D		100 250	-14.5 ~	-1 ~ 2.5	-1~2.5	
	range	-100 ~ 250	36.25	-1~2.5	-1~2.5	
		30 ~ 3000	4.35 ~	0.3 ~	0.3 ~	
-	span	435		30	30	
F		-100 ~ 3000	-14.5 ~	-1 ~ 30	-1 ~ 30	
	range	-100 ~ 3000	435	-1~30	-1~ 30	
		0.1 ~ 10MPa	14.5 ~	1 ~ 100	1 ~ 100	
	span		1450	1~100	1~100	
G		0.1 10MDa	-14.5 ~	-1 ~	-1 ~ 100	
	range	-0.1 ~ 10MPa	1450	100	-1~100	
		0.21 ~ 21	30.45 ~	2.1 ~	2.1 ~	
	span	MPa	3045	210	210	
Н	TO F S S	-0.1 ~ 21	-14.5 ~	-1 ~	-1 ~ 210	
	range	MPa	8000	210	-1~210	
		0.4 ~ 40 MPa	58 ~	4 ~	4 ~	
	span	0.4 ~ 40 IVIPa	5800	400	400	
1	range	-0.1 ~ 40	-14.5 ~	-1~	-1 ~	
	range	MPa	5800	400	400	

	Span/	kDe.		han	karf/ana2
	Range	kPa	psi	bar	kgf/cm ²
	Span	10 ~	1.4503 ~	0.1~2.5	0.1~2.5
м	Span	250	36.25	0.1 2.0	0.1 2.5
	Range	0 ~ 250	0 ~ 36.25	0~2.5	0~2.5
	Span	30 ~	-4.35 ~ 435	0.3 ~	0.3 ~
0	Opan	3000	-4.00 400	30	30
	Range	0 ~	0~435	0 ~ 30	0~30
	range	3000		0.00	0.00

Span and Range (RP1003-A)

It can be randomly adjusted within the upper and lower limit of range. It is recommended + to select the range code with as low as possible range ratio to optimize the performance.

Zero Setting

Zero Point and range can be adjusted to any value within the measure range in the form as long as: Calibrating Span ≥ Maximum Range

Mounting Position Effects

Rotation in diaphragm plane has no effect. Tilting up to 90° will cause zero shift up to 0.25kPa which can be corrected by the zero adjustment. Other ranges have <0.15 kPa range of zero influence which can be adjusted by zero adjustment correction. No range effect.

Output

2 wire type, 4 ~ 20mADC HART output, digital communication, linear or square root output can be chosen, HART protocol is added on the 4~20mADC signal. Output Signal Limit: Imin=3.9mA, Imax=20.5mA

Failure Alarm (Mode Can Be Selected)

Low Mode (min): 3.6 mA

High Mode (max): 21 mA

No Mode (hold): Keep the effective value before the fault.

Note: The standard setting of failure alarm is High Mode.

Responding Time

The amplifier damping constant is 0.1 sec; The sensor damping constant is 0.1~1.6 sec, it depends on the range and range compression ratio. Amplifier damping time constant is adjustable from 0.1 to 60 sec by software and added to response time.

Preheat Time

< 15s

Ambient Temperature

-40° $\sim 85^\circ$ C -20° $\sim 65^\circ$ C (with LCD, Fluorine O-ring)

Storage/ Transportation Temperature

-50° ~ 85° C -25° ~ 85° C (with LCD display)

Pressure Limit

From vacuum to upper range limits

Overload Limit

Span	40kPa	250kPa	3MPa	
	(C)	(D/M)	(F/O)	
Overload	1MPa	4MPa	15MPa	
Limit	пига	4імга	TOIVIFa	
Span	10MPa(G)	21MPa(H)	40MPa(I)	
Overload	20MPa	50MPa	50MPa	
Limit	ZUIVIFa	JUMPa	JUMPa	

Electromagnetic Compatibility(EMC)

See below EMC Performance Table.

Explosion Proof Performance

- Intrinsically Safe NEPSI: Ex ia IIC T4 Ga Ta = -40° ~ +60° C
- Explosion Proof NEPSI: Ex d IIC T4 ~ T6 Gb Ta = -40° ~ +60° C
- Dust Explosion Proof NEPSI : Ex tb IIIC T80°/ T95°/ T130° Db Ta = -40 ~ +60° C
- Explosion Proof ATEX/ IECEx II 2 G Ex db IIC T4/T5/T6 Gb Ta = -40° ~ +60° C
- Intrinsically Safe ATEX/ IECEX II 2 G Ex ia IIC T4/T5/T6 Ga Ta = -40° ~ +85° C/ -40° ~ +50°/ -40° ~ +40° C
- Dust Explosion Proof ATEX/ IECEx: II 2 D Ex tb IIIC T80°/ T90°/ T130° Db Ta = -40° ~ +60° C

3. INSTALLATION

Supply & Load Requirements

Power Supply is 24VDC, R≤ (Us-12V)/I_{max} kΩ, I_{max} = 23 mA

Max. Voltage Limit: 4 5 VDC

Min. Voltage Limited: 9VDC (Low voltage type), 13.5VDC (with LCD backlit or OLED display) Overload range of digital communication: 230 \sim 600 Ω .

Electrical Connection

The electrical connection is made via cable entry M20x1.5. The screw terminals are suitable for wire cross-sections up to 2.5mm2.

Process Connection

Standard NPT¹/₂ Female Thread. It can be transfered to NPT ¹/₂, G1/2 and M20x1.5 Male Thread, KF16 Vacuum connectors.

4. PHYSICAL SPECIFICATIONS

Materials

- Isolating Diaphragm: 316L Stainless Steel / Hastelloy C
- Process Connection: Stainless Steel 316
- Fill fluid: Silicone oil/ Fluorinated oil
- Housing: Aluminum with epoxy resin coat and stainless steel material can be chosen as well
- Housing Gasket: Perbunan (NBR)
- Name plate and tag: Stainless Steel 304

Weight

1.6kg (including Aluminum housing, without display, mounting bracket or process connection)

Housing Protection Level:

IP67

Sr.	Test Items	Basic Standard	Test Conditions	Performan	
No.				ce Level	
1	Radiated Interference (Housing)	GB/T 9254-2008	30MHz ~ 1000MHz	Qualified	
		Table5		Quannou	
2	Conducted Interference	GB/T 9254-2008	0.15MHz ~ 30MHz	Qualified	
2	(DC power port)	Table1	0.150012 500012	Quaimeu	
	Electrostatic Discharge (ESD)	OD/T 47000 0 0000	4kV(Line)	P	
3	Immunity	GB/T 17626.2-2006	8kV(Air)	В	
4	RF Electromagnetic Field	GB/T 17626.3-2006	10V/m (80MHz ~ 1GHz)	А	
4	Immunity	GD/1 1/020.3-2000		~	
5	Frequency Magnetic Field	GB/T 17626.8-2006	30A/m	А	
5	Immunity	GD/1 17020.0-2000	30A/III	A	
6	Electrical Fast Transient Burst	GB/T 17626.4-2008	2k/(5/50mc, 5kHz)	В	
0	Immunity	GB/1 1/020.4-2000	2kV(5/50ns, 5kHz)	D	
7	Surgo Immunity	GB/T 17626.5-2008	500V (line to line 1kV (line to	В	
/	Surge Immunity	GD/1 1/020.3-2008	ground, 1.2us/50us)	D	
8	Conducted Interference	GB/T 17626.6-2008	3V (150KHz ~ 80MHz)	А	
0	Immunity induced by RF field	GD/1 1/020.0-2008		A	
0	Immunity induced by RF field	GD/1 1/020.0-2008		A	

EMC Performance Table

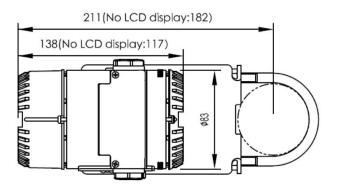
Note:

- (1) Performance level A description: The technical specifications within the limits of normal performance.
- (2) Performance level B description: Temporary reduction or loss of functionality or performance. It can restore itself. The actual operating conditions, storage and data will not be changed.

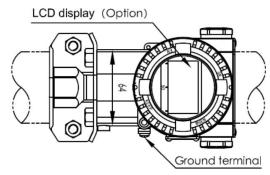
DIMENSIONS

Unit (mm)

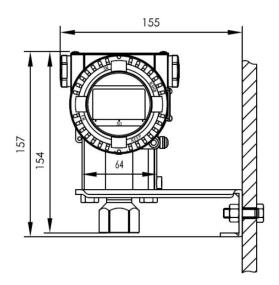
Horizontal Piping Connection Type(Side)



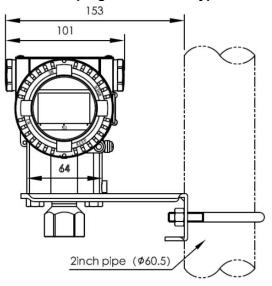
Horizontal Piping Connection (Front)



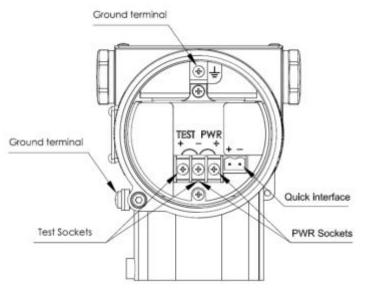
Wall Mounting Connection Type



Vertical Piping Connection Type



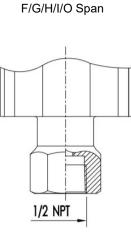
5. Terminal Configuration

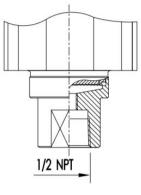


Note: Quick interface functionally equivalent to the signal terminal

6. Process connections Description (Code 1)

6.1 Default Process Connection (Code 1)

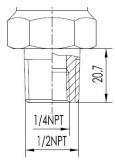


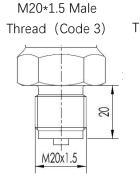


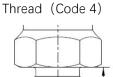
C/S/D/M Span

6.2 Other forms of Process connector

1/2" NPT Male Thread (Code2)







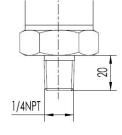
L

G1/2

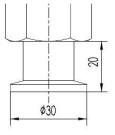
3

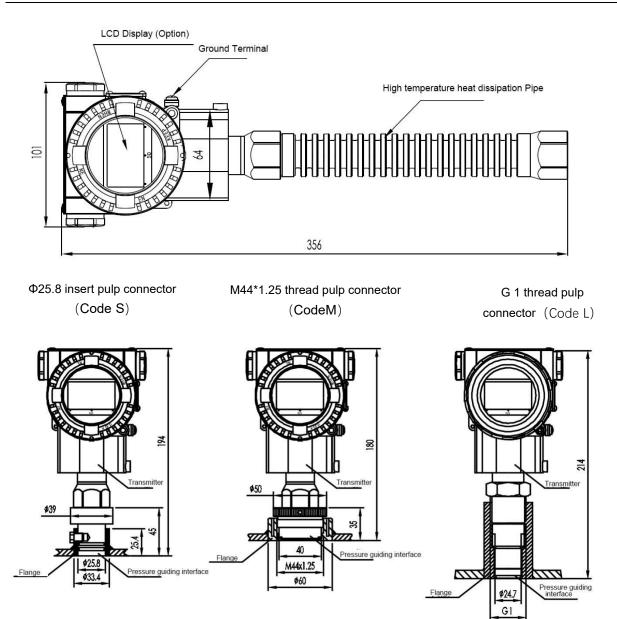
G 1/2 Male

1/4"NPT Male Thread (Code 6)



Vacuum connector DIN 28403 KF16 /ISO 2861 (Code 5)





7. Models and Specifications Code Table

High	Per	form	ance Gauge Pressure Transmitter RP1002-					
High	High Performance Absolute Pressure Transmitter RP1003-							
10	Acc	curac	х у					
	А	Bas	sic Accuracy ±0.05%					
20	Spa	n ^[1]						
		Gau	uge Pressure RP1002					
		С	0-2kPa ~ 40kPa / $(0-200 \sim 4000 \text{ mmH}_2\text{O})$ /(0-20 ~ 400mbar)					
		D	0-2.5kPa ~ 250kPa / (0-0.25 ~ 25 mH ₂ O) /(0-25 ~ 2500mbar)					
		F	0-30kPa ~ 3MPa / (0-3 ~ 300 mH ₂ O) /(0-0.3 ~ 30bar)					
		G	0-0.1MPa ~ 10MPa /(0-1 ~ 100bar)					
		Н	0-0.21MPa ~ 21MPa / (0-2.1 ~ 210 bar)					
		Ι	0-0.4MPa ~ 40MPa / (0-4 ~ 400 bar)					

Absolute Pressure RP1003 M 0-10kPa ~ 250kPa /(0-1000 ~ 2500mbar) O 0-30kPa ~ 3MPa /(0-0.3 ~ 30bar) 30 Diaphragee Fill Fluid A 316L Stainless Steel Silicon oil B 316L Stainless Steel Fluorine oil C Hastelloy C Silicon oil D Hastelloy C Fluorine oil E Gold plated on 316L Silicon oil F Gold plated on 316L Silicon oil T Tantalum Silicon oil 40 Process constructors Vertication of the second o	
0 0-30kPa ~ 3MPa / (0-0.3 ~ 30bar) 30 Diaphragm Fill Fluid 4 316L Stainless Steel Silicon oil 8 316L Stainless Steel Fluorine oil C Hastelloy C Silicon oil D Hastelloy C Silicon oil D Hastelloy C Fluorine oil E Gold plated on 316L Silicon oil F Gold plated on 316L Fluorine oil T Tantalum Silicon oil 40 Process Consections Image: 1 mage: 1/2"NPT Female Thread 2 1/2"NPT Male Thread (Containing 1/4-NPT female thread)	
30 Diaphragm Fill Fluid 30 A 316L Stainless Steel Silicon oil B 316L Stainless Steel Fluorine oil C Hastelloy C Silicon oil D Hastelloy C Fluorine oil E Gold plated on 316L Silicon oil F Gold plated on 316L Fluorine oil T Tantalum Silicon oil 40 Process	
A 316L Stainless Steel Silicon oil B 316L Stainless Steel Fluorine oil C Hastelloy C Silicon oil D Hastelloy C Fluorine oil E Gold plated on 316L Silicon oil F Gold plated on 316L Silicon oil T Tantalum Silicon oil 40 Process Constructions I 1 1/2"NPT Female Thread 2 1/2"NPT Male Thread (Containing 1/4-NPT female thread)	
40 Process 316L Stainless Steel Fluorine oil 40 Process Gold plated on 316L Silicon oil 40 Process 1 1/2"NPT Female Thread 40 Process 1 1/2"NPT Male Thread (Containing 1/4-NPT female thread)	
A C Hastelloy C Silicon oil D Hastelloy C Fluorine oil E $Gold$ plated on 316L Silicon oil F $Gold$ plated on 316L Fluorine oil T Tantalum Silicon oil 40 Process Construction F A	
A B A	
40 Process Cold plated on 316L Silicon oil 40 Process Cold plated on 316L Fluorine oil 40 Process Cold plated on 316L Silicon oil 40 I 1/2"NPT Female Thread Image: Silicon oil 41 1/2"NPT Male Thread (Containing 1/4-NPT female thread) Image: Silicon oil	
40 Process Connections 40 Process Connections 40 Process Connections 40 1 40 1/2"NPT Female Thread 2 1/2"NPT Male Thread (Containing 1/4-NPT female thread)	
Image: Addition of the system of the syst	
40 Process Connections 1 1/2"NPT Female Thread 2 1/2"NPT Male Thread (Containing 1/4-NPT female thread)	
1 1/2"NPT Female Thread 2 1/2"NPT Male Thread (Containing 1/4-NPT female thread)	
2 1/2"NPT Male Thread (Containing 1/4-NPT female thread)	
3 M20x1.5 Male Thread	
4 G 1/2 Male Thread	
5 Vacuum Connector DIN 28403 KF16 / ISO 2861 ^[2]	
6 1/4"NPT Male Thread	
7 1/4"NPT Female Thread	
9 High temperature heat dissipation interface, 1/2"NPT Female Thread	
L G 1 threaded pulp interface seal device	
M M44*1.25 threaded pulp interface sealing device	
S Φ25.8 insert pulp interface sealing device	
50 Special Function	
N None	
O Degrease cleansing treatment (Oxygen measurement must be with	
fluorinated oil filled capsule, Viton (FKM) gasket, <6MPa ,<60 °C)	
P Anti-lightning function	
60 Mounting Bracket	
N None	
1 Stainless Steel	
2 Carbon Steel Galvanized	
70 Integral Indicator	
N None	
2 LCD backlit display (-20°C)	
3 OLED display (-40° C)	
80 Explosion Proof Options	
A Intrinsically safe, NEPSI	
D Explosion proof, NEPSI	
B Intrinsically safe ,ATEX	
E Explosion proof, ATEX	
90 Tag Plate	
N None	

									1 2	Position number marked on the nameplate Hanging stainless steel plate					
100	100 Manual														
										C Chinese					
										E English					
110	Add	ditior	nal C	ptio	ns ^[3]	(-)									
											S Stainless Steel Housing				
											V Low Voltage Type				
											T Electrical Connection NPT1/2 (No cable				
											introduction device and blind plug)				

Note 1: RP1002 corresponds to the selected gauge pressure range code and RP1003 corresponds to the absolute pressure range codes.

Note 2: Vacuum interface DIN 28403 KF16 / ISO 2861 is only for the ranges less than 2.5 bar.

Note 3: The optional N/ F/ P item is only applicable to the range **S** transmitter. It requires selecting the appropriate sealing material according to the measuring medium. The standard specification is NBR. The option **S** can be applied to all specifications of pressure transmitter.

Example: RP1002-ACA1P12N1C-SV

[RP1002-]: Gauge Pressure Transmitter

- [A]: Basic error ±0.05%
- [C]: The range is 0-2kPa ~ 40kPa / (0-200 ~ 4000 mmH2O)/(0-20 ~ 400mbar)
- [A]: The wetted part is stainless steel 316L diaphragm, and the filling liquid is silicone oil.
- [1]: Process connection interface for 1/2" NPT internal thread
- [P]: With lightning protection
- [1]: Stainless Steel mounting bracket
- [2]: LCD backlight display
- [N]: Basic type (non-explosion-proof transmitter)
- [1]: The number is marked on the nameplate
- [C]: English instruction manual
- [-SV]: Stainless steel housing, low voltage version

RP1001-B Differential Pressure Transmitter RP1001-C Differential Pressure Transmitter

The Differential Pressure Transmitter RP1001-B/C is suitable to measure liquid, gas, or steam flow as well as liquid level, density and pressure, and then output a 4~20 mADC The RP1001 HART signal. can also communicate with RS295 modem for specification setting and process monitoring, etc.

STANDARD SPECIFICATIONS

(The adjustment of measuring range is based on the standard zero setting, stainless steel 316L diaphragm and silicon oil filling fluid)

1. PERFORMANCE SPECIFICATIONS

Reference Accuracy of Calibrated Span

(Including terminal-based linearity, hysteresis, and repeatability) RP1001-B: ± 0.075% RP1001-C: ± 0.1%

 If TD>10 (TD=URL/SPAN), RP1001-B: ±(0.0075×TD)%
 RP1001-C: ±(0.01×TD)%

For Range B:
 If TD>6 (TD=URL/SPAN),
 RP1001-B: ±(0.0125×TD)%
 RP1001-C: ±(0.0166×TD)%

The accuracy of square root output is 1.5 times of above reference linear accuracy.

Ambient Temperature Effects

-25° ~ 65° C ±(0.15×TD+0.05)%×Span Every 10° C is ±0.08% × Span (TD=1) -40° ~ -25° and 65° ~ 85° C: ±(0.2×TD+0.05)%×Span



Over Range Effects

±0.075%×Span

Static Pressure Effects

Reference accuracy :±0.075%

- SPAN B = ±(0.35%URL+0.05%SPAN)/10MPa
- SPANC&D&F = ±(0.075%URL+0.05%SPAN)/10MPa Reference accuracy :±0.01%
- SPAN B = ±(0.45%URL+0.05%SPAN)/10MPa
- SPANC&D&F = ±(0.25%URL+0.05%SPAN)/10MPa

Over Pressure Effects

±0.1%×Span/ 10MPa

Stability ±0.15%URL/ 10 years

Power Effects ±0.001% /10V (12 ~ 36V DC)

2. FUNCTIONAL SPECIFICATIONS

Span and Range

Span/	kPa	inH₂O	mbar	mmH ₂ O
Range	КГА		mbai	

В	Sp an	0.2 ~ 6	0.8 ~ 24	2 ~ 60	20 ~ 600
D	Ra ng e	-6~6	-24 ~ 24	-60 ~ 60	-600 ~ 600
6	Sp an	0.4 ~ 40	1.6 ~ 160	4 ~ 400	40 ~ 4000
С	Ra ng e	-40 ~ 40	-160~ 160	-400 ~ 400	-4000 ~ 4000
	Sp an	2.5 ~ 250	10 ~ 1000	25 ~ 2500	0.25 ~ 25mH₂O
D	Ra ng e	-250 ~ 250	-1000 ~ 1000	-2500 ~ 2500	-25 ~ 25mH₂O
F	Sp an	30 ~ 3000	120 ~ 12000	0.3 ~ 30 bar	3 ~ 300mH₂ O
Γ	Ra ng e	-500 ~ 3000	-2000 ~ 12000	-50 ~ 30bar	-50 ~ 300mH ₂ O

Range Limit

It can be randomly adjusted within the upper and lower limit of range. It is recommended to select the range code with as low as possible range ratio to optimize the performance.

Zero Setting

Zero Point and range can be adjusted to any value within the measure range in the form as long as Calibrating Span ≥ Maximum Range.

Mounting Position Effects

Rotation in diaphragm plane has no effect. Tilting up to 90° will cause zero shift up to 0.4 kPa (40 mmH2O) which can be corrected by the zero adjustment.

Output

2 wire type, 4 ~ 20mADC HART output, digital

communication, linear or square root output can be chosen, HART protocol is added on the 4~20mADC signal.

Output Signal Limit: I_{min}= 3.9mA, I_{max} = 20.5mA

Failure Alarm (Mode can be selected)

Low Mode (min): 3.6 mA

High Mode (max): 21 mA

No Mode (hold): Keep the effective value before the fault. Note: The standard setting of failure alarm is High Mode.

Response Time

The amplifier damping constant is 0.1 sec. The sensor damping constant is 0.1~1.6 sec, it depends on the range and range compression ratio. Amplifier damping time constant is adjustable from 0.1 to 60 sec by software and added to response time.

Preheat Time

< 15s

Ambient Temperature

-40° ~ 85° C -20° ~ 65° $\,$ C (with LCD, Fluorine O-ring)

Storage/ Transportation Temperature

-50° ~ 85° C -25° ~ 85° C (with LCD display)

Working Pressure (Silicon Oil)

Rated working pressure options are 16MPa, 25MPa & 40MPa

Static Pressure Limit

3.5kPa absolute to maximum working pressure. The protect pressure can be more than 1.5 times rated working pressure and added on both side of the transmitter.

One-way Overload Pressure Limit

The maximum one-way overload pressure is maximum working pressure.

One-way Overload Pressure Limit

The maximum one-way overload pressure is maximum working pressure.

Electromagnetic Compatibility (EMC)

See below EMC Performance Table.

Explosion Proof Performance

- Intrinsically Safe NEPSI: Ex ia IIC T4 Ga Ta = -40° ~ +60° C
- Explosion Proof NEPSI: Ex d IIC T4 ~ T6 Gb Ta = -40° ~ +60° C
- Dust Explosion Proof NEPSI: Ex tb IIIC T80°/T95°/T130° Db Ta = -40° ~ +60° C
- Explosion Proof ATEX/ IECEx II 2 G Ex db IIC T4/ T5/ T6 Gb Ta = -40° ~ +60° C
- Intrinsically Safe ATEX/ IECEx II 2 G Ex ia IIC T4/ T5/ T6 Ga Ta: -40° ~ +85° C/ -40° ~ +50°C/ -40° ~ +40° C
- Dust Explosion Proof ATEX/ IECEx: II 2 D Ex tb IIIC T80°/T90°/T130° Db Ta = -40° ~ +60°

3. INSTALLATION

Supply & Load Requirements

Power Supply Requirement is 24VDC, R \leq (Us-12V)/I_{max} k Ω , I_{max}=23 mA Max. Voltage: Limited: 4 5 VDC, Min. Voltage Limited : 9VDC (Low voltage type), 13.5VDC (with LCD backlit or OLED display) Overload range of digital communication: 230 ~ 600 Ω

Electrical Connection

The electrical connection is made via cable entry M20x1.5. The screw terminals are suitable for wire cross-sections 0.5~2.5mm2.

Process Connection

Flange with fixing thread 7/16 UNF and 1/4 NPT female thread on both sides.

4. PHYSICAL SPECIFICATIONS

Materials

- Measure Membrane: SS316L
- Isolating Diaphragm: 316L Stainless Steel / Hastelloy C/ Gold plated on 316L/ FEP plated on 316L/ Tantalum
- Process Flange: SS316L
- Process Connection: 316 Stainless Steel
- Bolts and Nuts: SS316 (A4)
- Fill Fluid: Silicone oil/ Fluorinated oil
- Sealing Ring: NBR, FKM, PTFE
- Housing: Aluminum with epoxy resin coat and Stainless Steel material can be chosen as well
- Housing Gasket: Perbunan (NBR)
- Name Plate and Tag: 304 Stainless Steel

Weight

3.3kg (including Aluminum housing, without display, mounting bracket and process connection)

Housing Protection Level

IP67

EMC Performance Table	
-----------------------	--

Sr. No.	Test Items	Basic Standard	Test Conditions	Performan ce Level
1	Radiated Interference (Housing)	GB/T 9254-2008 Table5	30MHz ~ 1000MHz	Qualified
2	Conducted Interference (DC Power Port)	GB/T 9254-2008 Table1	0.15MHz ~ 30MHz	Qualified
3	Electrostatic Discharge (ESD) Immunity	GB/T 17626.2-2006	4kV(Line) 8kV(Air)	В
4	RF Electromagnetic Field Immunity	GB/T 17626.3-2006	10V/m (80MHz ~ 1GHz)	А
5	Frequency Magnetic Field Immunity	GB/T 17626.8-2006	30A/m	А
6	Electrical Fast Transient Burst Immunity	GB/T 17626.4-2008	2kV(5/50ns, 5kHz)	В
7	Surge Immunity	GB/T 17626.5-2008	500V (Line to line), 1kV (line to ground), 1.2us/50us)	В
8	Conducted Interference Immunity induced by RF field	GB/T 17626.6-2008	3V (150KHz ~ 80MHz)	A

Note:

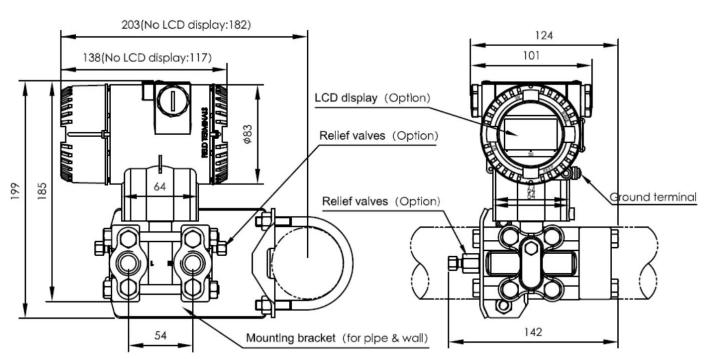
(1) Performance level A description: The technical specifications within the limits of normal performance.

(2) Performance level B description: Temporary reduction or loss of functionality or performance, it can restore itself. The actual operating conditions, storage, and data will not be changed.

Horizontal Piping Connection (Front)

DIMENSIONS

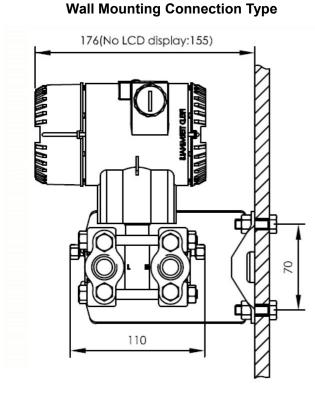
Unit (mm)



Horizontal Piping Connection Type (Side)

Vertical Piping Connection Type

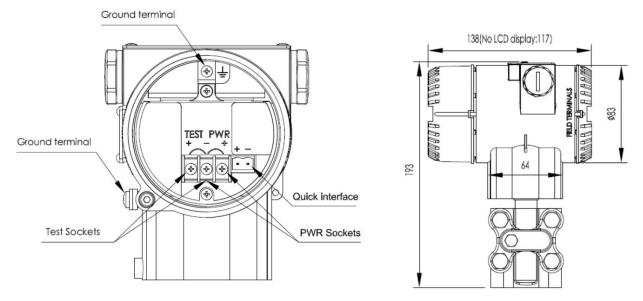
2inch pipe (\$60.5)



Oval-shaped flange (Option)

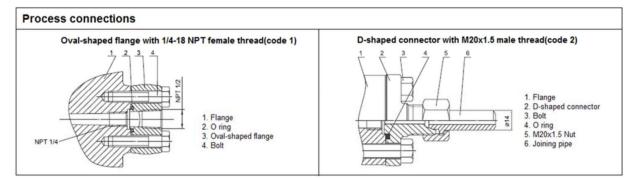
5. Terminal Configuration

6. Vertical Mounting Flange (Code V)



Note: Quick interface functionally equivalent to the signal terminal.

7. Process Connections Description



8. Models and Specifications Code Table

Diffe	Differential Pressure Transmitter RP1001-									
10	Acc	Accuracy								
	В	Bas	Basic Accuracy ±0.075%							
	С	Bas	ic Accuracy ±0.1%							
20	20 Span									
		В	B 0-200Pa ~ 6kPa (0-20 ~ 600 mmH ₂ O) /(0-2 ~ 60mbar)							
		С	0-400Pa ~ 40kPa (0-40 ~ 4000 mmH ₂ O) /(0-40 ~ 400mbar)							
		D	0-2.5kPa ~ 250kPa (0-0.25 ~ 25 mH ₂ O) /(0-25 ~ 2500mbar)							
		F	0-30kPa ~ 3MPa(0-3 ~ 300 mH2O) / (0-0.3 ~ 30bar)							
30	Stat	ic Pr	essure Sensor							
			0 None							
40	Dia	ohrag	m Fill Fluid							
			A 316L Stainless Steel Silicon oil							

1	1		1	1	I										
				В		_ Stain		Steel		Fluc	orine o	il			
				С	Hast	telloy (С			Silic	on oil				
				D	Hast	telloy (С			Fluc	orine o	il			
				Е	Gold	l plate	d on 3	16L		Silic	Silicon oil				
				F	Gold	l plate	d on 3	16L		Fluc	Fluorine oil				
				G	FEP	plated	d on 3	on 316L		Silic	on oil				
				Т	Tant	alum					on oil				
50	Rated Working Pressure														
					1	16M	Pa								
					2	25M	Pa								
					3	42M	Pa								
60	Pro	cess (Conn	ectio	ns	1									
						N	7/16	-20 UI	NF and	1/4-1	8 NPT	female thread, No relief valve			
						В						female thread, Relief valves at end of flanges			
						U						female thread, Relief valves at the upper part of the flange			
							side			1/ 1		remaie uncad, rener valves at the upper part of the hange			
						D			NF and	1/4-1		female thread, Relief valve at the lower part of the flange			
						.,									
						V		Vertical mounting flange, 7/16-20 UNF and 1/4-18 NPT female thread, Relief valves at							
	_		-		_		the L	lpper	part of	the fla	inge s	lde			
70	Pro	cess (Conn	ectioi	n Gas	ket									
							N		ounan (I	-					
							F	Vito	n (FKM)					
							Р	Teflo	on (PTF	E)					
80	Spe	cial F	uncti	on					1						
								N	None						
								F	Squa	re Ro	ot Out	put			
								0	Degre	ease o	leans	ing treatment (Oxygen measurement must be with			
									fluorir	nated	oil fille	ed capsule, Viton (FKM) gasket, <6MPa, <60 $^\circ$ C)			
								Р	Anti-li	ghtnir	ng fun	ction			
90	Μοι	unting	Brad	cket											
									N	Non	е				
									1	Stai	nless	Steel			
									2	Carl	bon St	teel Galvanized			
100	Pro	cess (Conn	ector	Acce	ssory									
										N	None	9			
										1	Stair	less Steel oval-shaped flange with 1/2 NPT female thread			
										2	Stair	nless Steel D-shaped connector with M20x1.5 male thread			
110	Inte	gral li	ndica	tor					1						
											N	None			
[2	LCD backlit display (-20° C)			
1											3	OLED display (-40° C)			
120	Exn	losio	n Pro	of On	tions										
0	-^P			31 Op								N None			
									I		I				

								А	Intri	nsica	lly safe	e, NEPSI
								D	Exp	losior	n proo	f, NEPSI
								в	Intri	Intrinsically safe, ATEX		
								Е	Exp	losior	n proo	f, ATEX
130	Tag Nam	ne Pla	ite									
									N None			
									1	Pos	ition n	umber marked on the nameplate
									2 Hanging Stainless Steel plate			Stainless Steel plate
140	Manual											
										С	Chir	nese
										Е	Eng	lish
150	Addition	al Op	tions	(-)								
											s	Stainless Steel Housing
											V	Low Voltage Type
											Т	Electrical Connection NPT1/2 (No
												cable introduction device and blind
												plug)

Example: RP1001-BC0A1BNF112N1C

- [B]: Basic error ±0.075%
- [C]: The range is 0-400Pa ~ 40kPa (0-40 ~ 4000 mmH2O)
- [0]: No Static Pressure Sensor
- [A]: The wetted part is stainless steel 316L diaphragm, and the filling liquid is silicone oil.
- [1]: Rated Working Pressure is 16MPa
- [B]: 1/4" NPT process connection interface, 7/16" UNF threaded mounting hole, bleed valve mounted to the rear end of
- the flange
- [N]: The wetted seal is nitrile rubber (NBR)
- [F]: Square Root Output
- [1]: Stainless steel mounting bracket
- [1]: With 1/2 inch NPT internal thread stainless steel oval flange
- [2]: LCD backlight display
- [N]: Basic type (non-explosion-proof transmitter)
- [1]: The number is marked on the nameplate
- [C]: Chinese instruction manual

RP1002-B/C Gauge Pressure

Transmitter

RP1003-B/C Absolute Pressure

Transmitter

The Gauge/Absolute Pressure Transmitter RP1002/3-B/C is suitable to measure liquid, gas, or steam flow as well as liquid level, density and pressure and then output a 4~20 mADC HART signal. The RP1002/3 can also communicate with RS295 modem for specification setting and process monitoring, etc.

STANDARD SPECIFICATIONS

(The adjustment of measuring range is based on the standard zero setting, Stainless Steel 316L diaphragm and silicon oil filling fluid.)

1. PERFORMANCE SPECIFICATIONS

Reference Accuracy of Calibrated Span

(Including terminal-based linearity, hysteresis, and repeatability) RP1001-B: ± 0.075% RP1001-C: ± 0.1%

• If TD>10 TD=URL/SPAN) RP1001-B: ±(0.0075×TD)% RP1001-C: ±(0.01×TD)%

• For Span B:

If TD>6 (TD=URL/SPAN) RP1001-B: ±(0.0125×TD)% RP1001-C: ±(0.0166×TD)%

Ambient Temperature Effects

-25° ~ 65° C = ±(0.15×TD+0.05)%×Span

Every 10° C = ±0.08% (TD=1)

-40° ~ -25° C and 65° ~ 85° C ±(0.2×TD+0.05)%×Span



Over Range Effects ±0.075%×Span

Stability ±0.15%URL/ 10 years

Power Effects ±0.001%/ 10V (12 ~ 36V DC)

2. FUNCTIONAL SPECIFICATIONS

Span	and	Rang	ge (RP1	002-B/C	Gauge							
Press	Pressure)											
S	pan/	kPa	psi	bar	kgf/cm ²							
Ra	ange	кга	psi	Dai	kgi/cm-							

.

	Range	кРа	psi	bar	kgt/cm²
	Span	0.6 ~	0.087 ~	6 ~	0.006 ~
В	Span	6	0.87	60mbar	0.06
	Pango	-6 ~ 6	-0.87 ~	-60 ~	-0.06 ~
	Range	-0 ** 0	0.87	60mbar	0.06
	Spop	2~40	0.29~	0.02 ~	0.02 ~
с	Span	2 ** 40	5.8	0.4	0.4
	Panga	-40 ~	-5.8 ~	-0.4 ~	-0.4 ~
	Range	40	5.8	0.4	0.4
	Spop	2.5~	0.3625	0.025 ~	0.025 ~
D	Span	250	~ 36.25	2.5	2.5
	Panga	-100	-14.5 ~	-1 ~ 2.5	-1~2.5
	Range	~ 250	36.25	-1~2.5	-1~2.5
F	Shop	30 ~	4.35 ~	0.3~	0.3 ~
	Span	3000	435	30	30

	Range	-100 ~ 3000	-14.5 ~ 435	-1 ~ 30	-1 ~ 30
G	Span	0.1 ~ 10MP a	14.5~ 1450	1 ~ 100	1 ~ 100
	Range	-0.1 ~ 10MP a	-14.5 ~ 1450	-1 ~ 100	-1 ~ 100
н	Span	0.21 ~ 21 MPa	30.45 ~ 3045	2.1 ~ 210	2.1 ~ 210
	Range	-0.1 ~ 21 MPa	-14.5 ~ 8000	-1 ~ 210	-1~210
	Span	0.4 ~ 40 MPa	58 ~ 5800	4 ~ 400	4 ~ 400
1	Range	-0.1 ~ 40 MPa	-14.5 ~ 5800	-1 ~ 400	-1 ~ 400

Span and Range (RP1003-B/C Absolute Pressure)

	ipan/ ange	kPa	psi	bar	kgf/cm ²	
	Span	10~40	1.45 ~	0.1~	0.1 ~	
L/T	Opan		5.8	0.4	0.4	
	Danga	0~40	0~5.8	0 ~	0.04	
	Range	0~40	0~5.6	0.4	0~0.4	
	Crear	10 ~	1.4503	0.1~	0.1 ~	
м	Span	250	~ 36.25	2.5	2.5	
	Denera	0~250	0 ~	0 ~	0.25	
	Range	0~250	36.25	2.5	0~2.5	
	Crear	30 ~	4.35 ~	0.3 ~	0.3 ~	
	Span	3000	435	30	30	
0	Dener	0 ~	0 425	0 20	0 20	
	Range	3000	0 ~ 435	0 ~ 30	0 ~ 30	

Range Limit

It can be randomly adjusted within the upper and lower limit of range. It is recommended to select the range code with as low as possible range ratio to optimize the performance.

Zero Setting

Zero Point and range can be adjusted to any value within the measure range in the form as long as Calibrating Span ≥ Maximum Range

Mounting Position Effects

Rotation in diaphragm plane has no effect. Tilting up to 90° will cause zero shift up to 0.25kPa which can be corrected by the zero adjustment. Other ranges have <0.15kpa range of zero influence can be adjusted by zero adjustment correction. No range effect.

Output

2 wires type, 4 ~ 20mADC HART output, digital communication, linear or square root output can be choose, HART protocol is added on the 4~20mADC signal. Output Signal Limit: Imin=3.9mA, Imax=20.5mA

Failure Alarm (Mode can be selected)

Low Mode (min): 3.6 mA

High Mode (max): 21 mA

No Mode (hold): Keep the effective value before the fault. Note: The standard setting of failure alarm is High Mode.

Response Time

The amplifier damping constant is 0.1 sec. The sensor damping constant is 0.1~1.6 sec, it depends on the range and range compression ratio. Amplifier damping time constant is adjustable from 0.1 to 60 sec by software and added to response time.

Preheat Time

< 15s

Ambient Temperature

-40° ~ 85° C $-20^{\circ} \sim 65^{\circ}$ C(with LCD, Fluorine O-ring)

Storage/ Transportation Temperature

-50° ~ 85° C -25° ~ 85° C (with LCD display)

Pressure Limit

From vacuum to upper range limits

Overload Limit

Spap	6k	Ра	40kPa	250kPa	
Span	(E	3)	(C/L)	(D/M)	
Overload	0.21	ИРа	1MPa	4MPa	
Limit					
Span	3MPa 10MPa		21MPa	40MPa	
	(F/O)	(G)	(H)	()	
Overload	15MPa	20MPa	50MPa	50MPa	
Limit					

Electromagnetic Compatibility (EMC)

See below EMC Performance Table.

Explosion Proof Performance

- Intrinsically Safe NEPSI: Ex ia IIC T4 Ga Ta = -40° ~ +60° C
- Explosion Proof NEPSI: Ex d IIC T4 ~ T6 Gb Ta = -40° ~ +60° C
- Dust Explosion Proof NEPSI: Ex tb IIIC T80°/T95°/T130° Db Ta = -40° ~ +60° C
- Explosion Proof ATEX/ IECEx: II 2 G Ex db IIC T4/T5/T6 Gb Ta = -40° ~ +60° C
- Intrinsically Safe ATEX/ IECEx: II 2 G Ex ia IIC T4/T5/T6 Ga Ta = -40° ~ +85° C/ -40° ~ +50° C/ -40° ~ +40° C
- Dust Explosion Proof ATEX/ IECEx: II 2 D Ex tb IIIC T80°/T90°/T130° Db Ta = -40° ~ +60° C

3 INSTALL

Supply & Load Requirements

Power Supply is 24V, $R \leq (Us-12V)/I_{max} k\Omega$, $I_{max}=23 \text{ mA}$,

Max. Voltage: Limited: 4 5 VDC, Min. Voltage Limited: 9VDC (Low voltage type), 13.5VDC (with LCD backlit or OLED display) Overload range of digital communication: $230 \sim 600\Omega$.

Electrical Connection

M20X1.5 or NPT1/2 Male thread. The electrical connection is made via cable entry M20x1.5. The screw terminals are suitable for wire cross-sections 0.5~ 2.5mm2.

Process Connections

Standard NPT1/2 Female Thread. It can be transferred to NPT $\frac{1}{2}$, G1/2 and M20x1.5 Male Thread, KF16 Vacuum connectors.

4. PHYSICAL SPECIFICATIONS

Materials

- Isolating Diaphragm: 316L Stainless Steel/ Hastelloy C
- Process Connection: 316 Stainless Steel
- Fill Fluid: Silicone Oil/ Fluorinated Oil
- Housing: Aluminum with epoxy resin coat and stainless steel material can be chosen as well
- Housing Gasket: Perbunan (NBR)
- Name Plate and Tag: 304 Stainless Steel

Weight:

1.6kg (including Aluminum housing, without display, mounting bracket or process connection)

Housing Protection Level:

IP67

EMC Performance Table

Sr. No.	Test Items	Basic Standard	Test Conditions	Performan ce Level
1	Radiated Interference (Housing)	GB/T 9254-2008	30MHz ~ 1000MHz	Qualified
2	Conducted Interference	Table5 GB/T 9254-2008	0.15MHz ~ 30MHz	Qualified
2	(DC power port)	Table1		Qualified
3	Electrostatic Discharge (ESD) Immunity	GB/T 17626.2-2006	4kV(Line) 8kV(Air)	В
4	RF Electromagnetic Field Immunity	GB/T 17626.3-2006	10V/m (80MHz ~ 1GHz)	А
5	Frequency Magnetic Field Immunity	GB/T 17626.8-2006	30A/m	А
6	Electrical Fast Transient Burst Immunity	GB/T 17626.4-2008	2kV(5/50ns,5kHz)	В
7	Surge Immunity	GB/T 17626.5-2008	500V (Line to line), 1kV (line to ground), 1.2us/50us	В
8	Conducted Interference Immunity induced by RF field	GB/T 17626.6-2008	3V (150KHz ~ 80MHz)	A

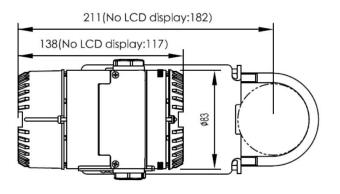
Note:

- (1) Performance level A description: The technical specifications within the limits of normal performance.
- (2) Performance level B description: Temporary reduction or loss of functionality or performance, it can restore itself. The actual operating conditions, storage, and data will not be changed.

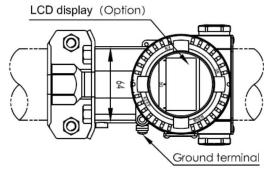
DIMENSIONS

Unit (mm)

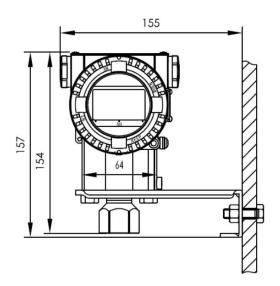
Horizontal Piping Connection Type(Side)



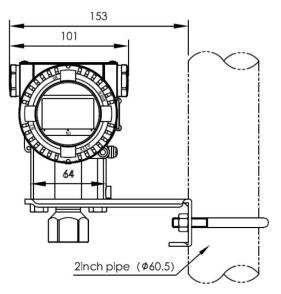
Horizontal Piping Connection (Front)



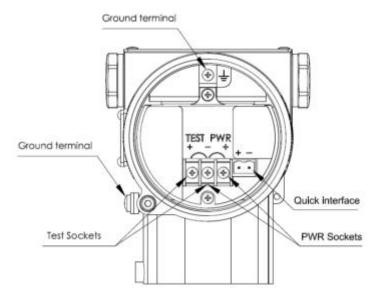
Wall Mounting Connection Type



Vertical Piping Connection Type



5. Terminal Configuration



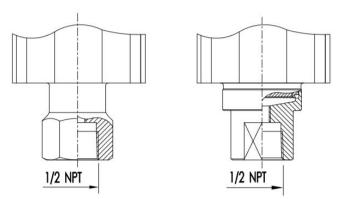
Note: Quick interface functionally equivalent to the signal terminal.

6. Process connections Description (Code 1)

6.1 Default Process Connection (Code 1)

F/G/H/I/O Span

C/S/D/M Span

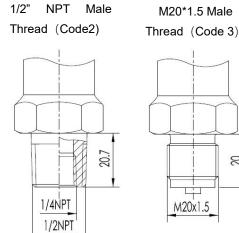


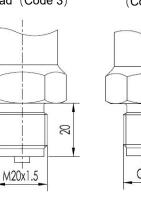
Vacuum connector

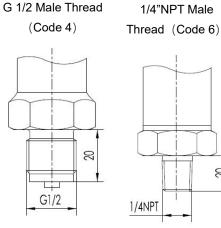
DIN 28403 KF16

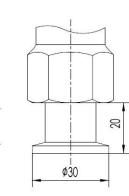
/ISO 2861 (Code 5)

6.2 Other forms of Process connector



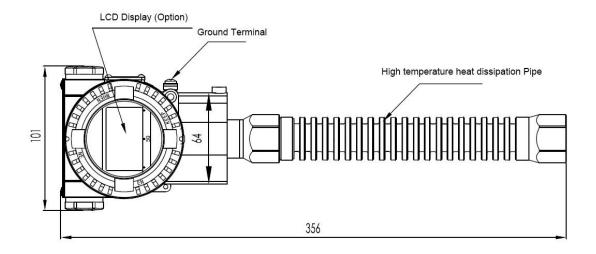






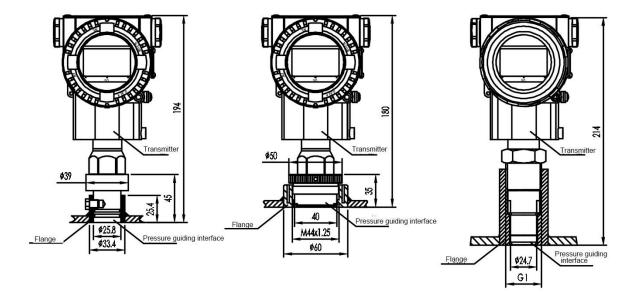
30

High temperature heat dissipation connector (Code 9)



Φ25.8 insert pulp connector (Code S) M44*1.25 thread pulp connector (CodeM)

G 1 thread pulp connector (Code L)



7. Models and Specifications Code Table

Gauge Pressure Transmitter RP1002-											
Absolute Pressure Transmitter RP1003-											
10	Acc	uracy									
	В	Bas	Basic Accuracy ±0.075%								
	С	Bas	Basic Accuracy ±0.1%								
20	Spa	n ^[1]	1]								
		Gau	ige Pressure RP1002								
		В	0-0.	6kPa ~ 6kPa / (0-60 ~ 600 mr	nH ₂ O) /(0-6~60mbar)						
		С	0-2	0-2kPa ~ 40kPa / (0-200 ~ 4000 mmH ₂ O) /(0-20 ~ 400mbar)							
		D	0-2.	0-2.5kPa ~ 250kPa / $~(0\text{-}0.25\text{-}25\text{mH}_2\text{O})~/(0\text{-}25\text{-}2500\text{mbar})$							
		F	0-30	0-30kPa~3MPa/ (0-3~300 mH ₂ O) /(0-0.3~30bar)							
		G	0-0.	-0.1MPa ~ 10MPa /(0-1 ~ 100bar)							
		н	0-0.	0.21MPa ~ 21MPa / (0-2.1 ~ 210 bar)							
		T	0-0.	0.4MPa ~ 40MPa / (0-4 ~ 400 bar)							
		Abso	olute	e Pressure RP1003							
		L	0-10	10kPa ~ 40kPa / (0-1000 ~ 4000 mmH ₂ O) /(0-20 ~ 400mbar)							
		М	0-10	10kPa ~ 250kPa /(0-1000 ~ 2500mbar)							
		0	0-30	0kPa ~ 3MPa /(0-0.3 ~ 30bar)							
30	Dia	phra	gm I	Material & Fill Fluid							
			А	316L Stainless Steel	Silicon oil						
			В	316L Stainless Steel	Fluorine oil						
			С	Hastelloy C	Silicon oil						
			D	Hastelloy C	Fluorine oil						
			Е	Gold plated on 316L	Silicon oil						
			F	Gold plated on 316L	Fluorine oil						
			Т	T Tantalum Silicon oil							
40	Pro	cess	Cor	nnections							
				1 1/2"NPT Female Thr	read						

			2 1/2"NPT Male Thread (Containing 1/4-NPT female thread)									
				3	M20x1.5 Male Thread							
				4	G 1/2 Male Thread							
				5	Vacuum Connector DIN 28403 KF16 / ISO 2861 ^[2]							
				6				Threa				
				7	1/4"	'NPT	Fema	ale Th	read			
				9		1/4"NPT Female Thread High temperature heat dissipation interface, 1/2"NPT Female Thread						
				L	-	G 1 threaded pulp interface seal device						
				М		M44*1.25 threaded pulp interface sealing device						
				s		Φ25.8 insert pulp interface sealing device						
50												
					Ν	Nor	e					
					0	Deg	rease	e clea	nsing	treatm	ent (C	Dxygen measurement must be with fluorinated oil
						fille	d cap	sule, \	/iton ((FKM)	gaske	et, <6MPa , <60° C)
					Ρ	Anti	-lighti	ning fu	unctio	n		
60	60 Mounting Bracket											
						Ν	Non	е				
						1 Stainless Steel						
						2 Carbon Steel Galvanized						
70	Inte	egral i	ndica	ator		1	1	1				
						N None						
					2 LCD backlit display (-20° C)							
				-	3 OLED display (-40°C)							
80	Exp	olosio	on Pi	roof	Optic	ons						
						N None						
						A Intrinsically safe, NEPSI						
						D Explosion proof, NEPSI						
								B Intrinsically safe, ATEXE Explosion proof, ATEX				
90	Tao	g Plat	- -					-	стрі	051011	proor,	
									N	None	e	
									1			umber marked on the nameplate
									2			tainless steel plate
100	Mai	nual				I	I			1		
										с	Chin	ese
										E	Engl	ish
110	Add	ditior	nal O	ptior	1S ^[3]	(-)						
											s	Stainless Steel Housing
											V	Low Voltage Type
											т	Electrical Connection NPT1/2 (No cable
												introduction device and blind plug)

Note 1: RP1002 corresponds to the selected gauge pressure range code and RP1003 corresponds to the absolute pressure range code.

Note 2: Vacuum interface DIN 28403 KF16 / ISO 2861 is only for the ranges less than 2.5 bar.

Note 3: The optional N/F/P item is only applicable to the range R,S and T transmitter. It requires selecting the appropriate sealing material according to the measuring medium. The standard specification is NBR; the option S can be applied to all specifications of pressure transmitter.

Example: RP1002-BCA1P12N1C

[RP1002-]: Gauge Pressure Transmitter

- [B]: Basic error ±0.075%
- [C]: The range is 0-2kPa ~ 40kPa
- [A]: The wetted part is Stainless Steel 316L diaphragm and the filling liquid is silicone oil.
- [1]: Process connection interface for 1/2" NPT internal thread
- [P]: With lightning protection
- [1]: Stainless steel mounting bracket
- [2]: LCD backlight display
- [N]: Basic type (non-explosion-proof transmitter)
- [1]: The number is marked on the nameplate
- [C]: Chinese instruction manual

RP1001 Micro-differential

Pressure Transmitter

The RP1001 Differential Pressure Transmitter is suitable to measure liquid, gas, or steam flow as well as liquid level, density and pressure, and converts it into a 4-20mADC HART current signal output. It can also communicate with RSM295 Modem for parameter setting and process monitoring, etc.

Standard

(Adjusting the measurement range based on the standard zero point, 316L Stainless Steel diaphragm, filling liquid is silicone oil)

1. PERFORMANCE SPECIFICATIONS

Reference accuracy of the Calibrated range (including terminal-based linearity, hysteresis, and repeatability) RP1001-C: ± 0.1%

If TD>2.5 (TD = maximum range/adjustment range) RP1001-C: ±(0.04×TD)%

The square root output accuracy is 1.5 times of the above linear reference accuracy.

Ambient Temperature Effects

RP1001-C: -25° ~ 65° C ±(0.15×TD+0.05)%×Span Every 10 °C is ±0.08% ×Span (TD=1) -40° ~ -25°C & 65° ~ 85°C: ±(0.2×TD+0.05)%×Span

Over pressure Effects

±0.1%×Span

Static Pressure Effect



When the static pressure sensor is selected as 0

SPAN A = \pm (0.5%URL+0.1%SPAN)/10MPa. When the static pressure sensor is selected SPAN A = \pm (0.025%URL+0.05%SPAN)/10MPa

Stability

±0.25% URL /10 years

Power Supply Effects

±0.001% /10v (12~36 VDC), negligible

2. FUNCTIONAL SPECIFICATIONS

Span and Range limits

Span Rang	/ e limits	kPa	inH₂O	mbar	mmH₂ O		
A0/	Span	0.1 ~ 1	0.4 ~ 4	1 ~ 10	10 ~ 100		
A7	Rang e limits	-1 ~ 1	-4 ~ 4	-10 ~ 10	-100 ~ 100		

Range Limits

It can be arbitrarily adjusted within the upper and lower limits of the range. It is recommended to select a range code with the lowest possible range to optimize the performance characteristics.

Zero Adjustment Limits

Zero Point and range can be adjusted to any value within the measure range in the form as long as Calibrating Span ≥ Maximum Range

Mounting Position Effects

Rotation in diaphragm plane has no effect. Tilting up to 90 degree will cause zero shifts up to 0.4 kPa, which can be corrected by the zero adjustment.

Output

2 wire, 4~20 mADC output with digital communications, linear or square root programmable. HART FSK protocol are superimposed on the 4~20 mADC signal. Output signal limit: I_{min} = 3.9mA, I_{max} = 20.5mA

Failure Alarm (the mode can be selected)

Low Mode (min): 3.6 mA High Mode (max): 21 mA No Mode (hold): Keep the effective value before the fault. Note: The standard setting of failure alarm is

Response time

High Mode.

The amplifier damping constant is 0.1 s. The sensor damping time constant is 0.1 to 1.6 s; it depends on the range and range compression ratio. The additional adjustable time constant is: 0.1~60s. The effect on nonlinear outputs (such as the square root function), depends on this function and can be calculated accordingly.

Preheat time

< 15s

Ambient Temperature Limits

-40° ~ 85° C -20 ~ 65°C with LCD display or fluorine rubber sealing

Storage and Transportation Temperature Limits

-50° ~ 85° C; -25°~ 85° C with LCD display

Working Pressure Limits (Silicone Oil)

Rated working pressure options are 16MPa, 25MPa & 40MPa

Static Pressure Limits

From 3.5 kPa abs. to rated pressure, the protection pressure can be greater than 1.5 times the rated pressure and applied to both sides of the transmitter.

One-way Overload Pressure Limit

One-way overload can reach rated pressure.

Electromagnetic Compatibility (EMC)

Look the EMC Performance Table

Explosion-proof performance

- Intrinsically safe NEPSI: Ex ia IIC T4 Ga Ta = -40° ~ +60°C
- Explosion-proof NEPSI: Ex d IIC T4~T6 Gb Ta = -40° ~ +60°C
- Dust explosion-proof NEPSI: Ex tb IIIC T80°/ T95°/ T130° Db Ta = -40° ~ +60°C
- Explosion-proof ATEX/ IECEx: II 2 G Ex db IIC T4/ T5/ T6 Gb Ta = -40° ~ +60° C
- Intrinsically safe ATEX/ IECEx: II 2 G Ex ia IIC T4/ T5/ T6 Ga Ta = -40° ~ +85°C/ -40° ~ +50°C/ -40° ~ +40°C
- Dust explosion-proof ATEX/ IECEx: II 2 D Ex tb IIIC T80°/ T90°/ T130° Db Ta = -40° ~ +60° C

3. INSTALLATION

Power and load conditions

The power supply voltage is 24VDC; $R \le (Us-12V)/I_{max} k\Omega, I_{max} = 23 mA$ Maximum supply voltage: 36VDC Minimum supply voltage: 9VDC (low voltage version), 13.5VDC (backlit LCD, OLED display) Digital communication load range: 230~600 ω

Electrical Connections

M20×1.5 or NPT1/2 internal thread, standard M20×1.5 nylon cable sealing buckle, terminal block for 0.5 ~ 2.5 mm² wire.

4. PHYSICAL SPECIFICATIONS

Materials

Measure Membrane: SS316L Diaphragm: Stainless Steel 316L, Hastelloy C, Gold Plated on 316L Cover Flange: Stainless Steel 316 Nuts And Bolts: Stainless Steel 304 Process Connector: Stainless Steel 316 Filling Liquid: Silicone Oil, Fluorine Oil Amplifier Housing : Aluminum with epoxy resin coat stainless steel case optional. Process Connector Gasket: Perbunan (NBR)/ Viton(FKM)/ Teflon (PTFE) Housing Gasket: Perbunan (NBR) Name plate and tag: 304 stainless steel

Process Connection

Flange with fixing thread 7/16-20 UNF and 1/4-18 NPT female thread on both sides.

Weight: 3.3kg (including Aluminum housing, without display, mounting bracket and process connection)

Enclosure rating

Electromagnetic Compatibility Table

Sr. No.	Test Items	Basic Standard	Test Conditions	Performan ce Level
1	Radiated Interference (Housing)	GB/T 9254-2008 Table5	30MHz ~ 1000MHz	Qualified
2	Conducted Interference (DC Power Port)	GB/T 9254-2008 Table1	0.15MHz ~ 30MHz	Qualified
3	Electrostatic Discharge (ESD) Immunity	GB/T 17626.2-2006	4kV(Line) 8kV(Air)	В
4	RF Electromagnetic Field Immunity	GB/T 17626.3-2006	10V/m (80MHz ~ 1GHz)	A
5	Frequency Magnetic Field Immunity	GB/T 17626.8-2006	30A/m	A
6	Electrical Fast Transient Burst Immunity	GB/T 17626.4-2008	2kV(5/50ns, 5kHz)	В
7	Surge Immunity	GB/T 17626.5-2008	500V (Line to line), 1kV (line to ground), 1.2us/50us)	В
8	Conducted Interference Immunity induced by RF field	GB/T 17626.6-2008	3V (150KHz ~ 80MHz)	A

Note: (1) Performance level A description: The technical specifications within the limits of normal performance.

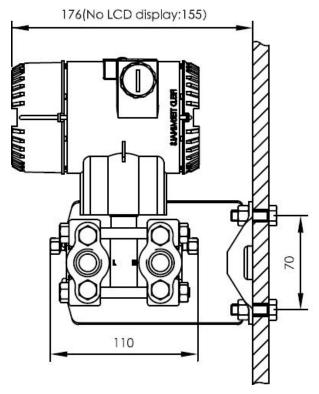
(2) Performance level B description: Temporary reduction or loss of functionality or performance, it can restore itself. The actual operating conditions, storage, and data will not be changed.

Dimensions

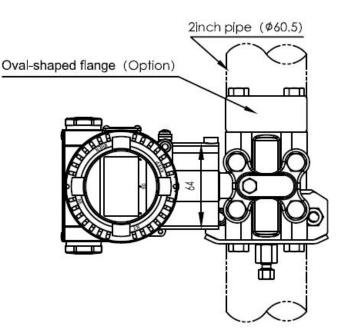
Unit (mm)

Horizontal Impulse Piping Type (Side Face) Type (Front Side)

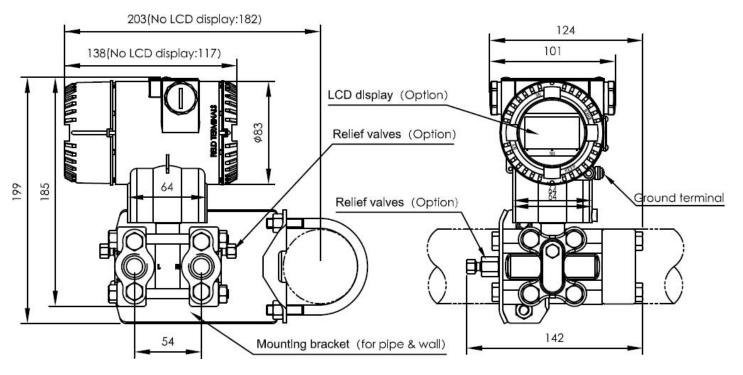
Horizontal Impulse Piping



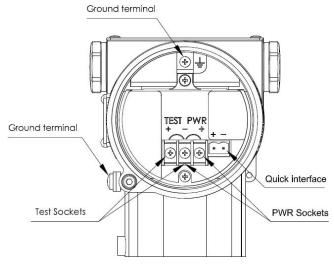
Horizontal Impulse Wall Mounting Type Piping Type



Vertical Impulse

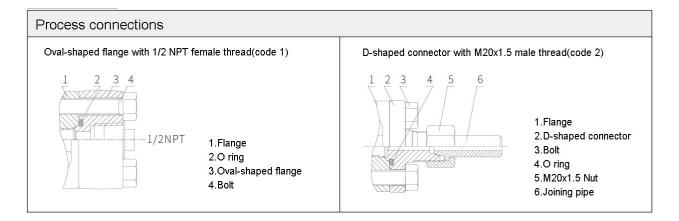


5. Electrical Connection



Note: The shortcut interface function is equivalent to the signal terminal.

6. Process Connection Instructions



7 Model and specification codes

Diffe	rent	ial P	ress	sure	Transmitter Selection RI	P1001-	
10	Accuracy						
	С	Re	ferer	nce	Accuracy ±0.1%		
20	Ra	nge					
		A	0-1	00P	a ∼ 1kPa (0-10 ~ 100 mmŀ	H ₂ O)	
30	30 Static Pressure Sensor						
			0	No	ne		
			1	40	MPa (only applicable to 7M	Pa rated working pressure)	
40	Dia	aphr	agm	n Ma	aterial Filling Fluid		
				Α	Stainless Steel 316L	Silicone oil	
				в	Stainless Steel 316L	Fluorine oil	
				С	Hastelloy C	Silicone oil	

		I	D	Has	tolle						Fluorine oil	I
			E			ated	on ?	3161			Silicone oil	
			F		•	ated					Fluorine oil	
50	Wo	rking F				atou		,101	-			
				I I	Rat	ed w	/orki	ng p	oress	sure	.2MPa	
								• •			MPa	
60	Pro	cess C	Conn	ectio	ons							
						N	1/4	" NF	PT a	nd 7	6" UNF female thread, No relief valve	
						В	1/4	" NF	PT a	nd 7	6" UNF female thread, Relief valves at end	of flanges
						U					6" UNF female thread, Relief valve at the u	pper part
									ilang			
						D					6" UNF female thread, Relief valves at the	lower part
70	Dro	cess C) Donn	acto	r Ga	asko		nei	lang	le sic	2	
10						Jone	N	Nit	rile r	ubb	(NBR)	
							F		on (I			
							Р					
80	Spe	ecial Fi	unct	ion			,					
								N None				
								F			oot output	
								0		-	e cleansing treatment (Oxygen measureme	
											rinated oil filled capsule, Viton (FKM) gaske	⊧t, <6MPa,
								Б		0°C		
90	Mo	unting	Bra	ckots	 •			Ρ	LIG	nthii	protection	
90		unung		LNEIS	>				N	No		
									1		nless Steel	
									2		on Steel Galvanized	
100	Pro	cess C	Conn	ectio	on A	cce	SSO	ry	1 1	I		
										Ν	None	
										1	Stainless Steel oval-shaped flange with 1/2	NPT
											emale thread	
										2	Stainless Steel T-shaped joint with M20x1.5	external
140			 								hread	
110	Dis	play O	ptio	ns								
											N No display I LCD liquid crystal display (-20° C)	
											2 Backlight LCD display (-20° C)	
											3 OLED display (-40 ° C)	
120	Exp	olosion	n-Pro	of O	ptio	n			1			
					-						N Basic type	
											A Intrinsically safe, NEPSI	
											D Flameproof, NEPSI	
											B Intrinsically safe, ATEX	

									E	Fla	Flameproof, ATEX			
130	Tag P	ate												
										Ν	Noi	ne		
											The	e pos	sition number is marked on the	
										1	nar	nepla	ate	
										2	Hai	nging	g stainless steel signage	
140	Manua	al												
											С	Chi	inese	
											E	Eng	glish	
150	Additi	ona	ΙОр	tior	าร									
												S	Stainless steel case	
												V	Low voltage version	
													Electrical connection 1/2NPT	
												Т	(no cable entry device and blind	
													plug)	

Example: RP1001-CA0A0BNF112N1C

- [C]: Reference Accuracy: ± 0.1%
- [A]: 0-100Pa~1kPa (0-10~100 mmH₂O) working pressure 0.2MPa
- [0]: None static pressure sensor
- [A]: The wetted part is stainless steel 316l diaphragm, and the filling liquid is silicone oil.
- [0]: Working pressure is 0.2MPa
- [B]: 1/4" NPT and 7/16" UNF female thread, Relief valves at end of flanges
- [N]: Nitrile rubber (NBR) process connector gasket
- [F]: Square root output
- [1]: Stainless steel mounting bracket
- [1]: With Stainless steel oval-shaped flange with 1/2 NPT female threaded
- [2]: LCD backlight display
- [N]: Basic type (non-explosion-proof transmitter)
- [1]: The position number is marked on the nameplate
- [C]: Chinese instruction manual

RP1001 Differential Pressure

Level Transmitter

1. APPLICATION

The diaphragm capsule of the Differential Pressure Level Transmitter is used to prevent the medium in the pipeline from directly entering the Pressure Sensor component of the Differential Pressure Transmitter. It uses a filling fluid such as silicone oil to transfer pressure.

The RP1001 Differential Pressure Level Transmitter is suitable to measure liquid, gas or steam flow as well as liquid level, density and pressure, and converts it into a 4-20mADC HART current signal output. It can also communicate with each other by RSM295 Modem to parameter setting and process monitoring, etc. The RP1001 Series Pressure Level Transmitter (No migration) range limits is 0-1kPa~3MPa and the flange's rated pressure are: 1.6/4MPa, 6.4MPa, 10MPa, 150psi, 300psi or 600psi.

2. Operating Principle and Structure

RP1001 Differential Pressure Level Transmitter is composed of RP1001 Series Differential Pressure Transmitter and the welding installation level flange. The operating principle is same as RP1001 Series Differential Pressure Transmitter (refer RP1001 Series Differential Pressure Transmitter General Specifications). Only the high-pressure side of pressure transmission path is different. The pressure loaded in the high side, pass from the isolation diaphragm and silicone oil in the flange to the sensor.

3. INPUT



Measured Parameter: Differential Pressure, Level Measuring range Lower range value: -100% URL (continuously adjustable) Upper range value: To +100% URL (continuously adjustable)

Spans

Span	Minimu	Maximu	Rated
Code			pressure
Code	m range	m range	(maximum)
В	1kPa	6kPa	Rated
С	4kPa	40kPa	pressure of
D	25kPa	250kPa	the liquid level
F	200kPa	3MPa	flange

Table 1: Span Code And Measuring Range

Table 2	2:	Liquid	Level	Flange	and	Minimum
Measu	rir	ng Rang	ge			

Level flange	Nominal	Minimum
	diameter	range
	DN 50/2"	10kPa
Flat sealing	DN 80/3"	2kPa
	DN 100/4"	2kPa
l	DN 50/2"	16kPa
Insert tube	DN 80/3"	2kPa
sealing	DN 100/4"	2kPa

The minimum range of the Differential Pressure Level Transmitter shall be the larger value of the minimum range of Tables 1 and 2. The adjusted range must not be lower than the minimum range. The maximum range of the level transmitter should be the minimum of both the maximum range of the transmitter body and the rated pressure of the level flange.

4. OUTPUT

Output Signal

2-wire system, 4~20mADC HART output, digital communication, HART protocol is loaded on 4~20mADC signal. Output signal limit: I_{min}=3.9mA, I_{max}=20.5mA

Failure Alarm (Mode can be selected)

Low Mode (min.): 3.6 mA

High Mode (max.): 21 mA

No Mode (hold): Keep the effective current value before the fault.

Alarm current standard setting: high-report mode

5. Response time

The amplifier damping constant component is $0.1 \, \text{s.}$ The sensor and level flange time constant is $0.2 \text{ to } 2 \, \text{s}$, it depends on the range and range compression ratio. The additional adjustable time constant is $0.1 \sim 60 \, \text{s.}$

6. GENERAL CONDITIONS

6.1 Installation Conditions

The transmitter can be fixed directly to any position by the level flange preferably in such a position that the process flange axes are vertical. Deviations from this can cause a shift in the zero, which can be corrected. The electronic housing can be rotated through 360° and can be fixed in any position.

6.2 Environmental Conditions Ambient temperature

Minimum: depending on the filling fluid Maximum: 85° C -20 ~ 65°C: with liquid crystal display and

Storage / Transport Temperature

fluoro-rubber sealing ring

Minimum: depending on the filling fluid Maximum: 85 ° C

Relative humidity

0 ~ 100%

Shock Resistance Acceleration: 50g, Duration: 11ms

Vibration resistance 500Hz on 2g

Electromagnetic Compatibility (EMC) Refer the EMC Performance Table 3

6.3 Process Media Limits

Medium Temperature Limit: -30° ~ 180° C

Pressure Limit

From 3.5kPa abs. to working pressure. Proof pressure up to 1.5 times the nominal pressure simultaneously on both sides of the transmitter admissible.

Liquid Level Flange Rated Pressure

ANSI : 150 psi to 600 psi DIN: PN 1.6MPa ~ PN 10MPa

One-way overload limit

The low-pressure side is the rated pressure of the transmitter body, and the high-pressure side is the rated pressure of the flange. Possibly occurring zero offsets can be corrected.

Weight

DN 50/2" is about 7~10kg; DN 80/3" is about 8~11kg; DN 4" is about 9~12kg.

Explosion-proof performance

- Intrinsically safe NEPSI: Ex ia IIC T4 Ga Ta=-40~+60°C
- Explosion-proof NEPSI: Ex d IIC T4~T6 Gb Ta=-40~+60°C
- Dust Explosion-proof NEPSI: Ex tb IIIC T80°C/T95°C/T130°C Db Ta = -40 ~ +60°C
- Explosion-proof ATEX/ IECEx: II 2 G Ex db IIC T4/T5/T6 Gb Ta = -40 ~ +60° C
- Intrinsically safe ATEX/ IECEx: II 2 G Ex ia IIC
 T4/T5/T6 Ga Ta = -40°C ~ +85°C/
 -40°C~+50°C/ -40°C~ +40°C
- Dust explosion-proof ATEX/IECex: II 2 D Ex tb IIIC T80°C/T90°C/T130°C Db Ta = -40° ~ +60° C

6.4 Power And Load Requirements

The power supply voltage is 24VDC, $R \le (Us-12V)/I_{max} k\Omega, I_{max} = 23 mA$ Maximum Voltage Limit: 36VDC Minimum Voltage Limit: 9VDC (low voltage), 13.5VDC (backlit LCD liquid crystal display, OLED display) Digital Communication Load Range: 230~600Ω

Wetted Parts Materials

• Measuring Diaphragm Capsule: 316L

Stainless Steel

- **Diaphragm:** 316L Stainless Steel, Hastelloy C, Tantalum, PFAP or PTFE plated on 316L
- Process Flange: Stainless Steel 304
- Filling Liquid: Silicone Oil, Vegetable Oil
- Process Connector Gasket: Perbunan (NBR), Viton (FKM), Polytetrafluoroethylene (PTFE)
- Amplifier Housing: Aluminum with Epoxy Resin Coat Stainless Steel case optional.
- Housing Gasket: Perbunan (NBR)
- Nameplate: Stainless Steel 304

Electrical connections

M20×1.5 or NPT1/2 internal thread, standard M20×1.5 nylon cable sealing buckle, terminal block for $0.5 \sim 2.5$ mm² wire.

Process connection

The low-pressure side of the transmitter has NPT 1/4 and UNF 7/16" internal threads. The liquid level flange on the high-pressure side of the transmitter conforms to ANSI or DIN standards. It can be installed directly, refer to Table 4 of Page 36.

Enclosure rating

IP67

Sr. No.				Performance
Test items		Basic standards	Test conditions	Level
1	Radiated Interference (Housing)	GB/T 9254-2008	$30 MHz \sim 1000 MHz$	ОК
	Conducted Interference (DC			
2	Power Port)	GB/T 9254-2008	$0.15 MHz \sim 30 MHz$	ОК
	Electrostatic Discharge (ESD)		4kV(Line)	
3	Immunity	GB/T 17626.2-2006	8kV(Air)	В
	RF Electromagnetic Field			
4		GB/T 17626.3-2006	10V/m (80MHz ~	А

Table 3 Electromagnetic Compatibility Schedule

	Immunity		1GHz)	
5	Frequency Magnetic Field Immunity	GB/T 17626.8-2006	30A/m	А
6	Electrical Fast Transient Burst Immunity	GB/T 17626.4-2008	2kV(5/50ns, 5kHz)	В
7	Surge Immunity	GB/T 17626.5-2008	0.5kV(line to line) 1kV (line to ground) (1.2us/50us)	В
8	Conducted Interference Immunity induced by RF field	GB/T 17626.6-2008	3V (150KHz ~ 80MHz)	A

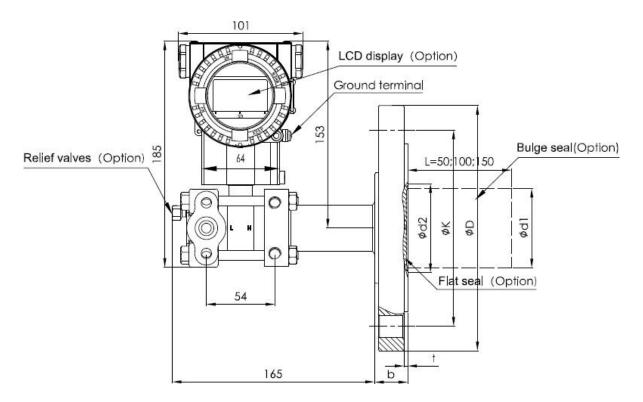
Note:

(1) Performance level A description: The technical specifications within the limits of normal performance.

(2) Performance level B description: Temporary reduction or loss of functionality or performance, it can restore itself. The actual operating conditions, storage, and data will not be change

Dimensions

Unit (mm)



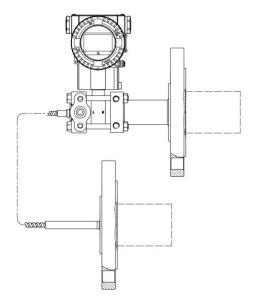
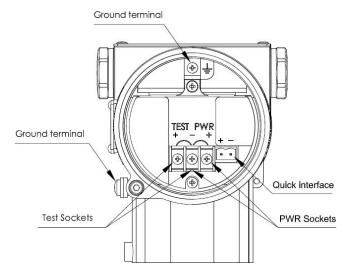


Table 4: Liquid Level Flange Dimensions

Nominal Diameter	Working Pressure	ΦD	ΦΚ	Фd1 Bulge Seal	Фd2 Flat Seal	Фd3	t	b		Bolt
DN 50	PN1.6/4MPa	165	125	48.3	57	102	3+0.5	20	4	M16
(Sealing DIN 2526E)	PN 6.4MPa PN 10MPa	180	135	48.3	57	102	3+0.5	26	4	M20
(Flange DIN 2501)		195	145	48.3	57	102	3+0.5	28	4	M20
DN 80	PN1.6/4MPa	200	160	76	75	138	3+0.5	24	8	M16
(Sealing DIN 2526E)	PN 6.4MPa PN 10MPa	215	170	76	75	138	3+0.5	28	8	M20
(Flange DIN 2501)		230	180	76	75	138	3+0.5	32	8	M24
	150psi	152.4	120.6	48.3	57	92.1	3+0.5	17.4	4	M18
DN 2" (ANSI B	300psi	165.1	127.0	48.3	57	92.1	3+0.5	20.6	8	M18
16.5 RF)	600psi	165.1	127.0	48.3	57	92.1	6.35	31.75	8	M18
DN 3"	150psi	190.5	152.4	76	75	127	3+0.5	22.2	4	M16
(ANSI B	300psi	209.5	168.3	76	75	127	3+0.5	27.0	8	M20
16.5 RF)	600psi	209.5	168.3	76	75	127	6.35	38.05	8	M20
DN 4"	150psi	229	191	89	89	157	3+0.5	30	8	M18
(ANSI B 16.5 RF)	300psi	255	200	89	89	157	3+0.5	32	8	M18

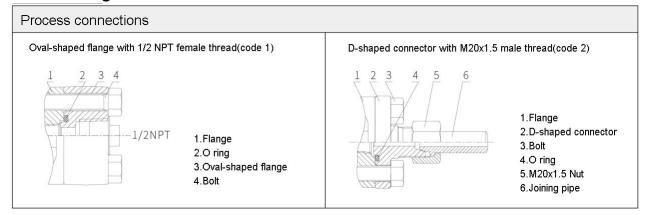
Note: The user can choose to install bolts and nuts.

7. Electrical Connection



Note: Quick interface functionally equivalent to the signal terminal

8. Low Voltage Terminal Process Connection



9. Models and Specification Code^[1]

1 Differe	Differential Pressure Level Transmitter Body Selection RP1001-							
10	Accuracy							
	В	eference accuracy ±0.075%						
	С	Reference accuracy ±0.1%						
20	Span							
		B 0-2kPa ~ 6kPa (0-200 ~ 600 mmH ₂ O) /(0-20 ~ 60mbar)						
		C 0-4kPa ~ 40kPa (0-400 ~ 4000 mmH ₂ O) /(0-40 ~ 400mbar)						
		D 0-2.5kPa ~ 250kPa (0-0.25 ~ 25 mH ₂ O) /(0-25 ~ 2500mbar)						
		F 0-30kPa ~ 3MPa (0-3 ~ 300 mH2O) / (0-0.3 ~ 30bar)						
30	Static	Pressure Sensor						
		0 None						
40	Diaph	ragm Material & Filling Fluid						
		A Stainless steel 316L Silicone Oil						
50	Worki	ng Pressure						

		16MPa							
60	Negative Cavity Process Co	nnection							
		LN 1/4	" NPT ar	nd 7/16'	' UNF	F female thread, No relief valve			
		LB 1/4	" NPT ar	nd 7/16'	' UNF	F female thread, Relief valves at end of flanges			
				d 7/16'	UNF	⁻ female thread, Relief valve at the upper part of the			
			nge side						
					' UNF	F female thread, Relief valves at the lower part of			
		I	flange s	ide					
70	Negative Cavity Process Co	1	1						
		N		rubber	(NBR)	8)			
		F	Viton (
00		P	Polyte	trafluor	oethyle	/lene (PTFE)			
80	Special Function	1							
				N NoneO Degrease cleansing treatment (Oxygen measurement must be					
						d oil filled capsule, Viton (FKM) gasket, <6MPa,			
				0° C)	nateu	$\frac{1}{2} = \frac{1}{2} = \frac{1}$			
			P Polytetrafluoroethylene (PTFE)						
90	Mounting Brackets		0	rytotrai	140100				
00			N	None	e				
100	Negative Cavity Process Co	nnection	Accesso	1					
				N	None	ne			
				1	Stair	inless Steel oval-shaped flange with 1/2 NPT			
					fema	nale threaded			
				2	Stair	inless Steel T-shaped joint with M20x1.5 external			
					threa	ead			
110	Integral Indicator								
					N	No display			
					2	Backlight LCD display (-20 ° C)			
					3	OLED display (-40° C)			
120	Explosion Protection Type	I							
						N Basic type			
						A Intrinsically safe, NEPSI			
						D Flameproof, NEPSI			
						B Intrinsically safe, ATEX			
400						E Flameproof, ATEX			
130	Tag Plate					N None			
				1 The position number is marked on t					
			nameplate 2 Hanging Stainless Steel plate						
140	Manual								
140						C Chinese			
						E English			
			1	I					

150	Attachment Options												
												S	Stainless steel case
											V	Low voltage version	
												Т	Electrical connection 1/2NPT (no
												cable entry device and blind	
													plug)

10	Flang	je sealin	g device								
	LT-	Level F	lange Se	aling, N	lo Capillary, + Si	de					
	Proc	ess Con	nection	Nor	ninal Diameter	ę	Sealing Surface For	m Diaphragm/Sealing Surface			
20	Mate	rial									
		A	DN50	DIN 2	501 / HG20592	Е	DN2526	Stainless Steel 316L			
		В	DN50	DIN 2	501 / HG20592	Е	DN2526	Hastelloy C			
		С	DN50	DIN 2	501 / HG20592	Е	DN2526	Tantalum (temperature ≤ 200 ° C)			
		н	DN80	DIN 2	501 / HG20592	Е	DN2526	Stainless Steel 316L			
		I	DN80	DIN 2	501 / HG20592	Е	DN2526	Hastelloy C			
		G	DN80	DIN 2	501 / HG20592	Е	DN2526	Tantalum (temperature ≤ 200 ° C)			
		R	DN100	DIN 2	501 / HG20592	Е	DN2526	Stainless Steel 316L			
		S	DN100	DIN 2	501 / HG20592	Е	DN2526	Hastelloy C			
		Т	DN100	DIN 2	501 / HG20592	Е	DN2526	Tantalum (temperature ≤ 200 ° C)			
		D	DN2" AI	NSI B 1	6.5 / HG20615	RF	ANSI B 16.5	Stainless Steel 316L			
		E	DN2" AI	NSI B 1	6.5 / HG20615	RF	ANSI B16.5	Hastelloy C			
		F	DN2" AI	NSI B 1	6.5 / HG20615	RF	ANSI B 16.5	Tantalum (temperature ≤200°C)			
		к	DN3" AI	NSI B 1	6.5 / HG20615	RF	ANSI B16.5	Stainless Steel 316L			
		L	DN3" AI	NSI B 1	6.5 / HG20615	RF	ANSI B 16.5	Hastelloy C			
		М	DN3" AI	NSI B 1	6.5 / HG20615	RF	ANSI B 16.5	Tantalum (temperature ≤200°C)			
		N	DN4" AI	NSI B 1	6.5 / HG20615	RF	ANSI B 16.5	Stainless Steel 316L			
		0	DN4" AI	NSI B 1	6.5 / HG20615	RF	ANSI B 16.5	Hastelloy C			
		Р	DN4" AI	NSI B 1	6.5 / HG20615	RF	ANSI B 16.5	Tantalum (temperature ≤200°C)			
30	Work	ing Pre	ssure		Flange Pressur	e Sta	indard				
			1	PN 1I	MPa/4MPa	0	DIN 2501/HG20592				
			2	PN 6.	4MPa		DIN 2501/HG2059	92			
			3	PN 10)MPa		DIN 2501/HG20	592			
			6	Class	150		ANSI B 16.5/HG	20615			
			7	Class	300		ANSI B 16.5/HG	20615			
			8	Class	600		ANSI B 16.5 (exc	cluding DN4" ANSI B 16.5)			
			4	PN 1I	MPa/1.6MPa (DN	100)	DIN 2501/HG2059	92			
			5	PN 2.	5MPa/4MPa (DN	100)	DIN 2501/HG2059	92			
40	Proc	ess Con	nections								
				F	Flat						
				Н	Bulge sealing,	316L	Stainless Steel, exte	ended diaphragm seal 50mm			
				I	Bulge sealing,	316L	Stainless Steel, exte	ended diaphragm seal 100mm			

General Specifications

		L	Bulge	sealing.	Bulge sealing, Hastelloy C, extended diaphragm seal 50mm						
		м	-	-	, Hastelloy C, extended diaphragm seal 100mm						
		N	-	-	, Hastelloy C, extended diaphragm seal 150mm						
50	Filling Fluid	1 1		0.							
			s	Silicon	e oil -30~200°C						
			v	Vegeta	able oil 0~250°C						
			F	Fluorin							
60	Diaphragm P	rotection (Multi	ple Cho	oice)							
				N	None						
				22	DN50/2" coated PFA (perfluoroalkylate) (temperature ≤ 260 ° C)						
					DN80/3" coated PFA (perfluoroalkylate) (temperature ≤ 260 ° C)						
					DN100/4" coated PFA (perfluoroalkylate) (temperature ≤ 260 ° C)						
				32	DN50/2" posted diaphragm PTFE film (polytetrafluoroethylene						
					film) ^[2] (temperature ≤200°C)						
				33	DN80/3" posted diaphragm PTFE film (polytetrafluoroethylene						
					film) ^[2] (temperature ≤200°C)						
				34	DN100/4" posted diaphragm PTFE film (polytetrafluoroethylene						
					film) ^[2] (temperature ≤200°C)						
				42	DN50/2" 316L coated with FEP (fluorinated ethylene propylene						
					copolymer) (temperature ≤180 °C) (only for plug-in type)						
				43	DN80/3" 316L coated with FEP (fluorinated ethylene propylene						
					copolymer) (temperature ≤180 °C) (only for plug-in type)						
				44	DN100/4"316L coated FEP (fluorinated ethylene propylene						
					copolymer) (temperature ≤180 °C) (only for plug-in type)						
				52	DN50/2″ 316L coated with PEA (perfluoroalkylate) (temperature ≤						
					260 ° C) (only for plug-in)						
				53	DN80/3" 316L coated PFA (perfluoroalkylate) (temperature ≤						
					260 °C) (only for plug-in)						
				54	DN100/4"316L coated with PFA (perfluoroalkylate) (temperature ≤						
					260 °C) (only for plug-in)						
				6	Vacuum treatment ^[3] (temperature ≥120°C, working pressure						
					≤50kPa abs.)						
				72	Gold Plating on DN50/2" 316L						
				73	Gold Plating on DN80/3" 31L						
				74	Gold Plating on DN100/4" 316L						
				8	Degrease Cleansing Treatment						

3	3 Level Flange Sealing Device Selection of Differential Pressure Level Transmitter												
	10	Flange sealing device											
		RT- With capillary, - Side											
	Process Connection Nominal Diameter Sealing Surface Form Diaphragm/Sealing Surface												
	20	Mate	rial										
			A	DN50	DIN 2501 / HG20592	Е	DN2526	Stainles	s Steel 316L				
			В	DN50	DIN 2501 / HG20592	Е	DN2526	Hastello	ру С				

C DN50 DIN 2501 / HG20592 E DN2526 Tantalum (temper	,						
H DN80 DIN 2501 / HG20592 E DN2526 Stainless Steel 31	16L						
I DN80 DIN 2501 / HG20592 E DN2526 Hastelloy C							
G DN80 DIN 2501 / HG20592 E DN2526 Tantalum (temper	,						
R DN100 DIN 2501 / HG20592 E DN2526 Stainless Steel 31	16L						
S DN100 DIN 2501 / HG20592 E DN2526 Hastelloy C							
T DN100 DIN 2501 / HG20592 E DN2526 Tantalum (temper	ature ≤ 200 ° C)						
D DN2" ANSI B 16.5 / HG20615 RF ANSI B 16.5 Stainless Steel 3	16L						
E DN2" ANSI B 16.5 / HG20615 RF ANSI B16.5 Hastelloy C							
F DN2" ANSI B 16.5 / HG20615 RF ANSI B 16.5 Tantalum (tempera	ature ≤200°C)						
K DN3" ANSI B 16.5 / HG20615 RF ANSI B16.5 Stainless Steel 31	16L						
L DN3" ANSI B 16.5 / HG20615 RF ANSI B 16.5 Hastelloy C							
M DN3" ANSI B 16.5 / HG20615 RF ANSI B 16.5 Tantalum (tempe	erature ≤200°C)						
N DN4" ANSI B 16.5 / HG20615 RF ANSI B 16.5 Stainless Steel 31	6L						
O DN4" ANSI B 16.5 / HG20615 RF ANSI B 16.5 Hastelloy C							
P DN4" ANSI B 16.5 / HG20615 RF ANSI B 16.5 Tantalum (tempera	ature ≤200°C)						
30 Working Pressure Flange Pressure Standard							
1 PN 1MPa/4MPa DIN 2501/HG20592							
2 PN 6.4MPa DIN 2501/HG20592							
3 PN 10MPa DIN 2501/HG20592	DIN 2501/HG20592						
6 Class150 ANSI B 16.5/HG20615							
7 Class300 ANSI B 16.5/HG20615							
8 Class600 ANSI B 16.5 (excluding DN4" ANSI B 1	ANSI B 16.5 (excluding DN4" ANSI B 16.5)						
4 PN 1MPa/1.6MPa (DN100) DIN 2501/HG20592	DIN 2501/HG20592						
5 PN 2.5MPa/4MPa (DN100) DIN 2501/HG20592							
40 Process Connections							
F Flat							
H Bulge sealing, 316L Stainless Steel, extended diaphragm seal 5	0mm						
I Bulge sealing, 316L Stainless Steel, extended diaphragm seal 1	00mm						
G Bulge sealing, 316L Stainless Steel, extended diaphragm seal 1	50mm						
L Bulge sealing, Hastelloy C, extended diaphragm seal 50mm							
M Bulge sealing, Hastelloy C, extended diaphragm seal 100mm							
N Bulge sealing, Hastelloy C, extended diaphragm seal 150mm							
50 Filling Fluid							
S Silicone oil -30~200°C							
∨ High temperature silicone oil -10~350°C							
L Ultra-low temperature filling liquid -100~100℃							
U Ultra high temperature filling liquid 10~450℃							
M Vegetable oil 0~250°C							
N Fluorine oil -30~260°C							
60							
00 Without Capillary, direct-mounted(RH-)							
01 1m							

					1	02	0		1
						03	3m		
						04	4m		
						05	5m		
						06	6m		
						07	7m		
						08	8m		
						09	9m		
						10	10m		
						11	11m		
						12	12m		
70	Capil	llary c	ompo	pnent	charac	teristics			
							N	None	
							Р	Capillar	y with PVC protective layer
80	Diapl	hragm	Prot	ectio	n (Multi	ple Choic	ce)		
								Ν	None
								22	DN50/2" coated PFA (perfluoroalkylate) (temperature ≤
									260 ° C)
								23	DN80/3" coated PFA (perfluoroalkylate) (temperature ≤
									260 ° C)
								24	DN100/4" coated PFA (perfluoroalkylate) (temperature ≤
									260 ° C)
								32	DN50/2" posted diaphragm PTFE film
									(polytetrafluoroethylene film) ^[2] (temperature ≤200°C)
								33	DN80/3" posted diaphragm PTFE film
									(polytetrafluoroethylene film) ^[2] (temperature ≤200°C)
								34	DN100/4″ posted diaphragm PTFE film
									(polytetrafluoroethylene film) ^[2] (temperature ≤200°C)
								42	DN50/2" 316L coated with FEP (fluorinated ethylene
									propylene copolymer) (temperature ≤180 °C) (only for
									plug-in type)
								43	DN80/3" 316L coated with FEP (fluorinated ethylene
									propylene copolymer) (temperature ≤180 °C) (only for
									plug-in type)
								44	DN100/4"316L coated FEP (fluorinated ethylene
									propylene copolymer) (temperature ≤180 °C) (only for
									plug-in type)
								52	DN50/2" 316L coated with PEA (perfluoroalkylate)
									(temperature $\leq 260 \degree$ C) (only for plug-in)
								53	DN80/3" 316L coated PFA (perfluoroalkylate)
									(temperature ≤ 260 °C) (only for plug-in)
								54	DN100/4"316L coated with PFA (perfluoroalkylate)
								•••	(temperature ≤ 260 °C) (only for plug-in)
								6	Vacuum treatment ^[3] (temperature ≥120°C, working
							I	0	

					pressure ≤50kPa abs.)
				72	Gold Plating on DN50/2″ 316L
			Ì	73	Gold Plating on DN80/3″ 31L
				74	Gold Plating on DN100/4″ 316L
				08	Degrease Cleansing Treatment

Note 1: Before level flange sealing device selection, the selection of the RP1001 differential pressure transmitter should be completed, and selected L option in line 60 of the in RP1001 options table; Note 2: The PTFE membrane (F4 membrane) posted on the diaphragm, it could be applied to the

measurement of negative pressure, but it applies only to the flat level flange;

Note 3: When measuring pressure or working static pressure <50kPa (absolute pressure), option 6 should be selected in 60 items to ensure performance.

Order Example:

PR1001-BC0A1LNNNNN2N1C^[4,5], LT-H1FSNN

- [B]: Reference Accuracy: ±0.075%
- [C]: Span:0-400Pa ~ 40kPa (0-40 ~ 4000 mmH2O)
- [0]: None Static Pressure Sensor
- [A]: 316L stainless steel diaphragm, Silicone oil fill fluid
- [1]: Working pressure:16MPa
- [LN]: 1/4" NPT and 7/16" UNF female thread, No relief valve
- [N]: Nitrile rubber (NBR) process connector gasket
- [N]: No Special Function
- [N]: No mounting bracket
- [N]: No Negative Cavity Process Connection Accessory
- [2]: LCD Backlight display
- [N]: Basic type
- [1]: The position number is marked on the nameplate
- [C]: Chinese manual
- [LT-]: Level flange sealing, no capillary ,⊕ Side
- [H]: DN80 DIN 2501,E DN2526, 316L stainless steel
- [1]: Working pressure PN 1MPa/4MPa DIN 2501
- [F]: Flange sealing type is flat sealing
- [S]: Fill fluid is silicone oil
- [NN]: None diaphragm Protection

Note 4: The differential pressure transmitter selection refers the RP1001 Series Transmitter selection table.

Note 5: The minimum range of the Remote Seal Differential Pressure Transmitter should be the larger of the minimum range in Tables 1 and 2. The adjusted range must not be less than the minimum range. In order to optimize the performance of the Level Transmitter, the range ratio should be <10:1.

RP1001 Remote Seal Differential

Pressure Transmitter

1. APPLICATION

The diaphragm capsule of the Remote Seal Differential Pressure Transmitter is used to prevent the medium in the pipeline from directly entering the pressure sensor component of the Differential Pressure Transmitter. It uses a filling fluid such as silicone oil to transfer pressure.

The RP1001 Remote Seal Differential Pressure Transmitter is suitable to measure liquid, gas, or steam flow as well as liquid level, density and pressure, and converts it into a 4-20mADC HART current signal output. It can also communicate with each other by RSM295 Modem to parameter setting and process monitoring etc. The RP1001 Series Remote Seal Pressure Transmitter (No migration) range limits is 0-1kPa~3MPa, and the flange's rated pressure are: 1.6/4MPa, 6.4MPa, 10MPa, 150psi, 300psi or 600psi.

2. OPERATING PRINCIPLE AND STRUCTURE

The RP1001 Remote Seal Differential Pressure Transmitter is composed of a RP1001 Series Differential Pressure Transmitter and a welded remote flange with a capillary. Its working principle is the same as RP1001 Series Differential Pressure Transmitter (see RP1001 Series Differential Pressure Transmitter Technical Specification), but the pressure transmission path is slightly different: the pressure acting on the remote flange side is firstly transmitted through the remote flange. The upper diaphragm and





filling liquid pass through the capillary tube and finally reach the corresponding positive and negative sides of the measuring sensor.

3. INPUT

Measurement Value: Differential Pressure, Level

Measuring range

Lower Range Value: -100% URL (continuously adjustable)

Upper Range Value: Up to +100% URL (continuously adjustable)

Spans

Table 1 Span Code and Measuring Range

Span	Minimu	Maximu	Rated
Code	m	m range	pressure
Code	range	mange	(maximum)
В	1kPa	6kPa	The flenge's
С	4kPa	40kPa	The flange's working
D	25kPa	250kPa	Ũ
F	200kPa	3MPa	pressure

Table 2 Flange and Minimum MeasuringRange

	Nominal	Minimur	n Range	
Flange	Diameter	One	Two	
	Diameter	Flange	Flange	
	DN 50/2"	10kPa	10kPa	
Flat	DN 80/3"	6kPa	2kPa	
	DN 100/4"	6kPa	2kPa	
Insert	DN 50/2"	16kPa	16kPa	
Tube	DN 80/3"	6kPa	2kPa	
Sealing	DN 100/4"	6kPa	2kPa	

The minimum measuring range of the Remote Seal Differential Pressure Transmitter should be the larger value of the minimum range of table 1 and table 2. The adjusted span must not be lower than the minimum range. The maximum range of the Remote Transmitter should be the minimum of both the maximum range of the transmitter body and the rated pressure of the liquid level flange.

4. OUTPUT

Output signal

2-wire system, 4~20mADC HART output, digital communication, HART protocol is loaded on 4~20mADC signal.

Output signal limit: Imin = 3.9mA, Imax = 20.5mA

Failure Alarm (Mode can be selected)

Low mode (min.): 3.6 mA High mode (max.): 21 mA No mode (hold): Keep the effective current value before the fault

Alarm current standard setting: High-Report Mode

5. Response time

The amplifier damping constant component is $0.1 \, \text{s.}$ The sensor and level flange time constant is 0.2 to 2 s, it depends on the range and range compression ratio. The additional adjustable time constant is: $0.1 \sim 60 \text{ s.}$

6. GENERAL CONDITIONS

The transmitter can be fixed directly to any position by the level flange preferably in such a position that the process flange axes are vertical. Deviations from this can cause a shift in the zero, which can be corrected. The electronic housing can be rotated through 360° and can be fixed in any position.

The remote flange is connected to the matching flange that meets the ANSI/ DIN standard. The matching flange should be equipped with soft gaskets and bolts and nuts (user-selectable mounting bolts and nuts).

For bilateral flange remote transmitters, capillary components and remote flanges should only be installed in the same ambient temperature. The minimum bending radius of the capillary is 75mm, and it is strictly prohibited to entangle!

6.2 Environmental Conditions Ambient temperature

Minimum: depending on the filling fluid Maximum: 85° C -20 ~ 65°C: with liquid crystal display and fluoro-rubber sealing ring

Storage/ Transport Temperature

Minimum: depending on the filling fluid Maximum: 85 ° C

Relative Humidity 0 ~ 100%

Electromagnetic Compatibility (EMC) Look the EMC Performance Table 4

6.3 Process conditions

Temperature Limit (Medium Temperature) -40 $\sim 450^\circ~C$

Table 3 Table of filling liquid, workingtemperature and minimum working staticpressure

Fillin g Fluid	Silico ne Oil (S)	High temp. Silicon e oil (h)	Ultra- High Temp. Filling Soluti on (z)	Vege table Oil (v)	Ultra -Low Tem p. Fillin g Solut ion (z)
Den sity 25 ° C	960 kg/m ³	980 kg/m ³	1020 kg/m ³	937 kg/m ³	1020 kg/m 3
Tem p. Limit s	-30 ~ 200°	-10 ~ 350°	10 ~ 600°	0 ~ 250°	-100 ~ 100°

	-												
Tem	Working pressure range (kPa absolute												
ре	pressure)												
20°	>10	>10	>5	>25	>10								
100°	>25	>25	>10	>50	>25								
150°	>50	>50	>20	>75									
200°	>75	>75	>25	>100									
250°	-	>100	>50	>100									
350°	-	>100	>75	-									
600°	-	-	>100	-									

Note: Exceeding the above range of working temperature and static pressure relationship should be specifically pointed out, can be met by special design.

Pressure Limit

From 3.5kPa absolute to working pressure. Proof pressure up to 1.5 times the nominal pressure simultaneously on both sides of the transmitter admissible.

Remote Flange Rated Pressure

ANSI:	150 psi to 600 psi
DIN:	PN 1.6MPa~PN 10MPa

One-Way Overload Limit

The low-pressure side is the rated pressure of the transmitter body, and the high-pressure side is the rated pressure of the flange. Possibly occurring zero offsets can be corrected.

Weight

One flange remote seal: DN 50/2" about 7 \sim 10kg; DN 80/3" about 8 \sim 11kg; DN 4" about 9 \sim 12kg;

Two flange remote seal: DN 50/2" about 10 ~ 16.5kg; DN 80/3" about 12 ~ 18kg; DN 4" about 14 ~ 21kg.

Explosion-Proof Performance

Intrinsically Safe NEPSI: Ex ia IIC T4 Ga Ta : -40° ~ +60°C

Explosion-proof NEPSI: Ex d IIC T4~T6 Gb Ta :-40 ~ +60° C

Dust Explosion-Proof NEPSI: Ex tb IIIC T80°C/T95°C/T130°C Db Ta = -40 ~ +60° C

Explosion-proof ATEX/ IECEx II 2 G Ex db IIC T4/T5/T6 Gb Ta: -40 ~ +60°C

Intrinsically safe ATEX/IECex II 2 G Ex ia IIC T4/T5/T6 Ga Ta : $-40^{\circ} \sim +85^{\circ}$ C/ -40° C ~ $+50^{\circ}$ C/ -40° C ~ $+40^{\circ}$ C

Dust Explosion-Proof ATEX/ IECEx: II 2 D Ex tb IIIC T80°/T90°/T130° Db Ta : -40° ~ +60° C

6.4 Power And Load Conditions

The power supply voltage is 24VDC, R ≤ (Us-12V)/I_{max} kΩ, I_{max} = 23 mA Maximum Voltage Limit: 36VDC Minimum Voltage Limit: 9VDC (low voltage). 13.5VDC (backlit LCD display, OLED display) Digital Communication Load Range: 230~600Ω

Wetted Parts Materials

- Measuring diaphragm capsule: 316L Stainless Steel
- **Diaphragm:** 316L Stainless Steel, Hastelloy C, Tantalum
- Process Flange: 304 Stainless Steel

- **Filling Liquid**: Silicone Oil, High Temperature Silicone Oil, Ultra High Temperature Silicone Oil, Vegetable Oil
- Process Connector Gasket: Nitrile Rubber (NBR), Viton (FKM), Polytetrafluoroethylene (PTFE)
- Amplifier Housing : Aluminum with epoxy resin coat Stainless Steel case optional.
- Housing Gasket: Nitrile Rubber (NBR)
- Nameplate: 304 Stainless Steel

Electrical Connections

M20×1.5 or NPT1/2 internal thread, standard

M20×1.5 nylon cable sealing buckle, terminal block for $0.5 \sim 2.5 \text{mm}^2$ wire.

Process Connection

The low-pressure side of the transmitter has NPT 1/4 and UNF 7/16" internal threads. The liquid level flange on the high-pressure side of the transmitter conforms to ANSI or DIN standards. It can be installed directly, refer to Table 5 of Page.44.

Enclosure rating

IP67

No.	Test items	Basic standards	Test conditions	Performance
				Level
1	Radiated Interference (Housing)	GB/T 9254-2008	30MHz ~ 1000MHz	ОК
	Conducted Interference (DC			
2	Power Port)	GB/T 9254-2008	$0.15 MHz \sim 30 MHz$	OK
	Electrostatic Discharge		4kV(Line)	
3	(ESD)	GB/T	8kV(Air)	В
	Immunity	17626.2-2006		
	RF Electromagnetic Field			
4	Immunity	GB/T	10V/m (80MHz ~	A
		17626.3-2006	1GHz)	
-	Frequency Magnetic Field	OD/T	20.4 /m	
5	Immunity	GB/T 17626.8-2006	30A/m	A
	Electrical Fast Transient	11020.0-2000		
6	Burst	GB/T	2kV(5/50ns, 5kHz)	В
	Immunity	17626.4-2008		
			0.5kV(line to line)	
7	Surge Immunity	GB/T	1kV(line to ground)	В
-		17626.5-2008	(1.2us/50us)	

Table 4 Electromagnetic Compatibility Table

8	Conducted Interference Immunity induced by RF field	GB/T 17626.6-2008	3V (150KHz ~ 80MHz)	A
---	-----------------------------------------------------------	----------------------	---------------------	---

Note: (1) Performance level A description: The technical specifications within the limits of normal performance.

(2) Performance level B description: Temporary reduction or loss of functionality or performance, it can restore itself. The actual operating conditions, storage, and data will not be changed.

7. Dimensions

Unit (mm)

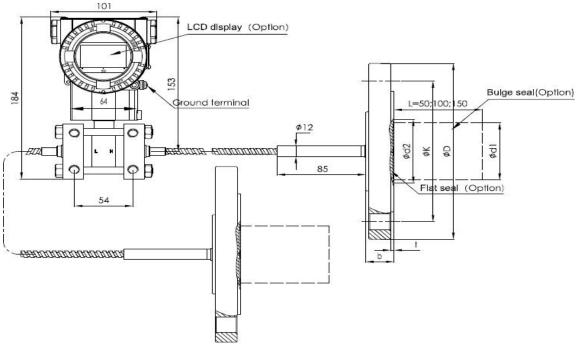
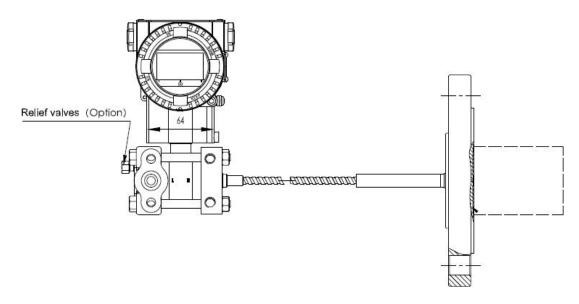


Figure 2 Basic type Single Side Differential Pressure Remote Transmission Sealing Device



Note: (1) The single-sided basic differential pressure remote transmission

sealing device can be installed on the high or low pressure side of the transmitter

(2) The transmitter body of the single-sided or two-side differential pressure remote transmission

sealing device is installed in the same way as the RP1001 series differential pressure transmitter.

Table 5 Remote Seal Flange Dimensions

Nominal	Working	4 D	<i>ф</i> //	Φd1	Φd2	ф -10	4			uired olt
Diameter	Pressure	ΦD	ФК	Plug -in	Flat	Фd3	t	b	Qua ntity	Thre ad
DN 50	PN1.6/4MP a	165	125	48.3	57	102	3 ^{+0.5}	20	4	M16
(Sealing DIN 2526E)	PN 6.4MPa	180	135	48.3	57	102	3 ^{+0.5}	26	4	M20
(Flange DIN 2501)	PN 10MPa	195	145	48.3	57	102	3 ^{+0.5}	28	4	M24
DN 80	PN1.6/4MP a	200	160	76	75	138	3 ^{+0.5}	24	8	M16
(Sealing DIN 2526E)	PN 6.4MPa	215	170	76	75	138	3 ^{+0.5}	28	8	M20
(Flange DIN 2501)	PN 10MPa	230	180	76	75	138	3 ^{+0.5}	32	8	M24
DN 100 (Sealing DIN 2526E) (Flange DIN 2501)	PN1/1.6MP a PN2.5/4MP a	220 235	180 190	89 89	110 110	158 162	3 ^{+0.5} 3 ^{+0.5}	22 26	8 8	M16 M20
	150psi	152.4	120. 6	48.3	57	92.1	3 ^{+0.5}	17.4	4	M16
DN 2" (ANSI B 16.5 RF)	300psi	165.1	127. 0	48.3	57	92.1	3 ^{+0.5}	20.6	8	M16
	600psi	165.1	127. 0	48.3	57	92.1	6.35	31.7 5	8	M16
	150psi	190.5	152. 4	76	75	127	3 ^{+0.5}	22.2	4	M16
DN 3" (ANSI B 16.5 RF)	300psi	209.5	168. 3	76	75	127	3 ^{+0.5}	27.0	8	M20
	600psi	209.5	168. 3	76	75	127	6.35	38.0 5	8	M20
DN 4"	150psi	229	191	89	89	157	3 ^{+0.5}	30	8	M16
(ANSI B 16.5 RF)	300psi	255	200	89	89	157	3 ^{+0.5}	32	8	M20

Note: The user can choose to install bolts and nuts.

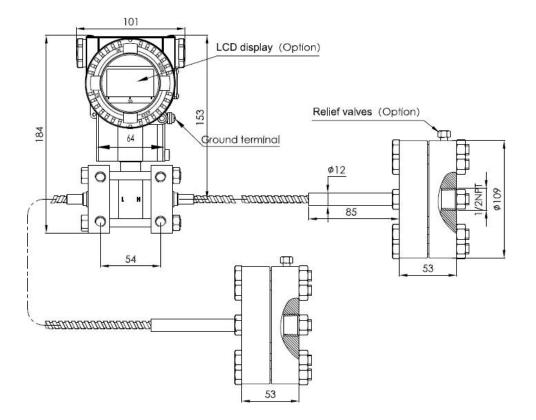
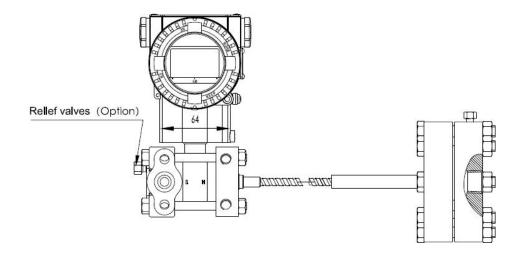


Figure 3 Two Side Flange Remote Seal Of Threaded Mount Device

Figure 4 Single-Sided Threaded Type Differential Pressure Remote Transmission Sealing Device

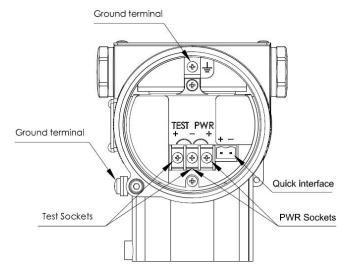


Note: (1) The single-sided thread-mounted differential pressure remote transmission sealing device can be installed on the high-voltage side of the transmitter body or on the low-voltage side of the transmitter.

(2) The transmitter body of the single-sided and double-sided thread-mounted differential pressure remote transmission sealing device is installed in the same manner as the RP1001 Series Differential Pressure Transmitter.

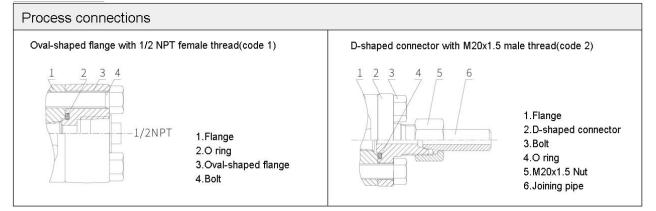
8. Electrical Connection

Figure 5 Electrical Connection Diagram



Note: Quick interface functionally equivalent to the signal terminal

9. Process Connections Description of the No Flange Side



10. Models and suffix codes ^[1]

1 Rei	1 Remote Seal Differential Pressure Transmitter RP1001 Body Selection									
10	Acc	urac	Sy little and the second se							
	В	Ref	ference accuracy ±0.075%							
	С	Ref	ference accuracy ±0.1%							
20	Spa	in								
		В	0-2kPa ~ 6kPa $(0-200 \sim 600 \text{ mmH}_2\text{O})$ /(0-20 ~ 60mbar)							
		С	0-4kPa ~ 40kPa (0-400 ~ 4000 mmH ₂ O) /(0-40 ~ 400mbar)							
		D 0-2.5kPa ~ 250kPa (0-0.25 ~ 25 mH ₂ O) /(0-25 ~ 2500mbar)								

RP1001 Remote Seal Differential Pressure Transmitter

		F	0-3	30kPa	a ~ 3N	1Pa (0	-3 ~	300 i	mH2O) / (0)-0.3	~ 30bar)
30	Stat	tic P			Sens							
			0	Non	ie							
40	Dia	phra	gm	& Fil	ling F	luid						
				Α	Stai	nless s	teel	316		Sili	cone	oil
50	Wo	rking	g Pr	essu	re							
					1	16MF	' a					
60	Pro	cess	s Co	nnec	tions							
						RN						Female thread, No relief valve
						RB RU						⁻ female thread, Relief valves at end of the flange ⁻ female thread, Relief valves at the upper side of the
						NU		nge	i anu	//10	UN	nemale uneau, relief valves at the upper side of the
						RD			T and	7/16	' UNF	female thread, Relief valves at the lower side of the
								nge				
						RR		-	NF thr	eade	d hol	e, Double flange transmission
70	Pro	cess	s Co	nnec	tor G	asket	1					
							Ν	Nitri	ile rubl	ber (I	NBR)	
80	Spe	cial	Fur	nctior	ר							
								Ν	None	e		
								F	-			putput
			_					Р	Light	ining	Prote	ection
90	Μοι	untin	ig B	rack	ets	1			N	No		
									1			s Steel
									2			Steel Galvanized
100	Pro	cess	s Co	nnec	tion	Access	sory	,	-	J	bon	
										N	N	one
										1	С	val-shaped flange with 1/2 NPT female thread
										2	D	-shaped connector with M20x1.5 male thread
110	Inte	gral	Ind	icato	r							
											Ν	None
											2	Backlight LCD display (-20° C)
100											3	OLED display (-40° C)
120	Exp	losi	on F	Prote	cted [·]	Гуре			1	1		N. Desistant
												N Basic type A Intrinsically safe, NEPSI
												D Flameproof, NEPSI
												B Intrinsically safe, ATEX
												E Flameproof, ATEX
130	Tag	Plat	te		I	I	1		1	1		
												N None
												1 Position number marked on the
												nameplate
												2 Hanging stainless steel signage

140	Mar	nual										
										С	Chir	nese
										Е	Eng	lish
150	Atta	chm	nent	opti	on (-)							
											S	Stainless Steel Case
											V	Low Voltage Version
												Electrical connection NPT 1/2
											Т	(no cable entry device and
												blind plug)

2 Fla	ange S	ealing	g Devic	e Sel	ection Of The Rem	ote S	eal Differential	Pressure Transmitter RP1001						
10	Flang	e seal	ing devi	се										
	RH-	With	capillar	y +si	de									
	RL-	With	With capillary Θ side											
20	Proce	ess Co	onnecti	on, F	lange and Diaphra	gm M	aterial							
		А	DN50	C	0IN 2501/HG20592	Е	DN2526	316L Stainless Steel						
		В	DN50	C	0IN 2501/HG20592	Е	DN2526	Hastelloy C						
		С	DN50	C	0IN 2501/HG20592	Е	DN2526	Tantalum (temperature ≤ 200 ° C)						
		н	DN80	C	0IN 2501/HG20592	Е	DN2526	316L Stainless Steel						
		Ι	DN80	Ľ	0IN 2501/HG20592	Е	DN2526	Hastelloy C						
		G	DN80	Ľ	0IN 2501/HG20592	Е	DN2526	Tantalum (temperature ≤ 200 ° C)						
		R	DN100) [DIN 2501/HG20592	Е	DN2526	316L Stainless Steel						
		S	DN100) [DIN 2501/HG20592	Е	DN2526	Hastelloy C						
		Т	DN100) [DIN 2501/HG20592	Е	DN2526	Tantalum (temperature ≤ 200 ° C)						
		D	DN2"A	NSI	B 16.5/HG20615	RF	ANSI B 16.5	316L Stainless Steel						
		Е	DN2"A	NSI	B 16.5/HG20615	RF	ANSI B 16.5	Hastelloy C						
		F	DN2"A	NSI	B 16.5/HG20615	RF	ANSI B 16.5	Tantalum (temperature ≤200°C)						
		к	DN3"A	NSI	B 16.5/HG20615	RF	ANSI B 16.5	316L Stainless Steel						
		L	DN3"A	NSI	B 16.5/HG20615	RF	ANSI B 16.5	Hastelloy C						
		М	DN3"A	NSI	B 16.5/HG20615	RF	ANSI B 16.5	Tantalum (temperature ≤200°C)						
		Ν	DN4"A	NSI	B 16.5/HG20615	RF	ANSI B 16.5	316L Stainless Steel						
		0	DN4"A	NSI	B 16.5/HG20615	RF	ANSI B 16.5	Hastelloy c						
		Р	DN4"A	NSI	B 16.5/HG20615	RF	ANSI B 16.5	Tantalum (temperature ≤200°C)						
30	Work	ing Pr	ressure											
			1	PN [·]	1MPa/4MPa		DIN 2501/HG	20592						
			2	PN 6	6.4MPa		DIN 2501/HG2	0592						
			3	PN [·]	10MPa		DIN 2501/HG2	20592						
			6	Clas	s150		ANSI B 16.5/HG	S20615						
			7	Clas	s300		ANSI B 16.5/HG	620615						
			8 Class600 ANSI B 16.5 (excluding DN4" ANSI B 16.5)											
			4	PN [·]	1MPa/1.6MPa (DN1	00)	DIN 2501/HG2	0592						
			5	PN 2	2.5MPa/4MPa (DN1	00)	DIN 2501/HG2	0592						
40	Proce	ess Co	onnecti	ons										
				F	Flat									

1			I				0.4.0							
				Н	-		-		less Steel, extended diaphragm seal 50mm					
					Bulg	Bulge sealing, 316L Stainless Steel, extended diaphragm seal 100mm								
				G	Bulg	Bulge sealing, 316L Stainless Steel, extended diaphragm seal 150mm								
				L	Bulg	Bulge sealing, Hastelloy C, extended diaphragm seal 50mm								
				м	Bulg	Bulge sealing, Hastelloy C, extended diaphragm seal 100mm								
				N	Bulge sealing, Hastelloy C, extended diaphragm seal 100mm Bulge sealing, Hastelloy C, extended diaphragm seal 150mm									
50	Filling	a fluic	4						,					
00		ginaic	-		S	Silico	ne oil -3	20 ~ 20	0°C					
					H	•	•		licone oil -10 ~ 350°C					
					L			-	re filling liquid -100 ~ 100°C					
					Z	Ultra	high ter	nperatu	ure filling liquid 10 ~ 450°C					
					V	Vege	table Oi	1 0~250)°C					
					F	Fluor	ine Oil -	30~260	D°C					
60	Capil	lary L	ength											
						01	1m							
						02	2m							
						03	3m							
						04	4m							
						05	5m							
						06	6m							
						07	7m							
						08	8m							
						09	9m							
						10	10m							
						11	11m							
						12	12m							
70	Capil	lary C	ompor	nent C	harac	teristi	cs							
							Ν	None						
							Р	With F	PVC protective coating capillary					
80	Diaph	ragm	Protect	ion (m	nultiple	choic	e)							
								Ν	None					
								22	DN50/2" coated PFA (perfluoroalkylate) (temp.≤ 260 °					
									C)					
								23	DN80/3" coated PFA (perfluoroalkylate) (temp.≤ 260 °					
									C)					
								24	 DN100/4" coated PFA (perfluoroalkylate) (temp.≤ 260 °					
								-	C)					
								32	DN50/2″ posted diaphragm PTFE film					
								52	(polytetrafluoroethylene film) ^[2] (temperature ≤200°C)					
								22						
								33	DN80/3" posted diaphragm PTFE film					
									(polytetrafluoroethylene film) ^[2] (temperature ≤200°C)					
								34	DN100/4" posted diaphragm PTFE film					
									(polytetrafluoroethylene film) ^[2] (temperature ≤200°C)					

				52	DN50/2" 316I coated with PFA (perfluoroalkylate)
					(temperature \leq 260 ° C) (only for Bulge sealing)
				53	DN80/3"316l coated PFA (perfluoroalkylate)
					(temperature \leq 260 °C) (only for Bulge sealing)
				54	DN100/4"316I coated with PFA (perfluoroalkylate)
					(temperature \leq 260 °C) (only for Bulge sealing)
				6	Vacuum treatment ^[3] (temperature ≥120°C, working
					pressure ≤50kPa abs.)
				72	Gold plating on DN50/2" 316L
				73	Gold plating on DN80/3″ 316L
				74	Gold plating on DN100/4" 316L
				8	Degrease Cleansing Treatment

Note 1: Before flange sealing device selection, the selection of the RP1001 differential pressure transmitter should be completed and selected R option in line 60 of the in RP1001 options table; Note 2: The PTFE membrane (F4 membrane) posted on the diaphragm, it could be applied to the measurement of negative pressure >50kPa, but it applies only to the flat level flange.

Note 3: When measuring pressure or working static pressure <50kPa (absolute pressure), select option 6 in line 80 to ensure performance.

Example: RP1001-BC2A1RRNNNN2N1C^[4,5],RH-H1FS04PN, RL-H1FS04PN

[B] Reference accuracy: ±0.075% [C]: Span: 0-400Pa~40kPa (0-40~4000 mmH2O)	[1]: Working pressure PN 1MPa/4MPa(DIN 2501)
[2]: Static pressure compensation: 10MPa	[F]: Flange sealing type is flat sealing
[A]: Diaphragm & filling fluid: stainless steel 316	[S]: The filling liquid is silicone oil
diaphragm, and the filling liquid is silicone oil.	[04]: Capillary length is 4m
[1]: Working pressure: 16MPa	[P]: With PVC protective coating capillaries
[RR]: Double flange transmission	[N]: Diaphragm surface without special
[N]: Process connector gasket: Nitrile rubber (NBR)	treatment
[N]: None special options	[RL-]: Flange sealing device of low side
[N]: None mounting bracket	[H]: DN80 (DIN 2501) ,E DN2526, 316L
[N]: None Process connection accessory	stainless steel diaphragm
[2]: With backlight LCD display	[1]: Working pressure PN 1MPa/4MPa(DIN
[N]: Basic type (non-explosion proof)	2501)
[1]: Position number marked on the nameplate	[F]: Flange sealing type is flat sealing
[C]: Chinese instruction manual	[S]: Fill fluid is silicone oil
[RH-]: Flange sealing device of high side	[04]: Capillary length is 4m
[H]: DN80 (DIN 2501), E DN2526, 316L Stainless	[P]: With PVC protective capillaries
Steel diaphragm	[N]: Diaphragm surface without special
	treatment

Note 4: The differential pressure transmitter selection, see the RP1001 series transmitter option table; Note 5: The minimum range of the remote seal transmitter should be the larger of the minimum range

in Tables 1 and 2.The adjusted range must not be less than the minimum range. In order to optimize the performance of the remote transmitter, the range ratio should be <10:1.

3 Th	nreade	d Mou	unt De	evice	Rem	ote Se	al Of	Differential Pressu	re Transmitter Device Selection ^[6]
10	Flang	ge Se	aling	Devid	ce				
	TH-	With	n capil	lary +	side				
	TL-	With	ı capil	lary G) side				
20	Diapl	hragn	n Mate	erial					
		U	316L	_ Stai	nless	Steel			
		V		telloy					
		W			≤200	°C			
30	Flush	າ the ະ	Spare	1					
			1	Nor					
			0	Yes	;				
40	Fillin	g Flui	id	1	1				
				S		cone oi			-30~200°C
				Н	-	-		ure Silicone Oil	-10~350°C
				V		etable			0~250°C
				F	Fluc	orine O	il		-30~260°C
50	Capil	lary L	_engtl	h		I .			
					01	1m			
					02	2m			
					03	3m			
					04	4m			
					05	5m			
					06	6m			
					07	7m			
					08	8m			
					09 10	9m			
					10	10m 11m			
					12	12m			
					12				
60	Canil	lary (Comp	onon	t Cha	racter	ietica		
00	Capi					N	Non		
						P		n PVC Protective Co	ating Capillary
70	Dian	hraon	n Prot	ectio	n		vviti		
10							N	None	
							6		^[7] (temperature ≥120°C, working pressure
							0	≤50kPa abs.)	
	6. 14	hon i		tina	the t	brood	mai		ge-sealing device, the selection of the bo

Note 6: When selecting the thread-mounted remote flange-sealing device, the selection of the body part of the RP1001 Differential Pressure Transmitter should be completed first, and the line in the RP1001 Differential Pressure Transmitter option table should be selected in the 60th line. Pass the option.

Note 7: When measuring pressure or working static pressure <50kPa (absolute pressure), select option 6 in 70 items to ensure performance.

Example: RP1001-BC2A1RRNN112N1C, TH-U1S03NN, TL-U1S03NN

[B]Reference accuracy: ±0.075%

- [C]: Span: 0-400Pa~40kPa (0-40~4000 mmH2O)
- [2]: Static pressure compensation: 10MPa
- [A]: Diaphragm & filling fluid: stainless steel 316l diaphragm, and the filling liquid is silicone oil.
- [1]: Working pressure: 16MPa
- [RR]: Double flange transmission
- [N]: Process connector gasket: Nitrile rubber (NBR)
- [N]: None special options
- [N]: None mounting bracket
- [N]: None Process connection accessory
- [2]: With backlight LCD display
- [N]: Basic type (non-explosion proof)
- [1]: Position number marked on the nameplate
- [C]: Chinese instruction manual
- [TH-] High side is threaded mount device remote seal
- [U]: 316L Stainless steel diaphragm
- [1]: No relief valves
- [S]: The filling liquid is silicone oil
- [03]: Capillary length is 3m
- [P]: With PVC protective coating capillaries
- [N]: None Diaphragm Protection
- [TL-] Low side is threaded mount device remote seal
- [U]: 316L Stainless steel diaphragm
- [1]: no flushing hole
- [S]: The filling liquid is silicone oil
- [03]: Capillary length is 3m
- [P]: With PVC protective coating capillaries
- [N]: None Diaphragm Protection

RP1002 Remote Seal Gauge

Pressure Transmitter

RP1003 Remote Seal Absolute

Pressure Transmitter

1. APPLICATION

The diaphragm capsule of the Remote Seal Differential Pressure Transmitter is used to prevent the medium in the pipeline from directly entering the pressure sensor component of the differential pressure transmitter. It uses a filling fluid such as silicone oil to transfer pressure.

The Remote Seal Gauge / Absolute Differential Pressure Transmitter RP1002/3 is suitable to measure liquid, gas, or steam flow as well as liquid level, density and pressure, and converts it into a 4-20mADC HART current signal output. It can also communicate with each other by RSM295 Modem to parameter setting and process monitoring etc. The Remote Seal Gauge / Absolute Differential Pressure Transmitter RP1002/3 (No migration) range limits is 0-6kPa~25MPa, and the flange's rated pressure are: 1.6/4MPa, 6.4MPa, 10MPa, 150psi, 300psi or 600psi.

2. OPERATING PRINCIPLE & STRUCTURE

RP1002/3 Remote Seal Gauge/Absolute Transmitter Pressure is composed of RP1002/3 Series Gauge/Absolute Pressure Transmitter and the welding installation remote seal flange. The operation theory is the same as RP1002/3 series gauge/absolute pressure transmitter (see RP1002/3 series gauge/absolute pressure transmitter general specifications), only the pressure transmission path is different. The pressure loaded in the high or low side, pass from the



isolation diaphragm and silicone oil in the flange to the sensor.

3. INPUT

Measurement Value: Gauge/ Absolute Pressure, Level

Measuring range

Remote Seal Gauge Pressure Transmitter

Lower range value: -100% URL (continuously adjustable)

Upper range value: up to +100% URL (continuously adjustable)

Remote Seal Absolute Pressure Transmitter

Lower range value: 0~100% URL (continuously adjustable) Upper range value: up to +100% URL (continuously adjustable)

Span

Table 1 Span Code and Measuring Range

Span	Minimum	Maximum	Working
Span	_	_	pressure
Code	Range	Range	(maximum)
С	6kPa	40kPa	The flange's
D	25kPa	250kPa	working

F	30kPa	3MPa	pressure
G	1MPa	10MPa	
н	2.1MPa	21MPa	
I	4MPa	40MPa	
L	10kPa abs.	40kPa abs.	
М	25kPa abs.	250kPa abs.	
0	30kPa abs.	3MPa abs.`	

Table 2 Flange and minimum measuringrange

Flange	Nominal Diameter	Minimum/ Maximum Range	Longest Capillary Length
	DN 25/1"	160kPa/25MPa	10m
Flat	DN 50/2"	10kPa/10MPa	12m
Sealing	DN 80/3"	6kPa/10MPa	16m
	DN 100/4"	6kPa/3MPa	16m
Bulao	DN 50/2"	16kPa/10MPa	10m
Bulge Sealing	DN 80/3"	6kPa/10MPa	16m
Sealing	DN 100/4"	6kPa/3MPa	16m
Threaded	Outer		
Mount	diameter	160kPa/25MPa	10m
Sealing	109mm		

The minimum range of the Gauge/Absolute Remote Transmitter shall be the larger of the minimum range in Tables 1 and 2. The adjusted range must not be less than the minimum range. The maximum range of the Gauge/Absolute Remote Transmitter shall be the minimum of both the maximum range of the transmitter body and the rated pressure of the remote flange.

4. OUTPUT

Output signal

2-wire system, 4~20mADC HART output, digital communication, HART protocol is loaded on 4~20mADC signal. Output signal limit: I_{min} = 3.9mA, I_{max} = 20.5mA

Failure Alarm (Mode can be selected)

Low mode (min.): 3.6 mA High mode (max.): 21 mA No mode (hold): Keep the effective current value before the fault

Alarm current standard setting: High-Report Mode

5. RESPONSE TIME

The amplifier damping constant component is $0.1 \, \text{s}$. The sensor and level flange time constant is $0.2 \text{ to } 2 \, \text{s}$, it depends on the range and range compression ratio. The additional adjustable time constant is: $0.1 \sim 60 \, \text{s}$.

6. GENERAL CONDITIONS6.1 Installation Conditions

The remote seal gauge/absolute transmitters without capillaries can be fixed directly to any position by the level flange preferably in such a position that the process flange axes are vertical. Deviations from this can cause a shift in the zero, which can be corrected. The electronic housing can be rotated through 360° and can be fixed in any position.

The remote flange is connected to the matching flange that meets the ANSI/DIN standard. The matching flange should be equipped with soft gaskets and bolts and nuts (user-selectable mounting bolts and nuts).

For bilateral flange remote transmitters, capillary components and remote flanges should only be installed in the same ambient temperature. The minimum-bending radius of the capillary is 75mm, and it is strictly prohibited to entangle!

6.2 Ambient Conditions

Ambient temperature

Minimum: depending on the filling fluid Maximum: 85 ° C -20~65°C: with liquid crystal display and fluoro-rubber sealing ring

Storage/ Transport Temperature

Minimum: depending on the filling fluid Maximum: 85 ° C

Relative Humidity

0 ~ 100%

Shock Resistance

Acceleration: 50g Duration: 11ms

Vibration Resistance

2g to 500Hz

Electromagnetic Compatibility (EMC)

See the EMC Performance Table 4

6.3 Process Conditions

Medium temperature

-40 ~ 600°C

Table 3 Fill fluid, temperature limits and theworking pressure range

	Silicone	High	Ultra	Veget	Ultra-I
	oil	temp.	high	able	ow
Filling	(S)	silicon	temp.	oil (v)	temp.
fluid		e oil	filling		filling
		(h)	solutio		solutio
			n (z)		n (z)
Density	960	980	1020	937	1020
25° C	kg/m³	kg/m³	kg/m³	kg/m³	kg/m³
Temp.	-30 ~	-10 ~	10 ~	0 ~	-100
Limits	200°	350°	600°	250°	~ 100°
Temp.	Worki	ng pressu	ire range	(kPa ab	os.)
20°	>10	>10	>5	>25	>10
100°	>25	>25	>10	>50	>25
150°	>50	>50	>20	>75	
200°	>75	>75	>25	>100	
250°	-	>100	>50	>100	
350°	-	>100	>75	-	
600°	-	-	>100	-	

Note: Exceeding the above range of operating temperature and pressure should be specifically pointed out, can be met by special design.

Transmitter Body Pressure Limit

Vacuum to maximum working pressure

Remote Flange Rated Pressure

ANSI: 150 psi to 600 psi DIN: PN 1.6MPa~PN 10MPa

Weight

DN 50/2" is about 7~10kg, DN 80/3" is about 8~11kg, DN 4" is about 9~12kg.

Explosion Protection Type

- Intrinsically Safe NEPSI: Ex ia IIC T4 Ga Ta = -40 ~ +60° C
- Explosion-proof NEPSI: Ex d IIC T4~T6 Gb Ta = -40 ~ +60°C
- Dust explosion-proof NEPSI: Ex tb IIIC T80°C/T95°C/T130°C Db Ta = -40 ~ +60°C
- Explosion-proof ATEX/ IECEx: II 2 G Ex db IIC T4/T5/T6 Gb Ta = -40 ~ +60°C
- Intrinsically safe ATEX/ IECEX II 2 G Ex ia IIC T4/T5/T6 Ga Ta = -40°C ~ +85°C/ -40°C ~ +50°C/ -40°C ~ +40°C
- Dust explosion-proof ATEX/ IECEx: II 2 D Ex tb IIIC T80°/T90°/T130° Db Ta = -40° ~ +60° C

6.4 Power And Load Conditions

The power supply voltage is 24VDC, R \leq (Us-12V)/Imax k Ω , I_{max} = 23 mA Maximum supply voltage: 36VDC Minimum supply voltage: 9VDC (low voltage version), 13.5VDC (backlit LCD display, OLED display)

Wetted Parts Materials

- Measuring Diaphragm Capsule: 316L Stainless Steel
- **Diaphragm:** 316L Stainless Steel, Hastelloy C, Tantalum
- Process Flange: 304 Stainless Steel
- Filling Liquid: Silicone Oil, High

Temperature Silicone Oil, Ultra High Temperature Silicone Oil, Vegetable Oil

- Amplifier Housing: Aluminum with epoxy resin coat; Stainless Steel case optional.
- Housing Gasket: Nitrile rubber (NBR)
- Nameplate: 304 Stainless Steel

Electrical Connections

M20×1.5 or NPT1/2 internal thread, standard M20×1.5 nylon cable sealing buckle, terminal

block for $0.5 \sim 2.5 \text{mm}^2$ wire.

Process Connection

The remote flange meets the ANSI standard or DIN standard. It can be installed directly and refer the dimensional drawing.

Enclosure rating

IP67

Sr. No.	Test items	Basic standards	Test conditions	Performance Level
1	Radiated interference (Housing)	GB/T 9254-2008	30MHz ~ 1000MHz	ОК
2	Conducted interference(DC Power port)	GB/T 9254-2008	0.15MHz ~ 30MHz	ОК
3	Electrostatic Discharge (ESD) Immunity	GB/T 17626.2-2006	4kV(Line) 8kV(Air)	В
4	RF electromagnetic field Immunity	GB/T 17626.3-2006	10V/m (80MHz ~ 1GHz)	А
5	Frequency magnetic field Immunity	GB/T 17626.8-2006	30A/m	А
6	Electrical Fast Transient Burst Immunity	GB/T 17626.4-2008	2kV(5/50ns, 5kHz)	В
7	Surge Immunity	GB/T 17626.5-2008	0.5kV(line to line) 1kV(line to ground) (1.2us/50us)	В
8	Conducted interference Immunity induced by RF field	GB/T 17626.6-2008	3V (150KHz ~ 80MHz)	A

Table 4: EMC Performance Table

Note: (1) Performance level A description: The technical specifications within the limits of normal performance.

(2) Performance level B description: Temporary reduction or loss of functionality or performance, it can restore itself. The actual operating conditions, storage, and data will not be changed.

7. Dimensions

Unit (mm)

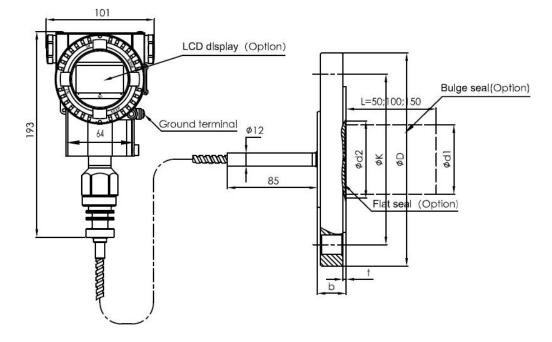
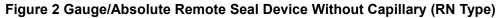
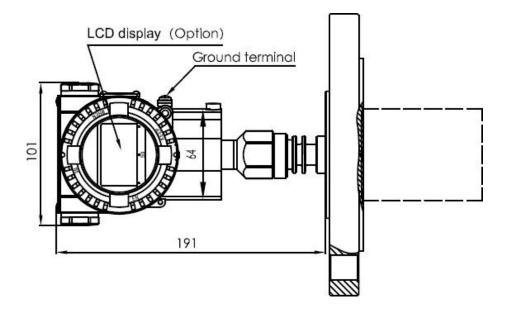


Figure 1 Gauge/Absolute Remote Seal Device (RS Type)





				Φd1	Φd2					uired olt
Nominal Diameter	Working Pressure	ΦD	ФК	Plug-i n	Flat	Фd3	t	b	Qu anti ty	Thre ad
DN 50	PN1.6/4M Pa	165	125	48.3	57	102	3 ^{+0.5}	20	4	M16
(Sealing DIN 2526E)	PN 6.4MPa	180	135	48.3	57	102	3 ^{+0.5}	26	4	M20
(Flange DIN 2501)	PN 10MPa	195	145	48.3	57	102	3 ^{+0.5}	28	4	M24
DN 80	PN1.6/4M Pa	200	160	76	75	138	3 ^{+0.5}	24	8	M16
(Sealing DIN 2526E)	PN 6.4MPa	215	170	76	75	138	3 ^{+0.5}	28	8	M20
(Flange DIN 2501)	PN 10MPa	230	180	76	75	138	3 ^{+0.5}	32	8	M24
DN 100 (Sealing DIN 2526E) (Flange DIN 2501)	PN1/1.6M Pa PN2.5/4M Pa	220 235	180 190	89 89	110 110	158 162	3 ^{+0.5} 3 ^{+0.5}	22 26	8 8	M16 M20
	150psi	152.4	120.6	48.3	57	92.1	3 ^{+0.5}	17.4	4	M16
DN 2" (ANSI B 16.5 RF)	300psi	165.1	127.0	48.3	57	92.1	3 ^{+0.5}	20.6	8	M16
	600psi	165.1	127.0	48.3	57	92.1	6.35	31.75	8	M16
	150psi	190.5	152.4	76	75	127	3 ^{+0.5}	22.2	4	M16
DN 3" (ANSI B 16.5 RF)	300psi	209.5	168.3	76	75	127	3 ^{+0.5}	27.0	8	M20
	600psi	209.5	168.3	76	75	127	6.35	38.05	8	M20
DN 4"	150psi	229	191	89	89	157	3 ^{+0.5}	30	8	M16
(ANSI B 16.5 RF)	300psi	255	200	89	89	157	3 ^{+0.5}	32	8	M20

Table 5 Basic Type Remote Transmission Sealing Device Structure Size

Note: The user can choose to install bolts and nuts.



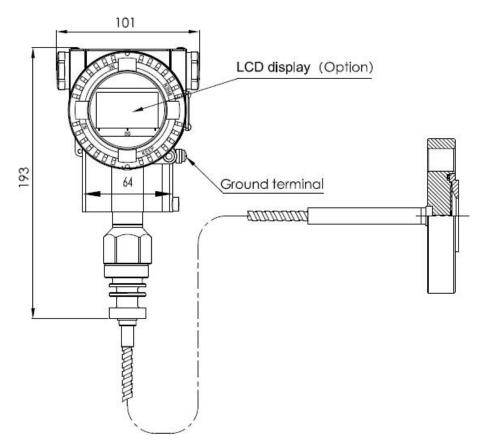


Figure 4: Internal Diaphragm Remote Seal Without Capillary (UN Type)

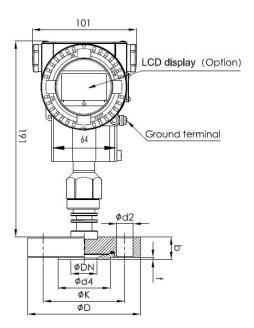


Table 6. Internal Diaphragm Remote Seal Flange Dimensions (DIN 2501)

www.rocksensor.com

DN	PN		_	S	ize		Weight					
DIN	FIN	D K		d4		b	f d		2	kg		
25	1MPa/4MPa	115		85		68	22			2	14	1.5
	6.3MPa/10MPa	140		100		68	24			2	18	3.2
25	16MPa	14	40	100		68		24		2	18	3.6
	25MPa	1	50	105		68	28	3		2	18	4

DN	nci		Size (mm)										
	psi	D	К	d4	b	f	d2	kg					
1"	150	110	79.5	51	22	2	16	1.4					
I	300	125	89	51	22	2	18	1.7					
1"	600	125	89	51	25	7	18	3.6					
	900/1500	150	101.5	51	36	7	26	4.0					



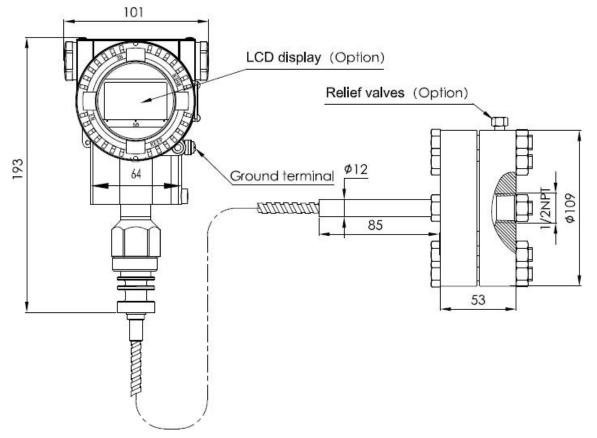
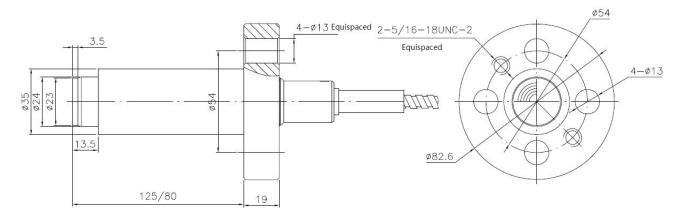
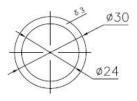


Figure 6 High Temperature Melt Remote Transmission Sealing Device Diagram (PS Type)



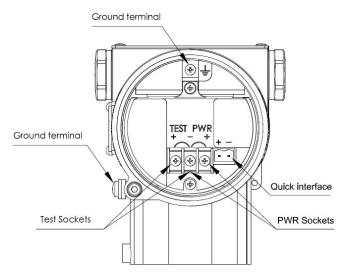
Aluminum washer size



Note: The maximum working pressure of the PS type high temperature remote seal transmitter device is 35 MPa, and the maximum working temperature is 400 °C.

8. Terminal Configuration

Figure 7 Electrical Connection Diagram



Note: Quick interface functionally equivalent to the signal terminal

9. Models and suffix codes [1]

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www.rocksensor.com
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1 Ren	note	Seal	Gau	uge F	Press	ure T	ransn	nitter b	ody	/ selection RP1002-				
1 Ren	note	Seal	Abs	solut	e Pre	ssur	e tran	smitter	bo	dy selection RP1003-				
10	Ac	curac	су											
	В	Refe	erend	ce ac	curac	cy ±	0.075%	%						
	С													
20	Sp													
		Gau	Gauge Pressure RP1002											
		С	0-6ł	kPa ∼	- 40kl	Pa/	(0-600	~ 4000	mr	nH₂O) /(0-60 ~ 400mbar)				
		D	0-25	5kPa	~ 250	0kPa	/ (0-2	.5 ~ 25	mΗ	₂ O) /(0-250 ~ 2500mbar)				
		F	0-30	0kPa	~ 3M	lPa /	(0-3~	300 m	H ₂ C	0) /(0-0.3~30bar)				
		G	0-0.	1MP	a ~ 1	0MPa	ı /(0-1	~ 100ba	ar)					
		н	0-0.	21M	Pa ~ :	21MF	Pa/ (0)-2.1~2	210	bar)				
		Ι	0-0.	.4MP	a ~ 4	0MPa	1/(0-4	4 ~ 400	bar	·)				
		Abs	olute	Pres	ssure	RP1	003							
		L	0-10	0kPa	~ 401	kPa /	(0-10	00 ~ 40	00	mmH ₂ O) /(0-1000 ~ 400mbar)				
		Μ	0-25	5kPa	~ 250	0kPa	/(0-25	0 ~ 250	0ml	bar)				
		0				• •		30bar)						
		Т	0-10	0kPa	~40k	Pa /(0)-1000	~4000	mm	H ₂ O)/(0-1000~400mbar)【Overload protection to 7MPa】				
30	Dia	aphra	gm l	Fillin	ıg Flu	uid								
			А	316	L Sta	inles	s Steel	I		Silicone Oil				
40	Pro	ocess	s Co	nnec	tion									
				R		note	seal co	onnectio	on					
50	Sp	ecial	Fun	ctior	1									
					N	Nor								
					P	Ligh	itning	protecti	on					
60	Mo	ountir	ıg Bı	racke	ets									
						N	None							
						1		iless St						
						2	Carb	on Stee	el G	alvanized				
70	Inte	egral	Indi	cato	r	1								
							N	None						
							2		-	LCD display (-20 ° C)				
	_					_	3	OLED	dis	play (-40 ° C)				
80	Ex	plosi	on P	rote	cted	Туре								
										c type				
										nsically safe, NEPSI				
										nsically safe, ATEX				
00	-		E Flameproof, ATEX											
90	lag	g Plat	te							News				
									N					
									1	Position number marked on the nameplate				
									2	Hanging stainless steel signage				

100	100 Manual													
									C Chinese					
									E English					
110	110 Additional Options (-)													
										S	Stainless steel case			
										V	Low voltage version			
										Т	Electrical connection npt1/2 (no cable entry device			
											and blind plug)			

	Basic	Туре	Gauge/A	bsolute Pressure Remo	te Transmitter Sealing	g Device					
	RN-	Dire	ct mount,	without capillary							
	RS-	With	n capillary								
20	Proce	ess Co	onnection	Nominal Diameter	Sealing Surface	Diaphragm Material					
		Α	DN50	DIN 2501/HG20592	E DN2526	316L Stainless Steel					
		В	DN50	DIN 2501/HG20592	E DN2526	Hastelloy C					
		С	DN50	DIN 2501/HG20592	E DN2526	Tantalum (temperature ≤ 200 ° C)					
		н	DN80	DIN 2501/HG20592	E DN2526	316L Stainless Steel					
		I	DN80	DIN 2501/HG20592	E DN2526	Hastelloy C					
		G	DN80	DIN 2501/HG20592	E DN2526	Tantalum (temperature ≤ 200 ° C)					
		R	DN100	DIN 2501/HG20592	E DN2526	316L Stainless Steel					
		s	DN100	DIN 2501/HG20592	E DN2526	Hastelloy C					
		т	DN100	DIN 2501/HG20592	E DN2526	Tantalum (temperature ≤ 200 ° C)					
		D	DN2"AN	ISI B 16.5/HG20615	RF ANSI B16.5	316L Stainless Steel					
		Е	DN2"AN	ISI B 16.5/HG20615	RF ANSI B16.5	Hastelloy C					
		F	DN2"AN	ISI B 16.5/HG20615	RF ANSI B16.5	Tantalum (temperature ≤200°C)					
		к	DN3"AN	ISI B 16.5/HG20615	RF ANSI B16.5	316L Stainless Steel					
		L	DN3"AN	ISI B 16.5/HG20615	RF ANSI B16.5	Hastelloy C					
		М	DN3"AN	ISI B 16.5/HG20615	RF ANSI B 16.5	Tantalum (temperature ≤200°C)					
		Ν	DN4"AN	ISI B 16.5/HG20615	RF ANSI B 16.5	316L Stainless Steel					
		0	DN4"AN	ISI B 16.5/HG20615	RF ANSI B 16.5	Hastelloy C					
		Р	DN4"AN	ISI B 16.5/HG20615	RF ANSI B 16.5	Tantalum (temperature ≤200°C)					
)	Work	ing P	ressure								
			1 PN	I 1MPa/4MPa	DIN 2501/HG20	592					
			2 PN	I 6.4MPa	DIN 2501/HG205	92					
			3 PN	I 10MPa	DIN 2501/HG208	592					
			6 Cla	ass150	ANSI B 16.5/HG20	0615					
			7 Cla	ass300	ANSI B 16.5/HG20	0615					
			8 Cla	ass600 ANSI B 16.5	(excluding DN4" Al	NSI B 16.5)					
			4 PN	I 1MPa/1.6MPa (DN100)) DIN 2501/HG20)592					
			5 PN	I 2.5MPa/4MPa (DN100)) DIN 2501/HG20)592					
0	Conn	ectio	n Type								
			F	Flat							
			н	Bulge sealing, 316L	stainless steel, exten	ded diaphragm seal 50mm					

	I		1	I	I _					
					Bulg	ge sea	aling, 3	316L st	ainless steel, extended	d diaphragm seal 100mm
				G	Bulg	ge sea	aling, 3	316L st	ainless steel, extended	d diaphragm seal 150mm
				L	Bul	je sea	aling, I	Hastello	by C, extended diaphra	agm seal 50mm
				м		-	-		by C, extended diaphra	-
				N		-	-		by C, extended diaphra	-
50	Filling		 : al			JC 3C6	anng, i	lastent		
50	Filling	g riu	10 	1						
					S		one oil			-30~200°C
					Н	High	n tempe	erature	silicone oil	-10~350°C
					V	Veg	etable	oil		0~250°C
					F	Fluc	orine oil			-30~260°C
					L	Ultra	a-low te	mpera	ture filling solution	-100~100°C (not applicable to RN-type)
					z	Ultra	a high t	empera	ature filling solution	10~600°C (not applicable to RN-type)
60	Capil	larv I	enat	'n	1	1	U	•	0	
	eapin					00	Nono	Capilla	ry - direct mount (RN-1	type)
								Capilla	iry - direct mount (RN-	(ype)
						01	1m			
						02	2m			
						03	3m			
						04	4m			
						05	5m			
						06	6m			
						07	7m			
						08	8m			
						10	10m			
						11	11m			
						12				
						12	12m			
70	Capil	lary (Comp	onen	it Cha	aracte	eristics	(Multi	ple Choices Possible	e)
							N	None		
							Р	With	PVC protective coating	g capillary
80	Diaph	ragm	Prote	ection	(Mul	tiple (Choice)			
								N	None	
								22	DN50/2" coated PFA ((perfluoroalkylate) (temperature ≤ 260 ° C)
										(perfluoroalkylate) (temperature ≤ 260 ° C)
										$(\text{perfluoroalkylate})$ (temperature $\leq 260^{\circ}$
									C)	
										rragm PTFE film (polytetrafluoroethylene
									film) ^[2] (temperature :	≤200°C)
								33	DN80/3" posted diaph	ragm PTFE film (polytetrafluoroethylene
									film) ^[2] (temperature :	≤200°C)
								34	DN100/4" posted diap	hragm PTFE film (polytetrafluoroethylene
									film) ^[2] (temperature :	
									, , ,	with PFA (perfluoroalkylate) (temperature
									$\leq 260 \degree C$ (only for plu	
									, , , , ,	
ı								53	DINOU/S 3 TOL COATED I	PFA (perfluoroalkylate) (temperature ≤

				54 6	260 °C) (only for plug-in) DN100/4"316L coated with PFA (perfluoroalkylate) (temperature ≤ 260 °C) (only for plug-in) Vacuum treatment ^[3] (temperature ≥120°C, working pressure
					≤50kPa abs.)
				72	Gold plating on DN50/2″ 316L
				73	Gold plating on DN80/3" 316L
				74	Gold plating on DN100/4" 316L
				8	Degrease cleansing treatment

Note 1: When selecting the basic type of gauge/absolute pressure remote flange sealing device, the selection of RP1002/3 gauge/absolute pressure transmitter should be completed first;

Note 2: The PTFE membrane (F4 membrane) posted on the diaphragm, which is not suitable for negative pressure measurement, but only for flat liquid level flanges.

Note 3: When measuring pressure <50kPa (absolute pressure), option 6 should be selected in 80 items to ensure performance.

Note 4: The minimum range of the remote seal transmitter should be the larger of the minimum range in Tables 1 and 2. The adjusted range must not be less than the minimum range. In order to optimize the performance of the remote transmitter, the range ratio should be <10:1.

Example: RP1002-BCARNN2N1C^[4] RN-H1FS00NN

[B]: Reference accuracy ±0.075%

[C]: The span is 0-400Pa~40kPa (0-40~4000 mmH2O)

[A]: Diaphragm & filling fluid : stainless steel 316l diaphragm, and the filling liquid is silicone oil.

- [R]: Remote connection
- [N]: None special options
- [N]: None mounting bracket
- [2]: Backlight LCD display
- [N]: Basic type (non-explosion proof)
- [1]: Position number marked on the nameplate

[RN-]: Direct mounting remote seal pressure

[C]: Chinese instruction manual

[H]: DN80 (DIN 2501) flange diameter, E
DN2526, 316L stainless steel diaphragm
[1]: Working pressure PN 1MPa/4MPa (DIN 2501)
[F]: Flange sealing type is flat sealing

[S]: The filling liquid is silicone oil

[00]: None Capillary, direct mount

[N]: None

[N]: Diaphragm surface without special treatment

transmitter

3 Selection Of The Internal Diaphragm Remote Seal Gauge/Absolute Pressure Transmitter RP1002/3^[5]

10 Flange Sealing Device

UN- Direct mounting without capillary

RP1002/3 Remote Seal Gauge / Absolute pressure transmitter

	US-	With c	capilla	ry									
20	Proce	ess Col	nnecti	ion, Fl	ange	And [Diaph	iragn	n Matei	ria	I		
		U	DN2	5 E	DIN 2	501/H	G205	92	D	D١	12526		316L Stainless Steel
		V	DN3	"ANSI	B 16.	5/HG2	20615	5	D	D١	2526		Hastelloy C
		W	DN3	"ANSI	B 16.	5/HG2	20615	5	D	D١	2526		Tantalum
		Х	DN1	"ANSI	B 16.	5/HG2	20615	5	RF	А	NSI B 1	16.5	316L Stainless Steel
		Y	DN1						Hastelloy C				
		Z	DN1	"ANSI	B 16.	5/HG2	20615	5	RF	Α	NSI B 1	16.5	Tantalum
30	Work	Working Pressure											
			1	PN 1	MPa/	4MPa		DI	N 2501	1			
			2	PN 6	PN 6.3MPa/10MPa DIN 2501								
			3	PN 1	6MPa	a		DIN	2501				
			4	PN 2	5MPa	a		DIN	2501				
			6	Class	s150			ANS	I B 16.5	5			
			7	Class				ANS	I B 16.5	5			
			8	Class	s600			ANS	I B 16.5	5			
			9	Class	s1500)		ANS	I B 16.	5			
40	Filling	g Fluid	1	1	1								
				S		one O							-30~200°C
				Н	-	-		ure S	ilicone	Oil			-10~350°C
				V	-	etable							0~250°C
				F	Fluc	orine C	Dil						-30~260°C
50	Capil	lary Le	ngth	1			-						
					00		e Cap	oillary	- direc	t m	ount (U	N-type)	
					01	1m							
					02	2m							
					03	3m							
					04	4m -							
					05	5m							
					06	6m							
00	0						•						
60	Capii	lary Co	mpon	ient C	narac	L L		-					
						N P	None		nrotoo		tin	a oonilla	
70	Diank	iragm l	Brotoc	tion		P	vvitri	PVC	protec	SUV	e coatin	ig capilla	ar y
70	Diapi	irayin i	Fiolet				N	Non	0				
							3			ott	achod I	DTEE fill	m (polytetrafluoroethylene film)
							5	•	•				
					 (temperature ≤ 200 ° C) Vacuum treatment (temperature ≥120°C, working pressure 								
							0		kPa abs		menic (i	empera	the 2120 C, working pressure
80	Proce	ess Col	nnect	or Gas	ket			_30r		3.)			
00	11000	.55 001						1	PTFE	:			
								2			nless st	eel	
								3	Haste			501	
								5	าลงเฮ	10	, 0		

4 Tantalum

- Note 5: Before flange sealing device selection, the selection of the RP1002/3 gauge/absolute pressure transmitter should be completed
- Note 6: The minimum range of the remote transmitter should be the larger of the minimum range in Tables 1 and 2. The adjusted range must not be less than the minimum range. In order to optimize the performance of the remote transmitter, the range ratio should be <10:1.
- Note 7: When measuring pressure <50kPa (absolute pressure), special remarks should be made, special treatment is required in the manufacturing process to ensure performance.

Example: RP1002-BCARNN2N1C UN-U1S00NN1 [B]: Reference accuracy ±0.075% [C]: The span is 0-400Pa~40kPa (0-40~4000 mmH2O)	 [C]: Chinese instruction manual [UN-]: Direct mount, none capillary [U]: DN25 DIN2501 D DN2526, 316L stainless steel 			
 [A] : Diaphragm & filling fluid: stainless steel 316l diaphragm, and the filling liquid is silicone oil. [R]: Remote connection [N]: None special options [N]: None mounting bracket [2]: Backlight LCD display [N]: Basic type (non-explosion proof) [1]: Position number marked on the nameplate 	 [1]: Working pressure PN 1MPa/4MPa DIN 2501 [S]: The filling liquid is silicone oil [00]: None capillary [N]: none [N]: Diaphragm surface without special treatment [1]: Process connector gasket is PTFE 			

4 Se	4 Selection Of The Threaded Mount Remote Seal Gauge/Absolute Pressure Transmitter RP1002/3 ^[8]								
10	Flang	Flange Sealing Device							
	TS-	With	capilla	ary					
20	Diapl	hragm	Mate	rial					
		U	316L	Stainl	ess Steel				
		V	Hast	elloy C	;				
		W	Tant	alum (t	emperature ≤ 200 ° C)				
30	Flush	The S	Spare	Hole					
			1	None)				
			0	Yes					
40	Fillin	g Flui	d						
				S	Silicone oil	-30~200°C			
				н	High Temperature Silicone Oil	-10~350°C			
				V	Vegetable oil	0~250°C			
				F	Fluorine oil	-30~260°C			
50	Capil	lary le	ength						
					01 1m				
					02 2m				
					03 3m				

					04	4m		
					05	5m		
					06	6m		
					07	7m		
					08	8m		
60	Capil	lary C	ompo	nent C	harac	teristi	cs	
						Ν	Non	e
						Р	With	PVC protective coating capillary
70	Diap	hragm	Prote	ction				
							Ν	None
								Vacuum treatment (temperature ≥120°C, working pressure ≤50kPa
							6	abs.)

Note 8: When selecting the thread-mounted remote flange-sealing device, the body part of the RP1002/3 gauge/absolute pressure transmitter should be selected first.

Selection example:

Example: RP1002-BCARNN2N1C TS-U1S03NN

- [B]: Reference accuracy ±0.075%
- [C]: The span is 0-400Pa~40kPa (0-40~4000 mmH2O)
- [A]: Diaphragm & filling fluid: stainless steel 316l diaphragm, and the filling liquid is silicone oil.
- [R]: Remote connection
- [N]: None special options
- [N]: None mounting bracket
- [2]: Backlight LCD display
- [N]: Basic type (non-explosion proof)
- [1]: Position number marked on the nameplate
- [C]: Chinese instruction manual
- [TS-]: Threaded mount device remote seal
- [U]: 316L Stainless steel diaphragm
- [1]: None Flush the spare hole
- [S]: The filling liquid is silicone oil
- [03]: Capillary length is 3m
- [N]: None Capillary component characteristics
- [N]: None Diaphragm Protection

5 Hi	5 High Temperature Melt Remote Seal pressure Transmitter device selection							
10	10 High Temperature melt remote transmission sealing device							
	PS-	With	With capillary					
20	Diap	hragm	Material					
		U	316L Stainless Steel					
		V	Hastelloy C					
30	30 Filling Fluid							

RP1002/3 Remote Seal Gauge / Absolute pressure transmitter

			s	Silico	ne oil	-30~200°C
			н	High	tempera	ature silicone oil -10~350°C
40	Сарі	llary L	ength			
				01	1m	
				02	2m	
				03	3m	
				04	4m	
				05	5m	
				06	6m	
				07	7m	
				08	8m	
50	Capi	llary C	ompo	nent C	haracte	eristics
					Ν	None
					Р	With PVC protective coating capillary

Note 11: When selecting the high temperature melt remote transmission-sealing device, the body part of the RP1002/3 gauge/absolute pressure transmitter should be selected first.

RP1002-A Differential Pressure Mounted High Accuracy Gauge Pressure Transmitter RP1003-A Differential Pressure Mounted High Accuracy Absolute Pressure Transmitter

The RP1002/3-A high accuracy differential pressure mounted gauge/absolute transmitter is used to measure the level, density and pressure of liquids, gases or vapors and then converts them into 4-20mA DC HART current signal outputs. The RP1002/3-A can also communicate with the RSM295 Modem for parameter setting, process monitoring, and more.

STANDARD

(Adjust the measurement range based on the standard zero point, Stainless Steel 316L diaphragm, filling liquid is silicone oil)

1. PERFORMANCE SPECIFICATIONS

Reference Accuracy of the range

(Including linearity, hysteresis, and repeatability from zero) = $\pm 0.05\%$ If td>10 (td = maximum range/adjustment range), then: $\pm (0.005 \times TD)\%$

Ambient temperature effect

The total impact from -25 ° C to 65 ° C is: $\pm (0.075 \times TD+0.025)\% \times Span$ $\pm 0.04\%$ per 10 °C (when TD=1) The total influences at -40 ° C ~ -25 ° C and $65 ^{\circ}$ C ~ $85 ^{\circ}$ C are:

±(0.1×TD+0.025)%×Span

Over-range Effect



±0.05%×Span

Stability ±0.15%URL /10years

Power Supply Impact

±0.001% /10v (12~36v dc), negligible

2. FUNCTIONAL SPECIFICATIONS

Range limit

It can be adjusted freely within the upper and lower limits of the range. It is recommended to select a range code with the lowest possible range to optimize performance characteristics.

Span and range (RP1002-A High Precision Gauge)

	Span	kPa	psi	bar	Kgf/c
R	ange				m ²
	Span	2~40	0.29 ~	0.02	0.02
1C	Span	2 40	5.8	~ 0.4	~ 0.4
	rango	-40 ~	-5.8 ~	-0.4 ~	-0.4 ~
	range	40	5.8	0.4	0.4
		2.5 ~	0.3625	0.025	0.025
	Span	2.5~	~	0.025	0.025
1D	opun	250	36.25	~ 2.5	~ 2.5
		-100	-14.5	-1 ~	-1 ~
	range	~ 250	~	2.5	2.5

			36.25		
	Span	30 ~	4.35 ~	0.3 ~	0.3 ~
	Span	3000	435	30	30
1F	range	-100 ~ 3000	-14.5 ~ 435	-1 ~ 30	-1 ~ 30
	Span	0.1 ~ 10MP a	14.5 ~ 1450	1 ~ 100	1 ~ 100
1G	range	-0.1 ~ 10MP a	-14.5 ~ 1450	-1 ~ 100	-1 ~ 100
1H	Span	0.21 ~ 21 MPa	30.45 ~ 3045	2.1 ~ 210	2.1 ~ 210
	range	-0.1 ~ 21 MPa	-14.5 ~ 8000	-1 ~ 210	-1 ~ 210
11	Span	0.4 ~ 40 MPa	58 ~ 5800	4 ~ 400	4 ~ 400
11	range	-0.1 ~ 40 MPa	-14.5 ~ 5800	-1 ~ 400	-1 ~ 400

Range and range (RP1003-A high precision absolute pressure)

	Span / range	kPa	psi	bar	Kgf/c m ²
1	span	2.5 ~ 250	0.362 5~ 36.25	0.02 5 ~ 2.5	0.025 ~ 2.5
M	range	0 ~ 250	0~ 36.25	0 ~ 2.5	0 ~ 2.5
1	span	30 ~ 3000	-4.35 ~ 435	0.3 ~ 30	0.3 ~ 30
0	range	0 ~ 3000	0 ~ 435	0 ~ 30	0 ~ 30

Zero Setting

Zero and span can be adjusted to any value

within the measurement range in the table as long as: calibrated range \geq minimum range.

Installation Location Impact

The change of the mounting position in the direction parallel to the diaphragm surface does not cause zero drift. If the mounting position and the diaphragm surface exceed 90°, there is a zero position in the range of <0.4 kPa, which can be adjusted by adjusting the zero adjustment. There is no effect in the range.

Output

2-wire system, 4~20mADC HART output, Digital Communication. HART protocol is loaded on 4~20mADC signal. Output Signal Limit: I_{min} = 3.9mA, I_{max} = 20.5mA

Alarm Current

Underreport mode (minimum): 3.6 mA Highlight mode (maximum): 21 mA No report mode (hold): Maintain the effective current value before the fault Alarm current standard setting: High-Report mode

Response Time

The amplifier component has a damping constant of 0.1 s; the sensor time constant is 0.1 to 1.6 s, depending on the range and turndown ratio. The additional adjustable time constant is: $0.1 \sim 60$ s.

Preheat Time

< 15s

Ambient Temperature

-40 ~ 85°℃

With LCD (liquid crystal display), fluoro-rubber sealing ring: $-20 \sim 65^{\circ}$ C

Storage/ Transport Temperature

-50 ~ 85℃ With LCD: -25~85℃

Pressure Limit

From vacuum to maximum range

Electromagnetic Compatibility (EMC)

See "Electromagnetic Compatibility Schedule" on the next page.

Explosion-Proof Performance

- Intrinsic Safe NEPSI: Ex ia IIC T4 Ga Ta=-40~+60°C
- Explosion-proof NEPSI: Ex d IIC T4~T6 Gb Ta=-40~+60°C
- Dust explosion-proof NEPSI: Ex tb IIIC T80°C/T95°C/T130°C Db Ta=-40~+60°C
- Explosion-proof ATEX/ IECEx II 2 G Ex db IIC T4/T5/T6 Gb Ta: -40~+60°C
- Intrinsic Safe ATEX/ IECEx II 2 G Ex ia IIC T4/T5/T6 Ga Ta:-40°C ~ +85°C/ -40°C ~ +50°C/ -40°C ~ +40°C
- Dust explosion-proof ATEX/ IECEx: II 2 D Ex tb IIIC T80°C/ T90℃/ T130℃ Db Ta: -40℃ ~ +60℃

3. INSTALLATION

Power and Load Conditions

The power supply voltage is 24V, R \leq (Us-12V)/Imax k Ω , where I_{max} = 23 mA Maximum Supply Voltage: 36VDC Minimum Supply Voltage: 9VDC (low voltage version), 13.5VDC (backlit Liquid Crystal Display, OLED display) Digital Communication Load Range: 230~600 Ω

Electrical Connections

M20×1.5 or NPT1/2 internal thread, standard M20×1.5 nylon cable sealing buckle, terminal block is suitable for 0.5 ~ 2.5mm² wire.

Process Connection

The end face of the process connection flange has NPT 1/4 and UNF 7/16`` internal threads.

4. PHYSICAL SPECIFICATIONS

Material

- Diaphragm: SS316L, Hastelloy C
- Process Connection: SS316
- Filling Liquid: Silicone Oil, Fluorine Oil
- Transmitter Housing: Aluminium Alloy; optional Epoxy Resin Stainless Steel Housing.
- Shell Seal: Nitrile Rubber (NBR)
- Nameplate: Stainless Steel 304

Weight

1.6kg (refers to Aluminum Alloy Casing without liquid crystal display, mounting bracket & process connection)

Enclosure rating

IP67

EMC Performance Table

No.	Test items	Basic standard	Test Conditions	Perform ance level
1	Radiation Interference (shell)	GB/T 9254-2008 Table 5	30MHz ~ 1000MHz	ОК
2	Conducted Interference (DC power port)	GB/T9254-2008 Table 1	0.15MHz ~ 30MHz	ОК
3	Electrostatic Discharge (ESD) immunity	GB/T 17626.2-2006	4kV (contact) 8kV (air)	В
4	Radio Frequency Electromagnetic Field Immunity	GB/T 17626.3-2006	10V/m (80MHz ~ 1GHz)	A
5	Power Frequency Magnetic Field Immunity	GB/T 17626.8-2006	30A/m	А
6	Electrical Fast Transient Burst Immunity	GB/T 17626.4-2008	2kV(5/50ns, 5kHz)	В
7	Surge Immunity	GB/T 17626.5-2008	500v (between lines) 1kV (between lines and ground) (1.2us/50us)	В
8	Conducted Interference Immunity of RF Field Induction	GB/T 17626.6-2008	3V (150KHz ~ 80MHz)	A

Note:

(1) A performance level description: During the test, the performance is normal within the limits of the technical specifications.

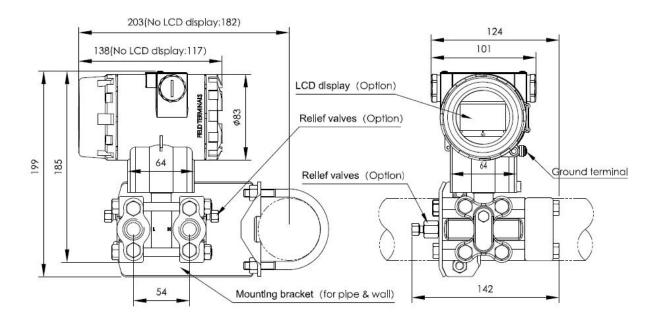
(2) B performance level description: During the test, the function or performance is temporarily reduced or lost, but can recover itself, the actual operating conditions, storage and the data does not change.

Dimensions

Unit (mm)

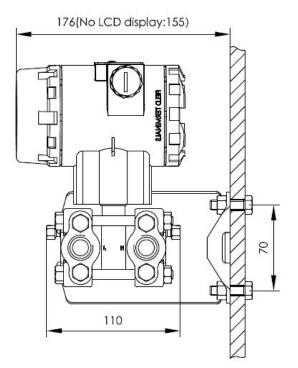
Horizontal piping connection (side)

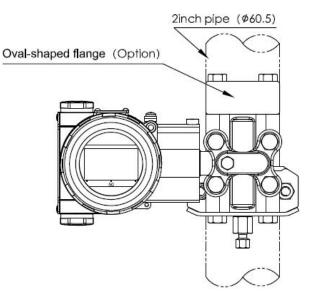
Horizontal piping connection (front)



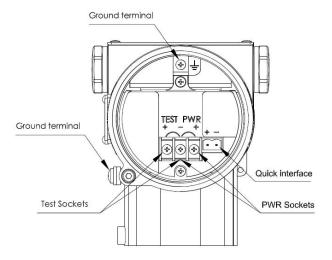
Wall connection

vertical piping connection



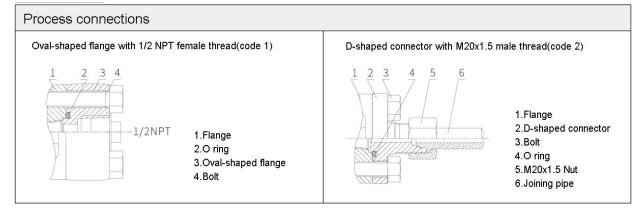


5. TERMINAL CONFIGURATION



Note: The shortcut interface function is equivalent to the signal terminal.

6. PROCESS CONNECTION DESCRIPTION



7. MODELS AND SPECIFICATION CODE TABLE

Gaug	Gauge Pressure Transmitter selection: RP1002-					
Abso	Absolute Pressure Transmitter selection: RP1003-					
10	Pre	cisio	n			
	A	Basi	c error ±0.05%			
20	Ra	nge ^[1]				
		Gau	ge Pressure RP1002			
		1C	0-2kPa ~ 40kPa / (0-200 ~ 4000 mmH ₂ O) /(0-20 ~ 400mbar)			
		1D	0-2.5kPa ~ 250kPa / (0-0.25 ~ 25 mH ₂ O) /(0-25 ~ 2500mbar)			
		1F	0-30kPa ~ 3MPa / (0-3 ~ 300 mH ₂ O) /(0-0.3 ~ 30bar)			
		1G	0-0.1MPa ~ 10MPa /(0-1 ~ 100bar)			
		1H	0-0.21MPa ~ 21MPa / (0-2.1 ~ 210 bar)			
		11	0-0.4MPa ~ 40MPa / (0-4 ~ 400 bar)			
		Abso	lute pressure RP1003			
		1M	0-10kPa ~ 250kPa /(0-25 ~ 2500mbar)			
		10	0-30kPa ~ 3MPa /(0-0.3 ~ 30bar)			
		10	0-30KFA ~ 31V1FA /(0-0.3 ~ 30DAI)			

30	Diaphrag	jm M	aterial	l Filli	ing F	luid								
		А	Stain	Stainless Steel 316L						Silicone oil				
		В	Stain	less Steel 316L						Fluorine oil				
		С	Haste	elloy	уС					Silicone oil				
		D	Haste			2				Fluorine oil				
		Е	Gold-	-		n 316	L			silicone oil				
		F	Gold-							Fluorine oil				
		G		-						silicone oil				
40	G FEP plated on 316L Process connection													
			N	1/4"	NPT	and	7/16"	UNF	tapp	ed holes without bleed valve				
										aded hole relief valve mounted to the rear end of the flange				
										aded hole relief valve mounted on the upper side of the flange				
										aded hole relief valve mounted on the lower side of the flange				
50	Wet seal	mate	L							- -				
				N	Nitr	ile ru	bber ((NBR)					
				F		ororu								
				Р				•		PTFE)				
60	Special F	unc	tion	1		,		j	``					
					N	Nor	e							
						Oil-free treatment (oxygen measurement limit fluorine oil filling liquid, fluorine								
					0									
					Р			-	ection					
70	Mounting	g Bra	ckets	1			Ū							
						N	No							
						1	Stai	nless	Stee	1				
						2	Gal	vaniz	ed Ca	arbon Steel				
80	Process	Coni	nectio	n Ac	cess	sory	I							
							Ν	No						
							1	1/2'	' NPT	female threaded stainless steel oval flange				
							2	M20	Dx1.5	external thread stainless steel T-shaped joint				
90	Display C	Optio	ns											
								Ν	No	display				
								2	LCE	D backlight display (-20 ° C)				
								3	OLE	ED display (-40 ° C)				
100	Explosio	n-Pr	oof Op	otion	Ì	1		1	1					
									Ν	Basic type				
									Α	Intrinsically safe, NEPSI				
									D	Flameproof, NEPSI				
									В	Intrinsically safe type, ATEX				
									E	Flameproof type, ATEX				
110	Tag Sign			1										
										N No				
										1 The number is marked on the nameplate				
										2 Hanging stainless steel signage				

120	Ма	nual													
												С	Chir	nese	
												Е	English		
130	130 Attachment Options														
													S	Stainless Steel Housing	
													V	Low Voltage Version	
													Т	Electrical Connection NPT1/2 (no cable entry	
														device and blind plug)	

Note 1: RP1002 corresponds to the selected gauge pressure range code, and RP1003 corresponds to the absolute pressure range code.

Example: RP1002-A1CANP11N1CN-1D

[RP1002-]: Gauge Pressure Transmitter

[A]: Basic error ±0.05%

[1C]: Differential pressure type sensor with a range of 0-2kPa~40kPa / (0-200~4000 mmH2O) / (0-20~400mbar)

[A]: The wetted part is stainless steel 316l diaphragm, and the filling liquid is silicone oil.

[N]: Process connection interface: 1/4" NPT and 7/16" UNF tapped holes, no relief valve

[P]: with lightning protection

[1]: Stainless Steel mounting bracket

[1]: LCD liquid crystal display

[N]: Basic type (non-explosion-proof transmitter)

[1]: The number is marked on the nameplate

[C]: Chinese instruction manual

[-1D]: 1/2" NPT internal thread oval flange, flameproof cable entry device

[N]: No additional options

RP1002-B/C	Differential	Pressure
Mounting	Gauge	Pressure
Transmitter		
RP1003-B/C	Differential	Pressure
Mounting	Absolute	Pressure

Transmitter

The RP1002/3-B/C Differential Pressure Mounted Gauge/Absolute Transmitter is used to measure the level, density and pressure of a liquid, gas or vapor and then convert it to a 4-20mADC HART current signal output. The RP1002/3 can also communicate with the RS295 Modem for parameter setting, process monitoring and more.

STANDARD

(Adjust the measurement range based on the standard zero point, Stainless Steel 316L diaphragm, filling liquid is silicone oil)

1. Performance Specifications

Reference Accuracy of the range

(Including linearity, hysteresis, and repeatability from zero) RP1001-B: $\pm 0.075\%$ RP1001-C: $\pm 0.1\%$ If TD>10 (TD = maximum range/ adjustment range): RP1001-B: $\pm (0.0075 \times TD)\%$ RP1001-C: $\pm (0.001 \times TD)\%$ For range 1B: If TD>6 (TD = maximum range/ adjustment range): RP1001-B: $\pm (0.0125 \times TD)\%$ RP1001-C: $\pm (0.0166 \times TD)\%$

Ambient Temperature Effect

The total impact from -25° C to 65° C is:



±(0.15×TD+0.05)%×Span ±0.08% per 10 °C (when TD=1) The total influences at -40 ° C ~ -25 ° C and 65 ° C ~ 85 ° C are: ±(0.2×TD+0.05)%×Span

Over-range Effect

±0.075%×Span

Stability

±0.15% URL /10 years

Power Supply Impact

±0.001% /10v (12~36 VDC), negligible

2. FUNCTIONAL SPECIFICATIONS

SPAN (RP1002-B/C Gauge)

	oan/ nge	kPa	psi	bar	Kgf/cm²
1B	Spa n	0.6~6	0.087 ~ 0.87	6~ 60mbar	0.006 ~0.06
ID	rang e	-6~6	-0.87 ~ 0.87	-60~ 60mbar	-0.06 ~ 0.06
1C	Spa n	2~40	0.29~ 5.8	0.02~0.4	0.02 ~ 0.4

	rang e	-40~40	-5.8 ~ 5.8	-0.4 ~0.4	-0.4 ~ 0.4
10	Spa n	2.5~ 250	0.3625 ~36.25	0.025 ~ 2.5	0.025 ~2.5
1D	rang e	-100~ 250	-14.5~ 36.25	-1~2.5	-1~2.5
1F	Spa n	30~ 3000	4.35~ 435	0.3~ 30	0.3~ 30
	rang e	-100~ 3000	-14.5~ 435	-1~30	-1~30
1G	Spa n	0.1~ 10MPa	14.5~ 1450	1~100	1~100
10	rang e	-0.1 ~ 10MPa	-14.5~ 1450	-1~100	-1~ 100
1H	Spa n	0.21 ~ 21 MPa	30.45 ~ 3045	2.1~ 210	2.1 ~ 210
	rang e	-0.1 ~ 21 MPa	-14.5~ 8000	-1~210	-1~ 210
41	Spa n	0.4 ~40 MPa	58~ 5800	4~ 400	4 ~ 400
11	rang e	-0.1 ~ 40 MPa	-14.5~ 5800	-1~400	-1~ 400

Span (RP1003-B/C Absolute)

-	pan/ ange	kPa	psi	bar	Kgf/cm 2
11	Span	2~40	0.29~ 5.8	0.02 ~ 0.4	0.02~ 0.4
1L -	range	0~40	0~5.8	0~0.4	0~0.4

1M	Span	2.5~ 250	0.3625 ~ 36.25	0.025 ~2.5	0.025 ~2.5
	range	0~250	0~ 36.25	0~2.5	0~2.5
10	Span	30~ 3000	4.35~ 435	0.3~ 30	0.3~ 30
	range	0~3000	0~435	0~30	0~30

Range Limit

It can be arbitrarily adjusted within the upper and lower limits of the range. It is recommended to select a range code with the lowest possible range to optimize performance characteristics.

Zero Setting

Zero and span can be adjusted to any value within the measurement range in the table, as long as: calibrated range \geq minimum range

Installation Location Impact

The change of the mounting position in the direction parallel to the diaphragm surface does not cause zero drift. If the mounting position and the diaphragm surface exceed 90°, there is a zero position in the range of <0.4 kPa, which can be adjusted by adjusting the zero adjustment. There is no effect in the range.

Output

2-wire system, 4~20mADC HART output, digital communication, linear or square root output selectable, HART protocol loaded on 4~20mADC signal.

Output signal limit: Imin=3.9mA, Imax=20.5mA

Alarm Current

Underreport mode (minimum): 3.6 mA Highlight mode (maximum): 21 mA No report mode (hold): Maintain the effective current value before the fault

Alarm current standard setting: high-report mode

Response Time

The amplifier component has a damping constant of 0.1 s; the sensor time constant is 0.1 to 1.6 s, depending on the range and turndown ratio. The additional adjustable time constant is: $0.1\sim60$ s.

Preheat Time

< 15s

Ambient Temperature

 $-40 \sim 85^{\circ}$ ℃ With LCD (Liquid Crystal Display), Fluoro-rubber sealing ring: -20 ~ 65°C

Storage / Transport Temperature

-50 ~ 85℃ With LCD: -25~85℃

Pressure Limit

From vacuum to maximum range

Overload Limit

Danga	6kPa	40kPa	250kPa			
Range	(B)	(C/L)	(D/M)			
Overlo	16MPa	16MPa	161	4De		
ad limit	томга	TOMPa	16MPa			
Pango	3MPa	10MPa	21MPa	40MPa		
Range	(1F/1O)	(1G)	(1H)	(1I)		
Overlo	16MPa	20MPa	25MPa	45MPa		
ad limit	томга	ZUMPa	2510178			

Electromagnetic Compatibility (EMC)

See "Electromagnetic Compatibility Schedule" on the next page.

Explosion-Proof Performance

- Intrinsic Safe NEPSI: Ex ia IIC T4 Ga Ta = -40
 ~+60°C
- Explosion-Proof NEPSI: Ex d IIC T4~T6 Gb

Ta = -40 ~ +60°C

- Dust explosion-Proof NEPSI: Ex tb IIIC T80°C/T95°C/T130°C Db Ta = -40 ~ +60°C
- Explosion-Proof ATEX/ IECEx: II 2 G Ex db IIC T4/T5/T6 Gb Ta: -40 ~ +60°C
- Intrinsic Safe ATEX/ IECEx: II 2 G Ex ia IIC T4/T5/T6 Ga Ta: -40°C ~ +85°C/ -40°C ~ +50°C/ -40°C~ +40°C
- Dust explosion-proof ATEX/ IECEx: II 2 D Ex tb IIIC T80°C /T90℃/T130℃ Db Ta: -40℃ ~ +60℃

3. INSTALLATION

Power and Load Conditions

The power supply voltage is 24V, $R \le (Us-12V)/I_{max} k\Omega$, where $I_{max}=23 \text{ mA}$ Maximum supply voltage: 36VDC Minimum supply voltage: 9VDC (low voltage version), 13.5VDC (backlit Liquid Crystal Display, OLED) Digital Communication Load Range: 230~600 Ω

Electrical Connections

M20×1.5 or NPT1/2 internal thread, standard M20×1.5 nylon cable sealing buckle, terminal block for 0.5~2.5mm² wire.

Process Connection

The end face of the process connection flange has NPT1/4 and UNF 7/16" internal threads.

4. PHYSICAL SPECIFICATIONS

- Material: SS316L Diaphragm, Hastelloy C Diaphragm
- Process Connection: SS316L
- Filling Liquid: Silicone Oil, Fluorine Oil
- Transmitter Housing: Aluminum Alloy, Epoxy coated on the outside; Stainless Steel housing optional.
- Shell Seal: Nitrile Rubber (NBR)
- Nameplate: Stainless Steel 304

Weight

1.6kg (refers to Aluminum Alloy Casing without liquid crystal display, mounting bracket & process connection) Enclosure Rating

EMC Performance Table

Sr. No.	Test items	Basic standard	Test Conditions	Perform ance level			
1	Radiation Interference (Shell)	GB/T9254-2008 Table 5	30MHz ~ 1000MHz	ОК			
2	Conducted Interference (DC Power Port)	GB/T 9254-2008 Table 1	0.15MHz ~ 30MHz	ОК			
3	Electrostatic Discharge (ESD) Immunity						
4	Radio Frequency Electromagnetic Field Immunity	GB/T 17626.3-2006	10V/m (80MHz ~ 1GHz)	A			
5	Power Frequency Magnetic Field Immunity	GB/T 17626.8-2006	30A/m	А			
6	Electrical Fast Transient Burst Immunity	GB/T 17626.4-2008	2kV(5/50ns, 5kHz)	В			
7	Surge Immunity	GB/T 17626.5-2008	500v (between lines) 1kV (between lines and ground) (1.2us/50us)	В			
8	Conducted Interference Immunity of RF Field Induction	GB/T 17626.6-2008	3V (150KHz ~ 80MHz)	A			

Note:

(1) A performance level description: During the test, the performance is normal within the limits of the technical specifications.

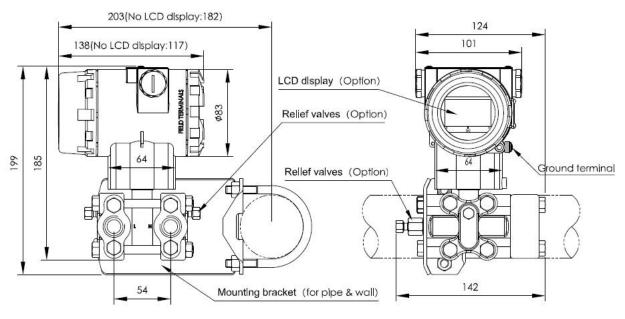
(2) B performance level description: During the test, the function or performance is temporarily reduced or lost, but can recover by itself, the actual operating conditions, storage and data do not change.

Dimensions

Unit (mm)

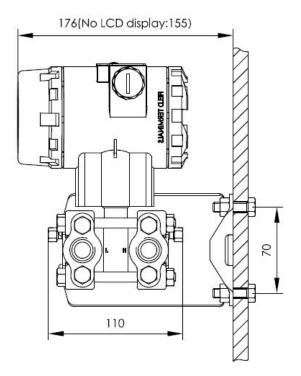
Horizontal Piping Connection (Side)

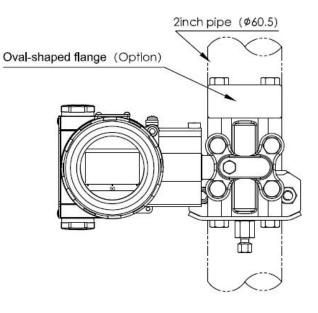
Horizontal Piping Connection (Front)



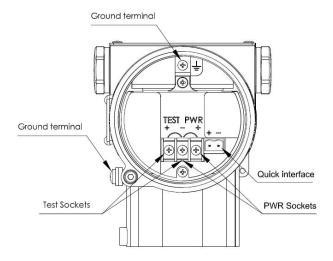
Wall Connection

Vertical Piping Connection



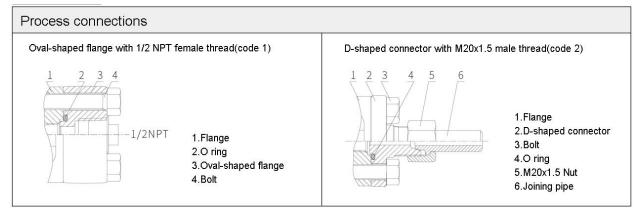


5. TERMINAL CONFIGURATION



Note: The shortcut interface function is equivalent to the signal terminal.

6. PROCESS CONNECTIONS DESCRIPTION



7. MODELS AND SPECIFICATION CODE TABLE

cision	ure Transmitter Selection RP1003-										
- .	Precision										
Basic	error ±0.075%										
Basic	error ±0.1%										
0 Range ^[1]											
Gauge	e Pressure RP1002										
1B	0-0.6kPa ~ 6kPa/ (0-60 ~ 600mmH₂O)/ (0-6 ~ 60mbar)										
1C	0-2kPa ~ 40kPa/ (0-200 ~ 4000 mmH ₂ O/ (0-20 ~ 400mbar)										
1D	0-2.5kPa ~ 250kPa/ (0-0.25 ~ 25 mH ₂ O)/ (0-25 ~ 2500mbar)										
1F 0-30kPa ~ 3MPa/ (0-3 ~ 300 mH ₂ O)/ (0-0.3 ~ 30bar)											
1G 0-0.1MPa ~ 10MPa/ (0-1 ~ 100bar)											
1H	0-0.21MPa ~ 21MPa/ (0-2.1 ~ 210 bar)										
	Basic ge ^[1] Gauge 1B 1C 1D 1F 1G										

1		1											
	11												
	Abso	1											
	1L	0-1	l0kPa	a ~ 40)kPa/	(0-20	00~40	000 r	nmH	₂ O)/ (0-20 ~ 400mbar)			
	1M	0-1	l0kPa	a ~ 25	50kPa	a/ (0-2	25 ~ 2	500m	ıbar)				
	10	0-3	30kPa	a ~ 31	/IPa/	(0-0.3	3~30	bar)					
30	Diaphrag	gm N			-								
		A	Sta	inles	s Stee	el 316	SL			Silicone Oil			
		В	Sta	inles	s Stee	el 316	SL			Fluorine Oil			
		С		stello						Silicone Oil			
		D		stello						Fluorine Oil			
		E					6L Gol			Silicone Oil			
		F					6L Gol			Fluorine Oil			
		G	Sta	inles	s Stee	el 316	SL Coa	ated	With				
		Т		ntalun	n					Fluorine Oil			
40	Process	Con	nect	1									
			N							ed holes without bleed valve			
			В							aded hole relief valve mounted to the rear end of the flange			
			U							aded hole relief valve mounted on the upper side of the flange			
			D	1/4'	' NPT	and	7/16"	UNF	thre	aded hole relief valve mounted on the lower side of the flange			
50	Wet Seal Material												
				N	Nitr	ile Ru	lbber	(NBF	R)				
				F	Flue	ororul	ber (FKM)				
				P	Pol	ytetra	fluoro	ethyl	ene	(PTFE)			
60	Special I	Func	tion	1	1	1							
					Ν	No							
					0					oxygen measurement limit fluorine oil filling liquid, fluorine			
								•	•	, <6MPa, <60°C)			
					Ρ	Ligh	ntning	Prote	ectio	n			
70	Mountin	g Bra	acke	ets		1							
						N	No						
						1		nless					
						2		/aniz	ed C	arbon Steel			
80	Process	Con	nect	tion A	Acces	ssory							
							Ν	No					
							1			female threaded stainless steel oval flange			
							2	M20)x1.5	external thread stainless steel T-shaped joint			
90	Display	optic	ons			1							
								Ν		display			
								2		D backlight LCD display (-20 ° C)			
								3	OLI	ED display (-40 ° C)			
100	Explosio	on-Pi	roof	optio	n								
									N	Basic Type			
									A	Intrinsically Safe, NEPSI			
									D	Flameproof, NEPSI			

								В		Intrinsically Safe Type, ATEX			
								E	Flai	Flameproof Type, ATEX			
110	Tag sign	l											
									Ν	No			
									1	The	num	ber is marked on the nameplate	
									2	Han	ging	stainless steel signage	
120	120 User Guide Language												
										С	Chi	nese	
										Е	Eng	lish	
130	Attachm	ent op	tions										
											S	Stainless Steel Housing	
											V	Low voltage version	
											Т	Electrical connection NPT1/2 (no cable entry	
												device and blind plug)	

Note 1: RP1002 corresponds to the selected gauge pressure range code, and RP1003 corresponds to the absolute pressure range code;

Example: RP1002-B1CANP12N1CN-1D

[RP1002-]: Gauge Pressure Transmitter

[A]: Basic error ±0.075%

[1C]: Differential pressure type sensor with a range of 0-2kPa~40kPa/ (0-200~4000 mmH2O)/ (0-20~400mbar)

[A]: The wetted part is stainless steel 316L diaphragm, and the filling liquid is silicone oil.

[N]: Process connection interface: 1/4" NPT and 7/16" UNF tapped holes, no relief valve

[P]: with lightning protection

[1]: Stainless steel mounting bracket

[2]: Backlight LCD display

[N]: Basic type (non-explosion-proof transmitter)

[1]: The number is marked on the nameplate

[C]: Chinese instruction manual

[-1D]: 1/2" NPT internal thread oval flange, flameproof cable entry device

RP1005 Multi-parameter

Differential Pressure Transmitter

The RP1005 Multi-parameter Differential Pressure Transmitter is used to measure the mass flow and differential pressure of liquid, gas or steam and then convert it into a 4~20mADC current signal output or RS485 signal output.

STANDARD SPECIFICATIONS

(Adjust the measurement range based on the standard zero point, diaphragm Stainless Steel 316L, filling liquid is Silicone oil)

1. PERFORMANCE SPECIFICATIONS Reference Accuracy of Calibrated Span

(Includes terminal-based linearity, hysteresis, and repeatability) RP1005-B: ± 0.075% RP1005-C: ± 0.1% If TD>10 (TD=URL/SPAN): RP1005-B: ±(0.0075×TD)% RP1005-C: ±(0.01×TD)%

Ambient Temperature Effect

The total effect from -25° C to 65° C is: ±(0.15×TD+0.05)%×Span ±0.08% per 10°C ×Span (TD=1)

The total effect at -40° C ~ -25° C and 65° C ~ 85° C is: ±(0.2×TD+0.05)%×Span

Over-range Effect

±0.075%×Span

Static Pressure Effect

±(0.05%URL + 0.075%Span)/ 10MPa

Overpressure Effect

±0.1%×Span /10MPa。



Stability ±0.15%URL /10 years

Power Supply Effects

± 0.001% /10V (12 ~ 36VDC), negligible.

2. FUNCTIONAL SPECIFICATIONS Span and Range Limits of DP sensor

Span	Min of	Max of	Working
	Span	Span	Pressure
В	200Pa	6kPa	0.25/2/10/40MPa
С	1kPa	40kPa	2/10/40MPa
D	2.5kPa	250kPa	2/10/40MPa
F	30kPa	3000kPa	2/10/40MPa

Span of Static Pressure Sensor

	Span	Working pressure
1	0.25MPa 0.25/2/10/40MPa	
2	2MPa	2/10/40MPa
3	10MPa	2/10/40MPa
4	40MPa	2/10/40MPa

Range Limit

It can be arbitrarily adjusted within the upper and lower limits of the range.

It is recommended to select a range code with the lowest possible range to optimize performance characteristics.

Zero Setting

Zero and span can be adjusted to any value within the measurement range in the table, as long as: calibrated range \geq min range

Mounting Position Effects

The change in the mounting position parallel to the diaphragm surface does not cause zero drift. If the mounting position and the diaphragm surface exceed 90°, a zero influence in the range of <0.4 kPa occurs, which can be adjusted by adjusting the zero adjustment. No range effect.

Output

2-wire $4 \sim 20$ mADC & HART output, HART protocol is loaded on $4 \sim 20$ mADC signal. Output signal limit: I_{min}=3.9mA, I_{max}=20.5Ma 4-wire pulse output, RS485 digital signal output;

Failure Alarm

Low Mode (min): 3.6 mA High Mode (max): 21 mA No Mode (hold): Keep the effective value before the fault. Standard setting: High Mode

Response Time

The amplifier damping constant is 0.1 sec; The sensor damping constant is 0.1 to 1.6 sec, it depends on the range and turndown ratio. The additional adjustable time constant is: $0.1 \sim 60$ sec.

The effect on nonlinear outputs, such as the square root function, depends on this function and can be calculated accordingly.

Preheat time

<15s

Ambient temperature

-40 \sim 85°C With LED display, Viton process connector gasket -20 \sim 65°C

Storage Transportation Temperature

-50 \sim 85°C; with LCD display: -25 \sim 85°C

Working Pressure (Silicone oil)

Max. working Pressure: 3MPa, 10MPa, 40MPa

Static Pressure Limit

3.5 kPa abs. to max working pressure, the protection pressure can be greater than 1.5 times the rated pressure and applied to both sides of the transmitter.

One-way Overload Pressure Limit

The max one-way overload pressure is working pressure

Electromagnetic Compatibility (EMC)

Refer the EMC Performance Table.

3. INSTALLATION

Power and Load Requirements

24V DC supply, R \leq (Us-12V)/ Imax k Ω , Imax=23 mA Max supply voltage: 36VDC Min supply voltage: 9VDC (low voltage version), 13.5VDC (backlit LCD, OLED) Digital Communication Load Range: 230~600 Ω

Electrical Connection

M20×1.5 or NPT1/2 female thread, standard M20×1.5 nylon cable sealing buckle, terminal block is suitable for 0.5~2.5mm² wire.

Process Connection

Flange with fixing thread NPT1/4 and UNF7/16" female threads.

Mass Flow Calculation

Need to use the Rocksensor dedicated configuration software to set the fluid characteristics and throttle parameters. All coefficients used for mass flow calculations are dynamically compensated to the optimal values. In the automatic mode, high-precision mass flow can be measured. The flow coefficients that are automatically compensated are the outflow coefficient, the diameter of the throttling

device, and the diameter of the upstream pipe section, the coefficient of gas expansion, the density, and the viscosity.

Throttling Device

Support a variety of differential pressure throttling devices, such as orifice plate, nozzle, venturi and so on. The outflow coefficient and the gas expansion coefficient are calculated dynamically.

4. PHYSICAL SPECIFICATIONS

Material

Measuring Membrane: SS 316L

EMC Performance

• Diaphragm: SS 316L, Hastelloy C, Gold plated SS 316L, SS 316L coated FEP, Tantalum

- Process Flange: SS 316
- Nuts and Bolts: Stainless Steel (A4)
- Process Connection: Stainless Steel 316
- Filling Liquid: Silicone Oil, Fluorine Oil
- Process Connection Gasket: Nitrile rubber (NBR), Viton (FKM), Teflon (PTFE)
- Transmitter Housing: Aluminum with epoxy resin coat
- Housing Gasket: Nitrile rubber (NBR)
- Nameplate: Stainless Steel 304

Weight

• 3.3kg (Without display, mounting bracket, process connection)

Degrees of Protection:

• IP67

No.	Test items	Basic Standard	Test Conditions	Performa nce Level
1	Radiation Interference (Housing)	GB/T 9254-2008 Table 5	30MHz~1000MHz	ОК
2	Conducted Interference (DC Power Port)	GB/T 9254-2008 Table 1	0.15MHz~30MHz	ОК
3	Electrostatic Discharge (ESD) Immunity	GB/T 17626.2-2006	4kV (Line) 8kV (Air)	В
4	RF Electromagnetic Field Immunity	GB/T 17626.3-2006	10V/m (80MHz~1GHz)	А
5	Frequency Magnetic Field Immunity	GB/T 17626.8-2006	30A/m	А
6	Electrical Fast Transient Burst Immunity	GB/T 17626.4-2008	2kV(5/50ns,5kHz)	В
7	Surge Immunity	GB/T 17626.5-2008	500v (line to line) 1kV (line to ground) (1.2us/50us)	В
8	Conducted Interference Immunity induced of RF Field	GB/T 17626.6-2008	3V (150KHz~80MHz)	А

Note: (1) Performance level A description: During the testing, the technical specifications within the limits of normal performance.

(2) Performance level B description: During the testing, temporary reduction or loss of functionality or performance, it can restore itself. The actual operating conditions, storage, and data will not be changed.

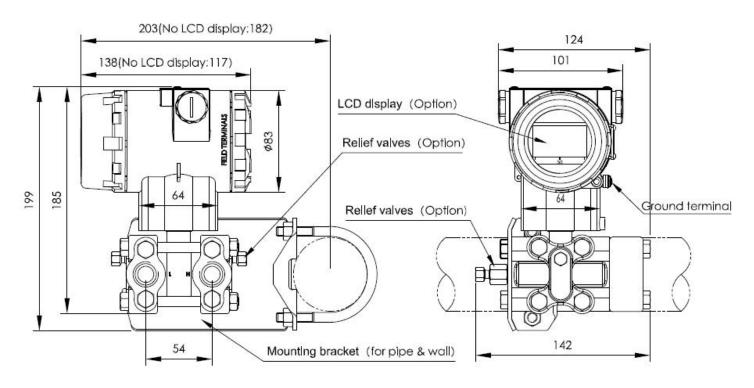
www.rocksensor.com

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DIMENSIONS

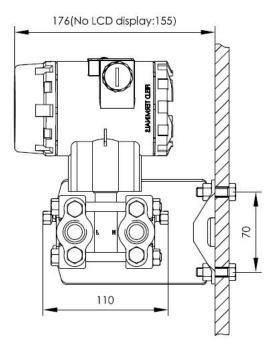
Unit (mm)

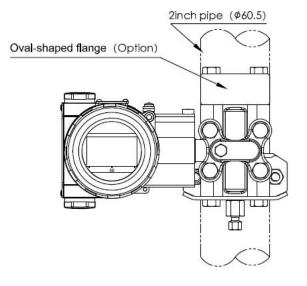
Horizontal Impulse Piping Type (Side) (Front) Horizontal Impulse Piping Type



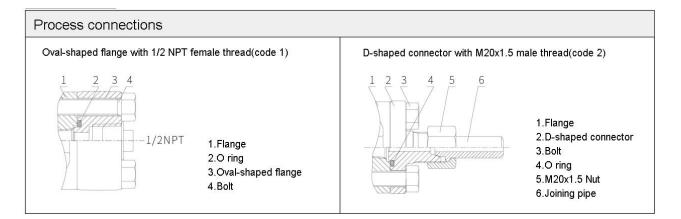
Horizontal Impulse Wall Mounting Type

Vertical Impulse Piping Type





5. PROCESS CONNECTIONS DESCRIPTION



6. MODELS AND SPECIFICATION CODE TABLE

Multi-parameter Differential Pressure Transmitter Selection RP1005-										
10	Acc	urac	зy							
	В	±0.0)75%							
	С	±0.2	1%							
20	Ran	ige								
		В	0-20	0Pa	∼6kPa(0-20~600 mmH₂O/ (0-2~60mbar)					
		С	0-1k	⟨Pa∼	∼40kPa(0-100∼4000 mmH₂O)/ (0-100∼400mbar)					
		D	0-2.	5kPa	~250kPa(0-0.25~25 mH₂O)/ (0-25~2500mbar)					
		F	0-30)kPa	kPa∼3MPa(0-3∼300 mH2O)/ (0-0.3∼30bar)					
30	Sta	tic P	ressu	ire S	ensor					
			1	40	MPa					
			2	10	MPa					
			3	3M	Pa					
			4		5MPa					
40	Dia	phra	gm N	later	ial - Filling Fluid					
				A	Stainless steel 316L Silicone oil					
				В	Stainless steel 316L Fluorine oil					
				С	Hastelloy C Silicone oil					
				D	Hastelloy C Fluorine oil					
				E	Stainless Steel 316L Gold plated Silicone oil					
				F	Stainless Steel 316L Gold plated Fluorine oil					
				G	Stainless Steel 316L coated FEP Silicone oil					
			_	Т	Tantalum Silicone oil					
50	Pro	cess	Con	nect						
					N 1/4" NPT and 7/16" UNF tapped holes - No bleed valve					
					B 1/4" NPT and 7/16" UNF tapped holes - The relief valve is mounted on the rear					
					end of the flange					
					U 1/4" NPT and 7/16" UNF tapped holes - The relief valve is mounted on the upper					

	D	side of the flange 1/4" NPT and 7/16" UNF tapped holes - The relief valve is mounted on the lower side of the flange						
60	Wet Sealing Material	F Fluororubbei	F Fluororubber (FKM)					
70	Special Function		O Oil-free treatment (oxygen measurement limit fluorine oil filling liquid, fluorine rubber sealing ring, <6MPa, <60°C)					
80	Mounting Brackets	N No 1 Stainless Steel 2 Galvanized Carbon Steel						
90	Process Connection Acces	1	 N No 1 1/2" NPT female threaded stainless steel oval flange M20x1.5 external thread stainless steel T-shaped joint 					
100	LCD		N No 2 Backlight LCD display (-20 ° C)					
110	Power supply		N External Power Supply 24V (Current Output Required) 1 Internal Lithium Battery Power Supply					
120	Signal Output		N (4~20) mA (external power supply required) 1 RS485 Digital Signal 2 Pulse					
130	Configuration Options		N Customer configuration A Factory installation customer configuration table					
140	Тад		N No 1 The number is marked on the nameplate 2 Hanging stainless steel signage					
150								

RP1005-Multi-parameter	Differential	Pressure	Transmitter
------------------------	--------------	----------	-------------

General Specifications

|--|

on the rear end of the flange

[N]: The wetted seal is nitrile rubber (NBR) [N]: None

- [1]: Stainless steel mounting bracket
- [1]: with ½" NPT internal thread stainless steel oval flange
- [2]: LCD backlight display (-20 ° C)
- [N]: External 24V power supply
- [N]: Output 4-20 mA
- [N]: Customer Configuration
- [1]: The number is marked on the nameplate
- [C]: Chinese manual

Example: RP1005-BC2ABNN112NNN1C

[B]: Basic error ±0.075%

[C]: The range is 0-1kPa~40kPa (0-100~4000 mmH2O)

[2]: Static pressure sensor is 2MPa

[A]: The wetted part is stainless steel 316l diaphragm, and the filling liquid is silicone oil.

[B]: 1/4" NPT process connection interface, 7/16 inch

UNF Threaded mounting hole, bleed valve mounted

Appendix I:

Proc	duct Aco	cessories List (RA-)						
10	Pressu	ure Connector						
	101	01 1/2 inch NPT external thread to Φ14 welded pipe						
	102	Condensation elbow size 16x3 Material 304 stainless steel						
	103	Condensation elbow size 14x2 Material 304 stainless steel						
20	Differential Pressure Fittings							
	201 202 Condensation elbow (double) size 16x3 material 304 Stainless Steel Condensation elbow (double) specification 16x2 Material 304 Stainless Steel							
30	Valve Block							
	301	Two valve manifold (Stainless Steel 304 material)						
	302	Two valve manifold (Stainless Steel 316 material)						
	303	Three valve manifold (Stainless Steel 304 material)						
	304	Three valve manifold (Stainless Steel 316 material)						
40	Hart C	ommunicator						
	40A	H05 Chinese Communicator						
	40C	Rst1000 Chinese and English Communicator						
	40D	H06-375 English Communicator						
50	Cable	Cable Connector						
	50D	Explosion-proof cable entry device (M20x1.5)						
	50N	Explosion-proof cable entry device (NPT1/2)						

Note 1: All product accessories enjoy the same RKS quality assurance and after-sales guarantee as standard products.

Note 2: The specifications of the accessories may change without any notice in the case of quality assurance and most on-site application requirements. For detailed parameters, please consult the pre-sales engineer.

Note 3: When selecting accessories, each accessory is selected separately. If there are multiple accessories, the items are listed separately.

Example: RA-201

[201]: Condensation elbow (double) specification 16x3 Material 304 Stainless Steel

Appendix II:

	(A-Best	B-Available, X-	Not Av	ailable,Not F	Recommended)		
Media	Concentration	Temperature	316L	Hastelloy B	Hastelloy C	Monel	Tantalum
Name	/%	/ °C					Tuntului
Ammonium	100	25	-	В	В	В	A
chloride	100	100	-	В	В	В	A
Sodium	< 30	25	В	В	В	А	A
chloride	< 30	100	Х	В	В	В	A
Potassium	< 30	25	Α	В	В	В	A
chloride	< 30	100	Α	В	В	В	A
Aluminum	0. 100	25	В	А	А	А	A
chloride	0~100	100	Α	А	А	Х	A
Ammonium	0.100	25	Α	А	А	А	-
acetate	0~100	100	Α	А	А	А	-
Sodium	< 60	25	Α	В	В	А	Α
acetate	< 60	100	Α	В	В	А	A
Ammonium	. 20	25	В	В	В	Х	A
sulfite	< 30	100	В	В	В	х	A
Sodium	. 40	25	Α	A	А	A	A
sulfate	< 40	100	Α	A	A	А	A
Aluminum	< 30	25	Α	А	А	В	A
sulfate		100	Α	А	А	Х	A
Magnesium	< 50	25	Α	Α	A	Α	A
sulfate		100	Α	Α	А	Α	A
Potassium		25	Α	A	А	Α	A
sulfate	< 20	100	Α	Α	A	Α	Α
		25	Α	A	A	А	A
Sodium	10	100	Α	A	A	А	A
carbonate		25	В	В	В	В	A
	100	100	В	В	В	В	A
Sodium		25	Α	В	В	В	A
bicarbonate	< 30	100	х	В	В	В	Α
Potassium		25	В	В	В	В	_
carbonate	< 50	100	В	В	В	В	X
Sodium		25	X	В	В	Х	A
hypochlorit e	< 20	100	х	В	В	Х	A
Sodium		25	A	A	A	В	A
nitrite		100	A	A	A	B	A
sodium		25	В	В	В	B	В
benzoate	< 60	100	B	B	B	B	B
Potassium		25	A	B	B	B	A
nitrate	< 100	100	A	B	B	B	A

Magnesium		25	В	-	В	В	A
nitrate		100	В	-	В	В	A
Media	Concentration	Temperature	24.01			Manal	Tantalum
Name	/%	/ °C	316L	Hastelloy B	Hastelloy C	Monel	Tantalum
Potassium	10	25	В	В	В	В	-
perchlorate	10	100	В	В	В	В	-
Potassium	< 20	25	В	В	В	В	A
bromide	< 30	100	В	В	В	В	A
Potassium	< 30	25	В	А	А	В	A
complex	< 30	100	В	А	А	В	A
Potassium		25	В	В	В	В	-
permangan ate	10	100	В	В	В	В	-
Magnesium	. 40	25	В	A	A	В	A
chloride	< 40	100	В	A	A	В	A
	10	25	Α	В	В	В	A
Calcium	10	100	Α	В	В	В	A
sulfate	100	25	В	В	В	В	A
	100	100	В	В	В	В	A
Sodium	100	25	В	В	В	В	A
carbonate	100	100	-	В	В	В	A
Calcium	10	25	В	В	В	В	A
carbonate	10	100	В	В	В	В	A
Calcium	< 90	25	В	А	А	А	A
chloride	< 80	100	В	A	A	A	A
	Dry gas	25	В	А	А	В	A
		100	В	В	В	В	A
Chlorine	moisture	25	Х	В	В	Х	A
		100	Х	Х	Х	Х	A
	-l	25	Х	А	А	А	A
Durania	dry	100	Х	В	В	Х	A
Bromine		25	-	-	А	Х	A
	wet	100	-	-	А	Х	A
Dhaanhamus		25	А	А	А	Х	-
Phosphorus		100	Α	-	-	Х	-
Sodium		370	Α	А	А	А	A
Hydrogen	100	25	А	А	А	А	A
chloride	100	100	А	А	А	А	А
	10	25	А	А	А	х	-
Sulfur	10	100	А	А	А	х	-
dioxide	00,400	25	В	В	В	Х	-
	90~100	100	В	В	В	х	-
Sodium	10	25	Α	В	В	В	-
peroxide	10	100	Α	В	В	В	_

Methanol		25	A	A	A	A	A
		100	A	Α	A	Α	A
Media	Concentration	Temperature	316L	Hastelloy B	Hastelloy C	Monel	Tantalum
Name	/%	/ °C				Moner	Tantalan
Ethanol		25	A	A	A	A	A
		100	A	A	A	A	A
Formaldehy	< 70	25	A	В	В	A	A
de	< 70	100	A	В	В	A	A
Acetaldehy		25	A	-	A	A	A
de		100	A	-	-	В	A
(2) Methyl		25	В	В	В	В	A
ether		100	A	В	В	Α	A
(two) ether		25	A	В	В	Α	A
		100	Α	В	В	Α	A
Acetone		25	A	A	A	А	A
Acelone		100	А	А	A	А	A
Putanana	tanone < 100	25	В	В	В	В	A
Dutanone		100	В	В	В	В	A
Methyl	< 30	25	В	В	В	В	В
formate	< 30	100	В	В	В	В	В
Ethyl		25	Α	В	В	Α	A
acetate		100	В	В	В	А	A
• • •		25	Α	А	А	А	A
Methane		100	Α	А	А	А	A
_		25	В	В	В	А	A
Benzene		100	В	В	В	А	A
- -		25	Α	А	А	А	A
Toluene		100	Α	A	A	A	A
D I I		25	В	A	A	В	A
Phenol		100	В	A	А	В	A
		25	В	В	В	В	A
Urea	90	100	В	В	В	В	A
	50	25	Α	А	Α	Α	A
Seawater	< 50	100	Α	Α	А	-	A
		25	В	Α	А	Α	A
Brine		100	В	Α	А	-	A
		25	В	Α	Α	x	A
Sulfuric	20	100	x	Α	Х	-	A
Acid		25	В	Α	A	x	A
	98	100	_	Α	A	x	A
Fuming		25	X	A	Х	x	X
Hydrochlori c Acid		100	x	x	В	x	x

Nitric Acid	70	25	A	X	A	x	A
NILLIC ACIO	70	100	-	Х	-	Х	A
Hydrochlori	20	25	Х	А	А	X	A
c Acid	20	100	Х	В	Х	Х	A
Media	Concentration	Temperature	316L	Hastelloy B	Hastelloy C	Monel	Tantalum
Name	/%	/ °C	SIGE	Hastelloy D	Hastelloy C	woner	Tantalun
	20	25	A	А	А	х	A
Phosphate	20	100	A	А	А	х	A
Phosphate	90	25	Х	В	В	Х	A
	30	100	Х	В	В	Х	A
	40	25	Х	А	A	А	-
Hydrofluoric	40	100	Х	Х	Х	А	-
acid	90	25	Х	В	В	-	-
	90	100	Х	-	-	-	-
Hydrobromi	< 60	25	Х	В	-	Х	А
c Acid	< 00	100	Х	В	-	Х	А
Nitrine		25	В	В	В	В	A
Nume		100	В	В	В	В	A
Argon		25	В	В	В	X	A
sulfuric acid		100	В	В	В	X	A
	10	25	В	А	А	А	A
Carbonic		100	Х	-	-	А	A
acid	100	25	Α	А	А	В	A
		100	Α	-	-	А	Α
	< 50	25	Х	-	В	Х	A
A aid		100	Х	-	В	Х	A
Acid	> 50	25	Х	-	В	Х	A
		100	Х	-	-	Х	Α
	10	25	Х	-	В	Х	Α
Chloric acid	10	100	Х	-	-	Х	А
Hypochloro		25	Х	-	А	Х	А
us Acid		100	Х	-	-	Х	Α
Devie esid	0 100	25	Α	А	А	В	Α
Boric acid	0~100	100	Α	А	A	В	A
Chlorosulfo	40	25	Х	В	В	х	Α
nic Acid	10	100	Х	-	-	х	A
Wong Chui	100	25	Х	Х	Х	х	Α
Wang Shui	100	100	Х	Х	Х	х	-
	10	25	-	А	А	-	Α
Family 11	10	100	-	A	A	х	A
Formic acid	400	25	-	А	А	х	A
	100	100	-	A	A	х	A
Acetic Acid	< 100	25	Α	А	Α	Х	A

		100	A	A	А	Х	A
	100	25	В	А	А	В	A
	100	100	В	А	А	В	A
Propionic	<u> </u>	25	В	А	А	В	A
Acid	60~90	100	В	A	А	В	A
Media	Concentration	Temperature					
Name	/%	/ °C	316L	Hastelloy B	Hastelloy C	Monel	Tantalum
D (· A ·)		25	Α	А	А	В	A
Butyric Acid		100	Α	А	А	В	A
Butenoic		25	В	В	В	В	A
Acid		100	В	В	В	В	A
Chaprie Asid		25	Α	А	А	В	A
Stearic Acid		100	Α	А	А	-	A
		25	Α	А	А	В	A
Fatty Acid		100	Α	А	А	В	Α
Glycolic		25	В	В	В	В	A
Acid		100	В	В	В	В	A
	10	25	Α	В	В	В	A
D		100	Α	-	-	В	A
Pyrophyllin	100	25	В	А	А	В	A
		100	-	-	-	В	A
	70	25	Х	В	В	В	A
Monochloro acetic Acid	< 70	100	Х	В	В	В	A
	100	25	В	А	А	В	A
		100	-	А	А	В	A
	. 00	25	Α	В	В	Х	A
Lactic Acid	< 20	100	В	В	В	Х	A
	> 70	25	Α	В	В	Х	A
		100	В	В	В	Х	A
		25	В	В	В	В	A
Oxalic Acid		100	Х	В	В	В	A
Succinic Acid		25	В	В	В	В	A
	< 50	100	В	В	В	В	A
	100	25	В	В	В	В	A
		100	В	В	В	В	A
Benzoic Acid	< 70	25	В	A	A	В	A
		100	В	A	A	В	A
0.1.1.1.1	0~100	25	Α	A	A	В	A
Citric Acid		100	Α	A	A	В	A
Aminobenz		25	В	В	В	В	A
oic Acid		100	В	В	В	В	A
Naphthalen		25	В	А	A	В	x
esulfonic Acid	100	100	_	A	A	В	x

Appendix II

	10	25	A	А	А	А	x
Sodium	10	100	А	А	А	А	Х
hydroxide	70	25	А	А	А	А	Х
		100	В	А	А	А	Х

Media Name	Concentration /%	Temperature	316L	Hastelloy B	Hastelloy C	Monel	Tantalum
		/ °C	316L				
Potassium hydroxide	< 60	25	Α	В	В	А	Х
		100	Α	В	В	А	Х
	100	25	А	В	В	А	Х
		100	В	A	А	А	Х
Ammonium	0~100	25	В	В	В	В	A
hydroxide		100	В	В	В	В	A
Calcium	< 50	25	Α	В	В	Х	А
hydroxide		100	Α	В	В	Х	A
Magnesium	100	25	Α	А	А	А	A
hydroxide		100	Α	А	А	А	A
Lithium	10	25	В	В	В	В	-
hydroxide		100	В	В	В	В	-
Aluminum	10	25	Α	В	В	В	A
hydroxide		100	Α	В	В	В	A
Ammonium	< 40	25	Х	Х	Х	-	A
sulfate		100	Х	Х	Х	-	A
Ammonium	10	25	А	В	В	Х	A
nitrate		100	А	В	В	Х	A
Ammonium	100	25	В	В	В	В	A
carbonate		100	В	В	В	В	A

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