

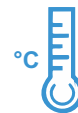
RTD SENSORS FOR FERMENTERS / VESSELS

All Stainless Steel Construction

RHF401



Pt100, 3-wire/4-wire
Pt1000, 2-wire/3-wire
Simplex/Duplex



-50 to 250°C
(-58 to 482°F)



Accuracy
Class A/Class AA to IEC 60751



Leakproof Assembly



SS Construction



Weatherproof/
Flameproof Enclosure
IP66/67/68 (≈NEMA 4X/6/6P)

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ABOUT RHF401

The RHF401 RTD Sensor is used for temperature measurement in the pharmaceutical industry for fermenter temperature.

It can be used upto 150°C in CIP/SIP cleaning process. The sensor is fully made of stainless steel.

Standard lengths for fermenter connection are 46 mm & 52 mm.

This temperature sensor can be supply with a programmable or non programmable head mounted temperature transmitter.

APPLICATIONS

- Process monitoring
- Monitoring of CIP/SIP process
- Temperature monitoring

SPECIFICATIONS

RTD type	Pt100, 3-wire/4-wire; Pt1000, 2-wire/3-wire (Fig 1)
Accuracy	Class A/Class AA (1/3 DIN) to IEC 60751
No. of elements	Simplex/Duplex (Fig 3)
Sheath diameter (D)	See Ordering Information & Fig 5
Sheath length (SL)	Upto 300 mm (11.8") below head. Contact sales for other lengths (Fig 5)
Sheath material	SS316L (1.4404)
Tip rating	-50 to 250°C (-58 to 482°F)
Terminal head	See Fig 6
Cable gland(s)	See Terminal Head Design (Fig 6)
Options	a) NABL calibration b) Head mounted transmitter (Fig 2)

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WIRING DIAGRAMS - Fig 1

3-WIRE, SIMPLEX	4-WIRE, SIMPLEX	3-WIRE, DUPLEX	4-WIRE, DUPLEX	2-WIRE, SIMPLEX
Pt100/Pt1000	Pt100	Pt100/Pt1000	Pt100	Pt1000

TYPE OF TRANSMITTERS - Fig 2

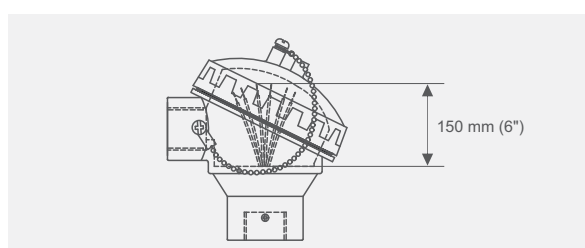
A - Transmitter, TX1HM* Pt100, non-isolated	B - Transmitter, SCC641* Pt100, isolated	C - Transmitter, SCC642* Pt100, non-isolated, programmable	D - Transmitter, SCC631* Pt100, isolated, HART

* Radix products

TERMINAL BLOCKS - Fig 3

3-WIRE, SIMPLEX	3-WIRE, DUPLEX

FLYING LEADS (L) - Fig 4

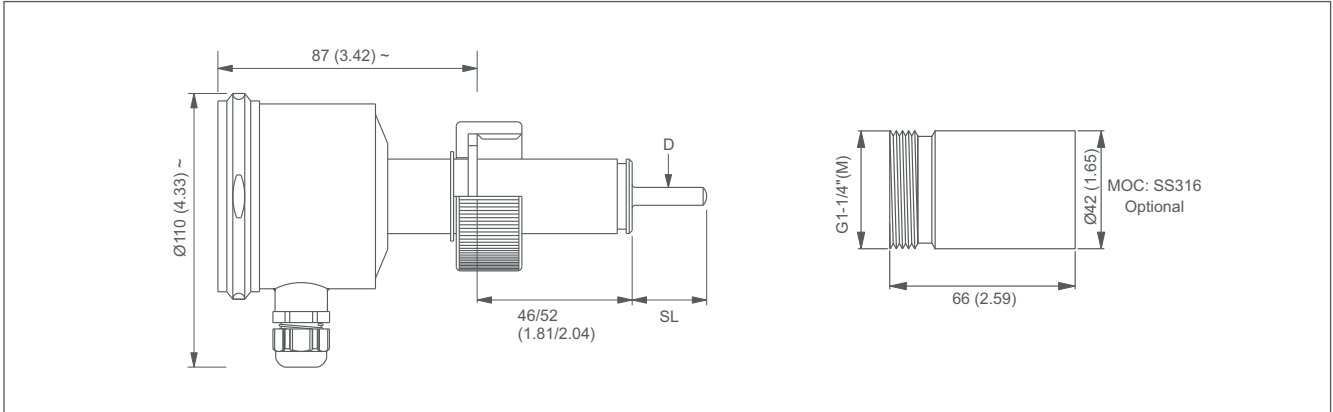


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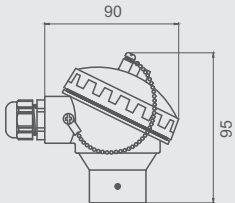
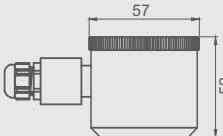
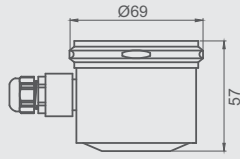
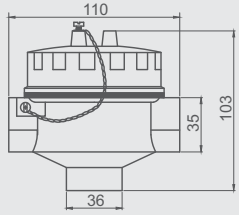
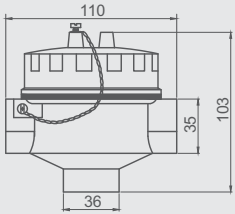
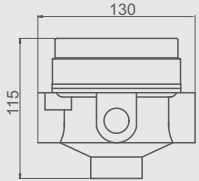
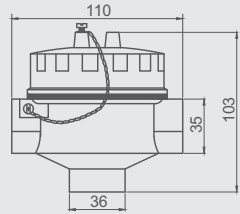
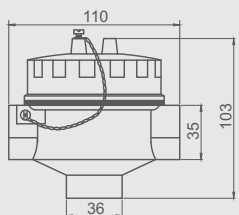
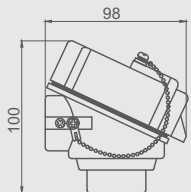
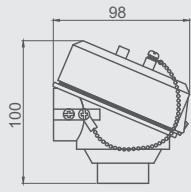
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All Stainless Steel Construction

CONSTRUCTION mm (inch) - Fig 5



TERMINAL HEADS - Fig 6

 W03 Weatherproof, IP68 (≈NEMA 6P) MOC : Die cast aluminium Cable entry : M20x1.5 P Cable gland type : Polyamide	 S05 Weatherproof MOC : SS Cable entry : M16x1.5 Cable gland type : Polyamide	 S07 Weatherproof, IP68 (≈NEMA 6P) MOC : SS Cable entry : M20x1.5 P Cable gland type : Polyamide	 F01/F02 Flameproof, IIB, IP67 (≈NEMA 6) MOC : Die cast aluminium Cable entry : 1/2" NPT Cable gland type : Brass nickel plated/ Polyamide/SS
 F03 Flameproof, IIC, IP67 (≈NEMA 6) MOC : Die cast aluminium Cable entry : 1/2" NPT Cable gland type : Brass nickel plated/ Polyamide/SS	 F05 Flameproof, IIB, IP67 (≈NEMA 6) MOC : Die cast aluminium Cable entry : 4x1/2" NPT Cable gland type : Brass nickel plated/SS	 FA3 Flameproof, IIC, IP67 (≈NEMA 6) MOC : SS304 Cable entry : 1/2" NPT Cable gland type : Brass nickel plated/ Polyamide/SS	 FC3 Flameproof, IIC, IP67 (≈NEMA 6) MOC : SS316 Cable entry : 1/2" NPT Cable gland type : Brass nickel plated/ Polyamide/SS
 AAL ATEX, IP68 (≈NEMA 6P) MOC : Die cast aluminium Cable entry : M20x1.5 / 1/2" NPT Cable gland type : Brass nickel plated/ Polyamide/SS	 AAC ATEX, IP68 (≈NEMA 6P) MOC : SS316 Cable entry : M20x1.5 Cable gland type : Brass nickel plated/ Polyamide/SS		

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TABLE 1 : ACCURACY

ACCURACY			
Pt100 (IEC 60751)	Class B	$\pm 0.3^{\circ}\text{C at } 0^{\circ}\text{C} \pm (0.3 + 0.005 \times t)^{\circ}\text{C}$	$\pm 0.54^{\circ}\text{F at } 32^{\circ}\text{F} \pm (0.54 + 0.005 \times t)^{\circ}\text{F}$
	Class A	$\pm 0.15^{\circ}\text{C at } 0^{\circ}\text{C} \pm (0.15 + 0.002 \times t)^{\circ}\text{C}$	$\pm 0.27^{\circ}\text{F at } 32^{\circ}\text{F} \pm (0.27 + 0.002 \times t)^{\circ}\text{F}$
	1/3 DIN	$\pm 0.1^{\circ}\text{C at } 0^{\circ}\text{C} \pm 1/3 \times (0.3 + 0.005 \times t)^{\circ}\text{C}$	$\pm 0.18^{\circ}\text{F at } 32^{\circ}\text{F} \pm 1/3 \times (0.54 + 0.005 \times t)^{\circ}\text{F}$
	1/5 DIN	$\pm 0.06^{\circ}\text{C at } 0^{\circ}\text{C} \pm 1/5 \times (0.3 + 0.005 \times t)^{\circ}\text{C}$	$\pm 0.108^{\circ}\text{F at } 32^{\circ}\text{F} \pm 1/5 \times (0.54 + 0.005 \times t)^{\circ}\text{F}$
Pt1000 (IEC 60751)	Class B	$\pm 0.3^{\circ}\text{C at } 0^{\circ}\text{C} \pm (0.3 + 0.005 \times t)^{\circ}\text{C}$	$\pm 0.54^{\circ}\text{F at } 32^{\circ}\text{F} \pm (0.54 + 0.005 \times t)^{\circ}\text{F}$
	Class A	$\pm 0.15^{\circ}\text{C at } 0^{\circ}\text{C} \pm (0.15 + 0.002 \times t)^{\circ}\text{C}$	$\pm 0.27^{\circ}\text{F at } 32^{\circ}\text{F} \pm (0.27 + 0.002 \times t)^{\circ}\text{F}$

KEY FEATURES

- Class A or higher accuracy
- Wetted parts made of SS316L
- Roughness value (Ra) $\leq 0.8 \mu\text{m}$ and $\leq 0.4 \mu\text{m}$ for non-wetted and wetted parts respectively
- SS304 terminal head and coupling nut
- EPDM sealing ring
- Operating pressure 10 bar
- Temperature range : Sensors tip -50 to 250°C (-58 to 482°F)
- Polyamide cable gland, M20x1.5 (M)
- Protection class, IP68 (NEMA 6P)

RTD SENSORS FOR FERMENTERS / VESSELS

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ORDERING INFORMATION (Also See Preferred Order Codes - Table 2)

CODE	SPECIFICATIONS	1	2	3	4	5	6	7	8	9
	Model : RHF401									
1	RTD type (Fig 1)									
	Pt100, 3-wire	B								
	Pt100, 4-wire	C								
	Pt1000, 2-wire	D								
	Pt1000, 3-wire	E								
2	No. of elements (Fig 1)									
	Simplex		S							
	Duplex		D							
3	Accuracy (Table 1)									
	Class A			1						
	Class B			2						
	1/3 DIN*			3						
	1/5 DIN*#			4						
4	Terminal head (Fig 6)									
	Weatherproof, aluminium, threaded cap, IP68 (≈NEMA 6P), cable entry M20x1.5				W03					
	Weatherproof, SS, threaded cap, cable entry M16x1.5				S05					
	Weatherproof, SS, threaded cap, IP68 (≈NEMA 6P), cable entry M20x1.5				S07					
	Flameproof, aluminium, threaded cap, Ex d, gas group IIB, IP67 (≈NEMA 6), T6, PESO, cable entry 1/2" NPT				F01					
	Flameproof, aluminium, threaded cap, Ex d, gas group IIB, IP67 (≈NEMA 6), T6, PESO, cable entry 2x1/2" NPT				F02					
	Flameproof, aluminium, threaded cap, Ex d, gas group IIC, IP67 (≈NEMA 6), T6, PESO, cable entry 2x1/2" NPT				F03					
	Flameproof, aluminium, threaded cap, Ex d, gas group IIB, IP67 (≈NEMA 6), T6, PESO, cable entry 4x1/2" NPT				F05					
	Flameproof, SS304, threaded cap, Ex d, gas group IIC, IP67 (≈NEMA 6), T6, PESO, cable entry 2x1/2" NPT				FA3					
	Flameproof, SS316, threaded cap, Ex d, gas group IIC, IP67 (≈NEMA 6), T6, PESO, cable entry 2x1/2" NPT				FC3					
	ATEX, aluminium, threaded cap, FM/CSA/IECEX, IP68 (≈NEMA 6P), cable entry M20x1.5/1/2" NPT				AAL					
	ATEX, SS316, threaded cap, FM/CSA/IECEX, IP68 (≈NEMA 6P), cable entry M20x1.5				AAC					
5	Coupling nut									
	1 1/4"					G32				
	3/4"					G34				
6	Sheath diameter (D - Fig 5)									
	4 mm (0.15")						04			
	6 mm (0.23")						06			
	6 mm (0.23") reduced to 4 mm (0.15")						6R			
	8 mm (0.31") reduced to 5 mm (0.19")						8R			
7	Sheath length (SL - Fig 5)									
	25 mm (minimum) (0.98")							025		
	50 mm (1.97")							050		
	100 mm (3.93")							100		
	300 mm (11.81")							300		
8	Connection length (Fig 5)									
	46 mm (1.81")								46	
	52 mm (2.04")								52	
9	Termination									
	Terminal block (Fig 3)									T
	Flying leads (Fig 4)									L
	TX1HM**: 2-wire, non-isolated temperature transmitter									A
	SCC641**: 2-wire, isolated temperature transmitter									B
	SCC642**: 2-wire, non-isolated, programmable temperature transmitter									C
	SCC631**: 2-wire, isolated temperature transmitter, HART									D

* : Not offered in Pt1000 assemblies.

: 1/5 DIN is available for limited configurations/construction/design

** : Radix products

continued ...

RTD SENSORS FOR FERMENTERS / VESSELS

RHF401

All Stainless Steel Construction

... continued

ORDERING INFORMATION (Also See Preferred Order Codes - Table 2)

CODE	SPECIFICATIONS	10	11	12	13	14	15	16	17	18	19
	Model : RHF401										
ACCESSORIES											
10	Cable gland										
	Required	G									
11	Blind plug										
	Required		P								
12	Transmitter range										
12.1	Standard										
	0 to 100°C (32 to 212°F)			STRA							
	-50 to 150°C (-58 to 302°F)			STRB							
	Custom range			CUST							
12.2	Custom range - low (customer to specify)			XXXX							
12.3	Custom range - high (customer to specify)			XXXX							
12.4	Custom unit (°C)			C							
12.5	Custom unit (°F)			F							
13	Cable length & type										
	1 m, Teflon/Teflon				1TT						
	5 m, Teflon/Teflon/SS braiding				5TS						
14	CE certification										
	Required					CE					
15	Calibration type										
	NABL-traceable calibration						TR				
	NABL-accredited lab calibration						NB				
16	No. of calibration points										
	3 point							3			
	5 point							5			
17	Tag plate										
	Required								TA		
18	Future parameter A										
	For future use									FA	
19	Future parameter B										
	For future use										FB

Without Accessories

MODEL 1 2 3 4 5 6 7 8 9

Order Code Format : XXXXXX-X-X-X-XXX-XXX-XX-XXX-XX-X

Example

Simplex, Weatherproof, SS, Threaded cap, IP68, Cable entry M20x1.5 (S7), Pt100, 2-wire, A, 1/3 DIN, 1 1/4", 6 x 25 mm, E-46 mm
RHF401-B-S-1-S07-G32-6R-025-46-T

With Accessories

Fixed order code

Add the codes for the required accessories

MODEL 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

Order Code Format : XXXXXX-X-X-X-XXX-XXX-XX-XXX-XX-X-X-XXXX-XXX-XX-XX-X-XX-FA-FB

Example

Simplex, Weatherproof, SS, Threaded cap, IP68, Cable entry M20x1.5 (S7), Pt100, 2-wire, A, 1/3 DIN, 1 1/4", 6 x 25 mm, E-46 mm,
3 point NABL traceable calibration
RHF401-B-S-1-S07-G32-6R-025-46-T-TR-3

Custom - With Accessories

Fixed order code

Add the codes for the required accessories

MODEL 1 2 3 4 5 6 7 8 9 10 11 12.1 12.2 12.3 12.4 12.4 13 14 15 16 17 18 19

Order Code Format : XXXXXX-X-X-X-XXX-XXX-XX-XXX-XX-X-X-XXXX-XXXX-XXXX- X - X - XXX-XX-XX-X-XX-FA-FB

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The Preferred Order Codes in the Table 2 below may be available with shorter deliveries and/or better prices.

TABLE 2 : PREFERRED ORDER CODES

Order code	No. of elements	Sheath diameter	Sheath length	Termination	Connection length	Other
RHF401-B-D-1-S07-G32-06-220-46-T	Duplex	6 mm (0.24")	220 mm (8.66")	SS weatherproof head	46 mm (1.81")	NA
RHF401-B-D-1-S07-G32-8R-084-46-A-0020-0180-C-TR-5	Duplex	8 mm (0.32") tapered to 5 mm (0.20")	84 mm (3.3")	SS weatherproof head	46 mm (1.81")	NA
RHF401-B-S-1-S07-G32-06-225-52-B-200-0200-C	Simplex	6 mm (0.24")	225 mm (8.8")	SS weatherproof head	52 mm (2.05")	TX1HM Transmitter
RHF401-B-D-1-W03-G32-06-100-46-T	Duplex	6 mm (0.24")	100 mm (4")	Die cast aluminium weatherproof head	46 mm (1.81")	NA
RHF401-B-S-1-S07-G32-6R-030-52-A-0000-0150	Simplex	6 mm (0.24")	30 mm (1.18")	SS weatherproof head	52 mm (2.05")	TX1HM Transmitter

**RTD SENSORS FOR
FERMENTERS / VESSELS**

ENQUIRIES

Email : sensors@radix.co.in

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