

# Series RST17XX

Pressure and Temperature Transducers

RST17XX



## Description

RDP's Series RST17XX transducers combine both a pressure sensor and temperature sensor in one unique package. The Series RST17XX is designed with proprietary electronics which provides a variety of both analog and digital high level outputs. The RST17XX is constructed of all welded stainless steel and incorporates reliable bonded foil strain gage technology and durable RTD elements. All units are manufactured with shock and vibration protection.

In addition to a wide variety of electrical outputs, the RST17XX pressure/temperature sensors offer many customer specific variations of process connections and electrical terminations. Temperature probe dimensions come with standard lengths as well as customer specified dimensions. A 4-20 mA, 2-wire output version of the Series RST17XX is available where intrinsically safe requirements are specified. Isolated voltage output is a standard feature of the voltage output units. The Model RST1714 is the CANbus version of the Series RST17XX. The Series RST17XX pressure/temperature transducers provide low sensitivity to shock and vibration.

When dual measurements are required, these dual output pressure/temperature transducers provide customers with significant cost reductions. Some of the favorable cost reduction factors include no thermowells, reduced process connections, reduced sensor inventory, and reduced wiring.

## Standard Features

- Stainless Steel Construction
- NIST Traceable Calibration
- Hermetically Sealed
- Two Independent Circuits
- Ranges to 15000 psi
- Low sensitivity to shock and vibration

## Optional Features

- Remote Operation
- Probe Length
- Digital Outputs
- Special Ranges
- Low Current Draw Electronics
- Temperature probe from -195°C to +398°C

# Series RST17XX Specifications

Baseline Configuration Specs Represented.  
Modifications Encouraged - See Below  
Custom Designs Available

## Performance

### PRESSURE

#### Static Accuracy

± 0.25% FSO by BFSL.

#### Thermal Zero Shift

< ± 0.018% FSO/°C.

#### Thermal Span Shift

< ± 0.009% FSO/°C.

#### Zero Balance

±1% FSO at 20°C.

#### Span

± 1% FSO at 20°C.

#### Resolution

Analog: Infinite.

Digital: .025% FSO.

### TEMPERATURE

#### Thermal Accuracy

± 0.7°C or 1% whichever is greater  
± 0.3°C. or .5% (optional for -17°C to +71°C)

#### Step Response

Thin wall probe: 1 sec. in liquid (63%).

Standard probe: 3 sec. in liquid (63%).

## Mechanical Characteristics

### Standard Ranges

0-5, 10, 25, 30, 45, 50, 75, 100, 150, 200,  
250, 300, 500, 750, 1000, 1500, 2000,  
2500, 3000, 3500, 4000, 5000, 6000,  
10000, 15000 PSIA / PSIG.

### Proof Pressure

1.5 X FSO pressure.

### Burst Pressure

> 2 X FSO pressure.

### Operating Media

Fluids and gases compatible with stainless  
steel. Inconel and other materials optional.

### Pressure Fitting

(For ranges 5 psi thru 10,000 psi)

1/4" NPT Male (Standard).

1/4" NPT Female (No charge option).

LM9, LM12, LM16 (No probe - RTD adjacent to  
pressure diaphragm).

(For ranges 15,000 psi)

AE F250-C, 9/16"-18 UNF, or equivalent  
(Standard).

For additional pressure fittings please  
consult factory.

### Enclosure

Body and pressure cavity of stainless  
steel, hermetically sealed.

## Mechanical Characteristics (cont)

### RTD Probe

Specify probe length desired:  
Dimension "L" (see drawing).

### Weight

250 g maximum.

## Electrical Characteristics

### ANALOG OUTPUTS

#### Excitation

4-20mA Current Loop:

9-36 Vdc for 2-wire.

9-36 Vdc for 3-wire.

Isolated Voltage Output (0-5 Vdc, 0-10 Vdc):

14-32 Vdc (standard).

8-18 Vdc (No charge option).

Non-Isolated Voltage Output:

8-40 Vdc for 1-5 Vdc, 3-wire

(standard).

8-40 Vdc for 1-6 Vdc, 3-wire

(No charge option).

8-40 Vdc for 0-5 Vdc, 4-wire

(No charge option).

Additional outputs and related excitations  
available.

### DIGITAL OUTPUTS

#### Excitation

RS-232, RS-485

8-30 Vdc.

CANbus

4-18 Vdc (standard).

14-32 Vdc (optional).

### Programming

PC.

### DUAL OUTPUTS (Analog & Digital)

#### Excitation

3-wire Current plus Digital:

12-32 Vdc.

Isolated Voltage plus Digital:

14-32 Vdc.

Non-Isolated Voltage plus Digital:

8-30 Vdc.

### COMMON

#### Insulation Resistance

> 100 megohms at 50 Vdc at 20°C.

#### Electrical Termination

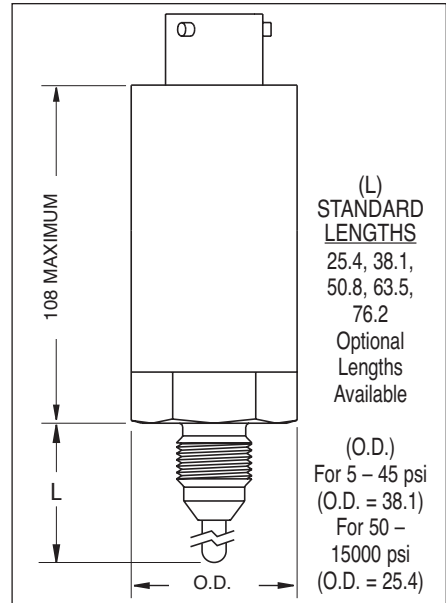
PTIH-10-6P stainless steel connector  
or equivalent.

Optional electrical terminations available.

#### Electrical Protection

- EMI Protected.  
(Optional for Isolated Voltage).
- Surge Protection to 500 Vdc.  
(Optional for Isolated Voltage).
- Reverse polarity protected.
- Short circuit protected.

## Dimensions (mm)



## MODEL IDENTIFICATION

R	S	T	1	7	X	X
SERIES			ANALOG OUTPUT		DIGITAL OUTPUT	
			0 = Volts		0 = None	
			5 = 4-20mA 2-wire Loop (not available with digital output)		1 = RS-485	
			6 = 4-20mA 3-wire		2 = RS-232	
			1 = None		4 = CANbus	

## Environmental Characteristics

### Electronics Case

Analog: -50°C to +120°C.

Digital: -40°C to +85°C.

### Pressure

Compensated temperature range:

-34°C to +76°C.

### Temperature Probe

-50°C to +148°C (standard).



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MODIFICATIONS: We realize transducer applications vary greatly and as such our designs are flexible. Choice of pressure port, electrical termination, material compatibility and performance characteristics are a few of the many options available. Specifications on this datasheet represent the standard configuration only. Product and company names listed are trademarks of their respective companies. Specifications subject to change without notice.

WARRANTY: RDP warrants that its product shall be free from defective workmanship and/or material for a twelve month period from the date of shipment, provided that RDP's obligation hereunder shall be limited to correcting any defective material FOB our factory. No allowance will be made for any expenses incurred for correcting any defective workmanship and/or material without written consent by RDP. This warranty is in lieu of all other warranties expressed or implied.

Due to the nature of technology, changes are inevitable. For latest technical specifications, see our website.

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