

# RT381-SP Rotary Temperature Transmitter (853-101)

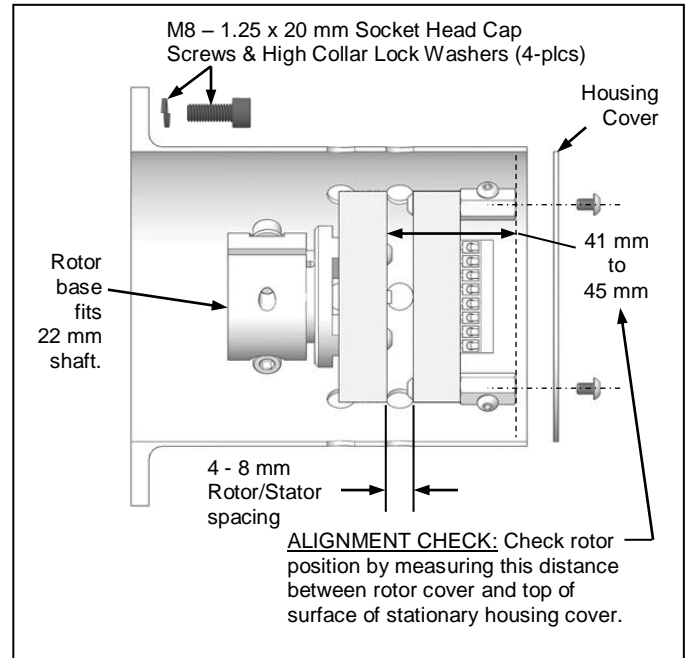
The RT381-SP is a one-channel temperature measurement system designed as an upgrade for Teijin-Seiki STA transmitters to monitor temperature and speed on heated godet roll shells on filament spinning machines. The system features generous 10 mm clearance between the rotating and stationary parts which eliminates damage due to impact and rubbing. TempTrak® data communications technology is unaffected by dust or debris. Digital circuitry in the rotating transmitter and the stationary receiver are immune to electrical noise and drift. Fault detection modes protect heater from damage and expedite troubleshooting in the event of a sensor failure.



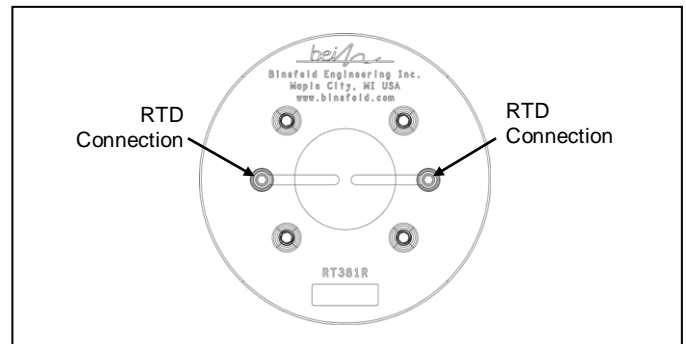
## Installation

1. Remove the existing STA rotary and stationary assemblies.
2. Remove the cover from the STA stationary assembly. Label and remove the wires from the assembly and discard the STA unit.
3. Remove the housing cover of the RT381S.
4. Prepare the ends of the power and data wires, and then secure them in the corresponding screw terminals of the green connector on the RT381S (same order as STA). See Stator Power and Output Connections drawing.
5. Route the cables across the top of the RT381S and over the mounting tabs at the edge of the board. Secure the cables with wire ties. Additional cable anchors are located at the base of the housing.
6. Slide the RT381R rotary assembly on to the motor shaft with steel base toward motor. Tighten the compression screws (alternating from one screw to the other) to lock assembly onto shaft.
 

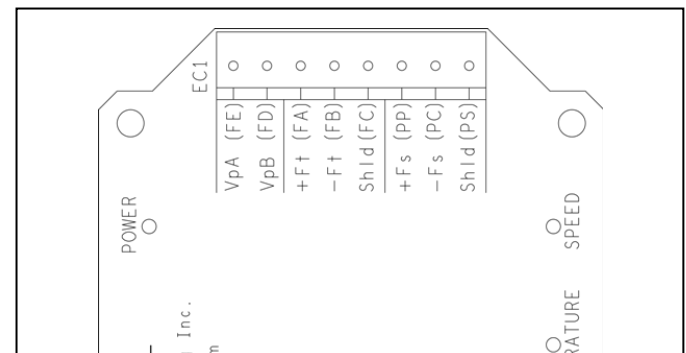
Note: The RT381R requires proper positioning on the shaft; see Step 10 below for details.
7. Secure RTD leads to terminals at top of rotary assembly with the 3 mm socket head cap screws provided.
8. **IMPORTANT!** Pull excess RTD leads towards the front of the godet roll to be stored under the godet cover. This prevents RTD wires from rubbing against the RT381S stationary housing during rotation.
9. Position RT381S stationary housing over RT381R rotary assembly with cables leading downward and secure it to the motor with screws provided.
10. **IMPORTANT!** There should be approximately a 4 to 8 mm space between the rotary and stationary assemblies. To verify correct axial spacing (refer to the Installation Diagram), measure the distance from the outer face of the rotor cover to the inside face of the housing cover. This distance should be over 41 mm but no more than 45 mm.
11. Re-connect the power and data signal wires to the machine control system.



Installation Diagram



Rotor RTD Connections



Stator Power and Output Connections

# RT381-SP Rotary Temperature Transmitter (853-101)

## Stator Power and Output Connections

VpA (FE): Power (~)		+Ft: + Temperature signal		+Fs: +Speed signal
VpB (FD): Power (~)		-Ft: - Temperature signal		-Fs: -Speed signal
		Shld: Grounded (one end only)		Shld: Grounded (one end only)

## Troubleshooting

Status Indicators:

Light Status	System Status
All Lights on Solid	Proper Operation
<u>Lights Off or Flickering:</u>	<u>A fault condition is occurring:</u>
"Power" Light	Check the power supply input voltage.
"Speed" Light	Check the rotor to stator spacing.
"Temperature" Light	Check the rotor connections, and rotor to stator spacing.

Note: The "Speed" light will be off if the shaft is not turning, and may flash at low shaft speeds.

Output Signal:

Frequency Output	Displayed Output	Fault Description	Troubleshooting Suggestions
7146.6 Hz.	310°C	The RTD is reading > 310°C.	Check RTD and its connections.
7184.0 Hz.	312°C	The RTD is reading < -20°C.	Check RTD and its connections.
7333.2 Hz.	320°C	There is low rotor power occurring.	Check the rotor to stator spacing.
7370.3 Hz.	322°C	There is high rotor power occurring.	Check the rotor to stator spacing.

## Specifications

Rotor:

Number of Sensors: 1  
 Input Sensor type: JPt200 RTD 200 Ω at 0°C, Alpha = 0.003916 (JIS C1604)  
 Temperature Range: -10 to 300°C  
 Sensor Connections: 3 mm SHCS for ring lugs  
 Speed: 10,000 RPM

Stator:

Connector Type: Wire clamp screw terminal block for 14 to 26 AWG wire  
 Temperature Signal Output: 551 to 6959 Hz for -10 to 300°C RTD Temperature  
 Speed Signal Output: 16 - 4000 Hz corresponding to 80 - 20,000 RPM  
 Frequency output at 6 pulses per revolution  
 [-50% duty cycle; +20V(nom) pulse]  
 Power Input: 18 to 28 VAC or 25 to 40 VDC, 300 mA (max), 200 mA (nom)

General:

Accuracy: ±0.5°C max error (corresponds to ±10.34 Hz on frequency output).  
 (Over the operating temperature and RTD range and product warranty period)  
 Operating Temperature: Rotary Assembly: 0 to 85°C, non-condensing  
 Stationary Assembly: 0 to 85°C, non-condensing

This document is subject to change without prior notification.

## Warranty

Binsfeld Engineering Inc. warrants this product to be free from defective materials and workmanship for a period of two years from the date of delivery to the original purchaser and that this product will conform to specifications and standards published by Binsfeld Engineering Inc. Upon evaluation by Binsfeld Engineering Inc., any product found to be defective will be replaced or repaired at the sole discretion of Binsfeld Engineering Inc. Our warranty is limited to the foregoing. Binsfeld Engineering Inc. disclaims any warranty of merchantability or fitness for intended purpose.