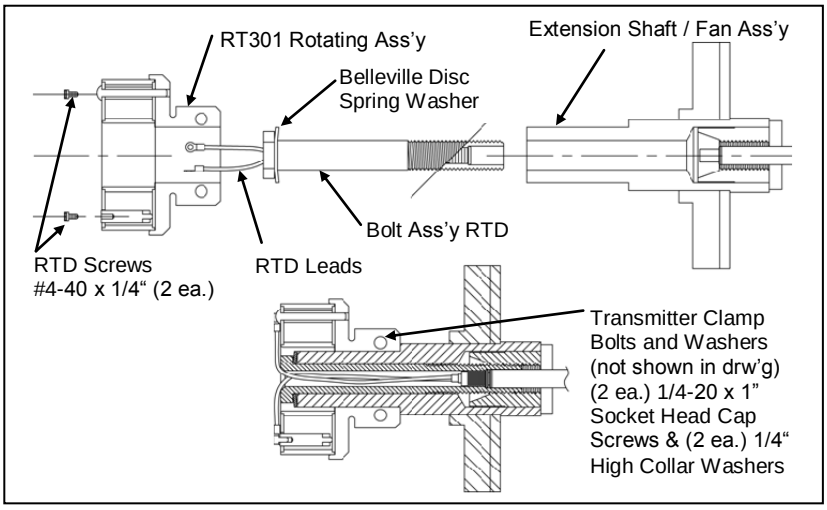
RT301 Rotary Temperature Transmitter (850-307)

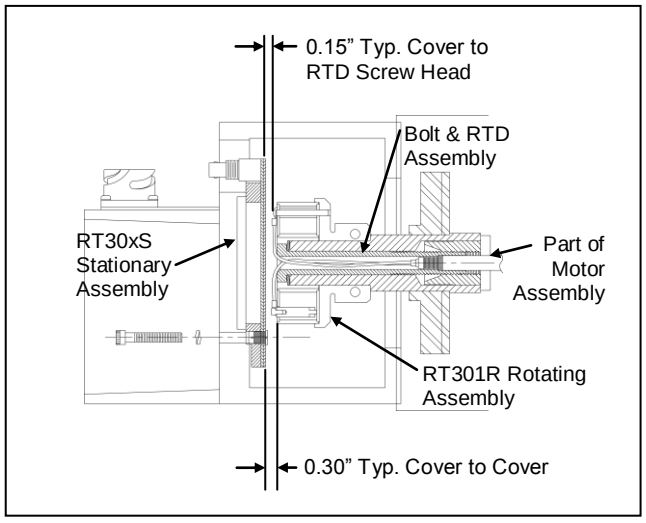
The RT301 rotary temperature transmitter is a digital system designed to accurately transmit temperature data from RTD sensors embedded in a heated godet roll shell. The system consists of three components: The RT301R rotary assembly, the RT300S stationary assembly, and the RT301C controller interface assembly.

Installation

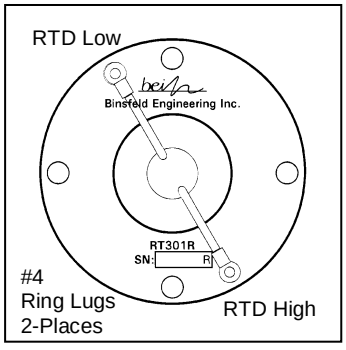
1. Remove existing RTD T-sensor from roll shell.
2. Remove and replace existing 330mm long bolt assembly with provided 5 inch long bolt assembly (required to accommodate longer T-sensor).
3. Slide the RT301R rotary assembly onto shaft with steel base toward motor until base hits alignment stops (Completed RT301 Installation Diagram). Align the RTD screws with the RTD leads as in the Bolt & Rotary Ass'y Installation Diagram. Tighten the (2) ¼ - 20 compression screws (alternating from one screw to the other) to lock assembly onto shaft.
4. Secure RTD leads with the 4-40 x ¼" socket head cap screws provided.
5. Mount the RT300S stationary assembly to the inside of the rear motor housing with the provided M6 x 35mm long socket head cap screws and lock washers. Orient the BNC connector so that it protrudes out of the connector access hole in the rear motor housing (see Completed RT301 Installation Diagram).
6. Reinstall the rear motor housing. Verify proper clearance between the rotating and stationary assemblies per Completed RT301 Installation Diagram.
7. Install the correct RTD T-sensor in the roll shell.
8. DIN rail (35mm) mount the RT301C current controller interface at a convenient location. CAUTION: To promote airflow and prevent overheating, the RT301C must have at least 1-inch clearance above and below the enclosure.
9. Connect one end of the provided coax cable to the BNC plug on the RT300S stationary housing and the other end to the BNC plug on the RT301C.
10. Connect the 18VAC power leads from the instrumentation cable to the Power Input terminals indicated on the RT301C. Acceptable power is 22-35VDC or 17-27VAC. **CAUTION: Power source must be isolated from current output.**
11. Connect the 4-20mA current loop (from the customer's process controller) to the current source terminals indicated on the RT301C.
12. Allow a 30 second start up.



Bolt & Rotary Ass'y Installation Diagram



Completed RT301 Installation Diagram



Rotor/RTD Connection Diagram

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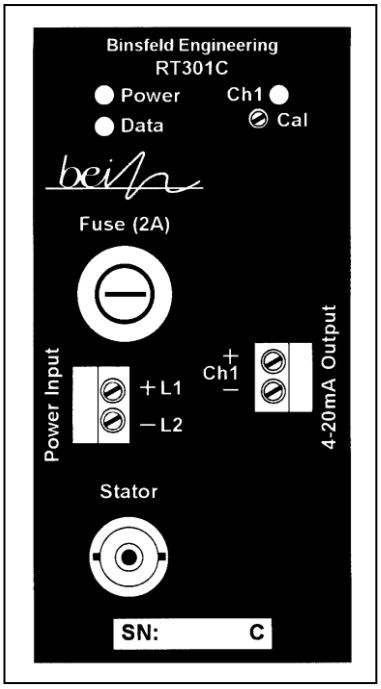
Troubleshooting

In normal operating mode the Power status light, the Data status light and the CH status light are all on solid. In error mode, one or more of the LED's on the RT301C Controller Interface will flash and a high temperature signal (approximately 24 mA) will be output. Refer to the table below when troubleshooting an error mode event.

Power Status	Condition	Corrective Action
On solid	Stator and rotary power in spec	---
Flash fast (5Hz)	Rotary power out of spec	Check rotor/stator spacing, and coaxial connections
Flash slow (2Hz)	Stationary power out of spec	Check power source
Off	System not powered	Check power source, and power connections
10 sec on/1 sec off [Data light off, RTD light(s) blinking]	Insufficient rotary power or data not received (Rotor Reset mode)	Check rotor/stator spacing, and coaxial connections

Data Status	Condition	Corrective Action
On solid	Digital transmission is error-free	---
Flickering	Intermittent transmission errors	Check rotor/stator spacing, coax connections
Off	Data not received	Check rotor/stator spacing, and coaxial connections

Ch 1 Status	Condition	Corrective Action
On solid	No errors detected	---
Flash fast (5Hz)	Rotary side error: RTD out of range (including open or shorted)	Check RTD, connections
Flash slow (2Hz)	Open circuit in 4-20mA loop continuity of current loop	Check connections and



Status Indicators & I/O Diagram

If the status lights do not agree with conditions listed above, remove power to the RT301C for 5 seconds, and then restore power (to reset the digital circuitry). Go to http://www.binsfeld.com/temptrak/rt300/ for more trouble shooting aids.

Specifications

Rotor:	Number of sensors:	1
	Sensor connection:	Lemo coaxial connector #ERA.OS.650.CTAZ, with #4-40 screw terminals
	Input sensor type:	PT200 RTD (2 PT100 RTDs in series, 100 Ω each at 0°C, a = .00385, two wire)
	Sensor range:	0 – 300°C
	Speed:	10,000 RPM
Stator:	Connector:	Coaxial interconnect (BNC)
Controller Interface:	Output connection:	Quick connect screw terminal block.
	Output signal:	4-20mA (Linear with 0 - 300° C)
	Power input:	22-35 VDC or 17-27 VAC, 2A max, 0.5A nominal
	Max load resistance	400 Ω
General:	Accuracy (typical error):	±0.30% span over operating temperature range
	Operating temperature:	0 – 100°C
	Humidity:	0 – 90% RH, 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 five 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.