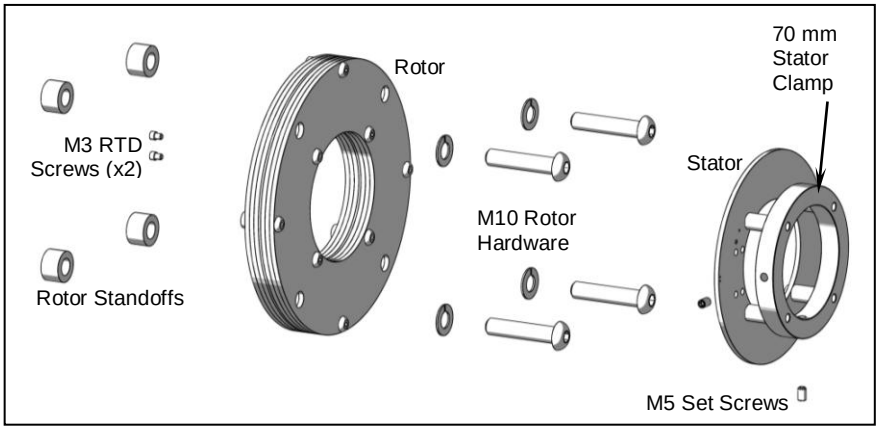
RT312 Rotary Temperature Transmitter (850-502)

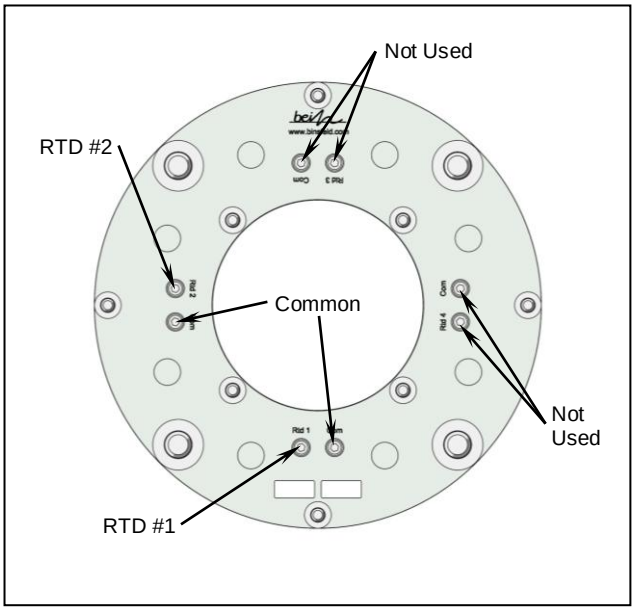
The RT312 is a two-channel temperature measurement system designed to monitor temperature on heated rolls. The system features a linear 4-20 mA output from the controller interface for use with standard process controllers. Error detection modes protect the heater from damage and expedite troubleshooting in the event of a sensor or other failure. Digital circuitry from sensor input to signal output and generous clearance between the rotating and stationary components make the RT312 a robust and reliable element in the temperature feedback loop.

Installation

1. Slide RT312 rotor over shaft, attach ring lugs from the RTD sensor to the RT312 rotor RTD terminals, and tighten securely. (See Rotor/RTD Wiring Diagram)
2. Mount RT312 rotor using M10 screws, split washers and aluminum standoffs and tighten securely. (See Installation Diagram)
3. Slide the RT312 stator onto shaft making sure to orient the stationary coil board towards the rotor coil board as shown above.
4. Verify rotor-stator spacing (12mm +/- 5mm) and secure the stator with the two M5 setscrews shown above. Loctite 222 or equivalent is recommended on the setscrew to prevent it from loosening.
5. Connect the RT312 stator to the RT302C controller interface using the 10-meter coaxial cable provided.
6. Position and secure RTD wiring and signal cables away from rotating equipment to prevent cable damage.



Installation Instruction



Rotor/RTD Connections Diagram

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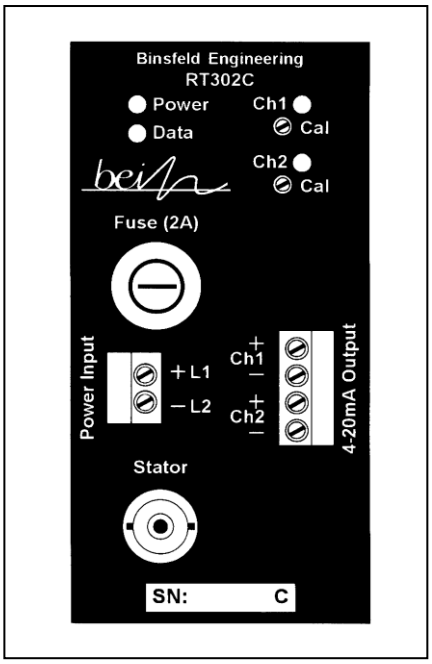
Troubleshooting

In normal operating mode the Power status light, the Data status light and the Channel (Ch) status light are all on solid. In error mode, one or more of the lights on the RT302C 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 & rotor 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, and coaxial connections
Off	Data not received	Check rotor/stator spacing, and coaxial connections

Ch 1 - 2 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	Check connections and continuity of current loop



Status Indicators & I/O Diagram

If the status lights do not agree with conditions listed above, remove power to the RT302C 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 - 2
	Sensor connection:	M3-0.5 screw terminals
	Input sensor type:	PT100 RTD (100 Ω at 0° C, α = .00385, two wire)
	Sensor range:	0 – 300° C
	Speed:	5,000 RPM
Stator:	Connector:	Coaxial interconnect cable (RG58C/U, BNC single ended)
Controller Interface:	Output connection:	Quick connect screw terminal block.
	Output signal:	4-20 mA (Linear with 0 – 300° C)
	Power input:	22-35 VDC or 15-25 VAC, 2 A max, 0.5 A 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 defects for a period of two years from the date of delivery to the original purchaser and that its products 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.