

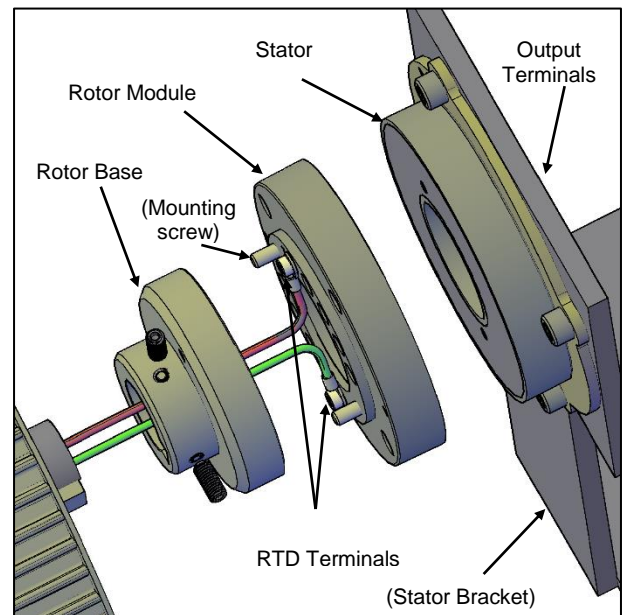
RT351 Rotary Temperature Transmitter (852-018)

The RT351 is a single-channel temperature measurement system designed to monitor temperature on heated godet roll shells. The system features Dienes-compatible output signals for temperature and speed as well as a linear 4-20 mA output 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 RT351 a robust and reliable element in the temperature feedback loop.



Installation

1. Remove existing transmitter system.
2. Separate RT351 rotor module from rotor base by removing two button head cap screws.
3. Install rotor base onto motor shaft (small end first and aligning keyway) with large face flush with end of the shaft. Tighten one set screw temporarily.
4. Secure RTD sensor wire ring terminals to screw terminals at back of rotor module and tighten securely.
5. Re-attach rotor module to rotor base with button head cap screws. BEI recommends using Loctite 222MS or equivalent on these threads.
6. Attach stator to mounting bracket (user provided) so that label faces rotor assembly and output screw terminals are away from rotor. Orient the stator for convenient routing of output signal cables.
7. Connect output signal wires to screw terminals on stator.
8. Reposition rotor assembly and/or stator bracket so that gap between rotor face and stator face is 5mm (0.2"). Tighten rotor set screws securely. Secure bracket as appropriate.
9. Refer to the Wiring Code and diagram below for connecting the heater control system to the RT351 signal output terminals.



Typical Installation Diagram (exploded view)

Wiring Code

Frequency and Speed Output (Dienes)

Terminal 1: Supply voltage (+Vf) (+12VDC nominal) (red typical)

Terminal 2: Supply Voltage low (Common) (blue typical)

Terminal 3: Speed output (white typical)

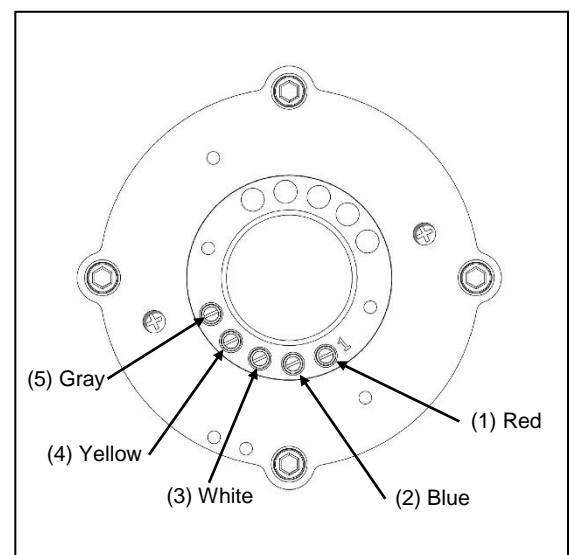
Standard Current Output (4-20 mA)

Terminal 2: Current output low (-I)

Terminal 4: Supply voltage (+Vi) (+15VDC nominal)

Terminal 5: Current output high (+I)

Note that both the frequency and the current output signals can be used individually or simultaneously but each must be powered accordingly.



Stator Wiring Diagram

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Error Codes

Current Output (mA)	Displayed Temperature	Frequency Output (Hz)	Displayed Temperature	Error Description
22.00	337.5°C	800	342.2°C	RTD Low: RTD is measuring less than 100 ohms (0°C for PT100) or is shorted.
22.25	342.2°C	825	363.6°C	RTD High: RTD is measuring more than 221 ohms (325°C for PT100) or is disconnected.
23.25	360.9°C	925	451.3°C	Rotor Data Error: Data from the Rotor is in error or non-existent. Or Rotor circuit fault.
23.50	365.6°C	n/a	n/a	Low Stator Power: Power supply voltage to stator is too low for reliable operation. Current supply (+Vi) below 13V
23.75	370.3°C	n/a	n/a	High Stator Power: Power supply voltage to stator is too high. Current supply (+Vi) above 26V
24.00	375.0°C	n/a	n/a	Stator Circuit Fault: After initialization sequence, indicates fatal stator error.

Specifications

Rotor:	Number of sensors:	1
	Sensor connection:	M3-0.5 screw terminals
	Input sensor type:	PT100 RTD (100 ohm at 0°C, alpha = .00385)
	Sensor range:	0 – 300°C
	Speed:	10,000 RPM
Stator:	Output connection:	M3-0.5 screw terminals
	Output signals:	Discrete 4 – 20 mA current source Frequency signal (Dienes curve: 362.48 – 749.86 Hz) Speed Pulse (2 pulses per revolution)
	Power Input:	For frequency output (Dienes compatible) (+Vi): 11 – 15 VDC For current output (standard 4 – 20 mA) (+Vi): 14 – 25 VDC
General:	Accuracy (max error)	Current: ±0.20% full scale, 25 – 85°C ambient temperature Frequency: ±0.40% full scale, 25 – 85°C ambient temperature
	Rotor/Stator Spacing	5 mm Nominal
	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 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.
