

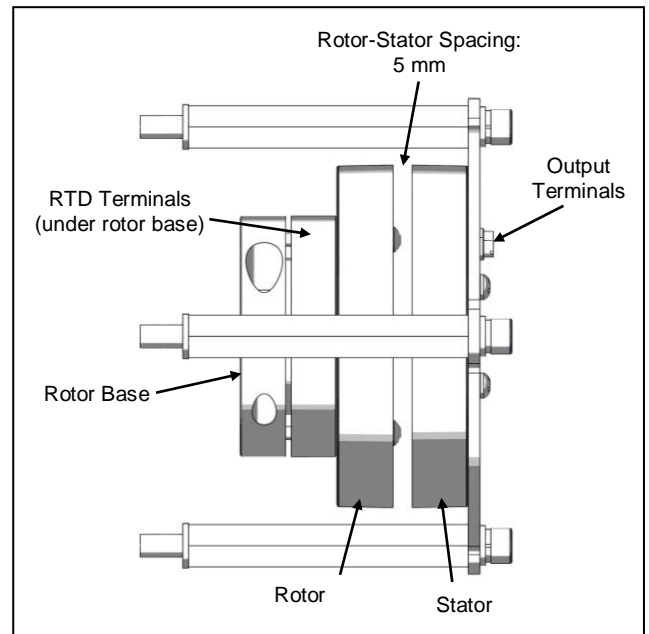
# RT351 Rotary Temperature Transmitter (852-014)

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 from motor.
2. Insert RT351 rotor base onto motor shaft and tighten securely.
3. Pull RTD sensor wires through shaft exit holes and secure ring terminals to rotor screw terminals and tighten securely.
4. Attach rotor housing to rotor base with supplied 30mm long M4 button head cap screws. BEI recommends using Loctite 222MS or equivalent on these threads.
5. Install provided 4 Hex standoffs and larger diameter M6 lock washers onto motor housing.
6. Attach stator using provided M6 flat washers, high collar lock washers and socket head cap screws. (Orient the stator for convenient routing of output signal cables.)
7. Verify rotor-stator spacing (5mm nominal) as shown.
8. Secure stator output wires with cable tie.
9. Complete motor assembly.
10. Refer to the Wiring Code and diagram below for connecting the heater control system to the RT351 signal output terminals.



Installation Diagram

## 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)

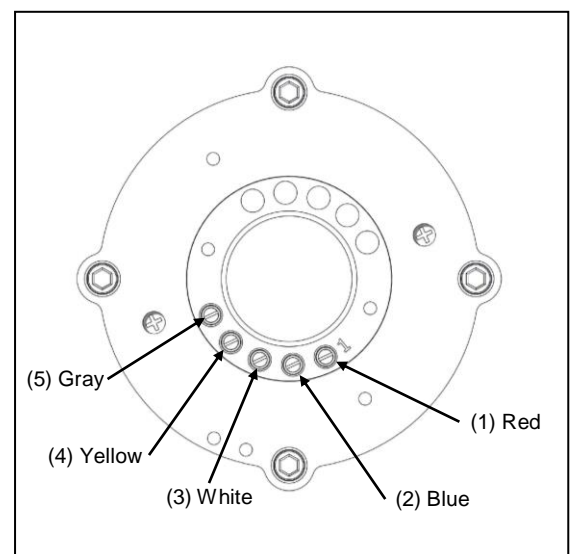
### Standard Current Output (4-20 mA)

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.

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## 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:	System includes RPM speed pickup, steel insert and mounting plate.	
	Accuracy (max error)	Current: ±0.20% full scale, 25 – 85°C ambient temperature Frequency: ±0.40% full scale, 25 – 85°C ambient temperature
	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.