

RT351 Rotary Temperature Transmitter (852-015)

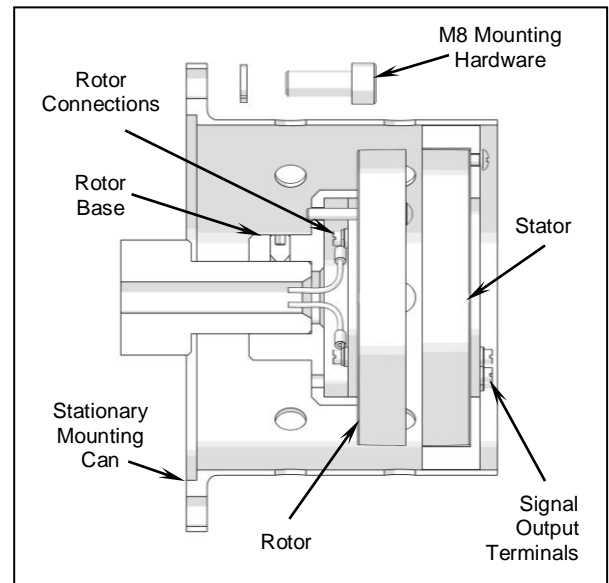
The RT351 is a single-channel temperature measurement system designed to monitor temperature on heated godet roll shells. The system features Dienes-compatible output signals for temperature and speed as well as a linear 4-20 mA output for use with standard process controllers. Error detection modes 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 RT351 transmitter from rotor base.
2. Slide the RT351 rotor base on shaft until it stops and secure with provided setscrews.*
3. Attach ring lugs from the RTD sensor to RT351 transmitter terminals and tighten securely.
4. Attach RT351 transmitter onto rotor base.*
5. Mount stationary can assembly to motor with hardware provided.
6. Refer to the Wiring Code and diagram below for connecting the heater control system to the RT351 signal output terminals.

*Use Loctite Threadlocker 222MS or equivalent for steps 2 and 4.



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)

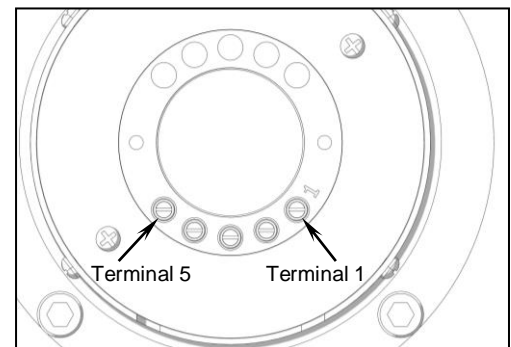
Terminal 3: Speed output (white typical)

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)



Stator Wiring Diagram

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

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Troubleshooting

| 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 |
| | 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.