# RT351 Rotary Temperature Transmitter (852-006)

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. Attach RT351 stator to motor housing. (Orient stator for convenient routing of output signal cables.)

3. Slide RT351 rotor on to shaft (metal insert through stator) until it stops.

4. Verify rotor-stator spacing (5mm nominal) as shown.

5. Secure ring terminals from RTD sensor to rotor screw terminals and tighten securely.

6. Complete motor assembly.

7. Refer to the Wiring Code and diagram below for connecting the heater control system to the RT351 signal output terminals.
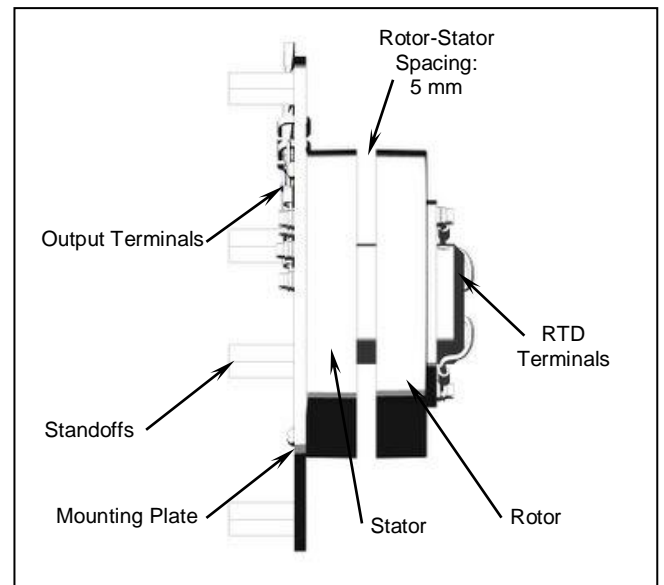
Installation Diagram

Wiring Code

Frequency and Speed Output (Dienes)
Terminal 1: Supply voltage (+Vf) (+12VDC nominal) (red typical)
Terminal 2: Supply Voltage low (Common) (blue typical)
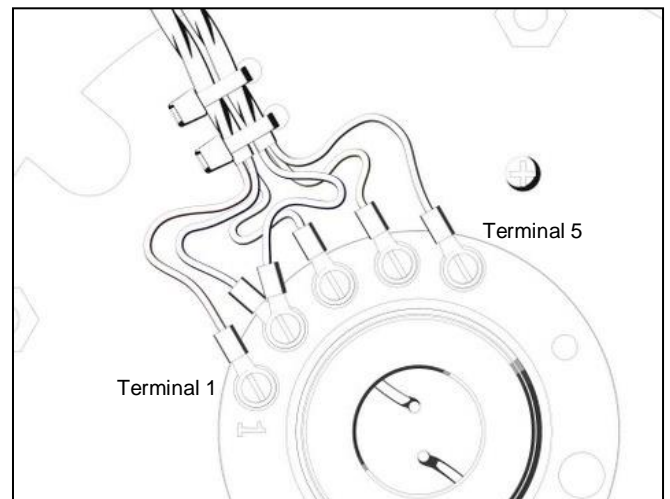Terminal 3: Speed output (white typical)

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

RT351 Rotary Temperature Transmitter (852-006)

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) (+V_f): 11 – 15 VDC
		For current output (standard 4 – 20 mA) (+V_i): 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 notice.

Warranty