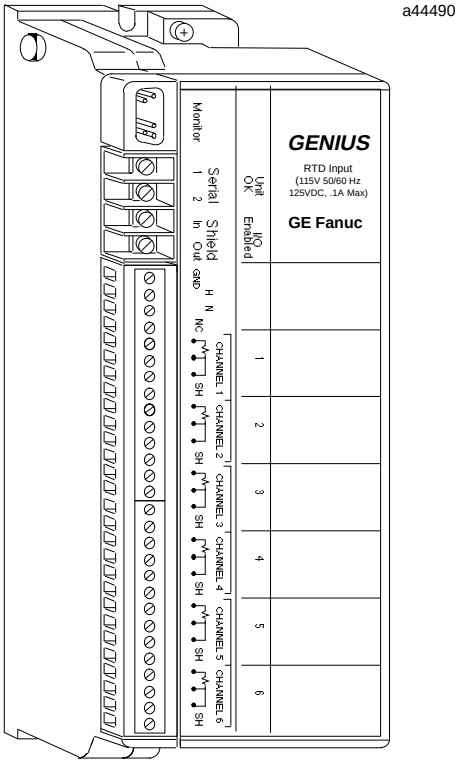
Chapter 14 RTD 6 Input Blocks

RTD Input blocks monitor temperature inputs from Resistive Temperature Detectors (RTDs). Two RTD blocks are available:

- **115 VAC/125 VDC RTD Block** (IC660BBA101)
- **24/48 VDC RTD Block** (IC660BBA021)

They are identical except for the power supply.



Features

An RTD Input block has six input circuits, in three groups of two circuits each. Group to group isolation is 300 volts. Each input can be used with platinum, nickel, or copper RTDs. Input data for each circuit is linearized according to the type of RTD selected. Input data is reported to the CPU in engineering units of tenths of degrees Celsius, tenths of degrees Fahrenheit, tenths of ohms, or counts. Additional configurable features include:

- Alarm thresholds
- RTD resistance
- Alpha type
- Linearization
- Input filter time

RTD blocks are factory–calibrated; there is no need for subsequent re–calibration.

In addition, the block's automatic diagnostics can pinpoint the cause of installation and run–time errors:

- Input Short detection
- Internal Fault detection
- Wiring Error detection
- Open Wire detection
- Overrange and Underrange input indication
- High and Low input alarms

Fault reporting can be enabled or disabled circuit–by–circuit.

Compatibility

These blocks are compatible with PCIM and QBIM modules. Hand–held Monitor IC660HHM501D, version 3.5 (or later) is required.

For a Series 90™–70 PLC, the CPU may be rel. 1 (IC697CPU731 or 771) or later. The bus controller may be rel. 1 (IC697BEM731) or later.

For a Series Six™ PLC, the CPU must be rev. 105 or later. For a Series Six Plus PLC, rev. 110 or later is required. The programming software must be Logicmaster™ 6 rel. 4.02 or later.

For a Series Five PLC, the CPU must be rev. 3.0 or later. The Logicmaster 5 programming software must be rel. 2.01 or later.

Specifications

Block Type:	6 RTD–compatible inputs, 3 isolated groups of 2	
Catalog Numbers:		
115 VAC / 125 VDC RTD Block	IC660BBA101	
Terminal Assembly Only	IC660TBA101	
Electronics Assembly Only	IC660EBA101	
24 / 48 VDC RTD Block	IC660BBA021	
Terminal Assembly Only	IC660TBA021	
Electronics Assembly Only	IC660EBA021	
LEDs (I/O Block):	Unit OK, I / O Enabled	
Size (height x width x depth):	8.83" (22.44cm) x 3.50" (8.89cm) x 3.94" (10.00cm)	
Weight:	4 lbs. (1.8 kg)	
Heat Dissipation:	7W maximum	
Block to Block Isolation:	1500 V	
Group to Group Isolation:	300 V	
115 VAC/125 VDC block power:	**115 VAC**	**125 VDC**
Power supply voltage:	93–132 VAC @ 7W 47–63 Hz	105–145 VDC @ 7W 10% max. ripple
Power supply dropout time:	1 cycle	10mS
24/48 VDC block power:		
Power supply voltage:	18–56 VDC @ 7W, 10% max. ripple	
Power supply dropout time:	10mS	
Input Characteristics:		
Input resolution	0.1 C	
Absolute accuracy (at 25C)		
Platinum or Nickel:	" 0.5 C typical, " 1.0C maximum	
10Ω Copper:	" 5C typical, "10C maximum	
Input update frequency	Once every 400 ms, 800 ms, or 1600 ms	
Input filter ranges (per block)	400 ms, 800 ms, 1600 ms	
RTD linearization	Platinum (DIN 43760), Nickel (DIN 43760), Copper, Linear	
Resistance measurement range	0 to 5000Ω	
Diagnostics	Input shorted, Internal fault, Wiring error, Open wire, Overrange, Underrange, High Alarm, Low Alarm	
Environmental:		
Operating temperature	0C to +60C (32F to +140F)	
Storage temperature	–40C to +100C (–40F to 212F)	
Humidity	5% to 95% (non–condensing)	
Vibration	5 – 10 Hz 0.2" (5.08mm) displacement, 10–200 Hz at 1G	