GE Genius I-O Series Service Manual

IC660BPM100

1. Description

IC660BPM100 is a Power Monitoring Block (PMB) in the GE 90-30 series that measures RMS values of current, power, VARs, power factor, and watt-hours, even if waveforms are distorted. This PMB also measures line frequency and detects/captures overcurrent waveforms above a configurable level.

2. Specifications

Specification	Value
Brand	**GE Fanuc**
Series	**Genius I-O**
Manufacturer	**GE Fanuc (Former); Emerson Automation (Current)**
Part	**Number IC660BPM100**
Series	**Genius I/O Block**
Product	**Type Power monitor block**
Part	**Number IC660BPM100**
Input	**Voltage 125 Volts DC, 115 / 230 Volts AC inputs**
Product	**Description Genius PowerTrac**
Max.	**Distance to Host 7500 feet**
Measured	**Parameters RMS voltage, current, active power, reactive power, KWH, and power factor**
Standalone	**Mode Yes**
Communication	**Genius I/O**
Burden	**per Voltage Input < 0.1 VA**
Communication	**Distance Up to 7500 feet**
Dimensions	**5.21 x 11 x 8.06 inches**
Power	**supply 115/230 VAC or 125 VDC**
Operating	**Temperature 0 to +60 Degree Celsius (+32F to +140 Degree Fahrenheit)**
Storage	**Temperature -40 to 212 degrees Fahrenheit**
LED	**Indicators: Unit OK; Communications OK**
Functionalities:	**Voltage: Phase to phase (wye and delta) / Phase to neutral (wye system) Current: Per phase and neutral Active Power: Per phase Reactive Power: Per phase Power Factor: Effective system PF**
Update	**Rate: 2 / se**

3. Product Information

IC660BPM100 is a Power Monitoring Block (PMB) in the GE 90-30 series that measures RMS values of current, power, VARs, power factor, and watt-hours, even if waveforms are distorted. This PMB also measures line frequency and detects/captures overcurrent waveforms above a configurable level.

IC660BPM100 can be used for both 4-wire and 3-wire systems and utilizes simple user connections. This PMB comes equipped with direct connection for up to three transformers and three line current transformers in addition to one neutral current transformer. It carries low current transformer burden (less than 0.1 VA), is software configurable, and is designed for mounting in electrical distribution and process equipment. Its integral power supply takes either 115/230 VAC or 125 VDC inputs. It can be installed on bus up to 7500 feet from the host. This PMB is CPU redundancy configuration compatible and does not need a host to be used for stand-alone monitoring. The block's electronics assembly may be inserted or removed without interfering with block configuration or field wiring. Additionally, no CT shorting clips are needed.

IC660BPM100 provides accurate and stable RMS measurements regardless of higher-order harmonics due to dual analog and digital techniques. Measurement updates occur approximately twice per second with the help of block sampling. IC660BPM100 requires enough memory space to accept 36 bytes of calculated data. The PLC or computer will then send 16 output control bits to the block, which creates "handshaking" protocol. When planning the block's placement, adequate clearance is required for routing wiring and for proper airflow around the block. The user must also leave room at the front of the block for attaching a handheld monitor The IC660BPM100 is a PowerTrac Block Module that is part of the Genius I/O series, formerly by GE Fanuc now under Emerson Automation. This module is used in Power Monitoring applications, able to monitor current and voltage parameters and store measured values in digitized waveforms. This module calculates RMS voltage, current, active power, reactive power, KWH, and power Technical specifications for IC660BPM100

Brand GE Fanuc

Series Genius I-O

Manufacturer GE Fanuc (Former); Emerson Automation (Current)

Part Number IC660BPM100

Series Genius I/O Block

Product Type Power monitor block

Part Number IC660BPM100

Input Voltage 125 Volts DC, 115 / 230 Volts AC inputs

Product Description Genius PowerTrac

Max. Distance to Host 7500 feet

Measured Parameters RMS voltage, current, active power, reactive power, KWH, and power factor

Standalone Mode Yes

Communication Genius I/O

Burden per Voltage Input < 0.1 VA

Communication Distance Up to 7500 feet

Dimensions 5.21 x 11 x 8.06 inches

Power supply 115/230 VAC or 125 VDC

Operating Temperature 0 to +60 Degree Celsius (+32F to +140 Degree Fahrenheit)

Storage Temperature -40 to 212 degrees Fahrenheit

LED Indicators: Unit OK; Communications OK

Functionalities: Voltage: Phase to phase (wye and delta) / Phase to neutral (wye system) Current: Per phase and neutral Active Power: Per phase Reactive Power: Per phase Power Factor: Effective system PF

Update Rate: 2 / second for calculated values and status data

Wire size: Genius I/O bus: one AWG #12 or two AWG #14) Power, CTs, and PTs: up to AWG #10

Product Lifecycle Discontinued Description

The IC660BPM100 is a PowerTrac Block Module. This module is essentially a Power Monitoring device that comes with Genius I/O capability, capable of being directly integrated to Series 90-3, Series 90-70, PACSystem RX3i, and other devices that support the Genius Bus Protocol. This module is formerly manufactured by GE Fanuc Automation, currently under Emerson Automation. The IC660BPM100 is used to voltage and current along with their respective parameters. Specifically, the IC660BPM100 can be used in determining RMS voltage, current, active power, reactive power, KWH, and power factor specifically, Phase to phase (wye and delta) and Phase to neutral (wye system) for voltage; Per phase and neutral for current; Active current, Power and reactive indication per phase; Effective System Power factor (PF). Each value and data calculation are updated every Two (2) seconds. Aside from the measurement of the mentioned parameters, the IC660BPM100 is also capable of detecting overcurrent transients with a configurable threshold value. It can be mounted near a machine or process as it supports Genius communication protocol where data captured and processed by the IC660BPM100 PowerTrac is transmitted to the host controller via the Genius Bus. The IC660BPM100 converts the analog measurement into digitized waveforms for easy and simple analysis of the parameters. This device accepts 3-phase voltage input with an input voltage range of 0-120VAC at 47-63 Hz; Input current of 0-5 Amperes, the nominal range at 47-63 Hz. It has built-in status LEDs indicators that depict Unit OK and Communications OK. The IC660BPM100 has an operating temperature of 5.21" w. X 11.00" h. X 8.06" d. or 13.23cm w. X 27.94cm h. X 20.47cm d. It has an operating temperature of 0 to +60 Degree Celsius or +32F to +140 Degree Fahrenheit.

The GE Fanuc Genius I-O IC660BPM100 power monitor block monitors voltage and current inputs and stores the waveform values for each type of input. From these stored values, the IC660BPM100 block calculates the root mean squared (RMS) values of the current, voltage, reactive power, active power, KWH, and power factor. The IC660BPM100 block also measures line frequency. The IC660BPM100 block then sends these calculated values to a connected computer or PLC for analysis. The IC660BPM100 block can be used with Wye-Delta configured 3-phase or single-phase systems. The block accepts current inputs from up to 3 line current transformers and a neutral current transformer, and voltage inputs from up to 3 potential transformers. The IC660BPM100 block is software configurable. The block has a rugged design and it can be installed in electrical process and distribution equipment. The IC660BPM100 power monitor block can accept either 125 Volts DC or 115 to 230 Volts AC rated inputs. The block can be installed at distances of up to 7500 from its host computer. The block can also be used in stand-alone applications. The overvoltage rating for the voltage inputs is 300 Volts peak, the transient voltage rating is 300 Volts peak, and the burden per input is less than 0.1 VA. The overcurrent withstand for the current inputs is 50 Amps for 5 seconds at 10-minute intervals. The IC660BPM100 block measures 5.21 x 11 x 8.06 inches. The environmental specifications for the block include a 32 to 140 degrees Fahrenheit operating temperature range, a -40 to 212 degrees Fahrenheit storage temperature range, and a 50 to 95% relative humidity range for operation and storage. The vibration rating for the IC660BPM100 block is 1 G at 10 to 200 Hertz.