GE Genius I-O Series Service Manual

IC660BBA105

1. Description

The IC660BBA105 is a Current-source Analog 6 Output Block of GE Fanuc series 90-30 PLCs. It belongs to the Analog Output Modules group and can connect with either a 115 VAC or a 125 VDC power supply. A different version of the same equipment can be powered with 24/248VDC (IC660BBA025). It has six outputs whose output range is between 4 mA to 20 mA and provides the system with different types of diagnostics. Circuit power is isolated, and accuracy of input is as precise as 0.15% at 25C.

2. Specifications

Specification	Value
Brand	GE Fanuc
Series	Genius I/O
Manufacturer	Emerson Automation / GE Fanuc (formerly)
Part	Number IC660BBA105
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Description	I/O block
Product	Description Analog output module
Terminal	32
No.	of Outputs Six (6) analog outputs
Output	block 6
Points	per common One group of 6
Resolution	6µA
Output	Signals 4-20 mA
Operating	Voltage 93-132 Volts AC/105-145 Volts DC
Supply	voltage range 115 VAC / 125 VDC
Output	range 4-20 mA /0-24 mA
Communication	protocol Genius Protocol
Heat	Dissipation 12 Watts
Update	Rate 25 ms
Baud	rate 76.8/38.4 kbaud
Accuracy	0.15% of full scale reading
Block	to Block Isolation 1500V for one minute
LEDs	(I/O Block) Unit OK, I/O Enabled
Size	(HxWxD) 8.83" (22.44cm) x 3.50" (8.89cm) x 3.94" (10.00cm) Description
The	IC660BBA105 is a Genius I/O Block component. This module is specifically an analog output module that operates at an input supply voltage of 115 VAC or 125 VDC. This module is a panel mounted device, secured through the provided mounti

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Isolated power is provided to outputs by the block's power source, and no additional power supply is needed for current loops of 4 to 20 mA. Outputs are electrically all the same. The outputs convert digital signals of 12 bits to analog signals for 0mA to 24mA. Values display on the handheld screen as integers, individually for every output. The IC660BBA105 Current-source Analog 6 Output Block has a dedicated bus switching module output that connects to specific BSM devices.

The IC660BBA105 Current-source Analog 6 Output Block can be configured to hold the last output state, or a default state, and can receive output feedback and feedback time. The circuit transforms the signal to engineering values, and the block can work if there is CPU redundancy. This equipment also provides fault reporting that can be disabled if needed. Faults include output over-range and under-range signal detection and feedback recognition of less than 1.5 mA signals.

All Genius bus controllers are compatible with IC660BBA105 Current-source Analog 6 Output Block. To configure the block, the user needs a handheld monitor of version 3.7 or above. The programming software is Logicmaster 6 ver. 4.02 or later. CPUs that are compatible with the block are rev. 105 or later for Series Six PLCs, rev.110 and above for Series Six Plus, and rev. 3.0 or later for series 5 PLCs. If a bus switching module is required, IC660BSM021 is the only compatible option.

The IC660BBA105 Current-source Analog 6 Output Block has 32 terminals. Power source connects to terminals 6 and 7. Output cables connect to the self-powered inputs 11 to 32. Bus Switching Module connects to terminals 9-10. The IC660BBA105 is a Genius Block I/O. Previously manufactured by GE Fanuc, this module is now under Emerson Automation. It is a 115 VAC/ 125 VDC powered, stand-alone, current sourcing, analog output module that features Six (6) analog outputs that delivers 4-20 mA analog signals. This module has 6µA resolution. It supports Genius communication protocol, allowing the module to Technical specifications for IC660BBA105

Brand GE Fanuc

Series Genius I/O

Manufacturer Emerson Automation / GE Fanuc (formerly)

Part Number IC660BBA105

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Description I/O block

Product Description Analog output module

Terminal 32

No. of Outputs Six (6) analog outputs

Output block 6

Points per common One group of 6

Resolution 6µA

Output Signals 4-20 mA

Operating Voltage 93-132 Volts AC/105-145 Volts DC

Supply voltage range 115 VAC / 125 VDC

Output range 4-20 mA /0-24 mA

Communication protocol Genius Protocol

Heat Dissipation 12 Watts

Update Rate 25 ms

Baud rate 76.8/38.4 kbaud

Accuracy 0.15% of full scale reading

Block to Block Isolation 1500V for one minute

LEDs (I/O Block) Unit OK, I/O Enabled

Size (HxWxD) 8.83" (22.44cm) x 3.50" (8.89cm) x 3.94" (10.00cm) Description

The IC660BBA105 is a Genius I/O Block component. This module is specifically an analog output module that operates at an input supply voltage of 115 VAC or 125 VDC. This module is a panel mounted device, secured through the provided mounting holes, fastened using 8-32 size screws and connected to ground using star washers. It can be installed to any enclosure, providing adequate air flow and protection to industrial contaminants. The IC660BBA105 mainly features Six (6) analog input channels that delivers 4-20 mA signals. Each channel has configurable output hold feature which is an important safety related functionality, allowing the module to hold the current output value in the event of processor error or change in operating mode. Additionally, individual circuit scaling to engineering values can be set to provide a usable readout. It is also capable of sensing overrange and underrange situations as well output feedback error. Output channels of this module do not require calibration to be put into operation. The IC660BBA105 has output resolution of 6µA with output update frequeny of 25 ms and accuracy of 0.15% of full-scale reading. It operates at output range of 0-24 mA and thermal drift of 35 PPM per degree C typical. Recommended wire size for terminating field signal wires are AWG #14 (avg 2.1mm2 in cross-section) with minimum recommended size of AWG #20 (avg .54mm2 in cross-section). For serial bus wiring, recommended wire size is AWG #12 wire (avg 3.3mm2 cross-section) for single wire connection and AWG #14 wires (each avg 2.1mm2 in cross-section). When 2 wires are needed in a single terminal. Minimum recommended wire size for serial bus is AWG #22 (avg .36mm2 in cross-section).

The IC660BBA105 module is a Genius I-O module that is compatible with the Series 90-30 PLC system by GE Fanuc. The module has a total of 32 terminals and 6 output blocks. The resolution of the module is 6 microAmps. It comes with 6 points and the operating voltage of the module is 93 to 132 Volts AC and 105 to 145 Volts DC. The output range of the I/O module is 4 to 20 milliAmps or 0 to 24 milliAmps. This Genius I-O analog device has an open enclosure and it should be protected against water splashes and air-borne contaminants. The IC660BBA105 module is 8.83 inches in height, 3.50 inches in width, and 3.94 inches in depth. The front of the module is equipped with a Unit OK LED and an I/O Enabled LED. The IC660BBA105 module has a block to block isolation of 1500 Volts for a time period of 1 minute. For regular operation, the I/O module generates 12 Watts of heat as energy dissipation. The temperature of the module's environment should not exceed 60 degrees Celsius. The IC660BBA105 module uses the monitoring port to connect with a handheld programming unit. The operating frequency of the I/O module is 50 to 60 Hertz. It is equipped with Serial 1, Serial 2, Shield In, and Shield Out connection ports. The I/O block has independent circuits that are electrically common but that are isolated from other circuits. The IC660BBA105 module features one of the enhanced diagnostic features in an I/O block that can easily detect no-load errors, overload errors, short-circuit errors, and other errors. The module has a baud rate of 76.8 and 38.4 kbaud.