GE Genius I-O Series Service Manual

IC660BBD021

1. Description

The IC660BBD021 is a 24/48 VDC Sink I/O, 16 Circuit, 3 Wire Sensor Compatible Block of GE Fanuc series 90-30 PLCs. It interfaces electromechanical and 3-wire solid sensors. The type of power source this block receives is 24/48 VDC and is provided from field output devices. The block has 16 discrete circuits that can work as inputs, tristate inputs, or outputs. The circuits are powered by the block with no additional supply. The IC660BBD021 has many configurable parameters, including output pulse

2. Specifications

Specification	Value
Brand	**GE Fanuc**
Series	**Genius I-O**
Manufacturer	**GE Fanuc / Emerson Automation**
Part	**Number IC660BBD021**
Series	**Genius I/O**
Description	**Serial I/O block**
Product	**Description 16 Circuit Block sink I/O Module**
Circuit	**16**
No.	**of circuits 16 I/O circuits**
Voltage	**24/48 Volts DC**
Input	**signal voltage 24 / 48 VDC**
Dimensions	**8.83 x 3.56 x 4.42 inches**
Input	**processing time 1.7 ms**
Weight	**4 pounds**
Input	**diagnostics Open wire, Overtemperature, Failed Switch**
Isolation	**voltage 1500 Volts**
Output	**Current 2 Amperes per circuit**
Power	**supply drop out time 10 milliseconds**
maximum	**inrush current 10 Amperes up to 10 ms**
Temperature	**0-60 degrees Celsius**
Maximum	**switching frequency Once per second**
Output	**diagnostics Short Circuit, Overload, No Load, Failed Switch, Overtemperature**
Compatible	**Electronics assembly IC660EBD021**
Compatible	**terminal base assembly IC660TSD021**
Operating	**Temperature 0 Degree to 60 Degree Celsius**
Storage	**temperature of -40 Degree Celsius to 100 Degree Celsius**
Humidity	**5-95% non-condensing**
Product	

3. Product Information

The IC660BBD021 is a 24/48 VDC Sink I/O, 16 Circuit, 3 Wire Sensor Compatible Block of GE Fanuc series 90-30 PLCs. It interfaces electromechanical and 3-wire solid sensors. The type of power source this block receives is 24/48 VDC and is provided from field output devices. The block has 16 discrete circuits that can work as inputs, tristate inputs, or outputs. The circuits are powered by the block with no additional supply. The IC660BBD021 has many configurable parameters, including output pulse test, configurable input filter time, output power up defaults, and output hold last state or default. The block is equipped with electronic short circuit and over temperature protection. It can detect a failed switch, open wire in tristate inputs, overload, or no load. Also, protective mechanisms prevent any damage due to overload by shutting down the system.

The block should be installed in a protective case in a place with no airborne contaminants and with adequate cooling and air flow. IC660BBD021 needs a grounding system. The 16 circuits of the block use terminals 6 to 21. Those terminals can work as inputs or outputs. Outputs connect to DC- and inputs to DC+ with no need of logic inversion. Using a terminal as a tristate input requires one resistor mounted at the dry contacts of the input device. This ensures open wire diagnostic availability.

When a user decides to disconnect block power, circuit power must be disconnected as well. If power is applied to field terminals, touching the pins is very dangerous and can cause electrical shock. To replace an electronics assembly, a handheld monitor should first be connected. The user must monitor the circuits from the HMM menu and then turn it off and disconnect. The user can now power down the block, remove the electronics assembly, and install the new one. Terminals can be used as inputs or outputs using the + or – side of the terminal board. The IC660BBD021 is a Genius Block I/O module that is formerly produced by GE Fanuc Automation now under Emerson Automation. This module features Sixteen (16) sinking I/O circuits configurable as input or output. Input circuits are designed to accept nominal input signal voltages of 24 / 48 VDC at an input current processing time of 1.7 ms. Output circuits are designed to deliver an Technical specifications for IC660BBD021

Brand GE Fanuc

Series Genius I-O

Manufacturer GE Fanuc / Emerson Automation

Part Number IC660BBD021

Series Genius I/O

Description Serial I/O block

Product Description 16 Circuit Block sink I/O Module

Circuit 16

No. of circuits 16 I/O circuits

Voltage 24/48 Volts DC

Input signal voltage 24 / 48 VDC

Dimensions 8.83 x 3.56 x 4.42 inches

Input processing time 1.7 ms

Weight 4 pounds

Input diagnostics Open wire, Overtemperature, Failed Switch

Isolation voltage 1500 Volts

Output Current 2 Amperes per circuit

Power supply drop out time 10 milliseconds

maximum inrush current 10 Amperes up to 10 ms

Temperature 0-60 degrees Celsius

Maximum switching frequency Once per second

Output diagnostics Short Circuit, Overload, No Load, Failed Switch, Overtemperature

Compatible Electronics assembly IC660EBD021

Compatible terminal base assembly IC660TSD021

Operating Temperature 0 Degree to 60 Degree Celsius

Storage temperature of -40 Degree Celsius to 100 Degree Celsius

Humidity 5-95% non-condensing

Product lifecycle discontinued Description

The IC660BBD021 is an I/O Block module that is part of the Genius I/O Block series. This module mainly features Sixteen (16) IO circuits, each configurable as input, tri-state input, and discrete output channels. This module is made of Two (2) components particularly an electronics assembly with catalog number IC660EBD021 and terminal base assembly with catalog number IC660TSD021. This module is formerly produced by GE Fanuc Automation, current under Emerson Automation. It is designed as a stand-alone device, functioning as distributed IO station that counts as a single node in the Genius I/O bus network. It is built with a Genius Bus terminal for connection to an existing Genius I/O network that is also used for daisy-chain connection to other Block I/O or Genius capable devices. It is also provided with a port to communicate to Hand-Held Terminal (HHM) allowing local monitoring. Input channels characteristics include ON-state voltage of 0-8 VDC at 24 VDC and 0-16 VDC at 48 VDC while Off-state voltage is 17-24 VDC at 24 VDC and 34-48 VDC at 48 VDC. The module's input processing time is 1.7 ms with an added delay caused by the selected input filter. Output characteristics include a maximum steady-state output current of 2 Amperes per circuit with a maximum inrush current of 10 Amperes at 10 ms duration. The total output current of this I/O block does not exceed 15 Amperes when installed at an operating temperature of 35 Degree Celsius. The output circuit has a maximum switching frequency of once per second with on delay time of 1 ms.

The GE IC660BBD021 I/O block is an I/O module with 16 circuits. It is a sink I/O block powered with 24 to 48 Volts DC. This module is capable of working as an input, tristate input, or output module. It is fully compatible with a 3-wire sensor. No separate power supply block is required for this I/O block variant. The I/O block is able to communicate with 3-wire solid-state sensors and electromechanical sensors. The module is manufactured in a compact size of 8.83 inches in height, 3.56 inches in width, and 4.42 inches in depth. It weighs around 4 pounds. The front section of the module has 16 circuits with individual load side indicators. They are illuminated when a connection is made to that specific circuit. The IC660BBD021 I/O block can be easily connected to a handheld monitor by using the monitor port on the upper section of the block. The GE IC660BBD021 I/O block is considered to be open equipment and it should be installed in a protective enclosure. The installation area should be clean and free from dust and dirt. The block uses a convection cooling method to maintain its ambient operating temperature and there should always be proper airflow. The IC660BBD021 I/O block comes with diagnostics and protective features that include electronic short-circuit protection, overload and over-temperature detection, and failed switch and no-load detection. The IC660BBD021 I/O block comes with Serial Port 1 and Serial

Port 2 along with a Shield In Port and a Shield Out Port. Two LED indicators known as the I/O Enabled and Unit OK indicators are present on the front of the block. The isolation block to block voltage rating is 1500 Volts. The power supply dropout time is 10 milliseconds.