GE Genius I-O Series Service Manual

IC660BBD022

1. Description

The IC660BBD022 is a 24 VDC Source I/O, 16 Circuit, 2/3 Wire Sensor Compatible Block of GE Fanuc series 90-30 PLCs. It is among the discrete and analog blocks that belong to this series. It works with 24 VDC and is used with two and three wire solid state sensors and electromechanical sensors. Each of the 16 circuits, the block can work as an input, output, or tristate input, and no other components are required for configuration. Power supply is provided to all circuits by the block.

2. Specifications

Specification	Value
Brand	**GE Fanuc**
Series	**Genius I/O**
Manufacturer	**Emerson Automation / GE Fanuc (formerly)**
Manufacturer	**GE Fanuc / Emerson Automation**
Part	**Number IC660BBD022**
Part	**Number IC660BBD022**
Series	**Genius I/O**
Description	**Source I/O block**
Product	**Description Source Block I/O**
Product	**Description 16 Source I/O circuits**
Circuits	**16**
No.	**of I/O 16**
No.	**of circuits 16 I/O circuits**
Points	**per common One group of 16**
Input	**signal voltage 24 / 48 VDC**
Load	**current 2 Amperes**
Operating	**voltage 18-30VDC**
Input	**processing time 1.7 ms**
Dimensions	**8.83 x 4.42 x 3.56 inches**
Nominal	**voltage 24VDC**
Input	**diagnostics Open wire, Overtemperature, Failed Switch**
Heat	**dissipation 68.8 Watts with 2 Amperes**
Communication	**protocol Genius Protocol**
Output	**Current 2 Amperes per circuit**
Max.	**ripple 10%**
Input	**Response time 1.7 msec plus configurable filter**
maximum	**inrush current 10 Amperes up to 10 ms**
Output	**turn on deplay 1 millisecond**
Output	**response time 1.0 msec**
Maximum	**switching frequency Once per second**
Temperature	**0-60 degrees Ce**

3. Product Information

The IC660BBD022 is a 24 VDC Source I/O, 16 Circuit, 2/3 Wire Sensor Compatible Block of GE Fanuc series 90-30 PLCs. It is among the discrete and analog blocks that belong to this series. It works with 24 VDC and is used with two and three wire solid state sensors and electromechanical sensors. Each of the 16 circuits, the block can work as an input, output, or tristate input, and no other components are required for configuration. Power supply is provided to all circuits by the block.

The IC660BBD022 has various configurable features. Among these are output test capability, selectable input time filter, output power up defaults, and output hold last state or default. The block has the ability to protect the system in case of electronic short circuit and over temperature. It can detect a failed switch, no load, and open wire in tristate inputs. In case there is overload, it detects the problem and shuts down.

This block can replace all its previous versions when a compatible electronics assembly is connected. The block should be installed in a protective case in a location with no airborne contaminants alongside adequate cooling and air flow.

IC660BBD022 needs a reliable grounding system. Terminals of this block interface with #12 wire or two #14 wires. There are 22 terminals on this block. The serial bus connects 1 to 4, and terminals 6 to 21 can be used as inputs or outputs by selecting the DC+ or DC- side of the terminal. DC power connects to terminals 5 and 22. When replacing an electronics assembly, the user must be careful because there is danger of electrical shock. The IC660BBD022 is a Genius Block I/O module that is formerly produced by GE Fanuc Automation now under Emerson Automation. This module features Sixteen (16) sourcing 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 IC660BBD022

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Description Source I/O block

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Product Description 16 Source I/O circuits

Circuits 16

No. of I/O 16

No. of circuits 16 I/O circuits

Points per common One group of 16

Input signal voltage 24 / 48 VDC

Load current 2 Amperes

Operating voltage 18-30VDC

Input processing time 1.7 ms

Dimensions 8.83 x 4.42 x 3.56 inches

Nominal voltage 24VDC

Input diagnostics Open wire, Overtemperature, Failed Switch

Heat dissipation 68.8 Watts with 2 Amperes

Communication protocol Genius Protocol

Output Current 2 Amperes per circuit

Max. ripple 10%

Input Response time 1.7 msec plus configurable filter

maximum inrush current 10 Amperes up to 10 ms

Output turn on deplay 1 millisecond

Output response time 1.0 msec

Maximum switching frequency Once per second

Temperature 0-60 degrees Celsius

Filter time 5 to 100mS

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

Block to Block Isolation 1500V for one minute

Compatible Electronics assembly IC660EBD021

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

Compatible terminal base assembly IC660TSD021

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

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 Description

The IC660BBD022 is a Genius protocol-enabled module that is part of the Genius I/O Block series of distributed I/O modules. This device is a stand-alone, single-node I/O station with Sixteen (16) I/O circuits that support source wiring configuration. The IC660BBD022 features Sixteen (16) I/O circuits that operate at 24 / 48 VDC. Each channel of this module is configurable as input and output and capable of performing data exchange via the provided Genius I/O bus terminals, allowing communication between GE Programmable Logic and Automation Controller s (PLC / PAC) as well as modules such as Bus Controllers, PC Interface Modules, Human Machine Interface (HMI) as well as 3rd party devices. This module is a

panel-mounted, stand-alone device that cones with an open-type enclosure therefore, must be installed within an enclosure that provides adequate protection against industrial contaminants. This module can be remotely mounted away from partner devices at a maximum distance of 7500 feet. It also permits daisy-chaining of other I/O blocks to form a Genius I/O network. The module's operation can be configured locally using a hand-Held Monitor (HHM) via the HHM port installed on top of the terminal assembly. It may also be configured remotely using the programming software of the host controller. The module’s input channels accept 12 / 24 VDC nominal voltages with 1.7 ms actuation delay. Similarly, the output channels generate 2 Amperes of current per circuit with a maximum turn-on delay of 1 ms. This module is made of Two (2) components particularly, the IC660EBD020 Electronics assembly and IC660TBD022 Terminal base assembly.

The IC660BBD022 I/O block is a 16-circuit enabled source I/O block manufactured by GE Fanuc. It runs with 24 Volts DC power and it can be used along with 2-wire and 3-wire sensors. This Genius I-O device has a load current of 2 Amps, and this DC-powered block is intelligent and it can be configured easily in order to be used as a sensor or an actuator device. It comes with other configurable features that include output power default, a selectable input filter time, and an output pulse test capability. The IC660BBD022 I/O block is manufactured with diagnostics and safety measures that can easily alert the operators for run time and operational errors. It can easily detect overload, overtemperature, short circuit, no-load, and failed switch errors. The device is portable and compact in size. It can save panel space and it has dimensions of 8.83 inches in height, 4.42 inches in depth, and 3.56 inches in width. The front section of the IC660BBD022 source I/O block has 16 configurable I/O circuits. An I/O Enabled and Unit OK LED are installed to illuminate when there is activity on the block. A monitoring port is also available that can connect to a hand-held programmer. The I/O block can be connected easily to a personal computer running with the Windows operating system. The IC660BBD022 I/O block dissipates 68.8 Watts as heat when operated with 2 Amps OF current. It produces a maximum ripple of 10%. The maximum switching frequency of the block is once per second with a high inrush current. The output turn-on delay maximum is 1 millisecond. The ambient operating temperature should not exceed 60 degrees Celsius.