GE Genius I-O Series Service Manual

IC660ELB912

1. Description

The IC660ELB912 is a µGENI Network Interface Board from GE Fanuc. It is designed to be a daughterboard in a user's microprocessor system. Users can interface the µGENI and the motherboard in any CPU-type device capable of reading and writing to the general-purpose shared RAM on the µGENI. This device is known as the host.

2. Specifications

Specification	Value
Brand	**GE Fanuc**
Series	**Genius I-O**
Manufacturer	**GE Fanuc / Emerson Automation**
Series	**PC Interface Module (PCIM)**
Part	**Number IC660ELB912**
Series	**Genius I/O**
Part	**Number IC660ELB912**
Product	**Description MicroGENI daughterboard**
Compatible	**PCIM Card Single-slot PCIM (IC660ELB921); Dual channel PCIM (IC660ELB922).**
Memory	**Requirement 16 Kbytes**
Power	**Requirement 5 Volts DC, 400 milliamps**
Current	**consumption 1.0 Ampere on single channel PCIM; 1.5 Amperes on a dual-channel PCIM with 2 daughterboards**
Single	**Channel PCIM IC660ELB921**
Memory	**Requirement 16K bytes**
Shared	**Memory 16KB**
Dual	**Channel PCIM IC660ELB922**
Status	**LEDs GENI OK, COMMS OK**
Communication	**protocol Genius Protocol**
No.	**of supported devices 30 per daughtercard**
Compatibility	**IBM PC/ AT/ XT**
LEDs	**indicators GENI OK; COMMS OK**
Communicate	**rate 38.4K, 76.8K, 153.6K standard, or 153.6K extended baud rates.**
Ambient	**Operating Temperature 0 to 60 degrees Celsius**
Operating	**Temperature**
LED	**Indicators GENI OK; COMMS OK**
Weight	**3 Pounds**
0degrees	**to +60deg**

3. Product Information

The IC660ELB912 is a µGENI Network Interface Board from GE Fanuc. It is designed to be a daughterboard in a user's microprocessor system. Users can interface the µGENI and the motherboard in any CPU-type device capable of reading and writing to the general-purpose shared RAM on the µGENI. This device is known as the host.

Although the RAM interface is optimized for the IBM personal–computer bus, it is easy to adapt to various other CPU types. As it handles all data transfers between the host and the Genius I/O bus, the µGENI effectively frees up the host. This allows the host to control remote I/O. It does this by using the features of the Genius I/O, such as high reliability and noise immunity. Furthermore, the host can use the communication features of the Genius LAN to communicate with other hosts.

In a sense, the µGENI is a general-purpose controller, maintaining initialization tasks and managing faults for over 30 other bus devices. Each device controls an I/O and the µGENI keeps updated images of each one. It is also capable of communicating with other controllers through the use of Global Data, datagrams and Directed Control Data messages.

The µGENI has a range of intricate components on its single-printed circuit board.

It uses a 6303-serial interface microprocessor to write messages to the MIT chip. This chip manages the hardware interface to the bus and provides support functions. For example, it handles error checking, LED drivers and a timer function. A transmit/receive circuit works closely with the MIT and bus transmit and receive signals.

The µGENI uses dual port RAM to exchange data. This is done between the 6303-microprocessor and a manager microprocessor - 64180. As the two processors run two separate systems, the dual port RAM ensures they both have equal access. This is controlled by a GAL, delivering memory to either processor on a byte-by-byte basis. The 64180 also has a separate 8Kb of RAM for its exclusive use.

The user should mount the µGENI to the motherboard using spacers. This is done by putting screws, standoffs or plastic PCB supports in the four corner holes of the motherboard. Do not use any adhesive product on the board.

It is important that the µGENI board is not mounted in a way that obstructs airflow across the board. Users should take care not to mount it within 1/8 inch of any other board or component on the motherboard.

The µGENI board needs a 5V DC source to operate logic power. The IC660ELB912 is a Genius Network Interface module. This module is a daughterboard that attaches to a single-slot or two-slots IBM PC Interface Module (PCIM). This module enables control of a remote I/O and permits connection to an existing Genius I/O Bus. The IC660ELB912 is of controlling up to Thirty (30) Bus devices at communication baud rates of 38.4K, 76.8K, 153.6K standard, or 153.6K extended. Technical specifications for IC660ELB912

Brand GE Fanuc

Series Genius I-O

Manufacturer GE Fanuc / Emerson Automation

Series PC Interface Module (PCIM)

Part Number IC660ELB912

Series Genius I/O

Part Number IC660ELB912

Product Description MicroGENI daughterboard

Compatible PCIM Card Single-slot PCIM (IC660ELB921); Dual channel PCIM (IC660ELB922).

Memory Requirement 16 Kbytes

Power Requirement 5 Volts DC, 400 milliamps

Current consumption 1.0 Ampere on single channel PCIM; 1.5 Amperes on a dual-channel PCIM with 2 daughterboards

Single Channel PCIM IC660ELB921

Memory Requirement 16K bytes

Shared Memory 16KB

Dual Channel PCIM IC660ELB922

Status LEDs GENI OK, COMMS OK

Communication protocol Genius Protocol

No. of supported devices 30 per daughtercard

Compatibility IBM PC/ AT/ XT

LEDs indicators GENI OK; COMMS OK

Communicate rate 38.4K, 76.8K, 153.6K standard, or 153.6K extended baud rates.

Ambient Operating Temperature 0 to 60 degrees Celsius

Operating Temperature

LED Indicators GENI OK; COMMS OK

Weight 3 Pounds

0degrees to +60degrees C (32degrees to +140degrees F) Storage Temperature

Operating temperature 0–60 C(32–140 F)

-40 degrees C - 125 degrees C (-40degrees to +212degrees F) Humidity

Storage temperature –40 to +70 C(–40 to 158 F)

5% to 95% (non-condensing) Operating shock

Humidity 5-95% (non-condensing)

5 G, 10 ms duration per MIL–STD 810C, method 516.2 Operating altitude

Operating altitude 40,00 feet

Product Lifecycle Discontinued Description

The IC660ELB912 is a Genius network interface card. This module is specifically a daughterboard of an IBM PC Interface Module (PCIM). This card is installed to a single slot or double slot PCIM module, enabling I/O controller functionality to the host controller, allowing control, monitoring, and management of remote I/O devices over the Genius I/O network. This daughterboard along the PCIM card is formerly manufactured by GE Fanuc, now under Emerson Automation. The IC660ELB912 is responsible for implementing housekeeping tasks such as initialization and fault management of up to 30 Devices residing on the same Genius I/O network. It maintains up-to-date data images of the controlled device and is able to

exchange data with other controllers over the same network by sending and receiving background messages unassociated with the I/O commands or global data. The host PCIM device provides a status LED indicator to determine the operation of the attached daughterboard specifically a GENI OK and COMMS OK. It supports a variety of configurable data rates such as 38.4K, 76.8K, 153.6K standard, or 153.6K extended. If two (2) daughterboards are attached to a dual-slot PCIM and each daughterboards are connected to separate Genius I/O busses, each of the daughterboard must be set to the same baud rate the cards are attached to. In addition, both daughterboards can be connected to the same bus therefore, each daughterboard must have the same baud rate configured. A single daughterboard requires 16Kbytes of host memory and 32Kbytes if Two (2) daughterboards are installed.

The IC660ELB912 Micro GENI daughterboard is a network interface board from GE Fanuc. It belongs to the Genius I/O series of modules and PLC components. It features backward-compatible blocks, shared RAM, and 16 KB of memory. This micro GENI daughterboard can be interfaced with single-slot or two slot IBM PC Interface Module (PCIM) and needs a 5 Volts DC rated power source to provide the logic power. The IC660ELB912 Micro GENI daughterboard can be easily mounted by using spacers and screws. It comes with 2 status indicating LEDs to inform the operators about the status of the device, and these LED indicators are the GENI OK LED and the COMMS OK LED which show the operation and communication status of the device, respectively. The 2 LEDs can be found on the faceplate of the module which shows the operation and communication of the device. The IC660ELB912 Micro GENI network interface board is a general-purpose I/O controller that is specifically designed for the Genius I/O system. It provides fault detection facilities for up to 30 bus modules. All the communication signals from this module are buffered through the motherboard to the host bus. It also offers effective communication. The shared RAM of the module is optimized for use with IBM personal computers. This system memory stores buffered data, I/O data, and other information. It provides the facilities for users to use remote I/O. The IC660ELB912 Micro GENI daughterboard has a 6303 microprocessor for providing optimum message writing facilities and for delivering maximum memory capacity. This daughterboard comes with a DIP switch for configuration. During installation, make sure to allow a minimum of 1/8 of an inch of space between the modules to provide the required airflow for cooling.