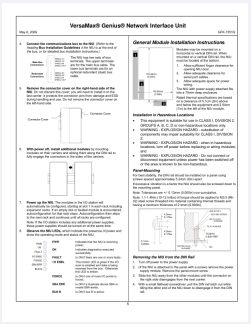
FIELD INSTALLATION QUICK GUIDE

# Installation Instructions

IC200GBI001

Genius Network Interface Unit



| | |
|---|---|
| PRODUCT | IC200GBI001 |
| FAMILY | VersaMax |
| FUNCTION | Genius Network Interface Unit |
| SOURCE | GE Fanuc GFK-1551Q, VersaMax Genius Network Interface Unit |

## 01 OFFICIAL MOUNTING AND WIRING

- With the station power isolated, attach the NIU to the documented DIN rail and fit the compatible power supply. Keep the specified ventilation and cable clearances.
- Connect the Genius bus wires to the assigned serial and shield terminals. Fit the documented terminating resistor only at a physical bus end.
- Fit the I/O carriers with power off and place the connector cover on the last carrier. Restore the station supplies together and inspect the NIU status LEDs.

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8. When configuring a Genius NIU in the bus configuration for a Genius Bus Controller, the data lengths specified for %I, %Q, %AI and %AQ data must match the hardware configuration of the NIU. If the I/O data lengths of the Bus Controller and NIU do not match, the NIU will not join the bus and will not report the System configuration mismatch fault caused by the mismatch.)

   The correct I/O data lengths can be determined by examining the hardware configuration for the Genius NIU. The procedure described here is for Machine Edition Logic Developer – PLC programming software.

   a. If the Genius NIU hardware configuration is available:

      1) Open the project that includes the Genius NIU target and select the NIU target.

      2) Under the NIU target, right-click on Hardware Configuration and select “Hardware Reference View”.

      3) For each I/O data tab (%I, etc.), use the largest address in the “End” column as the data size for that I/O data type. If there are no entries for a data type, the data length for that type is zero.

   b. If the Genius NIU hardware configuration is NOT available:

      1) Connect the Windows PC running the programming software to the Genius NIU using a VersaMax NIU serial cable, IC200CBL002.

      2) Create a new project for a GE Fanuc PLC. Within the new project, create a new Genius NIU target.

      3) Upload the hardware configuration from the Genius NIU to the target.

      4) Under the NIU target, right-click on Hardware Configuration and select “Hardware Reference View”.

      5) For each I/O data tab (%I, etc.), use the largest address in the “End” column as the data size for that I/O data type. If there are no entries for a data type, the data length for that type is zero.

9. If the GNIU attempts to come online with a configuration that has I/O types and lengths that do not match those expected by the controller, a System Configuration Mismatch fault for the GNIU will appear in the controller's PLC fault table: This fault is generated by the controller itself. Additional faults present in the GNIU do not appear until the mismatch in I/O types and lengths is corrected.

10. When the host controller is in STOP mode and the GNIU is configured for dual bus operation, a power cycle to the GNIU switches the bus from BUS A to BUS B immediately. The GNIU does not switch back from BUS B to BUS A even if the host controller goes to RUN mode.

## *Documentation Update*

In the VersaMax I/O Modules and Carriers Manual, GFK-1504K:

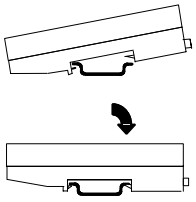
- The note on page 2-38 should have the addition “Carriers cannot be plugged together or unplugged with power applied”.
- The descriptions of the operation of jumpers should have the addition “Jumper positions cannot be modified with power applied”.

## *Quick Start Guide*

***Preinstallation Check***

Carefully inspect all shipping containers for damage. If any equipment is damaged, notify the delivery service immediately. Save the damaged shipping container for inspection by the delivery service. After unpacking the equipment, record all serial numbers. Save the shipping containers and packing material in case it is necessary to transport or ship any part of the system.

1. **Install the NIU on the DIN Rail** by simply clicking it into place.

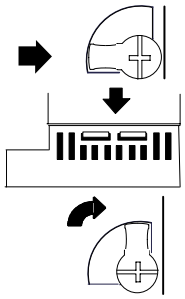


Note: The NIU and connecting carriers must be installed on the same section of 35mm x 7.5mm DIN rail.

The DIN rail must have a conductive (unpainted) finish for proper grounding.

(*Refer to the heading* **Module Installation** *for information about space requirements or module orientation, or if you are installing the NIU in an area of excessive vibration).*

2. **Install the Power Supply on the NIU**.



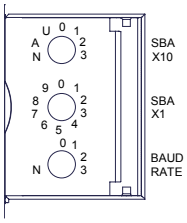
The latch on the power supply must be in the unlocked position.

Align the connectors and the latch post and press the power supply module down until the two tabs on the bottom of the power supply click into place.

Turn the latch to the locked position to secure the power supply to the top of the NIU.

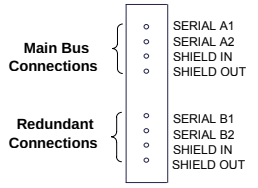
Complete the power supply wiring as described in the installation instructions provided with the Power Supply**.**

3. **Adjust the rotary switches** on the front of the NIU using a 2.44mm (3/32in) flat screwdriver.



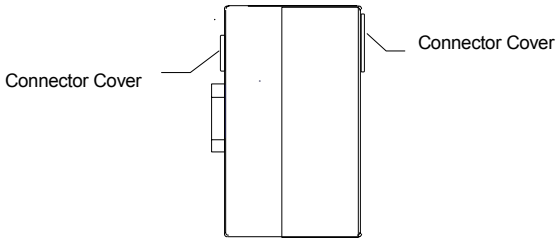

   a. Select the serial bus address with the two upper rotary switches, SBA X10 (for the tens digit) and SBA X1 (for the ones digit). Each device on a bus must have a unique serial bus address in the range 0 - 31.
   b. Select the baud rate to match that used by the other devices on the bus by setting the bottom rotary switch: (3) 153.6 Kbaud extended, (2) 153.6 Kbaud standard, (1) 76.8 Kbaud, or (0) 38.4 Kbaud.
   c. Cycle power to the NIU after changing the switch settings.

4. **Connect the communications bus to the NIU**. (*Refer to the heading* **Bus Installation Guidelines** *if the NIU is at the end of the bus, or for detailed bus installation instructions.)*

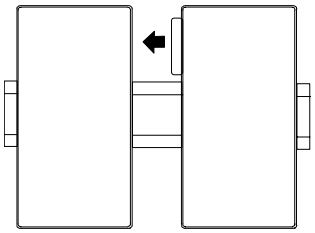



The NIU has two sets of bus terminals. The upper terminals are for the main bus cable. The lower bus terminals are for an optional redundant (dual) bus cable.

5. **Remove the connector cover on the right-hand side of the NIU**. Do not discard this cover; you will need to install it on the last carrier. It protects the connector pins from damage and ESD during handling and use. Do not remove the connector cover on the left-hand side.



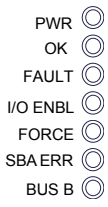

6. **With power off, install additional modules** by mounting modules on their carriers and sliding them along the DIN rail to fully engage the connectors in the sides of the carriers.



7. **Power up the NIU**. The modules in the I/O station will automatically be configured, starting at slot 1 in each rack including expansion racks. If an empty slot or faulted module is encountered, autoconfiguration for that rack stops. Autoconfiguration then skips to the next rack and continues until all racks are configured.

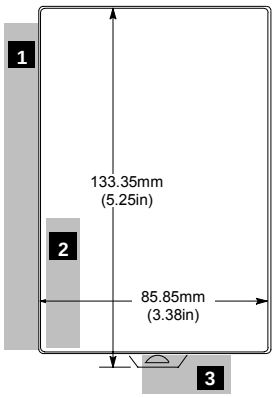
   Note: If the I/O station includes any additional power supplies, those power supplies should be turned on at the same time.

8. **Observe the NIU LEDs,** which indicate the presence of power and show the operating mode and status of the NIU.




| | |
|---|---|
| **PWR** | Indicates that the NIU is receiving power. |
| **OK** | Indicates diagnostics executed successfully. |
| **FAULT** | Is ON if there are one or more faults. |
| **I/O ENBL** | This bicolor LED is green if the I/O scan is enabled and data is being received from the bus. Otherwise, this LED is amber. |
| **FORCE** | Is ON if one of more I/O points is forced. |
| **SBA ERR** | Is ON if a duplicate device SBA or invalid SBA exists. |
| **BUS B** | Is ON if bus B is active. |

## *General Module Installation Instructions*




Modules may be mounted on a horizontal or vertical DIN rail. When mounted on a vertical DIN rail, the NIU must be located at the bottom.

1. Allow sufficient finger clearance for opening NIU door.
2. Allow adequate clearance for serial port cables.
3. Allow adequate space for power wiring.

The NIU with power supply attached fits into a 70mm deep enclosure.

Rated thermal specifications are based on a clearance of 5.1cm (2in) above and below the equipment and 2.54cm (1in) to the left of the NIU module.

### *Installation in Hazardous Locations*

- This equipment is suitable for use in CLASS I, DIVISION 2, GROUPS A, B, C, D or non-hazardous locations only.
- WARNING - EXPLOSION HAZARD - substitution of components may impair suitability for CLASS I, DIVISION 2;
- WARNING - EXPLOSION HAZARD - when in hazardous locations, turn off power before replacing or wiring modules; and
- WARNING - EXPLOSION HAZARD - Do not connect or disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

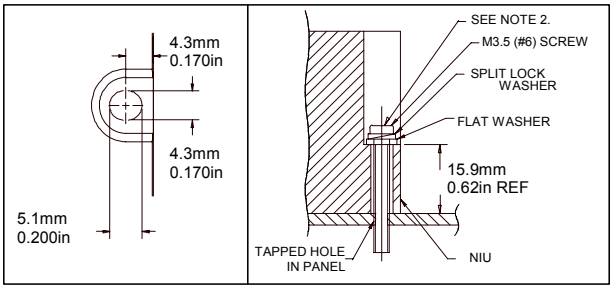
### *Panel-Mounting*

For best stability, the DIN rail should be installed on a panel using screws spaced approximately 5.24cm (6in) apart.

If excessive vibration is a factor the NIU should also be screwed down to the mounting panel.

Note: Tolerances are +/- 0.13mm (0.005in) non-cumulative.

Note: 1.1-1.4Nm (10-12 in/lbs) of torque should be applied to M3.5 (#6-32) steel screw threaded into material containing internal threads and having a minimum thickness of 2.4mm (0.093in).




### *Removing the NIU from the DIN Rail*

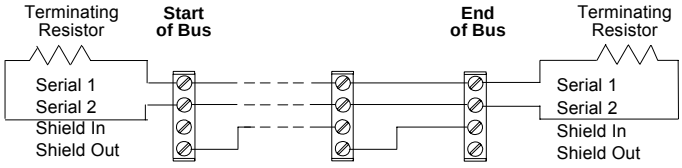
1. Turn off power to the power supply.
2. (If the NIU is attached to the panel with a screw) remove the power supply module. Remove the panel-mount screw.
3. Slide the NIU away from the other modules until the connector on the right side disengages from the next carrier.
4. With a small flathead screwdriver, pull the DIN rail latch out while tilting the other end of the NIU down to disengage it from the DIN rail.

## Bus Installation Guidelines

The maximum exposed length of unshielded wires should be 5cm (2in). For added protection, each shield drain wire should be insulated with spaghetti tubing to prevent the Shield In and Shield Out wires from touching each other, or the signal wires.

1. Connect Serial 1 to the Serial 1 terminals of the previous device and the next device.
2. Connect Serial 2 to the Serial 2 terminals of the previous device and the next device.
3. Connect Shield In to Shield Out of the preceding device. Connect Shield Out to Shield In of the next device. If the NIU is the first device on a bus, Shield In can be left unconnected. If it is the last device on a bus, Shield Out can be left unconnected.
4. When inserting two wires into the same terminal block position, the wire size must be 0.86mm$^2$ (18AWG) or smaller. Both wires should be of the same size and style. Do not mix stranded with solid wire in the same position.

### Terminating the Bus



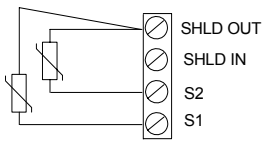

If either bus will terminate at the NIU, connect a 75, 100, 120, or 150-ohm terminating resistor across the Serial 1 and Serial 2 terminals. The use of a ferrule is recommended to crimp each resistor lead to the corresponding serial line. If ferrules are not used, twist each resistor lead with the corresponding serial line and solder them together before inserting the wires into the terminal block.

### System Bus Installation Guidelines

The serial bus can be treated as a Class 2 circuit when appropriate wiring practices are followed. Maximum bus lengths may be affected when installation requires the high-voltage rated CM rating. CM types can replace CL2, but not vice versa.

Do not mix cables of different impedance, regardless of cable run length. Do not mix cable types in long and/or noisy installations. Other, small-size twisted pair shielded wire of unspecified impedance can be used for short runs of 50 feet or less, using 75 ohm terminations. Selection of wire type may be limited by local and national codes and industry standards. Consult the cable manufacturer to determine the cable's suitability for a particular type of installation.

### Installing Suppression at the Communications Line




MOVs (bus cable not shown)

For an individual NIU, suppression can be supplied by connecting two small MOVs from Serial 1 and Serial 2 to the Shield Out terminal. Suitable MOVs include Harris part number V220MA2A, Panasonic ERZ-CO5FK221U, and Siemens 505K140. Higher energy-rated devices can also be used. Follow the wiring instructions above for installing MOVs. Be sure the MOV leads do not cause shorts between the serial data and shield connectors.