User Manual

GFK-1535D

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PACSystems™ VersaMax

GENIUS® NETWORK INTERFACE UNIT

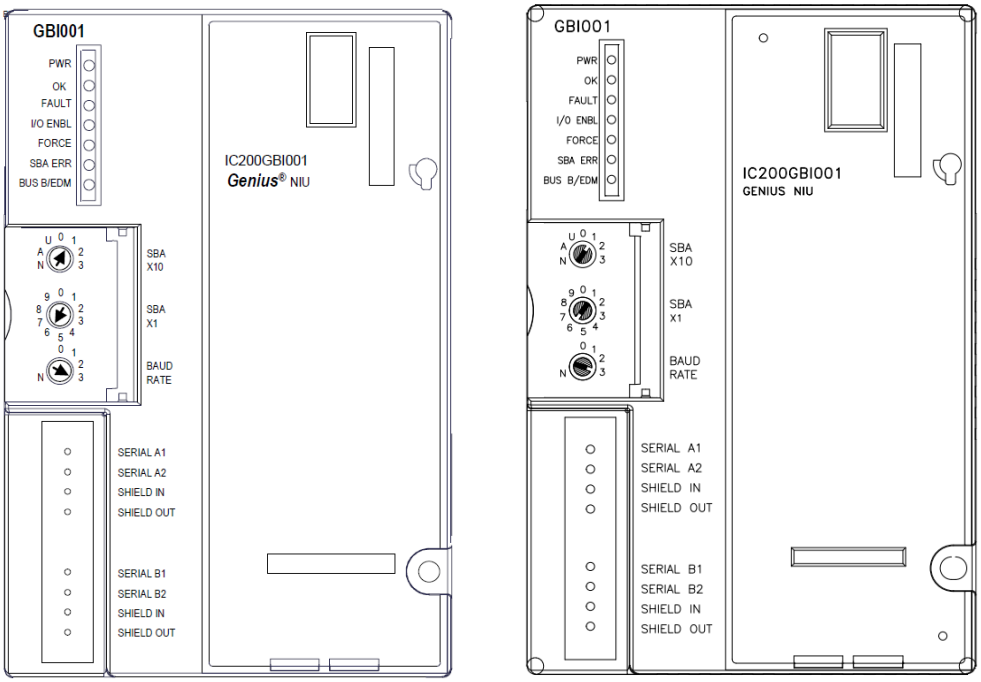
USER MANUAL

EMERSON

1.5 The Genius NIU

The VersaMax Genius Network Interface Unit (IC200GBI001) interfaces a VersaMax I/O Station to a Genius I/O bus. The system host can be any PLC or computer capable of controlling the Genius bus.

Figure 3: Genius NIU (Old Rotary on Left/New Rotary on Right)



The Network Interface Unit installs on a 35mm x 7.5mm conductive DIN rail. A VersaMax power supply module mounts directly on the righthand side of the NIU. LEDs on the lefthand side indicate the presence of power and show the operating mode and status of the NIU. Three rotary dials beneath a clear protective door are used to configure the NIU's address on the Genius bus and to set its communications baud rate. Removable connectors are used to install single or redundant bus cables. These connectors make it possible to disconnect a bus cable from the NIU without breaking the continuity of the bus, so other devices on the same bus can continue operating.

1.6 Genius NIU Specifications

Feature	Specification
Number of Modules	8 per rack, 64 per NIU/station
Network inputs per bus scan	128 bytes
Network outputs per bus scan	128 bytes
Discrete Input Memory	1024 points
Discrete Output Memory	1024 points
Analog Input Memory	128 bytes
Analog Output Memory	128 bytes
Power Consumption	+5V@250mA, +3.3V@10mA
Serial Bus Address	0 to 31
Network data rate	153.6 Kbaud extended, 153.6 Kbaud standard, 76.8 Kbaud, or 38.4 Kbaud.

1.6.1 Genius NIU Compatibility

Network Interface Unit IC200GBI001 is compatible with any type of PLC or computer capable of controlling the Genius bus. Examples:

- PACSystems RX7i controller
- PACSystems RX3i controller
- Series 90™-70 PLC
- Series 90™-30 PLC

For some products, minimum versions are required for use with a Genius NIU:

- On a Genius bus controlled by an IC697 PLC or PACSystems RX7i:
  - IC697 CPU firmware, release 3.0 or later.
  - Genius Bus Controller release 5.4 or later. Upgrading the 90-70
  - Genius Bus Controller firmware to version 6.0 (or higher) is strongly recommended.
- For a Series 90™-30 PLC
  - CPU firmware: any version.
  - Bus Controller: any version.

2.9.1 Selecting a Baud Rate

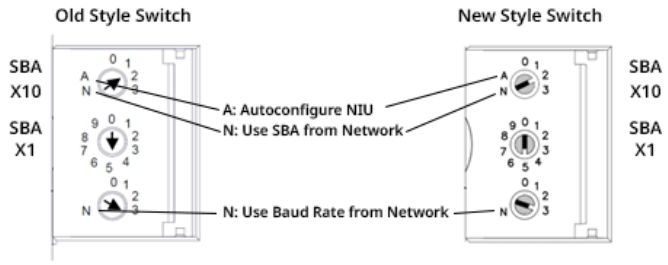
- All devices on a bus must use the same baud rate.
- If the cable length is between 4500 and 7500 feet, you must select 38.4 Kbaud. This data rate only supports a maximum of 16 devices on the bus.
- If the cable length is between 3500 and 4500 feet, select 76.8 Kbaud.
- If cable length is between 2000 and 3500 feet, select 153.6 Kbaud extended.
- If the cable length is less than 2000 feet, either 153.6 Kbaud standard or 153.6 Kbaud extended can be used. 153.6 Kbaud extended is recommended, especially if the system will include a dual bus. In noisy environments, 153.6 Kbaud extended provides improved noise immunity with little effect on bus scan time.
- The selection of an appropriate baud rate for the system may also be determined by the type of cable used. For more information, see Selecting a Cable Type.

2.10 Special Switch Settings on the NIU

The lettered positions of the rotary switches can optionally be used to:

- Use a serial bus address that has been sent from the network.
- Use a baud rate that has been sent from the network.
- Re-enable autoconfiguration.

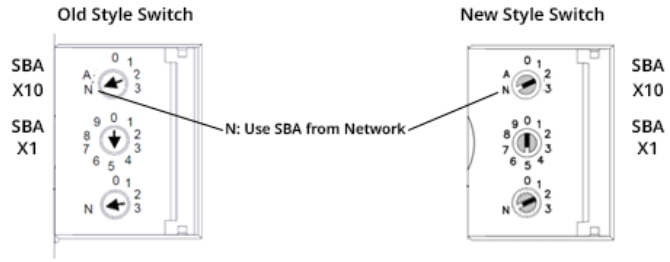
Figure 28: NIU Special Switch Settings



2.10.1 Using a Network Serial Bus Address

To use a Serial Bus Address previously received via a Set SBA datagram from the network instead of the switch settings, set the upper switch (SBAx10) to the N (network) position and cycle power to the NIU

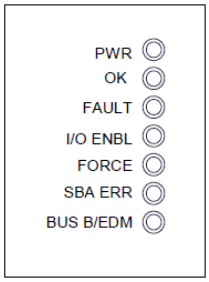
Figure 29: Network Serial Bus



2.13 Observing the LEDs

The LEDs indicate the presence of power and show the operating mode and status of the NIU.

Figure 35: LED Panel



LED	Description
PWR	Indicates that the NIU is receiving power.
OK	Indicates powerup 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 output messages are being received from the bus. Otherwise, this LED is amber.
FORCE	Is ON if one of more I/O points is forced* or bus switching is forced.
SBA ERR	Is ON if a duplicate device SBA or no valid SBA is selected.
BUS B/EDM	Is ON if: • the NIU has selected Genius bus B or • the NIU's Enhanced Diagnostics Mode is active
* Forcing I/O references of the host controller only affects the input data received and/or the output data sent to the NIU. To force I/O points at the Genius NIU level, send one or more Genius datagrams to the NIU.	

2.14 CE Mark Installation Requirements

The following requirements for surge, electrostatic discharge (ESD), and fast transient burst (FTB) protection must be met for applications that require CE Mark listing:

- The VersaMax I/O Station is considered to be open equipment and should therefore be installed in an enclosure (IP54).
- This equipment is intended for use in typical industrial environments that utilize anti-static materials such as concrete or wood flooring. If the equipment is used in an environment that contains static material, such as carpets, personnel should discharge themselves by touching a safely grounded surface before accessing the equipment.
- If the AC mains are used to provide power for I/O, these lines should be suppressed before distribution to the I/O so that immunity levels for the I/O are not exceeded. Suppression for the AC I/O power can be made using line-rated MOVs that are connected line-to-line, as well as line-to-ground. A good high-frequency ground connection must be made to the line-to-ground MOVs.
- AC or DC power sources less than 50V are assumed to be derived locally from the AC mains. The length of the wires between these power sources and the PLC should be less than a maximum of approximately 10 meters.
- Installation must be indoors with primary facility surge protection on the incoming AC power lines.
- In the presence of noise, serial communications could be interrupted.