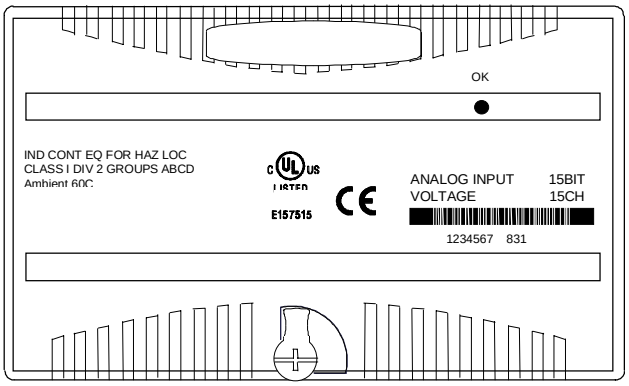
Analog Input Module, 15-Bit Voltage, 15 Channels

October 2001 GFK-1934B

Product Description

This Analog Input Module provides an interface to 15 voltage inputs.



The module receives power from the backplane power supply. No external power source is required for module operation. Power for the user's transceivers must be supplied from an external source.

Module features include:

- Fifteen single-ended input channels, one group
- Fifteen bit converter resolution
- Software-configurable selection of default/hold last state operation

Host Interface

The module provides 15 words of analog input data.

Diagnostics

The module reports a Loss of Internal Power fault for field-side circuits.

The module reports an Internal Hardware fault upon detection of an A/D conversion malfunction. The module detects this malfunction by applying a known stimulus to the A/D conversion path and verifying the expected result. If an unexpected result occurs three times consecutively, the module stops scanning, turns off the OK LED, and reports an Internal Hardware fault. The module must be power cycled or replaced to clear this fault.

LED Indicators

The green OK LED is on when backplane power is present, internally generated field power is functioning properly, the module has been configured, the module has been recognized on the backplane, and all diagnostic tests are executing as expected.

Module Characteristics	
Channels	15 single ended, one group
Module ID	FFFFB00F
Isolation: User input to logic (optical) and to frame ground Group to group Channel to channel	 250VAC continuous; 1500VAC for 1 minute Not applicable None
LED indicators	OK LED indicates successful power-up, configuration, and no hardware faults have been detected.
Backplane current consumption	5V output: 150mA maximum
External power supply	None
Thermal derating	None
Configuration parameters	None
Diagnostics	Loss of Internal Power A/D conversion malfunction greater than 6% of full scale
Input Characteristics	
Input voltage	-10V to +10V
Input Impedance	100K Ohms minimum
Accuracy at: 25 degrees C* 0 to 60 degrees C	 +/-0.3% typical of full scale, +/-0.5% maximum of full scale +/-1% maximum of full scale
Resolution	+/- 15 bits 0.3125mV = 1 count
Filter response (3dB Corner Freq)	32 Hz +/-20%
Update rate	7.5ms

* In the presence of severe RF interference, (IEC 1000-4-3, 10V/m), accuracy may be degraded to +/-2%.

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.

Analog Input Module, 15-Bit Voltage, 15 Channels

October 2001 GFK-1934B

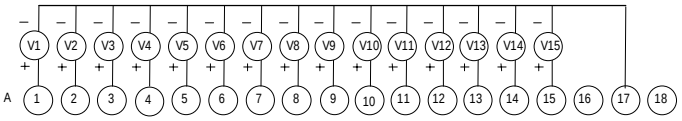
Field Wiring Terminals

Terminal assignments for the module are shown below.

Number	Connection	Number	Connection
A1	V1	B1	No connection
A2	V2	B2	No connection
A3	V3	B3	No connection
A4	V4	B4	No connection
A5	V5	B5	No connection
A6	V6	B6	No connection
A7	V7	B7	No connection
A8	V8	B8	No connection
A9	V9	B9	No connection
A10	V10	B10	No connection
A11	V11	B11	No connection
A12	V12	B12	No connection
A13	V13	B13	No connection
A14	V14	B14	No connection
A15	V15	B15	No connection
A16	NC	B16	No connection
A17	RTN	B17	No connection
A18	NC	B18	No connection

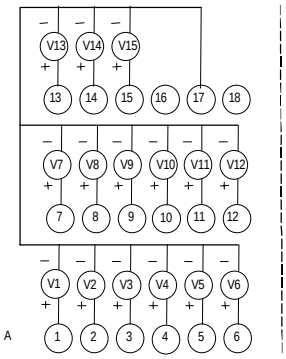
Wiring Connections for Carriers with Two Rows of Terminals

The diagram below shows wiring connections for this module when installed on a carrier with two rows of terminals.



Wiring Connections for Carriers with Three Rows of Terminals

The next diagram shows wiring connections for this module when installed on a carrier with three rows of terminals.



Cable Shield Connections

Shielded twisted pair cable is recommended for the analog channel connections. If possible, the cable should be grounded at the source device. If that is not possible, the cable shield must be grounded at the I/O module. This can be done using an Auxiliary I/O Terminal.

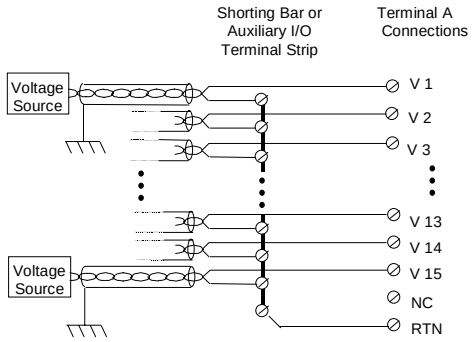
If the module is installed on a Terminal-style I/O Carrier, shield connections can be made on an Auxiliary I/O Terminal that is attached to the I/O carrier.

If the module is installed on a Compact Terminal-style I/O Carrier, shield connections can be made on an Auxiliary I/O Terminal that is mounted near the I/O carrier.

If the module is installed on a Connector-style I/O Carrier, the cable shield can be connected directly to an Interposing Terminal. A shielded interposing cable (shielded cables are available separately) must be used between the Connector-style I/O Carrier and the Interposing Terminal.

An Auxiliary I/O Terminal Strip can also be added to the Interposing Terminal if additional shield connections are required.

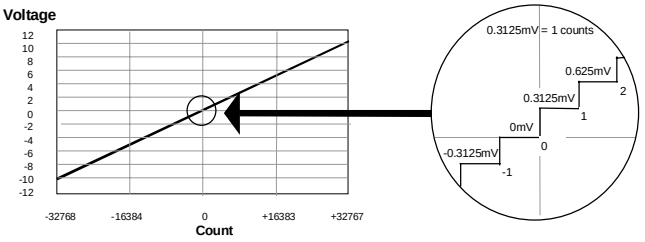
Wiring Example



An optional Shorting Bar or Auxiliary I/O Terminal Strip can be used for wiring convenience, when multiple return paths need to be wired together.

Scaling

The illustration below shows the relationship between the input voltage measured at the field terminals and the data that is output by the module.



The following equation can be used to calculate count values:

Counts = (Input Voltage) x (32000 / 10V)

Compatibility

- PLC CPU firmware version 2.1 or later.
- VersaPro software version 2.0 or later.
- Ethernet NIU EBI001 firmware version 1.10 or later
- Genius NIU GBI001: planned for future release
- Profibus NIU PBI001: planned for future release
- DeviceNet NIU DBI001: planned for future release