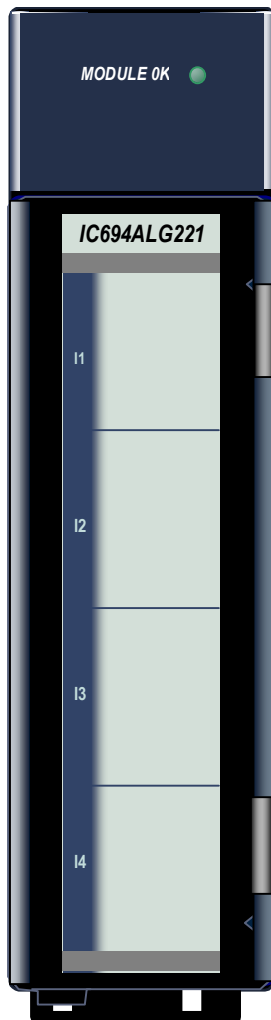# GE Fanuc IC694ALG221

Rx3i PacSystem

Input module, analog 4 point current. IC694A IC694AL IC694ALG

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Analog Input Module, 4 Channel Differential Current: IC694ALG221

MODULE OK ●

IC694ALG221

I1

I2

I3

I4

The **4–Channel Analog Current Input** module, IC694ALG221, provides four analog input channels. This module has two possible input ranges:

- 4 to 20 mA

- 0 to 20 mA

Two range jumpers are provided with the module; one for channels one and two, and the other for channels three and four.

Conversion speed for each of the four channels is one–half millisecond. This provides an update rate of two milliseconds for any channel. Resolution of the converted signal is 12 bits binary (1 part in 4096) over either range.

Input protection for the module is sufficient for operation with reduced performance with up to 200 V common–mode. The module provides electrical isolation of externally generated noise between field wiring and the backplane through the use of optical isolation.

This module can be installed in any I/O slot of an RX3i system.

Isolated +24 VDC Power

If this module is located in an RX3i Universal Backplane, an external source of Isolated +24 VDC is required to provide power for the module. The external source must be connected via the TB1 connector on the left side of the backplane.

If the module is located in an Expansion Backplane, the backplane's power supply provides the Isolated +24 VDC output for the module.

LEDs

The **Module OK** LED is ON when the module's power supply is operating.

Specifications: IC694ALG221

Input Current Ranges	4 to 20 mA and 0 to 20 mA
Calibration	Factory calibrated to 4 µA per count
Update Rate	2 milliseconds (all four channels)
Resolution at 4–20 mA	4 µA (1 LSB = 4 µA)
Resolution at 0–20 mA	5 µA (1 LSB = 5 µA)
Absolute Accuracy *	0.1% full scale + 0.1% reading
Common Mode Voltage	200 volts
Linearity	< 1 Least Significant Bit
Isolation, Field to Backplane (optical) and to frame ground	250 VAC continuous; 1500 VAC for 1 minute
Common Mode Rejection	> 70dB at DC; >70dB at 60Hz
Cross–Channel Rejection	> 80dB from DC to 1kHz
Input Impedance	250 Ohms
Input Filter Response	325 Hz
Internal Power Consumption	100 mA from the isolated +24 VDC supply 25 mA from +5 VDC bus on the backplane

Refer to Appendix A for product standards and general specifications.

In the presence of severe RF interference (IEC 801–3, 10V/m), accuracy may be degraded to ±0.5% FS.

Data Format: IC694ALG221

Module data is stored in the PLC CPU in 16–bit 2's complement format as shown below.

MSB															LSB
X	11	10	9	8	7	6	5	4	3	2	1	0	X	X	X
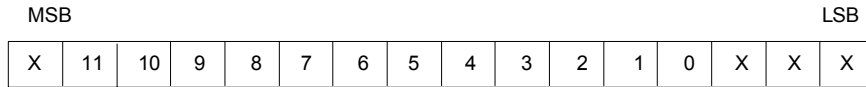
Current Inputs, A/D Data and Scaled Units

The default range for each input is 4 to 20 mA, scaled so that 4 mA corresponds to a count of 0 and 20 mA corresponds to a count of 32000 with each 1000 counts representing 0.5 mA.

When a jumper is added to the I/O terminal board, the input range for a PAIR of inputs is changed to 0 to 20 mA. In 0 to 20 mA range, 0 mA corresponds to a count of 0 and 20 mA corresponds to a count of 32000 with each 800 counts representing 0.5 mA.
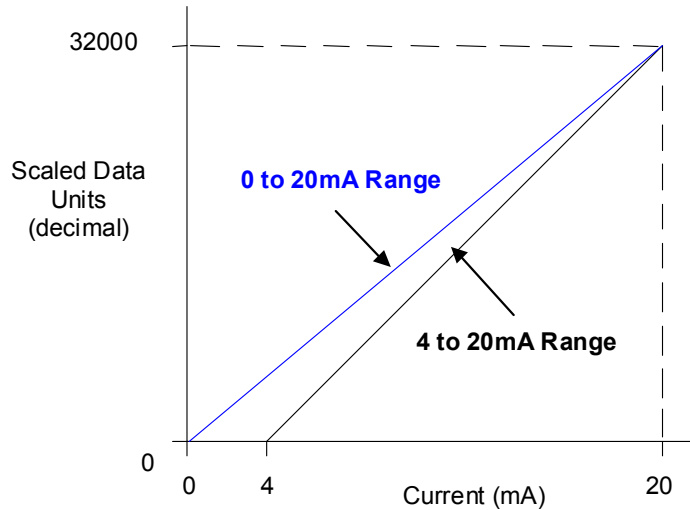
If the current source is reversed into the input or is less than the low end of the current range, the module provides an input data word corresponding to the low end of the current range (0000H in PLC memory). If an input is greater than 20 mA, the module provides an input data value at full scale (7FF8H in PLC memory).

Field Wiring: IC694ALG221

Field Wiring	Terminals	Field Wiring
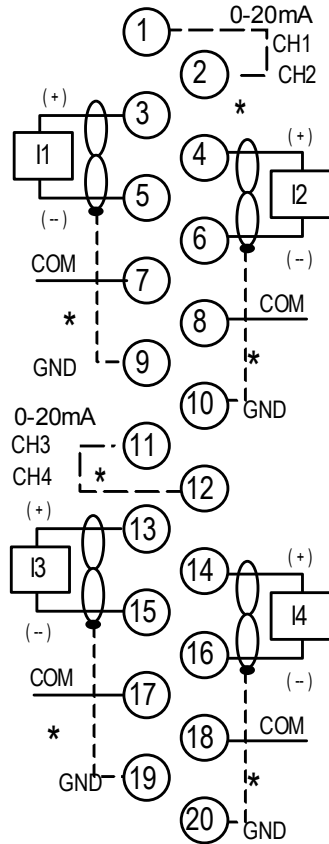
Terminal	Connection
1	0-20mA Jumper for channels 1 and 2
2	0-20mA Jumper for channels 1 and 2
3	Channel 1 +
4	Channel 2+
5	Channel 1-
6	Channel 2 -
7	Common
8	Common
9	Shield Termination Point for Channel 1
10	Shield Termination Point for Channel 2
11	0-20mA Jumper for channels 3 and 4
12	0-20mA Jumper for channels 3 and 4
13	Channel 3 +
14	Channel 4+
15	Channel 3-
16	Channel 4 -
17	Common
18	Common
19	Shield Termination Point for Channel 3
20	Shield Termination Point for Channel 4

*Optional Connections

To minimize the capacitive loading and noise, all field connections to the module should be wired using a good grade of twisted, shielded instrumentation cable. The shields can be connected to either COM or GND. The COM connection provides access to the common of the analog circuitry in the module. The GND connection provides access to the Backplane (frame ground).

To limit common–mode voltages, each current source common line may also be tied to its associated COM terminal if the source is floating. These optional connections are shown above.