OFFICIAL MODEL-SPECIFIC GUIDE

Installation Instructions

IC694ALG390C

GE · PACSystems RX3i analog I/O · 2-channel analog voltage output module

01 VERIFIED INSTALLATION DATA

Output range	-10 to +10 V DC
Output channels	2; updated on every scan
Resolution	2.5 mV; 12-bit plus sign
External supply	18 to 30 V DC isolated
Output loading	5 mA maximum; 2 kOhm minimum
Default selection	0 V with jumper; hold-last without jumper

02 INSTALLATION AND CONNECTION SEQUENCE

- Remove system and field power. This module does not support insertion or removal from a powered RX3i Universal Backplane.
- Install the module in an approved RX3i I/O slot and connect the isolated 24 V DC source at terminals 17 (+) and 19 (-) when required.
- Wire Output 1 to terminals 3 and 5, and Output 2 to terminals 4 and 6. Terminate shields at terminals 7 and 8.
- Set the output-default jumper at terminals 11 to 13: fitted for 0 V in Stop/Reset, removed for hold-last-state.
- Use twisted, shielded instrumentation cable and confirm the Module OK LED after controlled power restoration.

CONTROLLED INSTALLATION CHECK

Confirm the complete article number, revision, field wiring and approved site procedure before energizing.

Source: PACSystems RX3i System Manual GFK-2314T, IC694ALG390 section

10.1 Analog Output Module Voltage 2-Channel: IC694ALG390

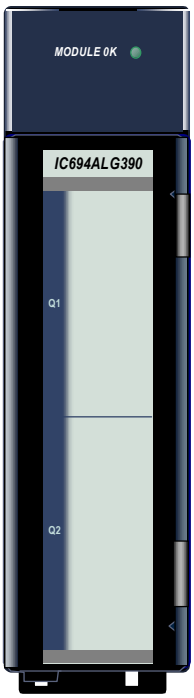

Figure 290: IC694ALG390

The ***2–Channel Analog Voltage Output*** module, IC694ALG390, has two output channels, each capable of converting 13 bits of binary (digital) data to an analog output signal for field devices. The Analog Voltage Output module provides outputs in the range of -10 volts to +10 volts. Both channels are updated on every scan.

The outputs on this module can be set up to either *Default to 0 volts* or *Hold-Last-State* if the CPU goes to the Stop mode or Reset. Selection of the output default state is made by a jumper on the module. If the jumper is not installed, the outputs *Hold Last State*.

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

Module does not support insertion into or removal from an RX3i Universal Backplane which is under power (see *Hot Insertion and Removal Not Supported*, Section 2.6.4.2).

10.1.1 Isolated +24Vdc Power

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

If this module is located in an Expansion or Remote backplane, its primary power source can be either the Isolated +24Vdc from the backplane power supply or an external Isolated +24Vdc power supply connected to the terminal block of this module. If the external source is set between 27.5-30 Vdc, it takes over the load from the Isolated 24Vdc system supply. Note that an external source should be used if it is desired to maintain hold last state operation during a loss of backplane power.

10.1.2 LED

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

10.1.3 Specifications: ALG390

Voltage Range	-10 to +10 volts

Calibration	Factory calibrated to 2.5 mV per count
Supply Voltage (nominal)	+24Vdc, from isolated +24Vdc on backplane or user-supplied voltage source, and +5Vdc from backplane
External Supply Voltage Range	18Vdc to 30 Vdc
External Supply Voltage Ripple	10%
Update Rate	Approximately 5ms (both channels) Update rate is application dependent.
Resolution	2.5 mV (1 LSB = 2.5 mV)
Absolute Accuracy[60]	±5 mV at 25°C (77°F)
Offset	1 mV maximum, 0°C to 60°C (32°F to 140°F)
Output Loading (maximum)	5 mA (2kΩ minimum resistance)
Output Load Capacitance	2000 pF, maximum
Isolation, Field to Backplane (optical) and to frame ground	250 Vac continuous; 1500 Vdc for 1 minute
Internal Power Consumption	32 mA from +5Vdc supply
	120 mA from +24Vdc supply (isolated backplane or user supply)

For product standards and general specifications, refer to *Appendix A.*

10.1.4 Module Data: ALG390

Module data is stored by the PLC CPU in 16–bit 2's complement format:

MSB LSB

+/-	10	9	8	7	6	5	4	3	2	1	0	X	X	X	X

Resolution of the converted signal is 12-bit binary plus sign, which is effectively 13 bits (1 part in 8192). The module scales the digital data to create an output voltage for the output:

10.1.4.1 D/A Bits versus Output Voltage

[60] In the presence of severe RF interference (IEC 801–3, 10V/m), accuracy may be degraded to ±50 mV.

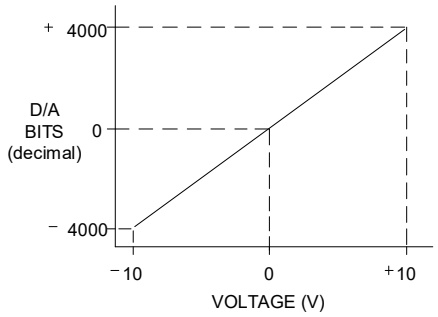

Figure 291: D/A Bits versus Output Voltage

10.1.4.2 Scaling: ALG390

Scaling of the output is displayed in the following figure.

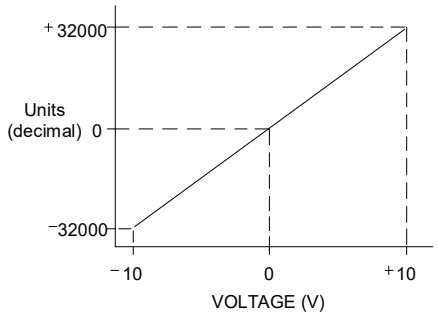

Figure 292: Scaling Units versus Output Voltage

10.1.5 Field Wiring: ALG390

Terminal	Connection
1	No connection
2	No connection
3	Output 1

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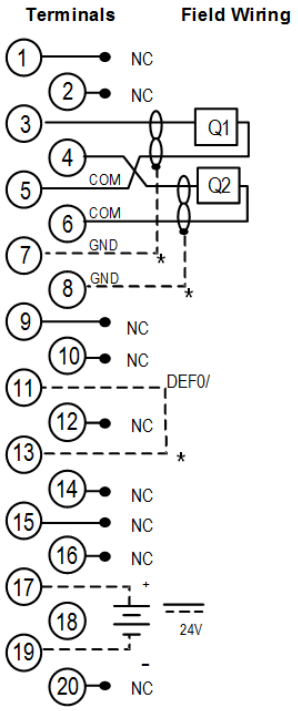
OFFICIAL FIELD WIRING AND OPERATING REFERENCE



*Optional Connections

4	Output 2
5	Output 1 Common
6	Output 2 Common
7	Shield termination point for output 1
8	Shield termination point for output 2
9	No connection
10	No connection
11 - 13	Output default selection jumper
12	No connection
14	No connection
15	No connection
16	No connection
17	External +24Vdc Power Supply +
18	No connection
19	External +24Vdc Power Supply -
20	No connection

To minimize capacitive loading and noise, all field connections should be wired using a good grade of twisted, shielded instrumentation cable. The shields should be connected to GND on the user terminal connector block. The GND connection provides access to the backplane (frame ground) resulting in superior rejection of noise caused by any shield drain currents.

DEF0 is the optional Output Default Jumper. It determines the operation of both outputs when the CPU is in Stop or Reset mode. The jumper should be installed if outputs should default to 0. The jumper should not be installed if outputs should hold their last state (the last valid commanded value received from the CPU).

An optional external +24Vdc supply can be installed as shown.