GE RX3i PacSystem Series Service Manual

IC694ALG442

1. Description

The IC694ALG442 is an RX3i Programmable Automation Controller (PAC) combination analog input output module that is formerly manufactured by GE Fanuc, now under Emerson Automation. This module features Four (4) differential analog input and Two (2) single-ended analog output channels that are individually configurable to accept or deliver for 0-10 VDC, unipolar; -10 to +10 VDC (bipolar); 0-20 mA and 4-20 mA signals. with resolution of 12 bit and conversion rate of 2 ms. This module supports how-s

2. Specifications

Specification	Value
Brand	GE Fanuc
Series	PACSystem RX3i
Manufacturer	Emerson Automation
Part	Number IC694ALG442
Product	Description Mixed I/O module
Supply	Voltage Range 20 to 30V DC (24V DC typical)
No	of Channels Four (4) input; Two (2) output
Voltage	Ripple 10%
Nominal	Input signal 0-10 VDC, unipolar; -10 to +10 VDC (bipolar); 0-20 mA; 4-20 mA; 4-20 mA (enhanced)
Update	Rate 3 ms
Channel	update rate 2 ms
Analog	Outputs Two, Singleâ□□Ended
Digital	Resolution 12 bit
Output	Ranges 0 to 20 mA, 4 to 20 mA
Input	Analog resolution Current: 5 ?A (1 LSB = 5 ?A) Voltage: 0 to +10 V: 2.5 mV (1 LSB = 2.5 mV); -10 to +10 V: 5 mV (1 LSB = 5 mV)
Analog	Inputs Four, differential
Output	Analog resolution Voltage: -10 V to +10 V: 0.3125 mV (1 LSB = 0.3125 mV); 0 to +10 V: 0.3125 mV (1 LSB = 0.3125 mV) Current: 0 to 20 mA: 0.6 ?A (1 LSB = 0.6 ?A); 4 to 20 mA: 0.5 ?A (1 LSB = 0.5 ?A)
Input	Ranges 0 to 20 mA, 4 to 20 mA, 4 to 20 mA Enhanced
Analog	input accuracy: ±0.25% of full scale @25degrees C (77degrees F); ±0.5% of f

3. Product Information

The IC694ALG442 is an RX3i Programmable Automation Controller (PAC) combination analog input output module that is formerly manufactured by GE Fanuc, now under Emerson Automation. This module features Four (4) differential analog input and Two (2) single-ended analog output channels that are individually configurable to accept or deliver for 0-10 VDC, unipolar; -10 to +10 VDC (bipolar); 0-20 mA and 4-20 mA signals. with resolution of 12 bit and conversion rate of 2 ms. This module supports how-swap feature.

Technical specifications for IC694ALG442

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Series PACSystem RX3i

Manufacturer Emerson Automation

Part Number IC694ALG442

Product Description Mixed I/O module

Supply Voltage Range 20 to 30V DC (24V DC typical)

No of Channels Four (4) input; Two (2) output

Voltage Ripple 10%

Nominal Input signal 0-10 VDC, unipolar; -10 to +10 VDC (bipolar); 0-20 mA; 4-20 mA; 4-20 mA (enhanced)

Update Rate 3 ms

Channel update rate 2 ms

Analog Outputs Two, Singleâ□□Ended

Digital Resolution 12 bit

Output Ranges 0 to 20 mA, 4 to 20 mA

Input Analog resolution Current: 5 ?A (1 LSB = 5 ?A) Voltage: 0 to +10 V: 2.5 mV (1 LSB = 2.5 mV); –10 to +10 V: 5 mV (1 LSB = 5 mV)

Analog Inputs Four, differential

Output Analog resolution Voltage: –10 V to +10 V: 0.3125 mV (1 LSB = 0.3125 mV); 0 to +10 V: 0.3125 mV (1 LSB = 0.3125 mV) Current: 0 to 20 mA: 0.6 ?A (1 LSB = 0.6 ?A); 4 to 20 mA: 0.5 ?A (1 LSB = 0.5 ?A)

Input Ranges 0 to 20 mA, 4 to 20 mA, 4 to 20 mA Enhanced

Analog input accuracy: ±0.25% of full scale @25degrees C (77degrees F); ±0.5% of full scale over specified operating temperature range

Analog output accuracy: ±0.1% of full scale @ 25degrees C (77degrees F); typical; ±0.25% of full scale @ 25degrees C (77degrees F), maximum; ±0.5% of full scale over operating temperature range (maximum)

Current draw 95 mA @ 5 VDC; 150 mA @ 24 VDC (user supplied)

External Supply Voltage Range 20 to 30 VDC (24 VDC typical)

Product Lifecycle Status Active

The IC694ALG442 is an RX3i component module. This module is part of the PACSystem platform of Programmable Automation Controllers (PAC) that is manufactured by Emerson Automation which was recently acquired from GE Intelligent Platforms (GE IP). The IC694ALG442 is a combination analog input module which specifically features Four (4) analog input and Two (2) analog output channels. Both input and output channels are configurable to accept and provide 0-10 VDC (unipolar); 01- to + 10VDC (bipolar); 0-20 mA and 4-20 mA standard instrumentation signals. This module is used to interface with measuring instruments and field device which transmit the measured signals by sending analog signals such as those recently mentioned. This module supports installation to any vacant slot of an RX3i backplane, whether local or distributed I/O backplane, but is also compatible acting as a distributed I/O module of an RX7i system and Series 90-30 PLCs. This module has a configurable output state that is effective in the event when the host controller changes operating mode to Stop mode or if the power is interrupted. This is intended for the output channels. Configurable states are Hold and downscale. With last state on Hold, the output value is held, maintaining the current position of the connected modulating devices. With downscale setting, the module delivers the lowest output range possible, fully-closing the connected modulating device (in Direct action) or fully-opening the connected modulating output (indirect action). These modes are selected depending of the determined safe-state upon system failure of the connected devices.

The GE Fanuc IC694ALG442 I/O Module is a solid-state I/O module that is designed and manufactured by GE Fanuc to provide a flexible platform for the connection of analog inputs and outputs and for handling the current or voltage signals for the RX3i PACSystems PLC network topologies. It comes from the factory with 4 input channels and 2 outputs channels, all of them completely customizable by using GE Fanuc’s proprietary Machine Edition configuration programming software. The GE Fanuc IC694ALG442 Analog I/O Module can operate with 2 voltage ranges (0 to 10 Volts and -10 to +10 Volts) or 2 current ranges (0 to 20 milliamps and 4 to 20 milliamps). Additional features like open wire detection and alarm customizations are also added to the module to enhance its process control capabilities. The power supply for the GE Fanuc IC694ALG442 Analog I/O Module should be able to deliver 24 Volts DC voltage with a ripple under 10%. This module can also be connected to a GE Fanuc Series 90-30 or 90-70 Programmable Logic Controller backplane, where the I/O Module will use the PLC’s internal 5 Volts DC power supply to meet its operating power needs. The power consumption rating of the GE Fanuc IC694ALG442 Analog I/O Module varies depending on the type of power supply being used. It is 95 milliamps when connected to 5 Volts DC power, and 150 milliamps when powered from an external supply. The module’s input impedance rating is 250 Ohms. Adequate protection against RF interference should be provided by the users, and so should environmental protection, given its low IP rating (IP 20). Only authorized personnel should have access to the module or perform any type of repair or maintenance, to guarantee stable operation of the module.