GE RX3i PacSystem Series Service Manual

IC694ALG223

1. Description

The IC694ALG223 is an RX3i Programmable Automation Controller (PAC) high-density analog Input module formerly manufactured by GE Fanuc, now under Emerson Automation. This module features Sixteen (16) single-ended analog input channels that are individually configurable to accept for 0-20 mA; 4-20 mA (standard) and 4-20 mA (enhanced) input signals with resolution of 12 bit and conversion rate of 13 ms.

2. Specifications

Specification	Value
Brand	**GE Fanuc**
Series	**PACSystem RX3i**
Manufacturer	**Emerson Automation**
Part	**Number IC694ALG223**
Product	**Description Analog input module**
Product	**Type Analog current input module**
No	**of Channels Sixteen (16) single-ended inputs;**
Input	**Channels 16**
Nominal	**Input signal 0-20 mA; 4-20 mA (normal); 4-20 mA (enhanced)**
Input	**Current Ranges 0 to 20 milliamps, 4 to 20 milliamps**
Channel	**update rate 13 ms**
Power	**Requirements 120 milliamps at 5 Volts DC**
Digital	**Resolution 12 bit**
Input	**Impedance 250 ohms**
Analog	**resolution 4-20 mA: 4 µA (4 µA/bit) 0-20 mA: 5 µA (5 µA/bit) 4-20 mA Enhanced: 5 µA (5 µA/bit)**
External	**Supply Range 20 to 30 Volts DC**
Accuracy:	**+/-0.25% of full scale @ 25degrees C (77degrees F); +/- 0.5% of full scale over specified operating temperature range**
Input	**Low Pass Filter Response 19 Hz**
Current	**draw 120 mA @ 5 VDC; 65 mA @ 24 VDC (user supplied)**
Operating	**Temperature 0 to 60 degrees Celsius**
Calibration	**4 µA per count on 4 to 20 mA range; 5 µA per count on 0 to 20 mA and 4 to 20 mA Enhan**

3. Product Information

The IC694ALG223 is an RX3i Programmable Automation Controller (PAC) high-density analog Input module formerly manufactured by GE Fanuc, now under Emerson Automation. This module features Sixteen (16) single-ended analog input channels that are individually configurable to accept for 0-20 mA; 4-20 mA (standard) and 4-20 mA (enhanced) input signals with resolution of 12 bit and conversion rate of 13 ms.

Technical specifications for IC694ALG223

Brand GE Fanuc

Series PACSystem RX3i

Manufacturer Emerson Automation

Part Number IC694ALG223

Product Description Analog input module

Product Type Analog current input module

No of Channels Sixteen (16) single-ended inputs;

Input Channels 16

Nominal Input signal 0-20 mA; 4-20 mA (normal); 4-20 mA (enhanced)

Input Current Ranges 0 to 20 milliamps, 4 to 20 milliamps

Channel update rate 13 ms

Power Requirements 120 milliamps at 5 Volts DC

Digital Resolution 12 bit

Input Impedance 250 ohms

Analog resolution 4–20 mA: 4 µA (4 µA/bit) 0–20 mA: 5 µA (5 µA/bit) 4–20 mA Enhanced: 5 µA (5 µA/bit)

External Supply Range 20 to 30 Volts DC

Accuracy: +/-0.25% of full scale @ 25degrees C (77degrees F); +/- 0.5% of full scale over specified operating temperature range

Input Low Pass Filter Response 19 Hz

Current draw 120 mA @ 5 VDC; 65 mA @ 24 VDC (user supplied)

Operating Temperature 0 to 60 degrees Celsius

Calibration 4 µA per count on 4 to 20 mA range; 5 µA per count on 0 to 20 mA and 4 to 20 mA Enhanced

Product Lifecycle Status Active

The IC694ALG223 is a high-density analog input module. This module is designed with Sixteen (16) single-ended input channels, compatible and configurable for 0-20 mA, 4-20 mA (normal) and 4-20 mA (Enhanced) analog signals. This module occupies a single-slot of any PACSystems RX3i chassis and can be used as local or distributed I/O module of Rx3i and RX7i controller platforms, This module is primarily used to interface measuring and signaling instruments such as transmitters, transducers, isolators and similar devices. It allows integration of received analog data by converting to digital equivalent. This is done through the embedded Analog to Digital Converter (ADC), individually available to each channel with conversion resolution of 12-bits. Additionally, each channels has an update rate of 13 ms and factory calibrated to 4 µA per count on 4 to 20 mA range; 5 µA per count on 0 to 20 mA and 4 to 20 mA Enhanced. It has resolution of 4 µA (4 µA/bit) for 4-20 mA configuration: 5 µA (5 µA/bit) for both 0-20 mA and 4-20 mA. The IC694ALG223 has configurable alarm settings which can be configure using the Control software. Additionally, this module is also capable of reporting open-wire fault detection when configured in 4-20 mA input. Furthermore, the module also provides status feedback regarding operation of the external power supply which can be integrated to a specific program reference address in the CPU. The IC694ALG223 has internal current draw of 120 mA from the 5VDC bus voltage and 65 mA including the individual current of each current loop which is powered by an external 24 VDC supply voltage.

The IC694ALG223 input module is a 16-channel analog current input module from GE Fanuc and the RX3i PacSystems series. There are 16 single-ended input channels on the IC694ALG223 input module. Three input ranges can be configured for each of the input channels through the configuration software, and these ranges are 0 to 20 milliamps, 4 to 20 milliamps (enhanced), and 4 to 20 milliamps (normal). High and low alarm thresholds can be set for all input ranges. For the 4 to 20 milliamps enhanced input range, an alarm can be set to detect an input current ranging from 4 to 0 milliamps and this provides open-wire fault detection for 4 to 20 milliamps rated applications. The IC694ALG223 input module is capable of providing power supply status and module status updates to the system CPU. The IC694ALG223 input module can be installed in I/O slots of Series 90-30 PLC systems that have a serial connector. The current requirement of the IC694ALG223 input module is 120 milliamps at 5 Volts DC. The IC694ALG223 input module also draws 65 milliamps of current-loop currents from an external +24 Volts DC power supply. For the 4 to 20 milliamps current range, the factory calibration is 4 microamps per count, and for the 0 to 20 milliamps and the 4 to 20 milliamps enhanced ranges, the factory calibration is 5 microamps per count. The update rate for the IC694ALG223 module is 6 milliseconds. The common mode voltage is 0 volts for single-ended channels. The common mode rejection is greater than 70 decibels for DC voltage at up to 1 kilohertz. The input impedance for the IC694ALG223 input module is 250 Ohms. The input low pass filter response is 19 Hertz. The voltage range for the external voltage supply is from 20 to 30 Volts DC.