GE RX3i PacSystem Series Service Manual

IC695ALG312

1. Description

The IC695ALG312 is an isolated Thermocouple input module that is part of the PACSystem RX3i platform, currently under Emerson Automation, formerly produced by GE Intelligent Platforms (GE IP). This module has Twelve (12) isolated input channels compatible with direct wiring of Thermocouple Type J, K, T, E, R, S, B, N, or C sensors ang voltage signals such as +/-150mV or +/-50mV.

2. Specifications

Specification	Value
Brand	**GE Fanuc**
Series	**PACSystem RX3i**
Manufacturer	**Emerson Automation**
Manufacturer	**GE Intelligent Platforms (Former); Emerson Automation (Current)**
Part	**Number IC695ALG312**
Product	**Description Thermocouple input module**
Series	**PACSystem RX7i**
Module	**Type Isolated Thermocouple Input**
No	**of Channels Twelve (12), individually isolated**
Part	**Number IC695ALG312**
Number	**of Inputs 12**
Resolution	**11.5 - 16 bits**
Product	**Description No of Channels**
Internal	**Power 3.3V at 400mA and 5V at 300mA**
Integration	**time for 12 channels Configurable from 15 msec to 120 msec**
Twelve	**(12), isolated Resolution:**
Thermocouples	**Types J, K, T, E, R, S, B, N, or C**
Voltage	**Accuracy over temperature span ±0.1% of voltage span at 25 degrees C ±0.25% of span over temperature range**
11.5-16	**bits Compatible Thermocouple sensors**
Update	**Rate 15 msec to 120 msec (configurable)**
Thermocouple	**sensors Type J, K, T, E, R, S, B, N, or C**
J,	**K, T, E, R, S, B, N, or C Compatible voltage signals**
miliVolt	**signals +/-150mV or +/-50mV**
50mV	**to +50mV**

3. Product Information

The IC695ALG312 is an isolated Thermocouple input module that is part of the PACSystem RX3i platform, currently under Emerson Automation, formerly produced by GE Intelligent Platforms (GE IP). This module has Twelve (12) isolated input channels compatible with direct wiring of Thermocouple Type J, K, T, E, R, S, B, N, or C sensors ang voltage signals such as +/-150mV or +/-50mV.

Technical specifications for IC695ALG312

Brand GE Fanuc

Series PACSystem RX3i

Manufacturer Emerson Automation

Manufacturer GE Intelligent Platforms (Former); Emerson Automation (Current)

Part Number IC695ALG312

Product Description Thermocouple input module

Series PACSystem RX7i

Module Type Isolated Thermocouple Input

No of Channels Twelve (12), individually isolated

Part Number IC695ALG312

Number of Inputs 12

Resolution 11.5 - 16 bits

Product Description No of Channels

Internal Power 3.3V at 400mA and 5V at 300mA

Integration time for 12 channels Configurable from 15 msec to 120 msec

Twelve (12), isolated Resolution:

Thermocouples Types J, K, T, E, R, S, B, N, or C

Voltage Accuracy over temperature span ±0.1% of voltage span at 25 degrees C ±0.25% of span over temperature range

11.5-16 bits Compatible Thermocouple sensors

Update Rate 15 msec to 120 msec (configurable)

Thermocouple sensors Type J, K, T, E, R, S, B, N, or C

J, K, T, E, R, S, B, N, or C Compatible voltage signals

miliVolt signals +/-150mV or +/-50mV

50mV to +50mV; 150mV to +150mV Input voltage range

Operating Temperature 0 to 60 degrees Celsius

Measurement Units Degrees C or F, or Voltage

-55.0 mV to +55.0 mV; -155.0 mV to +155.0 mV Integration time for 12 channels

Storage Temperature -40 to 85 degrees Celsius

Configurable filters 2.3 Hz; 4 Hz; 4.7 hz; 24 Hz; 28 Hz

Configurable from 15 msec to 120 msec. Measurement Units

CJC measurement resolution 0.01degrees (C or F) for temperatures 0-60degrees C

Degrees C or F, or Voltage Repeatability

CJC temperature accuracy ±1.5degrees C Typical (0-60degrees C), ±3.0degrees C Max (0-60degrees C)

0.05% of voltage span at a constant temperature over a 30- second period Input filter

Repeatability 0.05% of voltage span at a constant temperature over a 30- second period

2.3 Hz filter; 4 Hz filter; 4.7 Hz filter Channel reaction to CPU Stop

Default or Hold Last State Channel Value Format

16-bit integer (in a 32-bit field); 32-bit real number Backplane Power Requirements

400mA at 3.3 VDC; 425mA at 5.1 VDC CJC measurement resolution

The IC695ALG312 is a Thermocouple input module that is part of the PACSystem RX3i mid-range controller series of Emerson Automation, formerly from GE Intelligent Platforms. This module is ideally used for Temperature application and direct integration of field transducers as this module supports direct wiring of Thermocouple Type J, K, T, E, R, S, B, N, or C sensors ang voltage signals such as +/-150mV or +/-50mV. The IC695ALG312 has Twelve (12) input channels, each provided with a built-in Analog to Digital Converter (ADC) with resolution ranging from 1.5-16 bits, depending on the set input filters. The converted data by the built-in ADC circuit is configurable as a 16-bit integer stored within a 32-bit register or a 32-bit real number. Each channel has integration time of 15 ms to 120 ms with Voltage accuracy of +/- 0.1% of voltage span at 25 Degree Celsius and +/- 0.25% of span over temperature range. In addition, this module has repeatability of 0.05% of voltage span at a constant temperature over 30 second period. The IC695ALG312 is installed to an RX3i universal backplane. Compatible RX3i CPU for use with this module must have minimum firmware version 5.5 or later. For programming and configuration, compatible software is Machine Edition 5.8 Logic Developer PLC or later must be used. For termination and sensors and signal wires, this module must be installed with a terminal block assembly. Compatible terminal block includes Box-style (IC694TBB032), Extended Boxstyle (IC694TBB132), Spring-style (IC694TBS032), or Extended Spring-style (IC694TBS132) Terminal Block. Use extended terminal blocks to provide additional shroud depth for termination of shield wire.

The GE Fanuc IC695ALG312 module has 12 isolated thermocouple input channels. There are different thermocouple types such as the T, B, C, N, E, J, R, S, or K types. Each type of thermocouple has a varied temperature range, for instance, the Type B range is from +300 to +1820 degrees Celsius, the Type C range is from 0 to +2315 degrees Celsius, the Type E range is from -270 to +1000 degrees Celsius, the Type J range is from -210 to +1200 degrees Celsius, the Type K range is from -270 to 1372 degrees Celsius, the Type N range is from -210 to +1300 degrees Celsius, the Type R range is from 0 to +1768 degrees Celsius, the Type S range is from 0 to 1768 degrees Celsius, and the Type T range is from -270 to +400 degrees Celsius. All the channels can be individually set up for inputs rated at +/-150 millivolts or +/-50 millivolts and different thermocouple types. The measurement units for The GE Fanuc IC695ALG312 isolated thermocouple input module are voltage and Degrees Celsius or Fahrenheit. The GE Fanuc IC695ALG312 module has diagnostics reports that it can

send to the controller, which are user-configurable as Open Circuit Detection Alarms, High and Low Alarms, Under Range Alarms, Over Range Alarms, Positive and Negative Rate of Change Alarms, and High-High and Low-Low Alarms. This module has a temperature range of 0 to 60 degrees Celsius for operating and a storage temperature range between -40 and 85 degrees Celsius. It also has a humidity range between 5 and 95%, non-condensing. The module has a vibration response of 10 to 57 Hertz, 0.0524 millimeters of peak displacement at 57 to 500 Hertz, 1.0 G of acceleration according to the IEC60068-2-6 and JISC0911 standards, and a shock resistance of 15 G for 11 milliseconds according to the IEC60068-2-27 and JISC0912 standards.