GE GE □□□ Series Service Manual

IS220PAOCH1A

1. Description

SPECIFICATIONS

3. Product Information

SPECIFICATIONS

Part Number: IS220PAOCH1A

Manufacturer: General Electric

Series: Mark VIe

Product Type: Analog Output Module

Number of channels: Eight current output channels

Analog Outputs: 0-20 mA, up to 900 Ω

Accuracy: ±0.5% over -30 to 65oC (-22 to 149 oF) temperature

Size: 8.26 cm high x 4.19 cm wide x 12.1 cm deep (3.25 in x 1.65 in x 4.78 in)

Availability: In Stock

Country of Origin: USA

IS220PAOCH1A is an Analog Output Module manufactured by General Electric as part of Mark VIe used in gas turbine control management systems. An electrical interface between one or two I/O Ethernet networks and an analog output terminal board is provided by the Analog Output (PAOC). A BPPx processor board and an acquisition board pair tailored to the analog output function are both present in the PAOC. Up to eight simplexes, 0-20 mA current loop outputs can be provided by the PAOC, which also has an analog to digital converter for each output's current feedback. Dual RJ-45 Ethernet connectors and a three-pin power input serve as the PAOC's inputs. The related terminal board connector is directly connected to the output via a DC-37 pin connector. Indicator LEDs are used to display visual diagnostics.

TBAO Analog Output Terminal Board

PAOC COMPATIBILITY:

One of the following BPPx processor boards is compatible with the PAOC I/O pack:

TBAOHIC Terminal Board

There is a BPPB processor board within the PAOCH1A.

The controlST* Software Suite V04.06 and later supports the functionally compatible BPPC found in the PAOCH1B.

Only the analog output terminal boards TBAOH1C and STAOH1A/H2A indicated in the accompanying table are compatible with the PAOC.

PAOC I/O PACK INSTALLATION:

Mount the selected terminal board firmly.

Directly connect the PAOC I/O pack(s) to the connector on the terminal board (s).

Using the threaded studs next to the Ethernet ports, mechanically fasten the I/O pack(s). The studs slip into a mounting bracket made for the particular style of the terminal board. It is important to position the bracket such that the DC-37 pin connector connecting the I/O pack and the terminal board is not subjected to right-angle forces. In the course of the product's service life, the adjustment should only be necessary once.

Depending on the setup of the machine, connect either one or two Ethernet wires. Either port will work with the I/O pack. If When using dual connections, it is customary to link ENET1 to the network connected to the R controller.

Connect the connector on the side of the PAOC to provide power to the I/O pack. Because the I/O pack has an inherent soft-start feature that regulates current inrush on power application, it is not essential to turn off the power before plugging the cable in.

If necessary, set up the I/O pack using the ToolboxST* program. Press F1 to bring up the Component Editor's help menu.

ANALOG OUTPUT HARDWARE:

Eight simplex 0-20 mA analog outputs with 18 V compliance are included in the PAOC. An external transistor amplifier is controlled and driven by a 16-bit digital-to-analog converter (DAC), which also controls the output current. To alert the control if the internal temperature of the pack becomes too high, a temperature sensor is built inside the board. Additionally, each analog output circuit has a mechanical normally-open relay that controls whether the output is enabled or disabled. When the disabled relay is turned off, the output flows via the relay and opens a circuit between the customer load attached to the terminal board and the analog output of the PAOC. The location of the mechanical relay is signaled by an LED using the second normally-open contact of the relay.

PAOC Analog Output Pack

CURRENT FEEDBACK HARDWARE:

For each of the eight simplexes 0-20 mA analog outputs, the PAOC includes current feedback monitoring. The output current is sensed and tracked using a 16-bit analog to digital converter and a 50 resistor on the terminal board.

Analog Digital Converter

The PAOC I/O pack, which has eight linear, high-compliance analog outputs, has application restrictions based on its probable ambient environment. As measured from the outside of the pack, PAOCH1B packs are designed to operate within a temperature range of -40 to 70 oC (-40 to 158 oF). Due to its dense triple board layout and depending on the application, the PAOC's ambient environment maximum must be reduced. Here is a list of output configurations along with the necessary de-ratings for each one. As evidenced by the terminal board screws across the output range of 0–20 mA, the minimum series equivalent resistance of the customer load is the definition of the minimum output impedance.

The PAOC I/O pack performs the following self-diagnostic tests:

A power-up self-test that examines the hardware on the processor board, Ethernet ports, RAM, and flash memory.

Constantly checking if the internal power supply is operating properly

Verifying that the hardware set matches by comparing the electronic ID data from the CPU, acquisition, and terminal boards, then checking that the application code loaded from flash memory is appropriate for the hardware set.

A modest burden resistor is used on the terminal board to sense the analog output current. To verify the circuits in the digital to the analog converter are functioning properly, the I/O pack conditions this signal and compares it to the commanded current.

The analog output suicide relay's compliance with the commanded condition and feedback indication is continuously checked.

PAOC SPECIFIC ALARAMS

POSSIBLE CAUSE:

The valid output range of the analog output is being exceeded.

Out-of-range feedback on the analog output.

A pack or terminal board hardware malfunction may have occurred.

SOLUTIONS:

Ensure that the analog output command is between 0 and 20 milliamps (mA).

Check to see if the analog output feedback agrees with the anticipated command.

Check the field wiring and connectors for analog outputs.

A board failure is likely if all active analog output feedbacks are unhealthy with valid instruction. Replace the terminal board and I/O pack.