GE GE □□□ Series Service Manual

IS220PSCAH1A

1. Description

SPECIFICATIONS

2. Specifications

Specification	Value
Functional	**Part Number IS220PSCAH1A**
Technology	**for Mounting Surface-Mount**
Power	**Rating 24/28 VDC**
Model	**Type Serial Modbus Communication I/O Pack**
Manufacturer	**GE Industrial**
Ambient	**Temperature Range -40 to 158 ºF**
Functional	**Acronym PSCA**
Dimensions	**H 3.25" in x W 1.65 in x D 4.78 in**
Catalog	**Number IS220PSCAH1A**
Cable	**Distance for RS232 Mode 50 ft (15 m)**
Baud	**Rate: Master Service 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200**
About	**the IS220PSCAH1A**
Greater	**Product Series Information**
The	**IS220PSCAH1A I/O pack is used for Serial Modbus Communication. The pack was designed for the Mark VIeS control system by General Electric. When this pack is being used it can provide interfacing between up to two input-output Ethernet networks and a serial communications board.**

3. Product Information

SPECIFICATIONS

Part No: IS220PSCAH1A

Manufacturer: General Electric

Product Type: I/O Pack

Operating System: QNX

Series: Mark VIe

Availability: In Stock

Country of Origin: USA

IS220PSCAH1A is a Serial Modbus Communication I/O Module manufactured by General Electric as a part of the Mark VIe series used in gas turbine control systems. The PS Series power supplies give you consistent, reliable, switched DC power at linear power supply prices. These power supplies use efficient switching technology to produce the most power in the smallest space while generating a minimum amount of heat. The constant-current short circuit protection limits the output current as the voltage is reduced to safely protect your control components from direct shorts and device failures. Once the short is corrected, the PS Series power supplies automatically resume supplying full-voltage power. Precisely regulated output power is suitable for battery charging applications. Extra-sturdy DIN rail mounts and removable plug connections make installation a breeze. Meeting UL/cUL 60950, 508, and 1604* (Class I, Div. 2), our PS-D (DIN-rail mounted) power supplies meet the standards required for practically any industrial control application.

FEATURES

2A - 24A at 24 VDC, 3.5A at 12 VDC

Regulated switch mode type

Low profile case

Easy DIN-rail mounting

Constant-current short circuit protection

Low ripple and noise

Selectable input voltage (115/230 VAC)

High EMC immunity

The Mark VIe Functional Safety System has been used for safety-critical applications. It is used in a wide variety of applications including steam and gas turbine power generation balance of (BoP) deep-sea drilling, desalination, gas compression, and other applications management systems. In functional safety systems, the Mark VIe controller serves as a gateway to the Mark VIeS safety controller. The controller is a standalone and single-board controller with scalable processing power. It includes built-in power supplies and requires no batteries or jumper settings. IONet data includes process inputs and outputs to the I/O packs.

SPECIFICATIONS:

Part Number: IS220PSCAH1A, REV K

Manufacturer: General Electric

Series: Mark VIe

Product Type: Serial Communication I/O Module

Number of Channels: 24

Number of inputs: 12

Number of trip solenoids: 3

Number of outputs: 125 V dc

Technology: Surface Mount

Suppression: MOV across the solenoid

Trip interlock isolation: Optical isolation to 1500 V

Dimensions: 17.8 cm wide x 33.02 cm

Operating Temperature: 30 to 65°C

Repair: 3-7 Days

Availability: In Stock

Country of Origin: United States

Manual: GEI-100868A

FUNCTIONAL DESCRIPTION:

IS220PSCAH1A, REV K is a Serial Communication I/O Module manufactured and designed by General Electric as part of the Mark VIe Series used in GE Distributed Turbine Control Systems. The Serial Communication I/O pack provides the electrical interface between one or two I/O Ethernet networks and a serial communications terminal board. The I/O pack contains a BPPC processor board common to all Mark VIe distributed I/O packs and a serial communications board. The communications board contains six serial transceiver channels, each of which can be individually configured to comply with RS-232, RS-422, or RS-485 half-duplex standards. Input to the I/O pack is through dual RJ-45 Ethernet connectors and a 3-pin power input. Output is through a DC-62 pin connector that connects directly with the associated terminal board connector. One of the Ethernet ports can be used to support Ethernet Modbus communication on Simplex networks. Visual diagnostics are provided through indicator LEDs. The IS220PSCAH1A I/O pack contains a functionally compatible BPPC that is supported in ControlST V04.07 and later.

PSCA INSTALLATION:

Securely mount the desired terminal board.

Directly plug one PSCA I/O pack into the SSCA terminal board connector.

Mechanically secure the I/O packs using the threaded inserts adjacent to the Ethernet ports. The inserts connect with a mounting bracket specific to the terminal board type. The bracket location should be adjusted so that no right-angle force is applied to the DC-62 pin connector between the I/O pack and the terminal board. The adjustment should only be required once during the product's service life.

Plug in one or two Ethernet cables, depending on the system configuration. The I/O pack operates over either port. If dual connections are used, standard practice is to hook ENET1 to the network associated with the R controller; however, the PSCA is not sensitive to Ethernet connections and will negotiate proper operation over either port.

Apply power to the I/O pack by plugging in the connector on the side of the pack. It is not necessary to remove power from the cable before plugging it in because the I/O pack has inherent soft-start capability that controls current inrush on power application.

From the ToolboxST* application, add the PSCA module, and add and configure the required devices. From the Component Editor, press F1 for help.

DATA FLOW FROM PSCA TO CONTROLLER:

Dataflow from the PSCA to the Mark VIe controller is of two types: fixed I/O and Modbus I/O. Fixed I/O is associated with the smart pressure transducers and the Kollmorgen® electric drive data. This data is completely processed every frame, the same as conventional I/O. These signals are mapped into signal space, have individual health bits, and have offset/gain scaling. Several of these signals are configured to support system limit checking. Modbus: Modbus I/O is the I/O associated with the Modbus ports. Because of the quantity of these signals, they are not completely processed every frame; instead, they are packaged and transferred to the Mark VIe controller over the IONet through a special service.

This can accommodate up to 2400 bytes at 4 Hz, or 9600 bytes at 1 Hz, or combinations thereof. This I/O is known as second-class I/O, where coherency is at the signal level only, not at the device or board level. Health bits are assigned to individual points in the same fashion as the other protocols, and system limit checking is not performed. Three consecutive time-outs are required before a signal is declared unhealthy. Diagnostic messages are used to announce all communication problems. The input value is cleared for a given signal after four consecutive time-outs occur on that signal.

IS220PSCAH1A Technical Specifications

Functional Part Number IS220PSCAH1A

Technology for Mounting Surface-Mount

Power Rating 24/28 VDC

Model Type Serial Modbus Communication I/O Pack

Manufacturer GE Industrial

Ambient Temperature Range -40 to 158 ºF

Functional Acronym PSCA

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Catalog Number IS220PSCAH1A

Cable Distance for RS232 Mode 50 ft (15 m)

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About the IS220PSCAH1A

Greater Product Series Information

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This board has six individually configurable serial transceiver channels which can be used with RS485 half-duplex, RS232, and RS422 standards. The input needed to provide power to the PSCA pack is sent through a three-pin power input and dual RJ45 Ethernet connectors.

Hardware Tips and Specifications

There is a Serial Modbus Master Service on the IS220PSCAH1A pack that has a number of different features, some of which are as follows:

RTU

Data Bits: seven, eight

32-bit data Word ordering

Parity: even, none, odd

Station addresses

These features are used for the six configurable ports on the PSCA pack. The configurations can be done at the port level. With the PSCA the two Ethernet ports on the pack can be used to help support Ethernet Modbus Master Protocols; please note that this configuration can only occur when being used on a simplex network.

The IS220PSCAH1A pack has the ability to perform self-diagnostic tests, one of which is monitoring the analog inputs which monitor position and pressure to check the configurable high and low levels. The limits are used for enabling and disabling functions, latching/non-latching, and as well as generate alarms. Some of the alarms that could potentially come up are 32-67, 114-119, 108-113, and 72-107. All of these alarms indicate different errors.