GE GE □□□ Series Service Manual

IS220PTCCH1A

1. Description

SPECIFICATIONS:

2. Specifications

Specification	Value
Functional	**Description PTCC Thermocouple Input Module**
Functional	**Part Number IS220PTCCH1A**
Includes	**Qty 1 Processor Board and Qty 1 Acquisition Board for Thermocouple Input Function**
Instruction	**Manual GEH-6721**
Product	**Family Mark VIe Control System**
Shipping	**Dimensions 12x12x12 inches**
Weight	**1lbs**
Assembly	**Type IS220 Special Assembly**

3. Product Information

SPECIFICATIONS:

Part Number: IS220PTCCH1A

Manufacturer: General Electric

Series: Mark VIe

Function: Thermocouple Input Module

Number of Channels: 12

Thermocouple Types: E, J, K, S

Span: -8 mV to +45 mV

A/D Converter: 16-bit

Common Mode Voltage: +5 Volts

Normal Mode Rejection: 250mV

Microprocessor: AMD-K6 300 MHz

Operating temperature: -30 to 65 ℃

Size: 8.26 cm wide x 4.19 cm

Technology: Surface Mount

Repair: 3-7 Day

Availability: In Stock

Country of Origin: United States

Manual: GEH-6721D

FUNCTIONAL DESCRIPTION:

IS220PTCCH1A is a Thermocouple Input Module manufactured and designed by General Electric as part of the Mark VIe Series used in GE Distributed Control Systems. The PTCC provides the electrical interface between one or two I/O Ethernet networks and a thermocouple input terminal board. The pack contains a processor board common to all Mark VIe distributed I/O packs and an acquisition board specific to the thermocouple input function. The pack is capable of handling up to 12 thermocouple inputs. Two packs can handle 24 inputs on TBTCH1C. In the TMR configuration with the TBTCH1B terminal board, three packs are used with three cold junctions, but only 12 thermocouples are available. Input to the pack is through dual RJ45 Ethernet connectors and a three-pin power input. Output is through a DC-37 pin connector that mates directly with the associated terminal board connector. Visual diagnostics are provided through indicator LEDs, and local diagnostic serial communications are possible through an infrared port.

INSTALLATION:

Securely install the desired terminal board.

Directly connect the PTCC I/O pack to the terminal board connectors.

Mechanically secure the packs to the threaded studs next to the Ethernet ports. The studs slip into a mounting bracket designed for the terminal board type.

The bracket location should be changed such that there is no right-angle stress on the DC37 connector between the pack and the terminal board. The adjustment should be required just once during the product's lifetime.

Connect one or two Ethernet wires, depending on the system configuration. The pack will work on either port. If twin connections are employed, it is common practice to link ENET1 to the network connected with the R controller.

Plug in the connector on the pack's side to power it. It is not essential to turn off the power to the cable before connecting it because the I/O pack has an intrinsic soft-start feature that controls the current inrush on power applications.

Use the ToolboxST application to set up the I/O pack as needed.

OPERATION:

High-speed processor with RAM and flash memory

Two fully independent 10/100 Ethernet ports with connectors

Hardware watchdog timer and reset circuit

Local ambient temperature sensor

Infrared serial communications port

Status-indication LEDs

Electronic ID and the ability to read IDs on other boards

Substantial programmable logic supporting the acquisition board

Input power connector with soft start/current limiter

Local power supplies, including sequencing and monitoring

IS220PTCCH1A Technical Specifications

Functional Description PTCC Thermocouple Input Module

Functional Part Number IS220PTCCH1A

Includes Qty 1 Processor Board and Qty 1 Acquisition Board for Thermocouple Input Function

Instruction Manual GEH-6721

Product Family Mark VIe Control System

Shipping Dimensions 12x12x12 inches

Weight 1lbs

Assembly Type IS220 Special Assembly

About the IS220PTCCH1A

Model Name: IS220PTCCH1A.

Type: Thermocouple Input Module (PTCC).

Originality: Not the originally-developed product for its specific Mark V Series functional role; it is a revision (A-rated) of the IS220PTCCH1 parent module.

Internal Components:

Internally placed BPPx processor board.

Acquisition board for thermocouple input functions.

Application Compatibility: Can be used in simplex, duplex, and triple modular redundant (TMR) applications.

Thermocouple & Input Support

Supported Thermocouple Types: E, J, K, S, and T standard thermocouples.

mV Inputs: Supports mV inputs with a span of -8 to 45 mV.

Thermocouple Grounding: E, J, K, S, and T thermocouples can be either grounded or un-grounded.

Distance from Turbine I/O Panel: Can be located up to 984 feet (300 meters) from the turbine I/O panel.

Cable Resistance: Cable resistance must be kept to a maximum of 450 Ω.

Input Quantity based on Pack Quantity:

Qty 1 IS220PTCCH1A: 12 Thermocouple Inputs.

Qty 2 IS220PTCCH1A: 24 Thermocouple Inputs.

Qty 3 IS220PTCCH1A: Used in TMR Configurations.

Diagnostics and Performance

Maximum Software Error/Conformity Error: 0.25 degrees Fahrenheit.

Common Mode Voltage: ±5 volts.

AC Common-Mode Rejection: 100 dB @ 50/60Hz (includes hardware and software filtering).

Normal Mode Rejection: 250 mV RMS @ 50/60 Hz (±5%).

Limit Checks: High/low hardware and software limit checks.

Operating Ambient Conditions: -22º to +149º Fahrenheit (-30º to +65º Celsius).

Self-Diagnostics: Performs multiple self-diagnostics, including:

Power-up self-tests of flash memory, RAM, processor board hardware, and Ethernet ports.

Continuous monitoring of internal power supplies.

Voltage Suppression & Limitation: Utilizes series-standardized limiting hardware components (capacitors, resistors, transistors, diodes, specialized integrated circuits).