GE GE □□□ Series Service Manual

IS200TDBSH2A

1. Description

Technical Specifications

2. Specifications

Specification	Value
Part	ID: IS200TDBSH2A
Original	Equipment Manufacturer: GE
Unit	Series: Mark VIe
Model	Role: Simplex Discrete I/O Terminal Board
Redundancy:	Simplex Only
Contact	Inputs: 24
Group:	H2A
Supply	Voltage: 24VDC
Voltage	Range: 18.5-32VDC
Pluggable	TB: Yes
Mounting	Type: Flat, DIN-Rail
Related	Manual: GEH-6721G
Part	Number: IS200TDBSH2A
Manufacturer:	General Electric (GE)
Series:	Mark VI Speedtronic
Functional	Designation: Contact Input/Relay Output Terminal Board (TDBS)
Input	Channels: 24 Discrete Contact Inputs
Output	Channels: 12 Relay Outputs
Excitation	Voltage: 125 VDC or 24 VDC (Jumper Selectable)
Excitation	Voltage Range: 18 to 132 VDC (Application Dependent)
Wetting	Current: 2.5 mA per Channel (Nominal)
Input	Filter Constant: 4 ms (Hardware-Based Debounce)
Relay	Type: Form-C (Changeover Architecture)
Relay	Contact Rating: 2.0 A Continuous
Relay	Commutation Speed: <10 ms (Typical)
Surge	Suppression: Integrated Metal-Oxide Varistors (MOV) per Channel
Isolation	Rating: 1500 V RMS (Group I

3. Product Information

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Relay Commutation Speed: <10 ms (Typical)

Surge Suppression: Integrated Metal-Oxide Varistors (MOV) per Channel

Isolation Rating: 1500 V RMS (Group Isolation)

Interface Connector: 37-Pin D-Sub Connector (JR1)

Terminal Blocks: Two Barrier-Type Terminal Strips

Redundancy Mode: Simplex Configuration

Dimensions: 23.8 cm (H) × 17.8 cm (W)

Operating Temperature: -30°C to 65°C

FUNCTIONAL DESCRIPTION:

IS200TDBSH2A is a Contact Input/Relay Output Terminal Board manufactured and designed by General Electric as part of the Mark VIe Series used in GE Distributed Turbine Control Systems. The TDBS board is a simplex contact input/output terminal board designed for DIN-rail or flat mounting. The TDBSH2A board accepts 24 group-isolated contact inputs supplied with a nominal 24, 48, or 125 V dc wetting voltage from an external source. The contact inputs have noise suppression to protect against surges and high-frequency noise. TDBS provides 12 form-C relay outputs and accepts different option cards to expand relay functions. The PDIO I/O pack works with the TDBS. The I/O pack plugs into the D-type connector and communicates with the controller over Ethernet. A single connection point for PDIO is provided, with one or two network connections possible from PDIO to the controllers.

INSTALLATION:

The TDBSH2A, plus a plastic insulator, mounts on a sheet metal carrier that then mounts on a DIN rail. Optionally, the TDBS plus insulator mounts on a sheet metal assembly that then bolts into a cabinet. The connections are wired directly to two sets of 48-point terminal blocks, typically using #18 AWG wires. The upper set of terminals, TB1, connects to the relay portion of the board, and the lower set of terminals, TB2, connects to the contact input circuits. Screw assignments for the two sets of terminals are identical to those found on the SRLY relay board and the STCI contact input terminal board. Shields should be terminated on a separate bracket. If a relay option board is used, it plugs onto TDBS connectors JW1 and JW2 and is held in place by the force of the connectors. The following table identifies the function of each relay terminal point grouped as TB1, as it relates to the presence of an option board. If external power is to be supplied, it is wired to a connector provided on the option board.

OPERATION:

The contact input function and on-board signal conditioning are the same as those on STCI; they are scaled for 24, 48, and 125 V dc wetting voltage. The input wetting voltage range is 16 to 32 V dc, 32 to 64 V dc, and 100 to 145 V dc, respectively. The threshold voltage is 50% of the wetting voltage. The contact sensing circuits are shown in the I/O pack description. Contact input currents are resistance-limited to 2.5 mA on the first 21 circuits, and 10 mA on circuits 22 through 24. The 24 V dc supply on TDBSH2 is current-limited to 0.5 A using polymer positive temperature coefficient fuses that can be reset. Filters reduce high-frequency noise and suppress surge on each input near the point of signal entry. The discrete input voltage signals go to the I/O processor, which passes them through optical isolators, converts them to digital signals, and transfers them to the controller.

TDBSH2A + WROB:

Option board WROBH1A adds capability to TDBSH2A to yield a combination that has the same relay circuit functionality as a TRLYH1B terminal board when used simplex. Included are fused-sensed power distribution to the first six relays and dedicated power to the last relay. Electrically, IS200TDBSH2A plus WROBH1 has the following circuit. WROBH1 has default fuse values of 3.15 A. Connector JW2 and its connections to JA1 are omitted for clarity. Both sides of the power distribution on relays 1-6 are fused, allowing the board to be used in systems where dc power is floating with respect to earth. Fuse voltage feedback is compatible with 24 V, 48 V, and 125 V dc applications as well as 120 V and 240 V ac applications.