ESWx Industrial Ethernet Switch

fact sheet
GEA-S1284B

GE's Industrial Ethernet 10/100 switches (ESWx) provide the performance and features needed in today's real-time industrial power plant control systems.

Product Features

- 802.3, 802.3u, and 802.3x compatibility
- 10/100 base copper with auto negotiation
- Full/half duplex auto-negotiation
- 100 Mbps FX uplink port
- HP-MDIX auto sensing
- LEDs for Link Presence, Activity and Duplex, and Speed per port (each LED has two colors)
- LED for Power
- Minimum 256 KB buffer with 4K media access control (MAC) addresses

Available Versions

Item	Description
IS420ESWAH3A	8-port 10/100 base copper only
IS420ESWBH3A	16-port 10/100 base copper only
IS420ESWAH1A	8-port 10/100 base copper with one 100 Mbps 100 base FX fiber-optic uplink, LC-type connection
IS420ESWAH2A	8-port 10/100 base copper with two 100 Mbps 100 base FX fiber-optic uplinks, LC-type connections
IS420ESWBH1A	16-port 10/100 base copper with one 100 Mbps 100 base FX fiber-optic uplink, LC-type connection
IS420ESWBH2A	16-port 10/100 base copper with two 100 Mbps 100 base FX fiber-optic uplink, LC-type connection

When used as a replacement switch, a port adapter (supplied with the replacement kit) is used if needing to interface an existing SC fiber termination to the LC fiber port.

Flow Control (Pause)

The switch supports flow control between switches. It uses IEEE® defined pause packets to receive and honor pause packets. The switch only sends the pause packets if it needs flow control on a port.

Reliability and Performance

Because high reliability is critical to any controls solutions business, the switch exceeds 4 million hours Mean Time Between Failures (MTBF) at 35°C (95 °F) ambient temperature, ground fixed controlled environment. The switch also meets the following performance criteria:

Performance Criteria

Item	Description
Switch latency	Switch packet latency does not exceed required application limits.
Switch architecture	The switch supports store and forward architecture, providing high data confidence.
Inrush current	The switch provides soft start capability that limits inrush current to less than 200% of the normal operating current.

Specifications

Item	Description
Mounting	The switch enclosure can be panel mounted (switch mounts to rear wall of panel with bracket) or DIN-rail mounted. DIN-rail mounting meets vibration and shock specifications. User connections are freely accessible with both mounting types.
Dimensions (width x depth x height)	ESWA: 138 x 86 x 56 mm (5.45 x 3.40 x 2.20 in) ESWB: 188 x 86 x 56 mm (7.40 x 3.40 x 2.20 in)
Power connection	Supports two redundant diode-OR'd power supply inputs of 18 to 36 V dc
Cooling	Convection cooled when mounted vertically or horizontally
Coating	Resistant to corrosion with provisions made for grounding per IEC 60721-3-3 Class 3C2
Operating temperature	-30 to 65°C (-22 to 149 °F)
Shipping, storage temperature	-40 to 85°C (-40 to 185 °F)
Humidity	Operates in a 5 to 95% relative humidity non-condensing environment without any external temperature or humidity excursions
Seismic Vibration	Meets Universal Building Code (UBC)

Diagnostics

Link Presence, Activity and Duplex, and Speed per port LEDs each have two colors to indicate status.

- LED one
  - Flashes Green for activity at Full Duplex
  - Flashes Yellow for activity at Half Duplex
- LED two
  - Green = Link and 100 Mb
  - Yellow = Link and 10 Mb
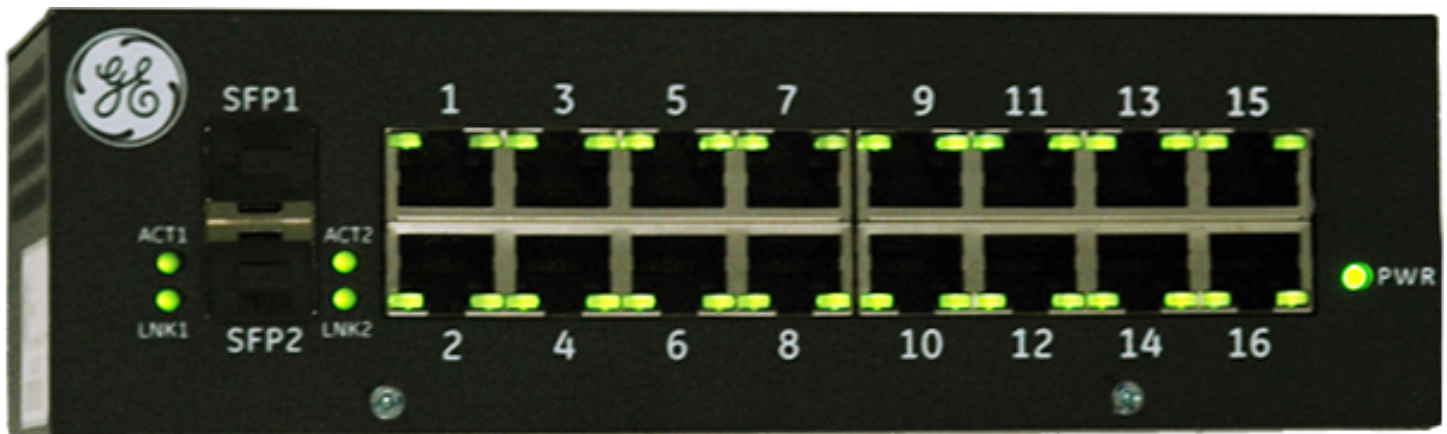 - No led lit = no link

Conformance Criteria

The packet traffic can be synchronized by IEEE 1588 timing and triggered to initiate within a 1-microsecond packet start window. The switch's capability and conformance is tested to meet the following four criteria:

- Initiation of the required Multicast packet load on one port, without IEEE 802.3x flow control negotiated
- Initiation of the required Multicast packet load on one port, with IEEE 802.3x flow control negotiated
- Initiation of the required Multicast packet load distributed across all ports, packet count per port must average required per number of switch ports with no IEEE 802.3x flow control
- Initiation of the required packet Multicast load distributed across all ports, packet count per port must average 200 per number of switch ports with IEEE 802.3x flow control negotiated on half the ports

Benefits

- Longevity of parts availability for future network expansion
- Backwards compatibility to legacy systems
- Higher performance for real-time control systems of today
- Higher performance for real-time control systems of today