E-SW05U Industrial Ethernet Switch

Features

- Deterministic Ethernet supported, featuring:
  - Real-time 10Base-T/100 Base-T auto-negotiation
  - Auto-sensing for full duplex operation
- Open Ethernet compatibility (Supports ALL standard IEEE 802.3 Ethernet protocols)
- No set-up required – "plug-n-play"
- DIN-rail or panel mounting
- 24 VDC powered (no external transformer)
- UL 508, UL 1604 (Class I Div. 2), CSA, and CE- rated
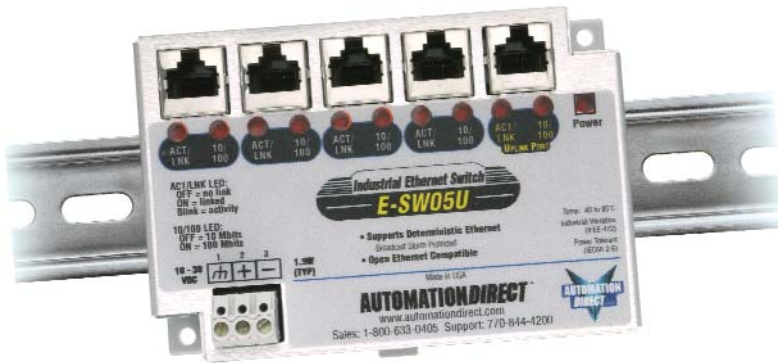- -40° C to +85° C rated
- Withstands power surges (IEEE-472)
- Vibration resistant (IEC68-2-6)

Deterministic control

Ethernet for deterministic control? You bet! With an E-SW05U switching an isolated control LAN, your PLC won't miss a beat. At 10 or 100 Mbps Ethernet, your data will spend minimal "time-on the-wire" between your I/O and controller. The E-SW05U, an Ethernet switch, automatically determines and remembers the devices connected to each port and routes messages only through the appropriate port. When directly connected to a full duplex device, the E-SW05U port automatically adopts full duplex operation, potentially doubling the bandwidth to that device. The E-SW05U eliminates message collisions, allowing for deterministic control for time-critical automation applications. Install E-SW05U switches and your Ethernet control network will maintain consistent cycle times even under heavy I/O and data exchange.

Open compatibility

The E-SW05U supports all standard IEEE 802.3 Ethernet protocols, so you won't need expensive protocol or media converters to connect with standard IT products (*as with many other Ethernet and Fieldbus products*).
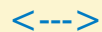
Increased reliability

The E-SW05U Ethernet switch has been designed for the industrial environment. It will survive extreme temperatures, as well as dirty, unreliable industrial power. Meeting UL 1604 (Class I Div. 2) and the IEC68-2 standard for vibration resilience, the E-SW05U will provide years of reliable performance in applications too tough for commercial grade switches.

E-SW05U   <--->

Message in from a device

Message is sent out only from the port connected to destination device
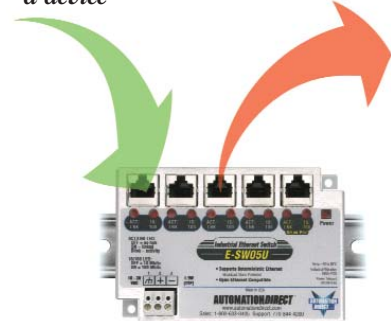
Switches vs. hubs

Both Ethernet switches and hubs allow additional nodes and segments to be added to a network, but switches have many advantages over hubs for automation control. An Ethernet switch automatically determines and remembers the devices connected to each of its ports. When it receives a data packet, it verifies the packet integrity, identifies through which port the message should be transmitted, and sends the packet to the targeted device only. Non-valid packets are discarded, Network collisions are eliminated as each device communicates one-to-one with the switch. In identifying the packet destination and verifying the packet integrity, switches introduce some delay (latency) to each packet transmission. This slight delay is the trade-off for eliminating packet collisions, further reducing network traffic. Another advantage of switches segmenting the network is they allow longer network distances than hubs.

Use a switch for:

- Deterministic real-time control
- Segmenting a LAN into smaller LANs
- Isolating I/O communication from data exchange communication.
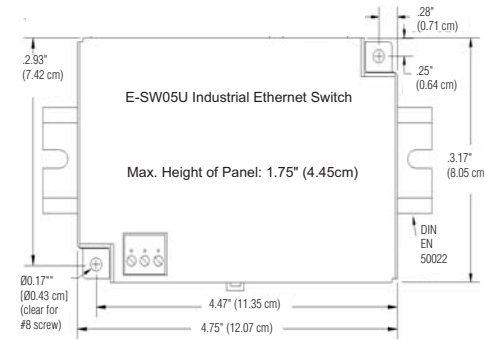
A hub works for:

- HMI to controller(s) communication (when separate from the I/O network)
- Configuration and data-exchange LANs
- Demonstration systems
- Single controller (master/slave) systems on an isolated LAN

Broadcast messages from any device will be transmitted to all networked devices via a switch or hub. Office LAN features, such as Microsoft Explorer's Network Neighborhood, automatically create some broadcast traffic to update connection maps.
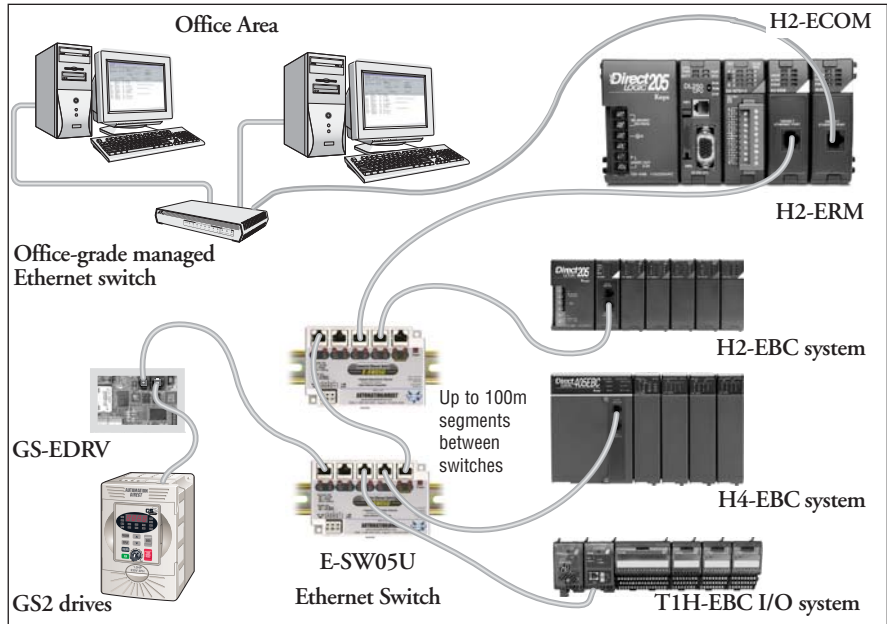
E-SW05U Specifications

Performance Specifications

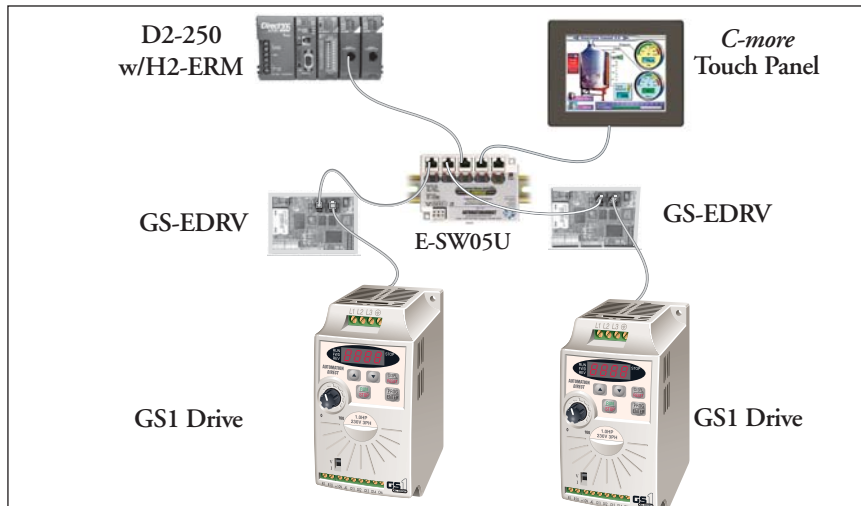|	
Ethernet switch type	Unmanaged, store and forward
RJ45 ports (shielded)	10 Base-T and 100 Base-T
RJ45 speed (auto-negotiating)	10 Mbps or 100 Mbps
Ethernet protocols supported	All standard IEEE 802.3
Broadcast storm protection	25% of bandwidth
Memory bandwidth	1.4 Gbps
Completely compliant	IEEE 802.3 & IEEE 802.3u
Full or half duplex operation	Auto-sensing
MAC addresses supported	1 K (automatic learning, aging, and migration)
Ethernet isolation	1200 VRMS 1 minute
Required supply voltage	10-30 VDC
Power consumption (typical)	1.9 W
Operating and storage temp	-40 to +85°C
Humidity (non-condensing)	5 to 95% RH
Flammability	UL 94V-0 materials
Electrical safety	UL 508, CSA C22/14; EN61010-1 (IEC1010), CE
EMI emissions	FCC part 15 ICES 003, EN55022, Class B, CE
EMC immunity	EN61326-1 (EN61000-4-2,3,4, and 6), CE
Surge withstand	IEEE-472 (ANSI C37.90)
Vibration	IEC68-2-6
Hazardous locations	UL 1604 (file #E200031), CSA C22.2/213 (Class 1, Div.2), Cenelec EN50021 (Zone 2)

Complete documentation

Documentation can be downloaded from www.automationdirect.com.

Mounting dimensions

.28" (0.71 cm)
.2.93" (7.42 cm)
.25" (0.64 cm)
.3.17" (8.05 cm)
E-SW05U Industrial Ethernet Switch
Max. Height of Panel: 1.75" (4.45cm)
DIN EN 50022
Ø0.17"" [Ø0.43 cm] (clear for #8 screw)
4.47" (11.35 cm)
4.75" (12.07 cm)

Note:
Screw holes are provided as an alternative to DIN-rail mounting.

Typical Ethernet switch installations

Office Area
H2-ECOM
H2-ERM
Office-grade managed Ethernet switch
Up to 100m segments between switches
GS-EDRV
H2-EBC system
H4-EBC system
E-SW05U Ethernet Switch
GS2 drives
T1H-EBC I/O system

Ethernet drive control network example

D2-250 w/H2-ERM
C-more Touch Panel
GS-EDRV
E-SW05U
GS-EDRV
GS1 Drive
GS1 Drive

Company Information
Systems Overview
Programmable Controllers
Field I/O
Software
C-more & other HMI
Drives
Soft Starters
Motors & Gearbox
Steppers/ Servos
Motor Controls
Proximity Sensors
Photo Sensors
Limit Switches
Encoders
Current Sensors
Pressure Sensors
Temperature Sensors
Pushbuttons/ Lights
Process
Relays/ Timers
Comm.
Terminal Blocks & Wiring
Power
Circuit Protection
Enclosures
Tools
Pneumatics
Appendix
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