

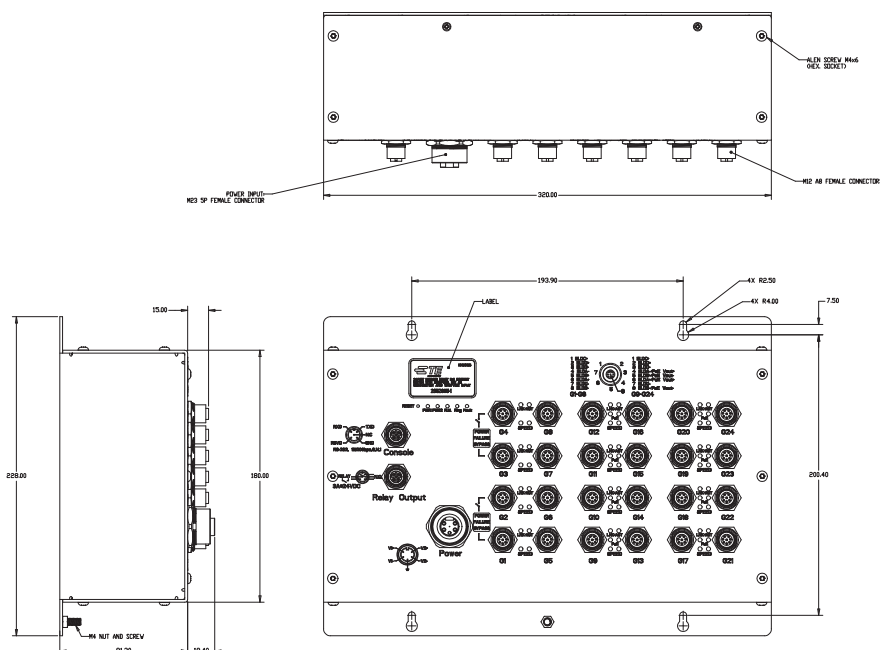


24-PORT EN50155 POE ETHERNET SWITCH

GIGABIT MANAGED ETHERNET SWITCH WITH 16 POE PORTS

TE's EN50155 compliant Ethernet switches are designed for industrial applications such as rolling stock, vehicle, and railway. The 2352905 series, is a managed Gigabit Redundant Ring Ethernet switch with 16x10/100/1000Base-T(X) P.S.E. and 8x10/100/1000Base-T(X) ports which is specifically designed for the toughest conditions. The switch supports the Ethernet Redundancy protocol, a recovery time < 30ms over 250 units of connection, MSTP (RSTP/STP compatible), it protects your mission-critical applications from network interruptions or temporary malfunctions with its fast recovery technology. The Ethernet switch uses M12 connectors to ensure tight, robust connections, and guarantee reliable operation. It also supports Power over Ethernet. Each switch has 16x10/100/1000Base-T(X) P.S.E. (Power Sourcing Equipment) ports. The Switch is easily managed using TE-vision, Telnet, CLI or its web-based interface.

Technical Drawing



Product Features:

- **TE-Ring:** TE-Ring is redundant ring technology, with recovery time of less 30 milliseconds and up to 250 nodes. The TE-Ring redundant ring technology can protect mission-critical application from network interruptions or temporary malfunction with its fast recover technology.
- **TE-Chain:** TE-Chain is the revolutionary network redundancy technology that provides the add-on network redundancy topology for any backbone network, TE-Chain allows multiple redundant network rings of different redundancy protocols to join and function together as a larger and more robust compound network topology. TE-Chain providing ease-of-use while maximizing fault-recovery swiftness, flexibility, compatibility, and cost-effectiveness in one set of network redundancy topology.
- **MRP:** Media Redundancy Protocol (MRP) is a data network protocol standardized by the IEC 62439-2. It allows rings of Ethernet switches to overcome any single failure with recovery time much faster than achievable with Spanning Tree Protocol. This function is available on request only.
- **IP-based Bandwidth Management:** The switch provide advanced IP-based bandwidth management which can limit the maximum bandwidth for each IP device. User can configure IP camera and NVR with more bandwidth and limit other device bandwidth.
- **Application-Based QoS:** The switch also support application-based QoS. Application-based QoS can set highest priority for data stream according to TCP/UDP port number.
- **Device Binding Function:** Special Device Binding function can only permit allowed IP address with MAC address to access the network. Hacker cannot access the IP surveillance network without permission. It can avoid hacker from stealing video privacy data and attacking IP camera, NVR and controllers.
- **Advanced DOS/DDOS Auto Prevention:** The switch also provided advanced DOS/DDOS auto prevention. If there is any IP flow become big in short time, the switch will lock the source IP address for certain time to prevent the attack. It's hardware based prevention so it can prevent DOS/DDOS attack immediately and completely.
- **IEEE 1588v2 Technology:** The IEEE 1588v2 technology can fulfill precision time synchronization requirements for protection and control applications.
- **Modbus TCP:** This is a Modbus variant used for communications over TCP/IP networks.
- **IEEE 802.3az Energy-Efficient Ethernet:** This is a set of enhancements to the twisted-pair and backplane Ethernet family of networking standards that will allow for less power consumption during periods of low data activity. The intention was to reduce power consumption by 50% or more.

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Part Number	
	2352905-1
Physical ports	
10/100/1000 Base-T(X) Ports in M12 Auto MDI/MDIX with P.S.E.	16 x M12 connector (8-pin female M12 A-coding)
10/100/1000Base-T(X) ports in M12 Auto MDI/MDIX	8 x M12 connector (8-pin female M12 A-coding)
Bypass	2 x bypass function
Technology	
Ethernet Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3ab for 1000Base-T IEEE 802.3x for Flow control IEEE 802.3ad for LACP IEEE 802.1p for COS (Class of Service) IEEE 802.1Q for VLAN Tagging IEEE 802.1d for STP (Spanning Tree Protocol) IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol) IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol) IEEE 802.1x for Authentication IEEE 802.1AB for LLDP (Link Layer Discovery Protocol) IEEE 803.2at PoE specification
MAC Table	8k
Priority Queues	8
Processing	Store-and-Forward
Switch Properties	Switching latency: 7 us Switching bandwidth: 48 Gbps Max. Number of Available VLANs: 4095 IGMP multicast groups: 128 for each VLAN Port rate limiting: User Define
Jumbo frame	Up to 9.6K Bytes
Security Features	Device Binding security feature Enable/disable ports, MAC based port security Port based network access control (802.1x) VLAN (802.1Q) to segregate and secure network traffic Radius centralized password management SNMPv3 encrypted authentication and access security Https / SSH enhance network security
Software Features	STP/RSTP/MSTP (IEEE 802.1D/w/s) Redundant Ring (O-Ring) with recovery time less than 30ms over 250 units Support TTDP Protocol (Train Topology Discovery Protocol) to map the IP address automatically TOS/Diffserv supported Quality of Service (802.1p) for real-time traffic VLAN (802.1Q) with VLAN tagging and GVRP supported IGMP Snooping IP-based bandwidth management Application-based QoS management DOS/DDOS auto prevention Port configuration, status, statistics, monitoring, security

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Software Features	DHCP Server/Client/Relay SNTP, NTP for synchronizing of clocks over network SMTP Client Modbus TCP
Network Redundancy	TE-Ring TE-Chain MRP (available on request) MSTP (RSTP/STP compatible)
RS-232 Serial Console Port	RS-232 in M12 (5-pin female A-coding) connector with console cable. 115200bps, 8, N, 1
LED Indicators	
Power Indicator (PWR)	Green : Power LED x 2
Ring Master Indicator (R.M.)	Green : Indicates that the system is operating in TE-Ring Master mode
TE-Ring Indicator (Ring)	Green : Indicates that the system operating in TE-Ring mode Green Blinking : Indicates that the Ring is broken.
Fault Indicator (Fault)	Amber : Indicate unexpected event occurred
10/100/1000Base-T(X) M12 P.S.E. Port Indicator	Up of Green LED for Link/Act indicator. Middle of Green LED for PoE enabled indicator. Down of dual color LED for Ethernet speed indicator : Green LED for 1000Mbps, Amber for 100Mbps, off for 10Mbps
10/100/1000Base-T(X) M12 Port Indicator	Up of Green LED for Link/Act indicator. Down of dual color LED for Ethernet speed indicator : Green LED for 1000Mbps, Amber for 100Mbps, off for 10Mbps
Fault contact	
Relay	Relay output to carry capacity of 3A at 24VDC on M12 connector (5-pin female A-coding)
Power	
Redundant Input Power	Dual DC inputs. 24 (12-55VDC) VDC on 5-pin M23 female connector
Power consumption (Typ.)	22 Watts (power consumption of P.S.E. is not included)
Total PoE Output Power	120 Watts
Overload current protection	Present
Reverse Polarity Protection	Present
Physical Characteristics	
Enclosure	IP-30
Dimensions (WxDxH) in mm	320 (W) x 91.3 (D) x 228 (H)
Weight (g)	3463
Environmental	
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Temperature	-40 to 75°C (-40 to 167°F)
Operating Humidity	5% to 95% Non-condensing

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Regulatory Approvals	
EMC	CE EMC (EN 55024, EN 55032), FCC Part 15B, EN 50155(EN 50121-1, EN 50121-3-2)
EMI	EN 55032, CISPR32, EN 61000-3-2, EN 61000-3-3, FCC Part 15B class A
EMS	EN 55024 (IEC/EN 61000-4-2 (ESD), IEC/EN 61000-4-3 (RS),IEC/EN 61000-4-4 (EFT), IEC/EN 61000-4-5 (Surge), IEC/EN 61000-4-6 (CS), IEC/EN 61000-4-8(PFMF), IEC/EN 61000-4-11 (DIP))
Shock and Free Fall	IEC60068-2-27, IEC60068-2-31
Vibration	IEC60068-2-6
Safety	EN60950-1
Other	EN 50155 (IEC 61373)