

IDS-509 – Managed Industrial Ethernet Switch

 perle.com/products/switches/ids-509-industrial-managed-ethernet-switch.shtml

Kompakter DIN-Schienen-Switch mit 9 Ports

- 9 Port 10/100/1000Base-T für Gigabit- und Fast Ethernet-Geräte
- Erweitertes Switching, VLAN, Verschlüsselung und IEEE 1588 PTP
- Digitale Eingänge zur Generierung von Alarmen
- Unterstützung von PROFINET- und Modbus-TCP-Protokoll
- Kompaktes, korrosionsbeständiges Gehäuse zur Befestigung an einer Standard-DIN-Schiene
- Redundanter dualer Stromeingang 12/24/48 VDC, 24 VAC
- Sicherheits- und Gefahrenbereichszertifizierung für speicherprogrammierbare Steuerungen
- -40 bis 75 °C industrielle Betriebstemperatur



Der **IDS-509** ist ein **verwalteter Ethernet-Switch mit 9 Ports**, der in **industriellen 10/100/1000-Base-T-Umgebungen betrieben werden kann**, eine erweiterte Leistung bietet und einen **deterministischen Netzwerkbetrieb in Echtzeit** ermöglicht.

Ethernet-Switches in Industriequalität von Perle sind so konzipiert, dass sie **extremen Temperaturen, Überspannungen, Vibrationen und Erschütterungen** standhalten, die in der **industriellen Automatisierung, in der Regierung, im Militär, in der Öl- und Gasindustrie, im Bergbau** und in **Außenanwendungen** vorkommen.

Die **Fast-Setup-Funktion** von Perle bietet eine einfache **Plug-and-Play**-Installation, um Ihre Ethernet-Geräte sofort zu vernetzen. **CCNA** (Cisco Certified Network Associate) und **CCNP** (Cisco Certified Network Professional) geschulte Ingenieure werden das vertraute **Command Line Interface (CLI)** über In-Band-Telnet oder den Out-Band-Seriell-Konsolen-Port zu schätzen wissen.

Der **PRO-Funktionssatz** des IDS-509 ist ideal für Umgebungen der Enterprise-Klasse, in denen zusätzliche umfangreiche **Sicherheits- und Netzwerkintegrationsfunktionen** erforderlich sind.

- AAA-Sicherheitsprotokolle (Authentifizierung, Autorisierung, Abrechnung): RADIUS und TACACS+
- Sichere Verwaltungssitzungen über SSH, SNMPv3, Telnet und HTTPS
- Management Access Lists (ACL) nach IP-Adresse und IP-Portnummer
- Überprüfung der Passwortstärke
- IEEE 802.1x-Authentifizierung und Portsicherheit zum Schutz von Benutzerzugriffspunkten
- Optimieren Sie die Leistung und Intelligenz des Netzwerks mit Advanced Protocols: LLDP, GVRP, Voice VLANs, MSTP, GMRP, IPv4 IGMP Snooping und IPv6 MLD Snooping

Das **IDS-509** kann **mit einer IPv6-Adresse verwaltet werden** und unterstützt einen umfassenden Satz von Verwaltungsfunktionen, **MRP (IEC62439-2)**, **PROFINET**, **Modbus TCP**, **Management-VLAN**, **QoS**, **RMON**, **N:1-Portspiegelung** und **lokales Alarmprotokoll**. Außerdem kann der Switch **mit einer IPv6-Adresse verwaltet werden**.

Diese **robusten** , lüfterlosen **Schalter** sind gehärtet, um eine überlegene Zuverlässigkeit **bei -10 bis 60 °C** zu bieten . Außerdem **jede Komponente** auf jedem **industriellen (XT) Modell** wurde **entwickelt und getestet** , um Griffbetriebstemperaturen zwischen **-40 und 75C** .

Alle Industrial Ethernet Switches von Perle verfügen über ein korrosionsbeständiges Aluminiumgehäuse und einen doppelten redundanten Stromeingang mit Verpolungs- und Überlastschutz. Darüber hinaus verwenden alle Geräte ausschließlich **High-End-Komponenten** der **führenden Chiphersteller** , um ein Höchstmaß an **Langlebigkeit und Zuverlässigkeit** zu gewährleisten .

Seit **über 35 Jahren entwickelt** Perle **industrielle Hardware**. Dieses Know-how wurde genutzt, um die **robustesten Ethernet-Switches auf dem Markt zu entwickeln** .

Merkmale des IDS-509 Industrieller verwalteter DIN-Schienen-Switch

Einfache Bereitstellung	Zero-Touch-Erkennung mit Dynamic Host Control Protocol (DHCP), Perles „Fast Setup“ für die Erstinstallation, ermöglicht eine einfache Bereitstellung in Ethernet-Umgebungen
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Sicherheit	<u>802.1X</u> , <u>Portsicherheit</u> , <u>Secure Shell (SSHv2)</u> ; <u>SNMPv3</u> bietet verschlüsselten Administratoratenverkehr während <u>CLI-</u> und <u>SNMP-Sitzungen</u> ; <u>TACACS+</u> und <u>RADIUS-</u> Authentifizierung erleichtern die zentrale Kontrolle und schränken nicht autorisierte Benutzer ein.
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Elastizität	<ul style="list-style-type: none">• STP-, RSTP- und MSTP-Protokolle für eine schnelle Wiederherstellung.• <u>MRP (IEC 62439-2)</u> for fast convergence in industrial ring networks. Prevents a switch loop scenario with recovery time of 10 ms or better.• Perle's <u>P-Ring_protocol</u> for configuring a ring network using standard spanning tree protocols.• Link Standby is a link recovery feature for two links that provides a simple alternative to spanning tree protocols for link redundancy• Buffered Real Time Clock backup
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Manageability	<ul style="list-style-type: none">• Web Device Manager, Telnet/SSH, HTTPS access, SNMP and Perle's <u>PerleView</u> NMS for centralized management• Use an IPv4 or IPv6 address• In-band management via RJ45 or USB serial port• Removable MicroSD flash for configuration files and firmware backup and restoration
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Industrial Ethernet Protocol Support	Manage Perle IDS-500 switches via PLC, NMS, HMI or SCADA systems using PROFINET or Modbus TCP .
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Rugged design for harsh environments

- Corrosion resistant case
 - Programmable Controller Safety certified
 - Certified for hazardous locations
 - Extended industrial temperature models
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Reliable operation

- Fan-less, no moving parts
 - Dual power input. Connect to separate power sources for redundancy.
 - Reverse polarity protection
 - Overload current protection
 - Handles vibration and shock conditions found in industrial environments
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Real-time Ethernet performance

- Fast wire-speed , store and forward switching
 - Auto-sensing for speed and duplex
 - Auto-mdi/mdix-crossover works with straight and crossover cables
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Leistungsinhalte

Automatische Port-Erkennung

Auto-Sensing der Port-Geschwindigkeit und Auto-Negotiation von Duplex auf allen Switch-Ports zur Optimierung der Bandbreite

Auto-MDI/MDIX

Medium-dependent interface crossover (Auto-MDIX) capability on 10/100 and 10/100/1000 mbps interfaces that enables the interface to automatically detect the required cable type (straight thru or crossover) and to configure the connection appropriately

802.3x flow control

IEEE 802.3x flow control on all ports. (The switch does not initiate pause frames)

Link Aggregation protocol

Increase port bandwidth through link aggregation. Support is provided for IEEE 802.3ad using Link Aggregation Control Protocol (LACP). Up to eight (8) ports in a single port-channel

Static Link Aggregation

Provides the ability to operate under a static (manual) link aggregation scenario (where the remote switch peer does not support LACP)

Storm Control

Storm control prevents traffic on a LAN from being disrupted by a broadcast, multicast, or unicast storm on one of the physical interfaces. A LAN storm occurs when packets flood the LAN, creating excessive traffic and degrading network performance. Storm Control enables limits to be placed on broadcast, multicast and unicast traffic

Bandwidth Control Monitoring	Bandwidth Control provides the ability to monitor the flow rates on a per port basis and the ability to cause an SNMP trap to occur (selectable) and put the port in an "error-disabled" state
Static MAC Addressing	This feature enables the manual configuration of the MAC addresses on a per port basis. Flooding is prevented by retaining MAC entries across a reboot of the switch.
Port Blocking	Port Blocking provides the ability to block the flooding of unknown layer 2 unicast and multicast traffic on an Interface
IPV4 IGMP Snooping	<p>Internet Group Management Protocol (IGMP) constrains the flooding of multicast traffic by dynamically configuring Layer 2 interfaces so that multicast traffic is forwarded to only those interfaces associated with IP multicast devices.</p> <p>IGMPv1, v2, v3, IGMP snooping querier mode, IGMP report suppression, topology change notification and robustness variable features are supported</p>
IPV6 MLD Snooping	With Multicast Listener Discovery (MLD) snooping, IPv6 multicast data is selectively forwarded to a list of ports that want to receive the data, instead of being flooded to all ports in a VLAN. This list is constructed by snooping IPv6 multicast control packets
GMRP	<p>GARP Multicast Registration Protocol (GMRP) provides a constrained multicast flooding facility similar to IGMP snooping.</p> <p>GMRP provides a mechanism that allows bridges and end stations to dynamically register group membership information with the MAC bridges attached to the same LAN segment and for that information to be disseminated across all bridges in the Bridged LAN that supports extended filtering services</p>
Port Quick Disconnect	In some network environments, it is desirable to move an Ethernet from one switch port to another and have the device come on-line quickly. The Port Quick Disconnect feature if enabled, provides an immediate age-out of the MAC addresses learned on the port when the port status changes from a link-up to a link-down state
Manageability Features	
Web Device Manager	The Perle Web Device Manager is an embedded Web based application that provides an easy to use browser interface for managing the switch. Operates with both http and secure https streams. Unlike competitive products, Java applet technology is not required or used

Command Line Interface (CLI)	A familiar text-based Command Line Interface that is based on accepted industry standard syntax and structure. Ideal for CCNA and CCNP trained engineers, this interface is available via in-band Telnet/SSH or the out-band serial console port
Industrial Ethernet Protocols	Manage Perle IDS-500 switches via PLC, NMS, HMI or SCADA systems using PROFINET or Modbus TCP .
SNMP	Manage the switch with an SNMP compatible management station that is running platforms such as HP Openview or Perle's PerleVIEW NMS. SNMP V1, V2C, V3
<u>PerleVIEW</u>	PerleVIEW is Perle's SNMP-based network management system that provides a view of the network with a large scale of Perle networking devices.
IPv6	Manage with an IPv4 or IPV6 address
DHCP Client Auto-Configuration	Automates configuration of switch information such as IP address, default gateway, hostname and Domain Name System (DNS) as well as TFTP server names. Firmware and configuration file locations are provided through options 54, 66, 67, 125 and 150
DHCP Relay	DHCP Relay is used for forwarding requests from DHCP clients when they are not on the same physical subnet. As a DHCP relay agent the switch operates as a Layer 3 device that forwards DHCP packets between clients and servers.
DHCP Option 82 Insertion	Normally used in metro or large enterprise deployments DHCP Option 82 insertion is used to provide additional information on "physical attachment" of the client. As per RFC 3046, option 82 enables additional pre-defined information to be inserted into the DHCP request packet (for DHCP Servers that support this option)
DHCP Server	For networks where a central DHCP server is not provided, the switch can provide a DHCP Server function for allocation of IP addresses to the connected devices

DHCP server port-based address allocation	When Ethernet switches are deployed in the network, they offer connectivity to the directly connected devices. In some environments, such as on a factory floor, if a device fails, the replacement device must be working immediately in the existing network
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When configured, the DHCP server port-based address allocation feature ensures that the same IP address is always offered to the same connected port even as the client identifier or client hardware address changes in the DHCP messages received on that port

LLDP	LLDP-Link Layer Discovery Protocol as per IEEE 802.1AB is a neighbor discovery protocol that is used for network devices to advertise information about themselves to other devices on the network. This protocol runs over the data-link layer, which allows two systems running different network layer protocols to learn about each other (via TLVs – Type-Length-Value)
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LLDP-MED	LLDP Media Endpoint Discovery is an extension to LLDP that operates between endpoint devices such as IP phones and network devices such as switches. It specifically provides support for voice over IP (VoIP) applications and provides additional TLVs for capabilities discovery, network policy, Power over Ethernet, inventory management and location information
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NTP	The switch can provide the time to NTP/SNTP capable client devices (or other switches, etc). You can run the SNTP client and the NTP server concurrently on your system. Therefore you can obtain time from an outside source and serve that time to the devices connected to the switch.
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<u>IEEE 1588 – PTP (Precision Time Protocol)</u>	<ul style="list-style-type: none">• IEEE 1588 V1 and V2• Boundary Clock V1• Boundary Clock V2• End-to-End Transparent Clock Sync Two Step Operation• End-to-End Transparent Clock Sync One Step Operation• Peer-to-Peer Transparent Clock• End-to-end Boundary clock• Peer-to-peer boundary clock• Microsecond accuracy
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File Download	Firmware can be transferred via TFTP, SCP, HTTP, HTTPS, or via insertion of a microSD card. Text-based files that can be created or edited by common text editors.
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Secure Copy Protocol (SCP)	SCP based on the Secure Shell (SSH) protocol, is a means of securely transferring computer files between a local host and a remote host or between two remote hosts.
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Availability and Redundancy Features

Spanning Tree Protocol (STP)	<p>IEEE 802.1D now incorporated in IEEE 802.1Q-2014, STP prevents bridge loops and the broadcast radiation that results from them.</p> <p>Other Spanning Tree features include BPDU guard, Root guard, loop guard, root guard and TCN Guard</p>
Rapid Spanning Tree Protocol (RSTP)	<p>Interoperable with STP, RSTP (IEEE 802.1w) takes advantage of point-to-point wiring and provides rapid convergence of the spanning tree. Reconfiguration of the spanning tree can occur in less than 1 second</p>
Multiple Spanning Tree Protocol (MSTP)	<p>Originally defined in IEEE 802.1s and now incorporated IEEE 802.1Q-2014, defines an extension to RSTP for use with VLANs. The Multiple Spanning Tree Protocol configures a separate Spanning Tree for each VLAN group and blocks all but one of the possible alternate paths within each Spanning Tree.</p>
<u>MRP</u>	<p>Media Redundancy Protocol (IEC 62439-2).</p> <p>Fast convergence protocol designed for industrial networks. Recovery time of 10 ms or better in rings composed of up to 14 switches.</p> <p>Prevents a switch loop scenario in a ring topology.</p>
<u>P-Ring</u>	<p>P-Ring provides an easy to use method for configuring a ring network using standard spanning tree protocols.</p> <p>Prevents a switch loop scenario in a ring topology.</p>
Link Standby	<p>A link recovery feature using a primary and backup link. Provides a simple alternative to spanning tree protocols for link redundancy</p>
VLAN Features	
VLAN Range	<p>Up to 256 VLANS across a VLAN ID range of 1 to 4000</p>
GVRP	<p>Generic Attribute Registration Protocol (GARP) VLAN Registration Protocol (GVRP) is an application defined in the IEEE 802.1Q standard that allows for the control of VLANs. With GVRP, the switch can exchange VLAN configuration information with other GVRP switches, prune unnecessary broadcast and unknown unicast traffic, and dynamically create and manage VLANs on switches that are connected through 802.1Q trunk ports.</p>

Voice VLANs	Voice VLANs enables one to separate, prioritize, and authenticate voice traffic moving through your network, and to avoid the possibility of broadcast storms affecting VoIP (Voice-over-IP) operation. With an IP Phone connected to an access port, a switchport voice VLAN enables the use of one VLAN for voice traffic and another VLAN for data traffic from an Ethernet device attached to the phone
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VLAN Interfaces	Perle switches provide the ability to configure management VLAN interfaces. This enables network administrators to access the switch's management interface from separate VLAN networks
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Security Features

<u>IEEE 802.1X</u>	<ul style="list-style-type: none">• Provides secure access to switch ports from a central RADIUS server. The switch operating as an authenticator interacting with an 802.1X compliant supplicant (PC or industrial device) through the use of the EAPOL protocol. Authentication will be granted/denied through an external RADIUS server.• RADIUS assigned VLAN<ul style="list-style-type: none">◦ IETF 64 (Tunnel Type)◦ IETF 65 (Tunnel Medium Type)◦ IETF 81 (Tunnel Private Group ID)• Guest VLAN and Restricted VLANs are supported• For non-802.1X devices found in industrial applications, the switch can use the client MAC address for authorization through the use of MAB (MAC Authentication Bypass)• Switch can also be configured as an 802.1X supplicant (edge switch) with an 802.1x-aware upstream switch
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Login Banner and MOTD	A login message banner presented during sign-on can be configured by the network administrator.
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A Message Of The Day can also be created for presentation to an authenticated user.

<u>Password Strength Checking</u>	Many organizations require stringent management over the strength level of their passwords. When enabled, Perle extends this capability to local passwords stored on the switch enforcing strong passwords to be used.
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Port Security – Secure MAC Addresses	This port security feature provides the ability to restrict input to an interface by limiting and identifying MAC addresses of the stations allowed to access the port (Access or Trunk) and will take specific actions when violations occur.
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<u>Management ACL</u>	Restricting access to management functions can be configured by protocol or IP address selection are provided. This enables administrators to allow only specific workstations using particular protocols to be able to access the management functions of the switch
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RADIUS Management Access Authentication	AAA support for RADIUS servers that Authenticate, Authorize and Account management sessions
TACACS+ Management Access Authentication	AAA support for TACACS+ servers that Authenticate, Authorize and Account management sessions
Secure Socket Layer (SSL)	SSL provided for <u>secure browser sessions</u> using HTTPS
Secure Shell (SSH)	SSH provided for secure SSH session for CLI and SCP file transfer sessions
SNMPV3	Support provided for secure version 3 of SNMP
Quality of Service (QoS) and Class of Service (CoS) Features	
Classification	IP ToS/DSCP and IEEE 802.1p CoS
Congestion Avoidance	Weighted Fair Queuing or Strict Queuing
Egress Queues and scheduling	<ul style="list-style-type: none"> • 4 traffic class queues per port • output queue mapping • DSCP to output queue mapping
Monitoring Features	
Port Mirroring	N:1 Port Mirroring is a method of monitoring network traffic. With port mirroring enabled, the switch sends a copy of one or more ports to a predefined destination port. Selection of Transmit, Receive frames or both can be made
RMON	RMON statistics provided for statistics, history, alarms and events for network monitoring and traffic analysis
Syslog	Facility for logging systems messages to an external SYSLOG server
Alert Log	Facility for logging systems messages locally
Traceroute	Layer 2 traceroute to identify the path that a frame takes from source to destination

Virtual cable test	A test that enables the detection of potential copper cabling issues such as pair polarity pair swaps and excessive pair skew as well as any opens, shorts or any impedance mismatch. Will report the distance in the cable to the open or short.
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Power Supply Monitoring	Provides the status of power supplies of the switch
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Internal Temperature Monitoring	The internal ambient temperature of the switch can be obtained from the management interfaces
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Alarm Processing	The switch can monitor global switch conditions as well as individual ports. These alarms can be configured to send messages to ;
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- an internal log file
- external Syslog server
- SNMP trap server
- An external alarm device such as a bell, light or other signaling device via the switch's built-in dry contact alarm relay

Global Status Monitoring Alarms

Dual power supply alarm

Port Status Monitoring Alarms

- Link Fault Alarm (IE loss of signal)
- Port not forwarding alarm
- Port not operating alarm (failure upon start up tests)
- FCS Bit error rate alarm

Alarm Relay	When enabled, energizes the built-alarm relay triggering an external alarm circuit such as a bell, light or other signaling device according to alarm conditions set
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Management and Standards

IEEE Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-T(X) and 100Base-X IEEE 802.3ab for 1000Base-T IEEE 802.3z for 1000BaseX IEEE 802.3x for Flow Control IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid STP IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1Q for VLAN Tagging IEEE 802.1p for Class of Service IEEE 802.1X for Authentication IEEE 802.3ad for Port Trunk with LACP IEEE 802.1AB LLDP IEEE 1588v1 PTP Precision Time Protocol IEEE 1588v2 PTP Precision Time Protocol
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SNMP MIB Objects	IEEE8021-PAE-MIB NTPv4-MIB IEEE8021-SPANNING-TREE-MIB SYSAPPL-MIB LLDP-EXT-MED-MIB SNMP-COMMUNITY-MIB LLDP-EXT-MED-MIB IGMP-STD-MIB IEEE8021-MSTP-MIB Q-BRIDGE-MIB LLDP-EXT-DOT3-MIB IF-MIB RSTP-MIB DIFFSERV-DSCP-TC LLDP-EXT-DOT1-MIB IEEE8021-TC-MIB LLDP-MIB RMON2-MIB ENTITY-MIB P-BRIDGE-MIB PERLE-LOGIN-MIB PERLE-ALERT-MIB PERLE-IP-SSH-MIB PERLE-IP-PROTOCOLS-MIB PERLE-USER-MIB PERLE-SMI PERLE-MAC-NOTIFICATION-MIB PERLE-SYSINFO-MIB PERLE-LINKSTANDBY-MIB PERLE-AAA-MIB perle-AAA.MIB PERLE-IPV6-MIB PERLE-LOGGING-MIB PERLE-VLAN-MIB PERLE-IF-MIB PERLE-ENTITY-VENDORTYPE-OID-MIB PERLE-ERR-DISABLE-MIB PERLE-SWITCH-PLATFORM-MIB
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PERLE-ENVMON-MIB
 PERLE-TIME-MIB
 PERLE-PTP-MIB
 PERLE-P-RING-MIB
 PERLE-SNMP-MIB
 PERLE-FILE-TRANSFER-MIB
 PERLE-SWITCH-GLOBAL-MIB
 PERLE-BOOT-MIB
 PERLE-PRODUCTS-MIB
 PERLE-BANDWIDTH-CONTROL-MIB
 PERLE-IP-TELNET-MIB
 PERLE-GVRP-MIB
 PERLE-PORT-SECURITY-MIB
 PERLE-DHCP-SERVER-MIB
 PERLE-GARP-MIB
 PERLE-ARCHIVE-MIB
 PERLE-NTP-MIB
 PERLE-SSL-MIB
 PERLE-IGMP-MIB
 PERLE-ACL-MIB
 PERLE-POE-MIB
 PERLE-RELOAD-MIB
 PERLE-ENTITY-ALARM-MIB
 PERLE-IPV6-NEIGHBOR-MIB
 PERLE-DOT1X-AUTH-MIB
 PERLE-TC
 PERLE-DHCP-CLIENT-MIB
 PERLE-LINE-MIB
 PERLE-ARP-MIB
 PERLE-GMRP-MIB
 PERLE-MLD-MIB
 PERLE-IP-HTTP-MIB
 PERLE-PORT-MONITOR-MIB
 PERLE-SpTreeExtensions-MIB
 PERLE-IP-MIB

Hardware Features & Technical Specifications: IDS-509 Industrial Managed DIN Rail Switch

Power

Dual Power Input	Both inputs draw power simultaneously. If one power source fails, the other live source can, acting as a backup, supply enough power to meet the operational needs of the switch.
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12/24/48 VDC Nominal. (9.6 to 60 VDC)

24 VAC Nominal (18 to 30 VAC)

Power Connector	4-Pin Removable Terminal Block. Grounding screw on metal chassis
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Maximum Current Consumption @24 vDC	0.68 amps
Maximum Current Power @24 vDC	16.3 watts
Overload Current Protection	Fused overload current protection
Reverse polarity protection	The positive and negative inputs can be reversed providing safe and simple power connectivity.

Access Ports

RJ45	<p>9 shielded RJ45 ports for 10/100/1000Base-T up to 100 meters (328 ft)</p> <p>Auto-negotiation</p> <p>Auto-MDI/MDIX-crossover for use with either crossover over straight-through cable types</p> <p>Ethernet isolation 1500 V</p>
RJ45 Serial Console port	<p>RJ45 DTE</p> <p>Optional rolled and straight thru RJ45 cables and DB adapters are available</p>
USB Serial Console port	<p>MicroUSB Type B female port for serial console management. Used as an alternative port for out of band management connections</p>
Digital Inputs	<p>Two Digital Inputs are provided that can be used for generation of alarms (SNMP trap, energizing of on-board Alarm Relay,etc)</p>

Alarms

- NC (Normally Closed) or NO (Normally Open) dry contact.
- 1A @ 24V

Switch Properties

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
Processing Type	Store and Forward
MAC Address Table Size	8K
VLAN ID range	1 to 4000
IGMP groups	1024
Packet Buffer Memory	1 Mbit
Indicators	
Power	This LED is turned on when the appropriate level of voltage is applied to one or both of the power inputs
System	Indicates whether the switch O/S is operating normally
RJ45 Ethernet	These integrated colored LEDs indicate link, activity and speed for each port.
Alarm	The alarm LED (Red) will be turned on under alarm conditions
P-Ring Master LED	Status of the P-Ring Master
Backup Network Coupling	Indicates whether or not the "Backup Network Coupling" feature is enabled (Redundant links connecting two P-Ring networks)
External Configuration DIP Switches	
S2	When enabled, designates this switch as the Ring Master

S1	Activate Backup Coupling between 2 ring networks
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Environmental Specifications

MTBF	115,756 Hours <i>Calculation model based on MIL-HDBK-217-FN2 @ 30 °C</i>
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Operating Temperature Ranges	Standard temperature models (Std): -10° C to 60° C (14° F to 140° F). XT Industrial extended temperature models (Ind) : -40° C to 75° C (-40 F to 167° F)
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Storage Temperature Range	Minimum range of -25° C to 70° C (-13° F to 158° F). -40 C to 85 C (-40 F to 185 F) for industrial extended temperature models
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Operating Humidity Range	5% to 90% non-condensing
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Storage Humidity Range	5% to 95% non-condensing
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Maximum Heat Output	55.7 Btu/hr
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Operating Altitude	Up to 3,048 meters (10,000 feet)
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Chassis	Metal with an IP20 ingress protection rating
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Din Rail Mountable	DIN Rail attachment included. Mounts to standard 35 mm DIN rail in accordance with DIN EN 60175. Removable to accommodate optional Panel/Wall mount kit
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Product Weight and Dimensions

Weight	.64kg (1.41lbs)
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Dimensions	13 x 12.3 x 7.5 cm (5.12 x 4.84 x 2.95 in)
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Packaging

Shipping Weight	.94kg (2.07lbs)
Shipping Dimensions	20 x 19 x 18 cm (7.87 x 7.48 x 7.09 in)
Standards and Certifications	
Safety	<p>IEC 62368-1 (ed 2)</p> <p>EN 62368-1:2014</p> <p>UL 60950-1</p> <p>IEC 60950-1:2005+A1:2009 and</p> <p>EN 60950-1:2006+A11:2009+A1:2010+A12:2011</p> <p>CE Mark</p> <p>UL 61010-1 and UL 61010-2-201 (Standard for Safety for Programmable Controllers)</p>
Emissions	<p>FCC 47 Part 15 Class A</p> <p>CISPR 22:2008/EN55022:2010 (Class A)</p> <p>CISPR 24:2010/EN 55024:2010</p>
EMC and Immunity	<ul style="list-style-type: none"> • CISPR 24:2010/EN 55024:2010 • IEC/EN 61000-4-2 (ESD) : Contact discharge +/- 4kv, Air discharge +/- 8kv • IEC/EN 61000-4-3 (RS) : 80mhz to 1Ghz ; 10v/m, 1.4Gkz to 2.0ghz ; 5 v/m, 2.0ghz to 2.7 ghz ; 5 v/m • IEC/EN 61000-4-4 (EFT) : DC power line +/- 2kv, data line +/- 1kv • IEC/EN 61000-4-5 (Surge) : DC power line, Line/Line +/- 1kv, Line/Earth +/- 2kv, data line /earth +/- 2kv • IEC/EN 61000-4-6 (CS) :150khz-80Mhz 10vrms • IEC/EN 61000-4-8 (Magnetic Field) :30 A/M • IEC/EN 61000-6-2 (General Immunity in Industrial Environments)
Industrial Safety	<p>UL 61010-1 and UL 61010-2-201 (Standard for Safety for Programmable Controllers). Formerly known as UL508 (Safety standard for Industrial Control Equipment)</p>

Hazardous Locations (Hazloc)

ANSI/ISA 12.12.01, Class 1 Division 2 Groups A-D (formerly known as UL 1604)

ATEX Class 1 Zone 2

Environmental

Reach, RoHS and WEEE Compliant

Other

ECCN: 5A992

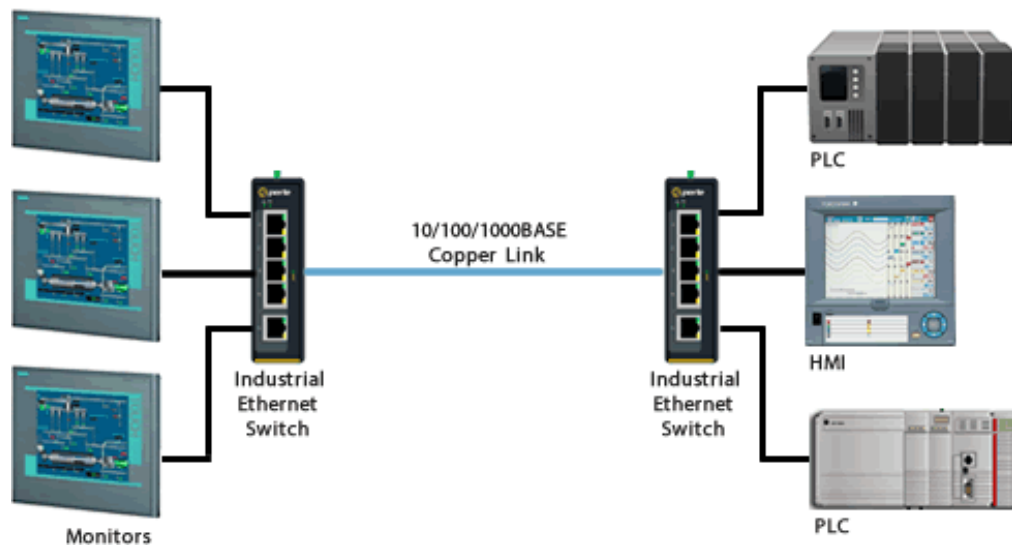
HTSUS Number: 8517.62.0020

5 year Warranty

Contents Shipped

- Industrial Ethernet Switch with DIN Rail attachment
- Terminal block
- Installation guide

IDS-509 Industrial Switch Diagram



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