iETHCOM® - Ruggedized Industrial Networks

About iETHCOM®

iETHCOM® is an integrated service and solutions provider and manufacturer of intelligent Industrial Ethernet products designed to be used in the harsh environments of utility substations, roadside transportation, rail, and industrial applications. iETHCOM's services and products are key enablers of advanced technology implementation such as the Smart Grid, Intelligent Transportation Systems and the Intelligent Oil Field.

The iETHCOM team's expertise includes a deep background in:

- 20+ years experiences in designing and manufacturing Industrial Ethernet Communication Devices
- State-of-the-Art electronics and technologies
- World Class manufacturing and logistics
- Designing and implementing Telecom and IP networks in the Electric Power industry

iETHCOM applies these skill sets to create value for clients that include:

- Cost effective products that exceed current requirements
- Services and intelligent solutions that are part of a secure, interoperable and highly available infrastructure
- Create unique features and products based on input from customers to meet their evolving needs

Our Products

iETHCOM's industrial Ethernet products are designed using industrial grade components. This enables the products to withstand harsh industrial environments, such as extreme operating temperatures of -40^0C to $+85^0$C, vibration, shock, high levels of EMI, etc. The products have fault tolerant features like dual redundant power supplies in wide range of input voltages of 24VDC, 48VDC, and a universal high voltage AC/DC supply. Our products also provide support for most fiber optic connectors such as SC/ST/LC with port speeds of 10/100/1000/10000 Mbps. The iETHCOM line of IEC 61850 products are designed to transmit data efficiently without the loss of any packets under extreme environments and EMI conditions.

Our support and service teams are comprised of experienced network implementation experts who can design, consult, implement, and commission any mission critical project.

Our standard 5 year warranty (extendable) provides our customers with the assurance and peace of that their investment is secure.

Our Vision

To be first to market, to provide end-to-end solutions, and to be constant innovators in the products and services we provide.

Key Solution Features:

1. Withstand Harsh Environment

   - Fully compliant with IEC61850-3 and IEEE 1613(2009/2013) standards for power utility
   - Zero packet loss even in extreme EMI/EMC environment
   - Extended operating Temp. range from -40～+85^{0}C without the need of fan cooling
   - Robust galvanized steel enclosure and IP40 protection

2. Multiple Redundancy and Highest Reliability

   - Fully support of all major network redundancy technologies such as RSTP, MSTP, ERPS etc.
   - MTBF on average is above 30 years
   - Power redundancy is available for all types of devices, with support of any combination of LV/MV and HV.
   - Extensive range of HV input volt support： 77～300VDC or 85～264VAC

3. Complete Solution

   - Wide range of different types of devices will meet all your requirements for building up a complete mission critical network solution
   - Our rich experience to build up both standard and customized solution

Services and Warranty:

iETHCOM® 's technical support and service team has extensive experience in network deployment to assist customers in the design, planning and implementation of critical application networks.

iETHCOM® can provide customers with professional pre-sales and after-sales service support, and provide professional product and industrial network communication technology training.

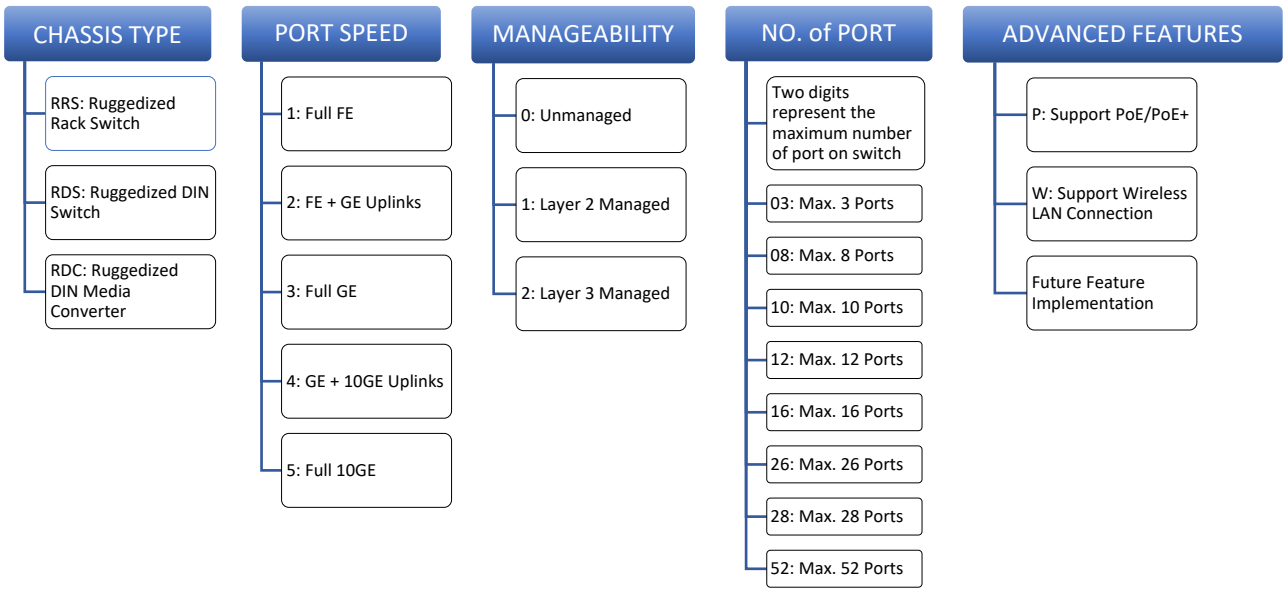
iETHCOM® offers 7x24 hours 24/7 multi-lingual technical support and service channels.

All iETHCOM® products come with a standard 5-year warranty.

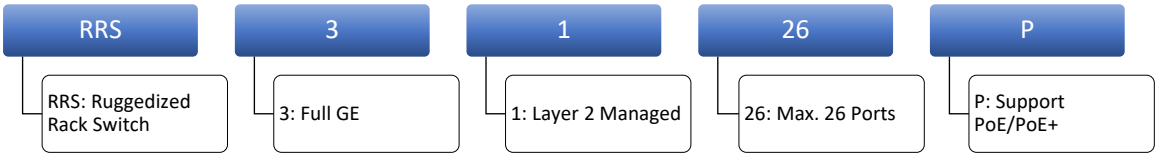
iETHCOM® is committed to continuously increase our investment on the development of new products and technologies in the field of hardened Industrial Ethernet communication to ensure that we are always able to provide high performance, high reliability, high scalability and high flexibility solutions to meet the growing networking needs from customers in various industries. Our forward-thinking design also ensures that we are always able to provide our customers with innovative and future-proof industrial communications products.

iETHCOM® Product Naming

I.Naming Methodology



II.Example



Description: Rack mount full gigabit layer 2 industrial Ethernet managed switch supporting PoE/PoE+, with 26 x Gigabit ports.

CATALOGUE

Media Converter

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RDC1003

Industrial 3 Ports Fast Ethernet Media Converter

Product Overview

RDC1003 is an industrial grade cost-effective solution for conversion of 10/100Base-T(X) to 100Base-FX interface which allows extending of communication distance using optical fiber. The media converter supports MDI/MDIX auto detection for 100Base-T(X) interface, so crossover wires are not required. The RDC1003 has a wide operating temperature range from -40°C to +85°C, accepts a wide input voltage range, and is suitable for harsh operating environments.

Specifications

Table 1. General

Description	
Support	➢ Max. 2 x 10/100Base-T(X) RJ45 Ports ➢ Max. 1 x 100Base-FX Port, SC or ST Connector, multimode or singlemode ➢ All 10/100Base-TX Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +85°C	
35mm DIN Rail Mount	

Table 2. Technical Specification

Description	Specifications
10/100Base-T(X) RJ45 Ports	Max. 2, Auto MDI/MDI-X
100Base-FX (SC or ST Connector)	Max. 1
Technology	
Switching Mode	Store - Forwarding
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	LV: 26(W)x70(D)x95(H)mm, HV: 28(W)x92(D)x130(H)mm
Weight (g)	< 1kg
Power	
Input Power	LV: 12-36VDC, Redundant Input; HV: 77-300VDC/85-264VAC
Power Consumption (Typ.)	< 3W
Overload Current Protection	Present
Reverse Polarity Protection	Present

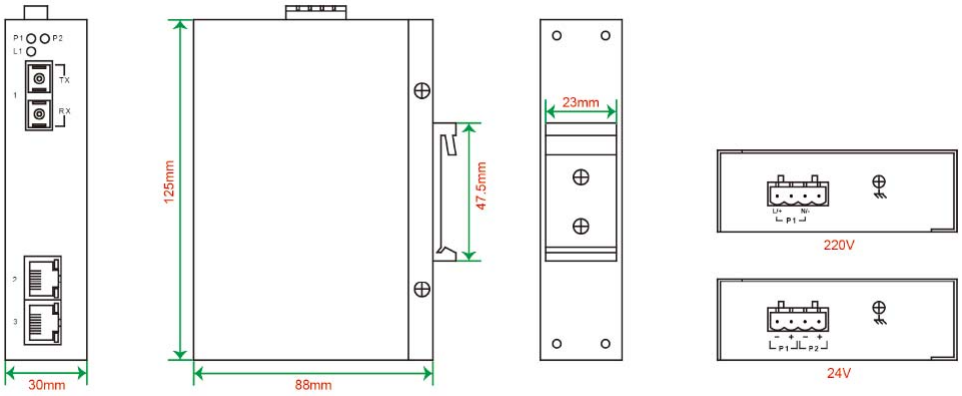
Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years

Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX and 100Base-FX
RFC Compliance	RFC 4445 MDI

Dimensions



Ordering Information

Base	Power Supply	Mount	Ethernet Port 2-3	Ethernet Port 1	Optional	Description
RDC1003	LV	D	2RJ45	1SMSC		
RDC1003	|	|	|	|		Base unit
	LV	|	|	|		Dual Input 12~36VDC
	HV	|	|	|		Single Input 77~300VDC/85-264VAC
		D	|	|		DIN Rail Mount
			2RJ45	|		2 x 10/100Mbit/s RJ45 Ports
				1MMSC		1 x 100FX Multimode, SC Connector, 2Km
				1MMST		1 x 100FX Multimode, ST Connector, 2Km
				1SMSC		1 x 100FX Singlemode, SC Connector, 20km
				1SMST		1 x 100FX Singlemode, ST Connector, 20km
				1SSC40		1 x 100FX Singlemode, SC Connector, 40km
					C	Conformal Coating
					U	User Customization

Note: Longer range singlemode f/o port (60km and 120km) is also available, please contact our sales representative for more information.

Example Order Code: RDC1003-LV-D-2RJ45-1SMSC

Description: RDC1003 Industrial Media Converter, LV input 12-36VDC, 35mm DIN Rail Mount, with 2 x 10/100Base-X RJ45 Ports, 1 x 100Base-FX F/O Port, Singlemode SC connector, 20Km.

RDC3003

Industrial 3 Ports Full Gigabit Ethernet Media Converter

Product Overview

RDC3003 is an industrial grade cost-effective solution for conversion of 10/100/1000Base-T(X) to 1000Base-X SFP interface which allows extending of communication distance using optical fiber. The media converter supports MDI/MDIX auto detection for its 10/100/1000Base-T(X) interface, so crossover wires are not required. The RDC3003 has a wide operating tempera-ture range from -40°C to +85°C, accepts a wide input voltage range, and is suitable for harsh operating environments.

Specifications

Table 1. General

Description	
Support	➢ Max. 2 x 10/100/1000Base-T(X) Ports ➢ Max. 1 x 1000Base-X SFP Port (SFP Transceiver must be ordered separately) ➢ All 10/100/1000Base-T(X) support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +85°C	
35mm DIN Rail Mount	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45 Ports	Max. 2, Auto MDI/MDI-X
1000Base-X SFP Port	Max. 1
Technology	
Switching Mode	Store - Forwarding
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	LV: 26(W)x70(D)x95(H)mm, HV: 28(W)x92(D)x130(H)mm
Weight (g)	< 1kg
Power	
Input Power	LV: 12-36VDC, Redundant Input; HV: 77-300VDC/85-264VAC
Power Consumption (Typ.)	< 3W
Overload Current Protection	Present
Reverse Polarity Protection	Present

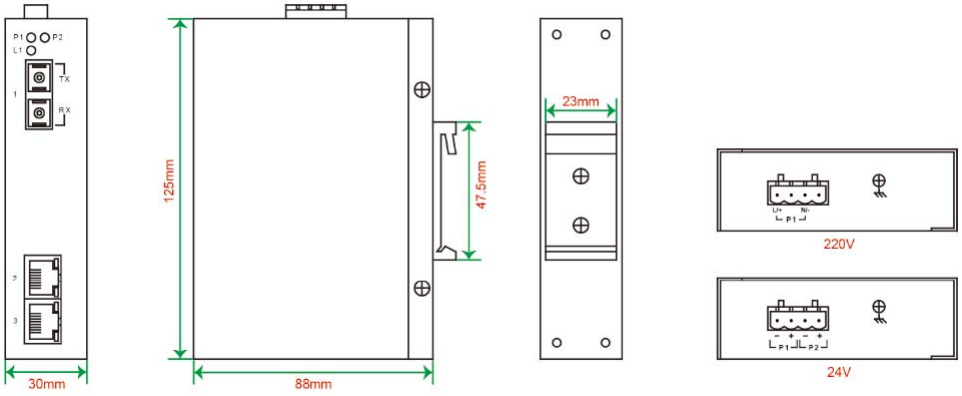
Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years

Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-T(X) and 100Base-FX IEEE 802.3z 1000Base-X and IEEE 802.3ab 1000Base-T(X)
RFC Compliance	RFC 4445 MDI

Dimensions



Ordering Information

Base	Power Supply	Mount	Ethernet Port 2	Ethernet Port 1	Optional	Description
RDC3003	LV	D	2GRJ45	1GSFP		
RDC3003	|	|	|	|		Base unit
	LV	|	|	|		Dual Input 12~36VDC
	HV	|	|	|		Single Input 77~300VDC/85-264VAC
		D	|	|		DIN Rail Mount
			2GRJ45			1 x 10/100/1000Mbit/s RJ45 Ports
				1GSFP		1000-X SFP Port (SFP Transceiver must be ordered separately)
					C	Conformal Coating
					U	User Customization

Example Order Code: RDC3003-LV-D-2GRJ45-1GSFP

Description: RDC3003 Industrial Media Converter, LV input 12-36VDC, 35mm DIN Rail Mount, 2 x 10/100/1000Base-TX RJ45 Port, 1 x 1000Base-X SFP Port(SFP Transceiver must be ordered separately).

RDS3008

8 Ports Unmanaged Full Gigabit Ethernet Switch

Product Overview

RDS3008 is an unmanaged industrial grade cost-effective 8 ports full gigabit Ethernet switch. The RDS3008 supports MDI/MDIX auto detection on all its 10/100/1000Base-T(X) ports, so no crossover wires are needed. The switch is made of IP-40 galvanized steel, accepts a wide voltage range of 12-36VDC, or high voltage of input 77-300VDC or 85-264VAC. These features combined with a wide operating temperature of -40°C to 85°C help protect mission-critical applica-tions from network interruptions or temporary malfunctions and make it suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ Max. 8 x 10/100/1000Base-T(X) RJ45 Ports ➢ All 10/100/1000Base-T(X) Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +85°C	
35mm DIN Rail Mount	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45 Ports	Max. 8, Auto MDI/MDI-X
Technology	
Switching Mode	Store - Forwarding
MAC Table	2K
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	43 (W) x 84 (D) x 110 (H) mm
Weight (g)	< 1kg
Power	
Input Power	LV: 12-36VDC, Redundant Input; HV: 77-300VDC/85-264VAC
Power Consumption (Typ.)	< 6W
Overload Current Protection	Present
Reverse Polarity Protection	Present

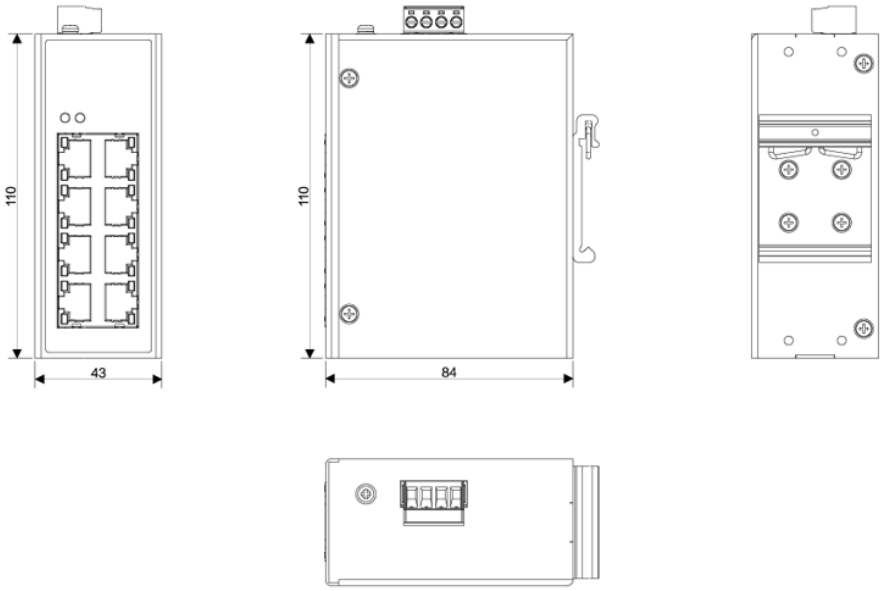
Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years

Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX and 100Base-FX IEEE 802.3z 1000Base-X and IEEE 802.3ab 1000Base-T(X)
RFC Compliance	RFC 4445 MDI

Dimensions



Ordering Information

Base	Power Supply	Mount	Ethernet Port	Optional	Description
RDS3008	LV	D	8GRJ45		
RDS3008	|	|	|		Base unit
	LV	|	|		Dual Input 12~36VDC
	HV	|	|		Single Input 77~300VDC/85-264VAC
		D	|		DIN Rail Mount
			8GRJ45		8 * 10/100/1000Mbit/s RJ45 Ports
				C	Conformal Coating
				U	User Customization

Example Order Code: RDS3008-LV-D-8GRJ45

Description: RDS3008 Industrial Unmanaged Ethernet Switch, Dual LV Input 12-36VDC, 35mm DIN Rail Mount, with 8 x 10/100/1000Base-X RJ45 Ports.

RDS3010

10 Ports Unmanaged Full Gigabit Ethernet Switch

Product Overview

RDS3010 is an unmanaged industrial grade cost-effective 10 ports full gigabit Ethernet switch. RDS3010 supports MDI/MDIX auto detection on all 10/100/1000Base-T(X) ports, so no crossover wires are needed. The switch is made of IP40 galvanized steel, accepts a wide voltage range of 12-36VDC, or high voltage of input 77-300VDC or 85-264VAC. These features combined with a wide operating temperature of -40°C to 85°C help protect mission-critical applications from network interruptions or temporary malfunctions and make it suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ Max. 8 x 10/100/1000Base-T(X) RJ45 Ports ➢ Max. 2 x 1000Base-X SFP Ports (SFP Transceiver must be ordered separately) ➢ All 10/100/1000Base-TX Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +85°C	
35mm DIN Rail Mount	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45 Ports	Max. 8, Auto MDI/MDI-X
1000Base-X SFP Port	Max. 2
Technology	
Switching Mode	Store - Forwarding
MAC Table	2K
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	42 (W) x 94 (D) x 130 (H) mm
Weight (g)	< 1kg
Power	
Input Power	LV: 12-36VDC, Redundant Input; HV: 77-300VDC/85-264VAC
Power Consumption (Typ.)	< 6W
Overload Current Protection	Present
Reverse Polarity Protection	Present

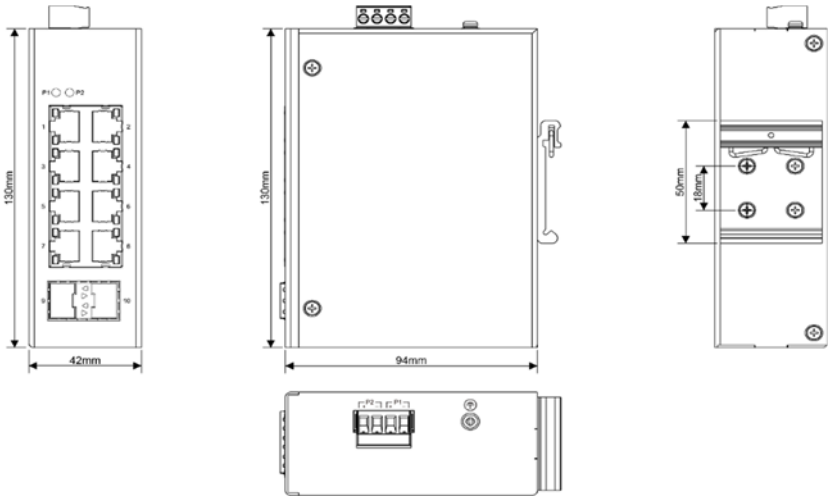
Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years

Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-T(X) and 100Base-FX IEEE 802.3z 1000Base-X and IEEE 802.3ab 1000Base-T(X)
RFC Compliance	RFC 4445 MDI

Dimensions



Ordering Information

Base	Power Supply	Mount	Ethernet Port	F/O Port	Optional	Description
RDS3010	LV	D	8GRJ45	2GSFP		
RDS3010	|	|	|	|		Base unit
	LV	|	|	|		Dual Input 12~36VDC
	HV	|	|	|		Single Input 77~300VDC/85-264VAC
		D	|	|		DIN Rail Mount
			8GRJ45	|		8 x 10/100/1000Mbit/s RJ45 Ports
				2GSFP		2 x 1000Base-X SFP Port (SFP Transceiver must be ordered separately)
					C	Conformal Coating
					U	User Customization

Example Order Code: RDS3010-LV-D-8GRJ45-2GSFP

Description: RDS3010 Industrial Unmanaged Ethernet Switch, Dual LV Input 12-36VDC, 35mm DIN Rail Mount, with 8 x 10/100/1000Base-T(X) RJ45 Ports, 2 x 1000BASE-X SFP Ports (SFP Transceiver must be ordered separately).

RDS2110

Intelligent 10 Ports Managed Gigabit/Fast Ethernet Switch

Product Overview

RDS2110 is an intelligent 10 ports gigabit managed Ethernet switch with up to 8 x 10/100Base-T(X) RJ45 ports and 2 x 100/1000Base-X SFP ports. The switch is IEC61850-3 and IEEE1613 compliant and provides redundancy support through functions such as STP/RSTP/MSTP and ERPS that assuring protection of all mission critical network applications. RDS2110 can be managed via the Web UI, Telnet/SSH, and Console (CLI). The switch accepts a wide voltage range of 18-48VDC, or high voltage of input 77-300VDC or 85-264VAC. The switch is made of IP40 galvanized steel and has a wide operating temperature range from -40°C to +85°C, which is suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ Max. 8 x 10/100Base-T(X) RJ45 Ports ➢ Max. 2 x 100/1000Base-X SFP Ports ➢ All 10/100Base-TX Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +85°C	
35mm DIN Rail Mount	

Table 2. Technical Specification

Description	Specifications
10/100Base-T(X) RJ45 Ports	8, Auto MDI/MDI-X
100/100Base-X SFP Port	2
Local Console Management Port	RS232, RJ45 Connector, 115200bps, 8, N, 1
LEDs	Power Supply Status, RJ45 Ports, F/O Ports, Device Status
Technology	
Switching Mode	Store - Forwarding
Latency	<10μs
MAC Table	8K
Jumbo Frame	Up to 10K Bytes
Prioritization	8 Priorities, 4 Priority Queues Strict and Relative Priofity Support of IEEE802.1p/DSCP Scheduling
Redundancy	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s) and G.8032 ERPS(Ethernet Ring Protection Switching) Link Aggregation (Static & IEEE802.3ad LACP)
Trafic Filtering	Port-based VLAN, IEEE802.1Q VLAN No. of VLAN: 4096 Management VLAN Port Mirroring, 1:1 and N:1 IGMP Snooping v1/v2 multicast filtering Rate limit (ingress/egress) Broadcast Storm limit, Limit to broadcast/multicast/unknown unicast
Routing	IPv4/v6 Static Routing, < 32 Routes
Network Security	Dynamic ARP Inspection ARP Snooping Protection CPU-Defend Policy Access Control List Enable/Disable Port MAC Binding Port-based IEEE802.1x Authentication RADIUS Authentication Automatic DDOS protection SNMP v1/v2/v3
Device Management & Maintenance	WEB(HTTP/HTTPS) and CL Device Management, Telnet/SSH fore remote management DHCP Client Multi-level user/password Syslog, RMON, PING test and LLDP Firmware upgrade and configuration backup via WEB and CLI management interfaces Switch configuration file backup/restore
Time Synchronization	SNTP
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	50 (W) x 125 (D) x 144 (H) mm
Weight (g)	< 1kg
Power	

Input Power	LV: 18-48VDC, Redundant Input; HV: 77-300VDC/85-264VAC
Power Consumption (Typ.)	<15W
Overload Current Protection	Present
Reverse Polarity Protection	Present

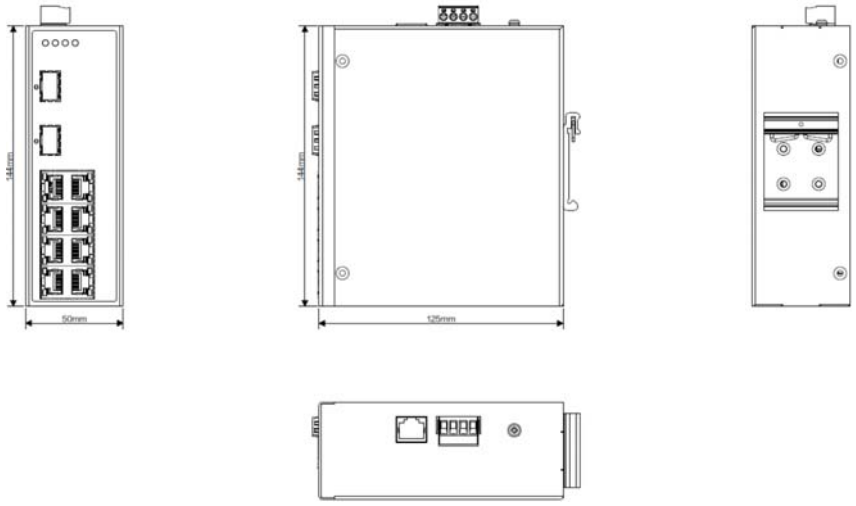
Table 3. Compliance Specifications

Type	**Standards**
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	>36 Years

Table 4. Standards and Management

Description	**Specification**
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX and 100Base-FX IEEE 802.3ab 1000BASE-T(X) IEEE 802.3z 1000BASE-X IEEE 802.3x flow control IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP, G.8032 ERPS IEEE 802.1p QoS IEEE 802.1Q VLAN IEEE 802.3ad LACP IEEE 802.1x Authentication IEEE 802.1ab LLDP
RFC Compliance	RFC 4445 MDI, RFC 1215 Trap, RFC 1213 MIB II, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643, RFC 1757, RSTP MIB, Private MIB, LLDP MIB

Dimensions



Ordering Information

Base	Power Supply	Mount	Ethernet Port	F/O Port	Optional	Description
RDS2110	LV	D	8RJ45	2GSFP		
RDS2110	|	|	|	|		Base unit
	LV	|	|	|		Dual Input 18~48VDC
	HV	|	|	|		Single Input 77~300VDC/85-264VAC
		D	|	|		DIN Rail Mount
			8RJ45	|		8 x 10/100Mbit/s RJ45 Ports
				2GSFP		2 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
					C	Conformal Coating
					U	User Customization

Example Order Code: RDS2110-LV-D-8RJ45-2GSFP

Description: RDS2110 Industrial Managed Gigabit Ethernet Switch, Dual LV Input 18-48VDC, 35mm DIN Rail Mount, With 8 x 10/100Base-X RJ45 Ports, 2 x 100/1000Base-X SFP Ports (SFP Transceiver must be ordered separately).

RDS3112

Intelligent 12 Ports Managed Full Gigabit Ethernet Switch

Product Overview

RDS31112 is an intelligent 12 ports full gigabit managed Ethernet switch with up to 8 x 10/100/1000Base-T(X) RJ45 ports and 4 x 100/1000Base-X SFP ports. The switch is IEC61850-3 and IEEE1613 compliant and provides redundancy support through functions such as STP/RSTP/MSTP and ERPS that assuring protection of all mission critical network applications. RDS3112 can be managed via the Web UI, Telnet/SSH, and Console (CLI). The switch accepts a wide voltage range of 18-48VDC, or high voltage of input 77-300VDC or 85-264VAC. The switch is made of IP40 galvanized steel and has a wide operating temperature range from -40°C to +85°C, which is suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ Max. 8 x 10/100/1000Base-T(X) RJ45 Ports ➢ Max. 4 x 100/1000Base-X SFP Ports ➢ All RJ45 Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +85°C	
35mm DIN Rail Mount	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45 Ports	8, Auto MDI/MDI-X
100/100Base-X SFP Port	4
Local Console Management Port	RS232, RJ45 Connector, 115200bps, 8, N, 1
LEDs	Power Supply Status, RJ45 Ports, F/O Ports, Device Status
Technology	
Switching Mode	Store - Forwarding
Latency	<10μs
MAC Table	8K
Jumbo Frame	Up to 10K Bytes
Prioritization	8 Priorities, 4 Priority Queues Strict and Relative Priofity Support of IEEE802.1p/DSCP Scheduling
Redundancy	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s) and G.8032 ERPS(Ethernet Ring Protection Switching) Link Aggregation (Static & IEEE802.3ad LACP)
Trafic Filtering	Port-based VLAN, IEEE802.1Q VLAN No. of VLAN: 4096 Management VLAN Port Mirroring, 1:1 and N:1 IGMP Snooping v1/v2 multicast filtering Rate limit (ingress/egress) Broadcast Storm limit, Limit to broadcast/multicast/unknown unicast
Routing	IPv4/v6 Static Routing, < 32 Routes
Network Security	Dynamic ARP Inspection ARP Snooping Protection CPU-Defend Policy Access Control List Enable/Disable Port MAC Binding Port-based IEEE802.1x Authentication RADIUS Authentication Automatic DDOS protection SNMP v1/v2/v3
Device Management & Maintenance	WEB(HTTP/HTTPS) and CL Device Management, Telnet/SSH fore remote management DHCP Client Multi-level user/password Syslog, RMON, PING test and LLDP Firmware upgrade and configuration backup via WEB and CLI management interfaces Switch configuration file backup/restore
Time Synchronization	SNTP
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	55 (W) x 132 (D) x 144 (H) mm
Weight (g)	< 1kg
Power	

Input Power	LV: 18-48VDC, Redundant Input; HV: 77-300VDC/85-264VAC
Power Consumption (Typ.)	<15W
Overload Current Protection	Present
Reverse Polarity Protection	Present
Relay Contact	Via 3-pin terminal block

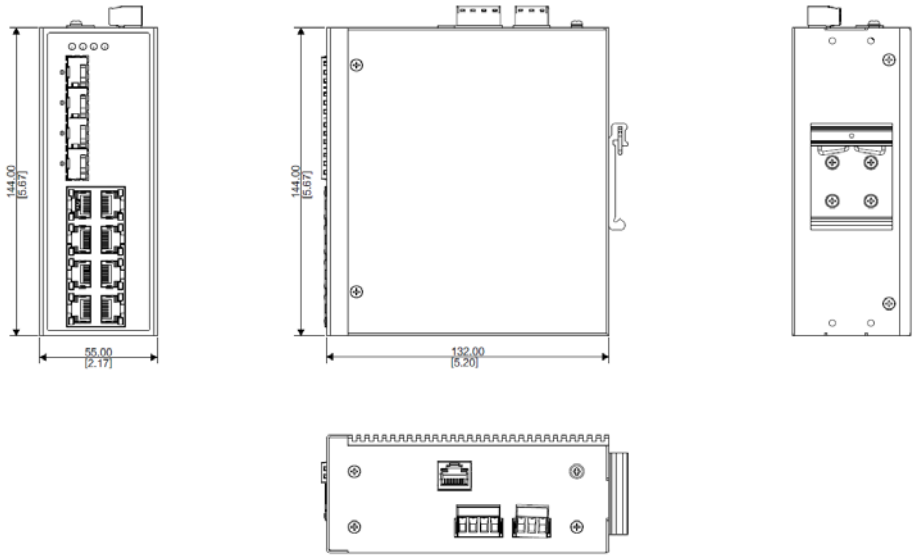
Table 3. Compliance Specifications

Type	**Standards**
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	>36 Years

Table 4. Standards and Management

Description	**Specification**
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX and 100Base-FX IEEE 802.3ab 1000BASE-T(X) IEEE 802.3z 1000BASE-X IEEE 802.3x flow control IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP, G.8032 ERPS IEEE 802.1p QoS IEEE 802.1Q VLAN IEEE 802.3ad LACP IEEE 802.1x Authentication IEEE 802.1ab LLDP
RFC Compliance	RFC 4445 MDI, RFC 1215 Trap, RFC 1213 MIB II, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643, RFC 1757, RSTP MIB, Private MIB, LLDP MIB

Dimensions



Ordering Information

Base	Power Supply	Mount	Ethernet Port	F/O Port	Optional	Description
RDS3112	LV	D	8GRJ45	4GSFP		
RDS3112	|	|	|	|		Base unit
	LV	|	|	|		Dual Input 18~48VDC
	HV	|	|	|		Single Input 77~300VDC/85-264VAC
		D	|	|		DIN Rail Mount
			8GRJ45	|		8 x 10/100/1000Mbit/s RJ45 Ports
				4GSFP		4 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
					C	Conformal Coating
					U	User Customization

Example Order Code: RDS3112-LV-D-8GRJ45-4GSFP

Description: RDS3112 Industrial Managed Full Gigabit Ethernet Switch, Dual LV Input 18-48VDC, 35mm DIN Rail Mount, with 8 x 10/100/1000Base-TX RJ45 Ports, 4 x 100/1000Base-X SFP Ports (SFP Transceiver must be ordered separately).

RDS3120

Intelligent 20 Ports Managed Full Gigabit Ethernet Switch

Product Overview

RDS3120 is an intelligent 20 ports full gigabit managed Ethernet switch with up to 16 x 10/100/1000Base-T(X) RJ45 ports and 4 x 100/1000Base-X SFP ports. The switch is IEC61850-3 and IEEE1613 compliant and provides redundancy support through functions such as STP/RSTP/MSTP and ERPS that assuring protection of all mission critical network applications. RDS3120 can be managed via the Web UI, Telnet/SSH, and Console (CLI). The switch accepts a wide voltage range of 18-48VDC, or high voltage of input 77-300VDC or 85-264VAC. The switch is made of IP40 galvanized steel and has a wide operating temperature range from -40°C to +85°C, which is suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ Max. 16 x 10/100/1000Base-T(X) RJ45 Ports ➢ Max. 4 x 100/1000Base-X SFP Ports ➢ All RJ45 Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +85°C	
35mm DIN Rail Mount	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45 Ports	16, Auto MDI/MDI-X
100/1000Base-X SFP Port	4
Local Console Management Port	RS232, RJ45 Connector, 115200bps, 8, N, 1
LEDs	Power Supply Status, RJ45 Ports, F/O Ports, Device Status
Technology	
Switching Mode	Store - Forwarding
Latency	<10μs
MAC Table	8K
Jumbo Frame	Up to 10K Bytes
Prioritization	8 Priorities, 4 Priority Queues Strict and Relative Priofity Support of IEEE802.1p/DSCP Scheduling
Redundancy	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s), and G.8032 ERPS(Ethernet Ring Protection Switching) Link Aggregation (Static & IEEE802.3ad LACP)
Trafic Filtering	Port-based VLAN, IEEE802.1Q VLAN No. of VLAN: 4096 Management VLAN Port Mirroring, 1:1 and N:1 IGMP Snooping v1/v2 multicast filtering Rate limit (ingress/egress) Broadcast Storm limit, Limit to broadcast/multicast/unknown unicast
Routing	IPv4/v6 Static Routing, < 32 Routes
Network Security	Dynamic ARP Inspection ARP Snooping Protection CPU-Defend Policy Access Control List Enable/Disable Port MAC Binding Port-based IEEE802.1x Authentication RADIUS Authentication Automatic DDOS protection SNMP v1/v2/v3
Device Management & Maintenance	WEB(HTTP/HTTPS) and CL Device Management, Telnet/SSH fore remote management DHCP Client Multi-level user/password Syslog, RMON, PING test and LLDP Firmware upgrade and configuration backup via WEB and CLI management interfaces Switch configuration file backup/restore
Time Synchronization	SNTP
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	76 (W) x 125 (D) x 144 (H) mm
Weight (g)	<2kg
Power	

Input Power	LV: 18-48VDC, Redundant Input; HV: 77-300VDC/85-264VAC
Power Consumption (Typ.)	<15W
Overload Current Protection	Present
Reverse Polarity Protection	Present
Relay Contact	Via 3-pin terminal block

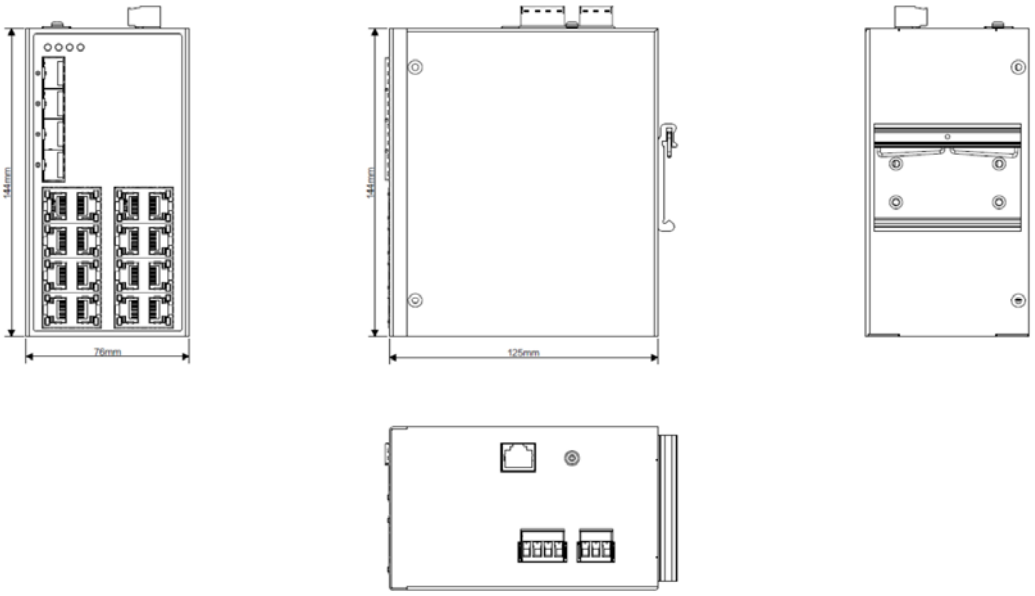
Table 3. Compliance Specifications

Type	**Standards**
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	>36 Years

Table 4. Standards and Management

Description	**Specification**
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX and 100Base-FX IEEE 802.3ab 1000BASE-T(X) IEEE 802.3z 1000BASE-X IEEE 802.3x flow control IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP, G.8032 ERPS IEEE 802.1p QoS IEEE 802.1Q VLAN IEEE 802.3ad LACP IEEE 802.1x Authentication IEEE 802.1ab LLDP
RFC Compliance	RFC 4445 MDI, RFC 1215 Trap, RFC 1213 MIB II, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643, RFC 1757, RSTP MIB, Private MIB, LLDP MIB

Dimensions



Ordering Information

Base	Power Supply	Mount	Ethernet Port	GE F/O Port	Optional	Description
RDS3120	LV	D	16GRJ45	4GSFP		
RDS3120	|	|	|	|	|	Base unit
	LV	|	|	|	|	Dual Input 18~48VDC
	HV	|	|	|	|	Single Input 77~300VDC/85-264VAC
		D	|	|	|	DIN Rail Mount
			16GRJ45	|	|	16 x 10/100/1000Mbit/s RJ45 Ports
				4GSFP		4 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
					C	Conformal Coating
					U	User Customization

Example Order Code: RDS3120-LV-D-16GRJ45-4GSFP

Description: RDS3120 Industrial Managed Full Gigabit Ethernet Switch, Dual LV Input 18-48VDC, 35mm DIN Rail Mount, with 16 x 10/100/1000Base-TX RJ45 Ports, 4 x 100/1000Base-X SFP Ports (SFP Transceiver must be ordered separately).

RDS4212

Intelligent 12 Ports Managed 10Gigabit/Gigabit Layer 3 Ethernet Switch

Product Overview

RDS4212 is an intelligent 12 ports 10Gigabit/Gigabit managed layer 3 Ethernet switch with up to 8 x 10/100/1000Base-T(X) RJ45 ports and 4 x 1G/10G Base-X SFP ports. The switch is IEC61850-3 and IEEE1613 compliant and provides redundancy support through functions such as STP/RSTP/MSTP and ERPS that assuring protection of all mission critical network applications. RDS4212 can be managed via the Web UI, Telnet/SSH, and Console (CLI). The switch accepts a wide voltage range of 18-48VDC, or high voltage of input 77-300VDC or 85-264VAC. The switch is made of IP40 galvanized steel and has a wide operating temperature range from -40°C to +85°C, which is suitable for the harshest of environments without the use of fans.

◦

Specifications

Table 1. General

Description	
Support	➢ Max. 8 x 10/100/1000Base-T(X) RJ45 Ports ➢ Max. 4 x 1G/10G Base-X SFP Ports ➢ All RJ45 Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +85°C	
35mm DIN Rail Mount	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45 Ports	8, Auto MDI/MDI-X
1G/10G Base-X SFP Port	4
Local Console Management Port	RS232, RJ45 Connector, 115200bps, 8, N, 1
LEDs	Power Supply Status, RJ45 Ports, F/O Ports, Device Status
Technology	
Switching Mode	Store - Forwarding
Latency	<10μs
MAC Table	32K
Jumbo Frame	Up to 13K Bytes
Prioritization	8 Priorities, 4 Priority Queues Strict and Relative Priofity Support of IEEE802.1p/DSCP Scheduling
Redundancy	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s) and G.8032 ERPS(Ethernet Ring Protection Switching) Link Aggregation (Static & IEEE802.3ad LACP)
Trafic Filtering	Port-based VLAN, IEEE802.1Q VLAN No. of VLAN: 4096 Management VLAN Port Mirroring, 1:1 and N:1 IGMP Snooping v1/v2 multicast filtering Rate limit (ingress/egress) Broadcast Storm limit, Limit to broadcast/multicast/unknown unicast
Routing	IPv4/v6 Static Routing, RIP V1/V2, OSPF, PIM-SM, VRRP
Network Security	Dynamic ARP Inspection ARP Snooping Protection CPU-Defend Policy Access Control List Enable/Disable Port MAC Binding Port-based IEEE802.1x Authentication RADIUS Authentication Automatic DDOS protection SNMP v1/v2/v3
Device Management & Maintenance	WEB(HTTP/HTTPS) and CL Device Management, Telnet/SSH fore remote management DHCP Client Multi-level user/password Syslog, RMON, PING test and LLDP Firmware upgrade and configuration backup via WEB and CLI management interfaces Switch configuration file backup/restore
Time Synchronization	SNTP
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	60 (W) x 125 (D) x 144 (H) mm
Weight (g)	<1.5kg
Power	

Input Power	LV: 18-48VDC, Redundant Input; HV: 77-300VDC/85-264VAC
Power Consumption (Typ.)	<15W
Overload Current Protection	Present
Reverse Polarity Protection	Present
Relay Contact	Via 3-pin terminal block

Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	>36 Years

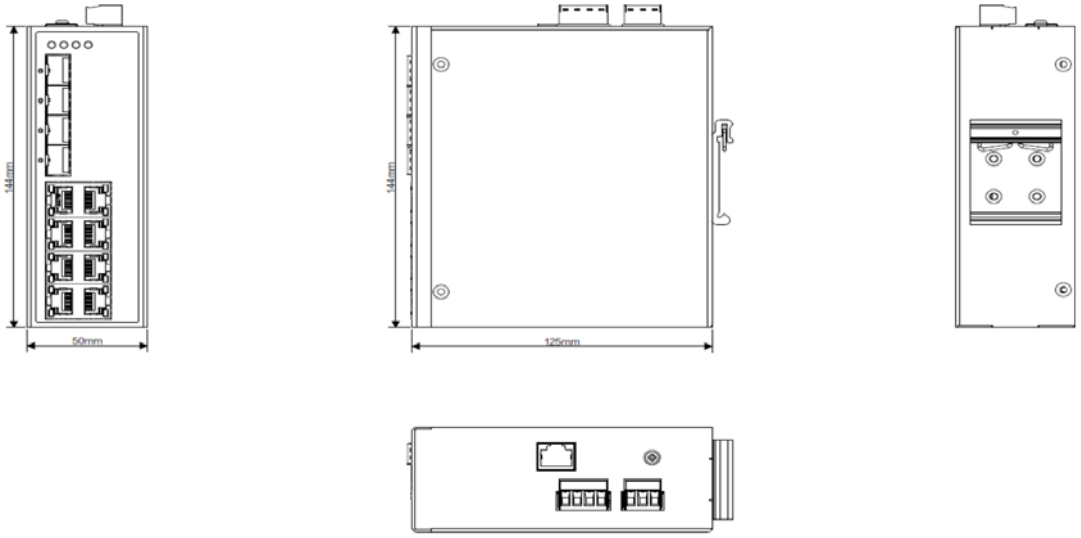
Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	>36 Years

Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX and 100Base-FX IEEE 802.3ab 1000BASE-T(X) IEEE 802.3z 1000BASE-X IEEE 802.3x flow control IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP, G.8032 ERPS IEEE 802.1p QoS IEEE 802.1Q VLAN IEEE 802.3ad LACP IEEE 802.1x Authentication IEEE 802.1ab LLDP
RFC Compliance	RFC 4445 MDI, RFC 1215 Trap, RFC 1213 MIB II, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643, RFC 1757, RSTP MIB, Private MIB, LLDP MIB

Dimensions



Ordering Information

Base	Power Supply	Mount	Ethernet Port	F/O Port	Optional	Description
RDS4212	LV	D	8GRJ45	4TGSFP		
RDS4212	|	|	|	|		Base unit
	LV	|	|	|		Dual Input 18~48VDC
	HV	|	|	|		Single Input 77~300VDC/85-264VAC
		D	|	|		DIN Rail Mount
			8GRJ45	|		8 x 10/100/1000Mbit/s RJ45 Ports
				4TGSFP		4 x 1G/10G BASE-X SFP Ports (SFP Transceiver must be ordered separately)
					C	Conformal Coating
					U	User Customization

Example Order Code: RDS4212-LV-D-8GRJ45-4TGSFP

Description: RDS4212 Industrial Managed 10Gigabit/Gigabit Layer 3 Ethernet Switch, Dual LV Input 18-48VDC, 35mm DIN Rail Mount, with 8 x 10/100/1000Base-TX RJ45 Ports, 4 x 1G/10G Base-X SFP Ports (SFP Transceiver must be ordered separately).

RDS4220

Intelligent 20 Ports Managed 10Gigabit/Gigabit Layer 3 Ethernet Switch

Product Overview

RDS4220 is an intelligent 20 ports 10Gigabit/Gigabit managed layer 3 Ethernet switch with up to 16 x 10/100/1000Base-T(X) RJ45 ports and 4 x 1G/10G Base-X SFP ports. The switch is IEC61850-3 and IEEE1613 compliant and provides redundancy support through functions such as STP/RSTP/MSTP and ERPS that assuring protection of all mission critical network applications. RDS4220 can be managed via the Web UI, Telnet/SSH, and Console (CLI). The switch accepts a wide voltage range of 18-48VDC, or high voltage of input 77-300VDC or 85-264VAC. The switch is made of IP40 galvanized steel and has a wide operating temperature range from -40°C to +85°C, which is suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ Max. 16 x 10/100/1000Base-T(X) RJ45 Ports ➢ Max. 4 x 1G/10G Base-X SFP Ports ➢ All RJ45 Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +85°C	
35mm DIN Rail Mount	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45 Ports	16, Auto MDI/MDI-X
1G/10G Base-X SFP Port	4
Local Console Management Port	RS232, RJ45 Connector, 115200bps, 8, N, 1
LEDs	Power Supply Status, RJ45 Ports, F/O Ports, Device Status
Technology	
Switching Mode	Store - Forwarding
Latency	<10μs
MAC Table	32K
Jumbo Frame	Up to 13K Bytes
Prioritization	8 Priorities, 4 Priority Queues Strict and Relative Priofity Support of IEEE802.1p/DSCP Scheduling
Redundancy	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s) and G.8032 ERPS(Ethernet Ring Protection Switching) Link Aggregation (Static & IEEE802.3ad LACP)
Trafic Filtering	Port-based VLAN, IEEE802.1Q VLAN No. of VLAN: 4096 Management VLAN Port Mirroring, 1:1 and N:1 IGMP Snooping v1/v2 multicast filtering Rate limit (ingress/egress) Broadcast Storm limit, Limit to broadcast/multicast/unknown unicast
Routing	IPv4/v6 Static Routing, RIP V1/V2, OSPF, PIM-SM, VRRP
Network Security	Dynamic ARP Inspection ARP Snooping Protection CPU-Defend Policy Access Control List Enable/Disable Port MAC Binding Port-based IEEE802.1x Authentication RADIUS Authentication Automatic DDOS protection SNMP v1/v2/v3
Device Management & Maintenance	WEB(HTTP/HTTPS) and CL Device Management, Telnet/SSH fore remote management DHCP Client Multi-level user/password Syslog, RMON, PING test and LLDP Firmware upgrade and configuration backup via WEB and CLI management interfaces Switch configuration file backup/restore
Time Synchronization	SNTP
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	86 (W) x 125 (D) x 144 (H) mm
Weight (g)	<2.5kg
Power	

Input Power	LV: 18-48VDC, Redundant Input; HV: 77-300VDC/85-264VAC
Power Consumption (Typ.)	<20W
Overload Current Protection	Present
Reverse Polarity Protection	Present
Relay Contact	Via 3-pin terminal block

Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	>36 Years

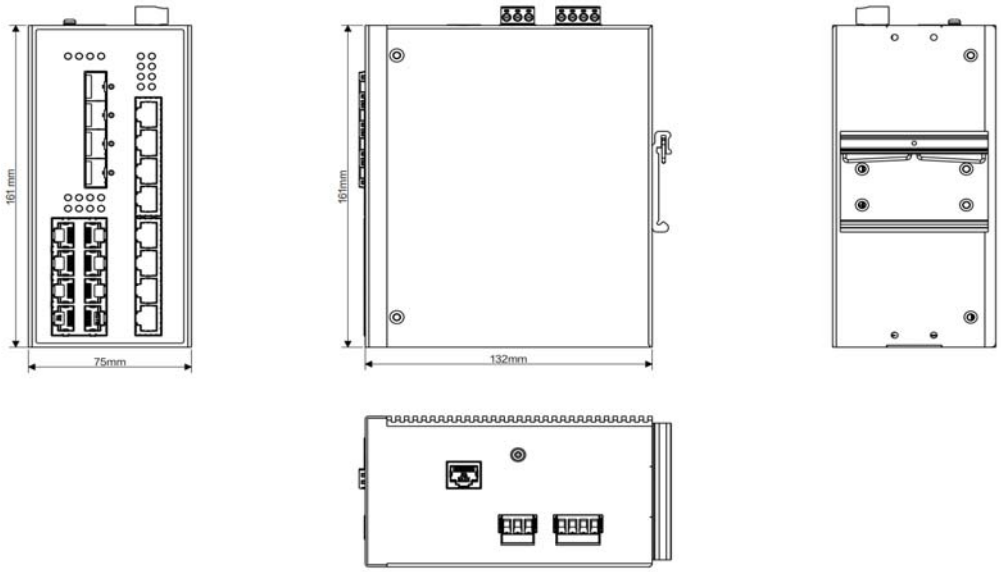
Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	>36 Years

Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX and 100Base-FX IEEE 802.3ab 1000BASE-T(X) IEEE 802.3z 1000BASE-X IEEE 802.3x flow control IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP, G.8032 ERPS IEEE 802.1p QoS IEEE 802.1Q VLAN IEEE 802.3ad LACP IEEE 802.1x Authentication IEEE 802.1ab LLDP
RFC Compliance	RFC 4445 MDI, RFC 1215 Trap, RFC 1213 MIB II, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643, RFC 1757, RSTP MIB, Private MIB, LLDP MIB

Dimensions



Ordering Information

Base	Power Supply	Mount	Ethernet Port	F/O Port	Optional	Description
RDS4220	LV	D	16GRJ45	4TGSFP		
RDS4220	|	|	|	|		Base unit
	LV	|	|	|		Dual Input 18~48VDC
	HV	|	|	|		Single Input 77~300VDC/85-264VAC
		D	|	|		DIN Rail Mount
			16GRJ45	|		16 x 10/100/1000Mbit/s RJ45 Ports
				4TGSFP		4 x 1G/10G BASE-X SFP Ports (SFP Transceiver must be ordered separately)
					C	Conformal Coating
					U	User Customization

Example Order Code: RDS4220-LV-D-16GRJ45-4TGSFP

Description: RDS4220 Industrial Managed 10Gigabit/Gigabit Layer 3 Ethernet Switch, Dual LV Input 18-48VDC, 35mm DIN Rail Mount, with 16 x 10/100/1000Base-TX RJ45 Ports, 4 x 1G/10G Base-X SFP Ports (SFP Transceiver must be ordered separately).

RDS3005P

5 Ports Unmanaged Full Gigabit Ethernet PoE Switch

Product Overview

RDS3005P is a cost-effective 5 ports full gigabit unmanaged Ethernet switch with up to 4 x 10/100/1000Base-T(X) RJ45 PoE/PoE+ ports and 1 x 10/100/1000Base-T(X) RJ45 port. All ports on RDS3005P support MDI/MDIX auto detection. This switch accepts a wide voltage range of 44-53VDC and is made of IP40 galvanized steel. It also has a wide operating temperature range from -40°C to +75°C, which is suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ 4 x 10/100/1000Base-T(X) RJ45 PoE+ Ports, Max. 30w per port ➢ 1 x 10/100/1000Base-T(X) RJ45 Port ➢ All RJ45 Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +75°C	
35mm DIN Rail Mount	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45	5 in total, 4 are PoE/PoE+ Ports, 1 is non PoE/PoE+ Port, All ports support Auto MDI/MDIX
LEDs	Power Supply Status, RJ45 Ports, PoE Status, Device Status
Technology	
Switching Mode	Store - Forwarding
MAC Table	8K
Jumbo Frame	Up to 9216 Bytes
Latency	<10µs
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	27.5 (W) x 95 (D) x 122 (H) mm
Weight (g)	<1kg
Power	
Input Power	MV: 44-53VDC, via 4-pin terminal block
Power Consumption (Typ.)	<5W (w/o PoE Output)
Overload Current Protection	Present
Reverse Polarity Protection	Present

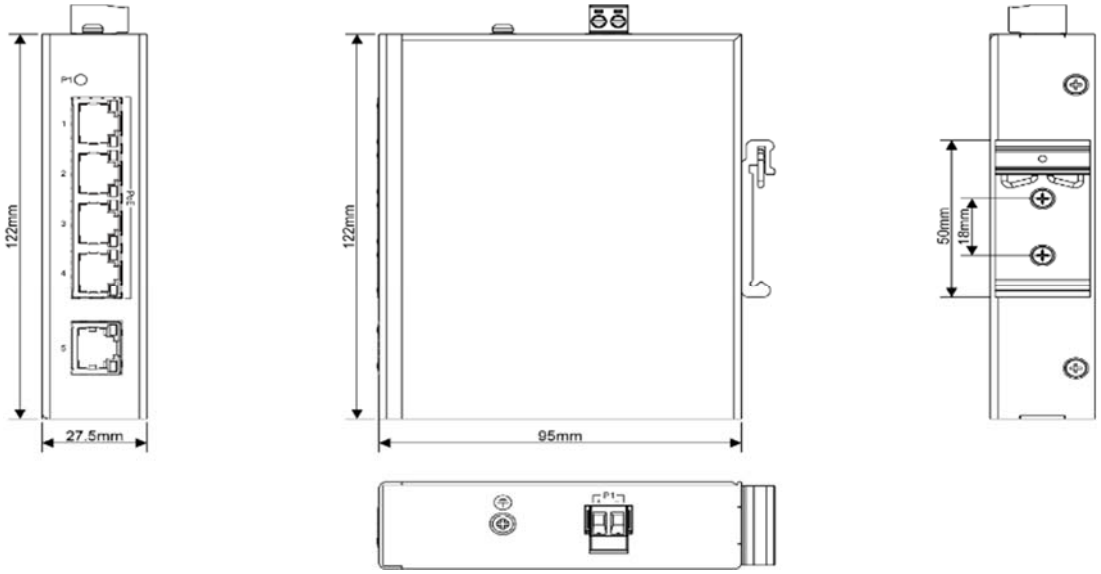
Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +75°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	>36 Years

Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX IEEE 802.3ab 1000BASE-T(X) IEEE 802.3af/at Power Over Ethernet
RFC Compliance	RFC 4445 MDI

Dimensions



Ordering Information

Base	Power Supply	Mount	Ethernet PoE Port	Ethernet Port	Optional	Description
RDS3005P	MV	D	4PGRJ45	1GRJ45		
RDS3005P	|	|	|	|		Base unit
	MV	|	|	|		Dual Input 44~53VDC
		D	|	|		DIN Rail Mount
			4PGRJ45	|		4 x 10/100/1000Mbit/s RJ45 PoE/PoE+ Ports
				1GRJ45		1 x 10/100/1000Mbit/s RJ45 Port
					C	Conformal Coating
					U	User Customization

Example Order Code: RDS3005P-MV-D-4PGRJ45-1GRJ45

Description: RDS3005P Industrial Unmanaged Full Gigabit Ethernet PoE Switch, Dual MV input 44-53VDC, 35mm DIN Rail Mount, 4 x 10/100/1000Base-TX PoE/PoE+ RJ45 Ports, 1 x 10/100/1000Mbit/s RJ45 Port.

RDS3010P

10 Ports Unmanaged Full Gigabit Ethernet PoE Switch

Product Overview

RDS3010P is a cost-effective 10 ports full gigabit unmanaged Ethernet switch with up to 8 x 10/100/1000Base-T(X) RJ45 PoE/PoE+ ports and 2 x 100/1000Base-X SFP ports. All copper ports on RDS3010P support MDI/MDIX auto detection. This switch accepts a wide voltage range of 44-53VDC and is made of IP40 galvanized steel. It also has a wide operating temperature range from -40°C to +75°C, which is suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ 8 x 10/100/1000Base-T(X) RJ45 PoE+ Ports, Max. 30w per port ➢ 2x 100/1000Base-X SFP port ➢ All RJ45 Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +75°C	
35mm DIN Rail Mount	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45	8 PoE/PoE+ Ports. All ports support Auto MDI/MDIX
100/1000Base-X SFP	2
LEDs	Power Supply Status, RJ45 Ports, PoE Status, Device Status
Technology	
Switching Mode	Store - Forwarding
MAC Table	8K
Jumbo Frame	Up to 9216 Bytes
Latency	<10μs
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	45 (W) x 94 (D) x 130 (H) mm
Weight (g)	<1.5kg
Power	
Input Power	MV：44-53VDC, via 4-pin terminal block
Power Consumption (Typ.)	<8W (w/o PoE Output)
Overload Current Protection	Present
Reverse Polarity Protection	Present

Table 3. Compliance Specifications

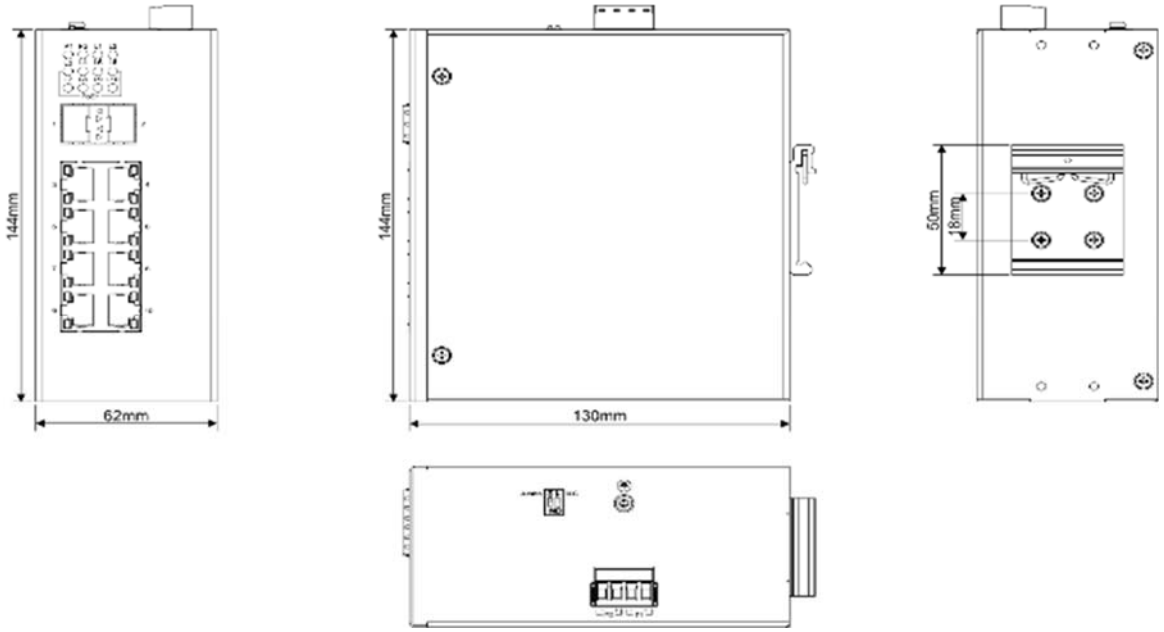
Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +75°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	>36 Years

Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX IEEE 802.3ab 1000BASE-T(X) IEEE 802.3z 1000BASE-X IEEE 802.3af/at Power Over Ethernet

Description	Specification
RFC Compliance	RFC 4445 MDI

Dimensions



Ordering Information

Base	Power Supply	Mount	Ethernet Port	F/O Port	Optional	Description
RDS3010P	MV	D	8PGRJ45	2GSFP		
RDS3010P	|	|	|	|		Base unit
	MV	|	|	|		Dual Input 44~53VDC
		D	|	|		DIN Rail Mount
			8PGRJ45	|		8 x 10/100/1000Mbit/s RJ45 PoE/PoE+ Ports
				2GSFP		2 x 100/1000BASE-X SFP Ports (SFP Transceiver needs to be ordered separately)
					C	Conformal Coating
					U	User Customization

Example Order Code: RDS3010P-MV-D-8PGRJ45-2GSFP

Description: RDS3010P Industrial Unmanaged Full Gigabit Ethernet PoE Switch, Dual MV input 44-53VDC, 35mm DIN Rail Mount, 8 x 10/100/1000Base-TX PoE/PoE+ RJ45 Ports, 2 x 100/1000BASE-X SFP Ports.

RDS3110P

Intelligent 10 Ports Managed Full Gigabit Ethernet PoE Switch

Product Overview

RDS3110P is an intelligent 10 ports full gigabit managed Ethernet switch with up to 8 x 10/100/1000Base-T(X) RJ45 PoE/PoE+ ports and 2 x 100/1000Base-X SFP ports. The switch provides redundancy support through functions such as STP/RSTP/MSTP and ERPS that assuring protection of all mission critical network applications. RDS3110P can be managed via the Web UI, Telnet/SSH, and Console (CLI). The switch accepts a wide voltage range of 45-57VDC. The switch is made of IP40 galvanized steel and has a wide operating temperature range from -40°C to +75°C, which is suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ Max. 8 x 10/100/1000Base-T(X) RJ45 PoE+ Ports, Max. 30w per port ➢ Max. 2 x 100/1000Base-X SFP Ports ➢ All RJ45 Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +75°C	
35mm DIN Rail Mount	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45	8 PoE/PoE+ Ports, Auto MDI/MDIX
100/1000Base-X SFP Port	2
Local Console Management Port	RS232, RJ45 Connector, 115200bps, 8, N, 1
LEDs	Power Supply Status, RJ45 Ports, F/O Ports, Device Status
Technology	
Switching Mode	Store - Forwarding
Latency	< 10μs
MAC Table	8K
Jumbo Frame	Up to 9.6k Bytes
Prioritization	8 Priorities, 4 Priority Queues Strict and Relative Priofity Support of IEEE802.1p/DSCP Scheduling
Redundancy	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s) and G.8032 ERPS(Ethernet Ring Protection Switching) Link Aggregation (Static & IEEE802.3ad LACP)
Trafic Filtering	Port-based VLAN, IEEE802.1Q VLAN No. of VLANs: 64, VLAN ID: 1~4094 Management VLAN Port Mirroring, 1:1 and N:1 IGMP Snooping v1/v2 multicast filtering, Max. 256 groups Rate limit (ingress/egress) Broadcast Storm limit, Limit to broadcast/multicast/unknown unicast
Network Security	Access Control List Port-based MAC filtering MAC Binding Port-based IEEE802.1x Authentication RADIUS Authentication Automatic DDOS protection
Device Management & Maintenance	SNMP v1/v2/v3 WEB and CL Device Management, Telnet/SSH fore remote management DHCP Client Multi-level user/password Syslog, RMON, PING test and LLDP Firmware upgrade and configuration backup via WEB and CLI management interfaces Switch configuration file backup/restore
Time Synchronization	SNTP
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x H x D)	48 (W) x 144 (D) x 130 (H) mm
Weight (g)	<2kg
Power	
Input Power	MV: 45-57VDC, via 4-pin terminal block
Power Consumption (Typ.)	<12W(w/o PoE Output), Max. PoE output: 240W
Overload Current Protection	Present

Reverse Polarity Protection	Present
Relay Contact	Via 3-pin terminal block, Max. 1A @24VDC

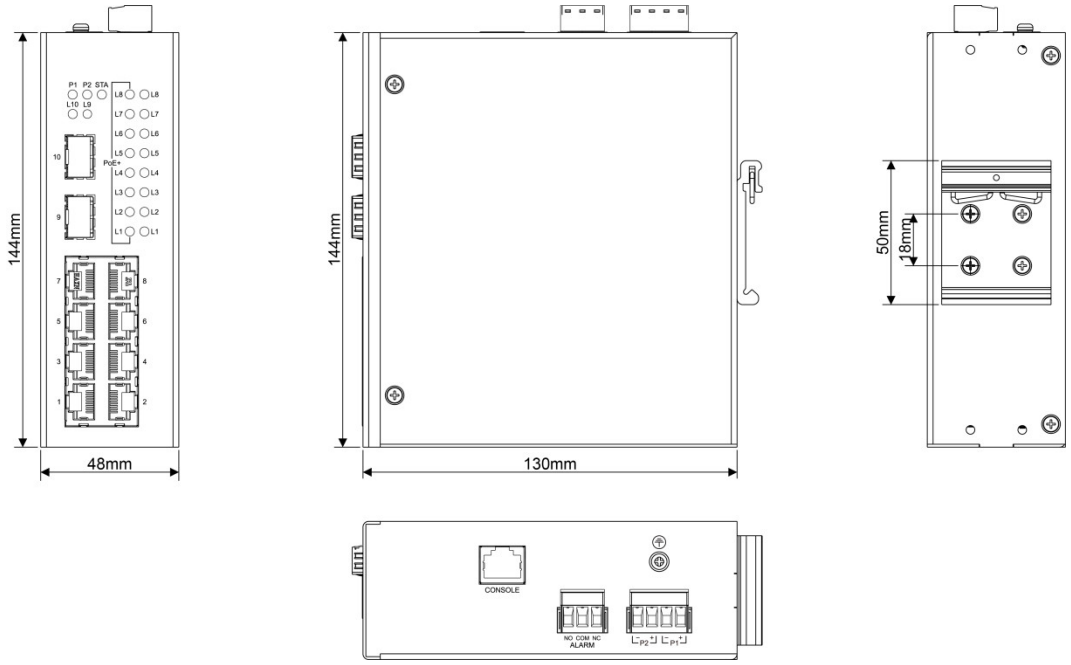
Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +75°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	>230,000 Hours

Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX and 100Base-FX IEEE 802.3ab 1000BASE-T(X) IEEE 802.3z 1000BASE-X IEEE 802.3x flow control IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP, G8032 ERPS IEEE 802.1p QoS IEEE 802.1Q VLAN IEEE 802.3ad LACP IEEE 802.1x Authentication IEEE 802.3af/at Power Over Ethernet
RFC Compliance	RFC 4445 MDI, RFC 1215 Trap, RFC 1213 MIB II, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643, RFC 1757, RSTP MIB, Private MIB, LLDP MIB

Dimensions



Ordering Information

Base	Power Supply	Mount	Ethernet Port	F/O Port	Optional	Description
RDS3110P	MV	D	8PGRJ45	2GSFP		
RDS3110P	|	|	|	|		Base unit
	MV	|	|	|		Dual Input 45~57VDC
		D	|	|		DIN Rail Mount
			8PGRJ45	|		8 x 10/100/1000Mbit/s RJ45 PoE/PoE+ Ports
				2GSFP		2 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
					C	Conformal Coating
					U	User Customization

Example Order Code: RDS3110P-MV-D-8PGRJ45-2GSFP

Description: RDS3110P Industrial Managed Full Gigabit Ethernet Switch, Dual MV input 45-57VDC, 35mm DIN Rail Mount, 8 x 10/100/1000Base-TX PoE/PoE+ RJ45 Ports, 2 x 100/1000Base-X SFP Ports (SFP Transceiver must be ordered separately).

RDS3120P

Intelligent 20 Ports Managed Full Gigabit Ethernet PoE Switch

Product Overview

RDS3120P is an intelligent 20 ports full gigabit managed Ethernet switch with up to 16 x 10/100/1000Base-T(X) RJ45 PoE/PoE+ ports and 4 X 100/1000Base-X SFP ports. The switch provides redundancy support through functions such as STP/RSTP/MSTP and ERPS that assuring protection of all mission critical network applications. RDS3120P can be managed via the Web UI, Telnet/SSH, and Console (CLI). The switch accepts a wide voltage range of 45-57VDC. The switch is made of IP40 galvanized steel and has a wide operating temperature range from -40°C to +75°C, which is suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ Max. 16 x 10/100/1000Base-T(X) RJ45 PoE+ Ports, Max. 30w per port ➢ Max. 4 x 100/1000Base-X SFP Ports ➢ All RJ45 Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +75°C	
35mm DIN Rail Mount	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45	16 PoE/PoE+ Ports, Auto MDI/MDIX
100/1000Base-X SFP Port	4
Local Console Management Port	RS232, RJ45 Connector, 115200bps, 8, N, 1
LEDs	Power Supply Status, RJ45 Ports, F/O Ports, Device Status
Technology	
Switching Mode	Store - Forwarding
MAC Table	8K
Jumbo Frame	Up to 9712Bytes
Prioritization	8 Priorities, 4 Priority Queues Strict and Relative Priofity Support of IEEE802.1p/DSCP Scheduling
Redundancy	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s) and G.8032 ERPS(Ethernet Ring Protection Switching) Link Aggregation (Static & IEEE802.3ad LACP)
Trafic Filtering	Port-based VLAN, IEEE802.1Q VLAN No. of VLANs: 64, VLAN ID: 1~4094 Management VLAN Port Mirroring, 1:1 and N:1 IGMP Snooping v1/v2 multicast filtering, Max. 256 groups Rate limit (ingress/egress) Broadcast Storm limit, Limit to broadcast/multicast/unknown unicast
Network Security	Access Control List Port-based MAC filtering MAC Binding Port-based IEEE802.1x Authentication RADIUS Authentication Automatic DDOS protection
Device Management & Maintenance	SNMP v1/v2/v3 WEB and CL Device Management, Telnet/SSH fore remote management DHCP Client Multi-level user/password Syslog, RMON, PING test and LLDP Firmware upgrade and configuration backup via WEB and CLI management interfaces Switch configuration file backup/restore
Time Synchronization	SNTP
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	76 (W) x 126 (D) x 146 (H) mm
Weight (g)	<3kg
Power	
Input Power	MV: 45-57VDC, via 4-pin terminal block
Power Consumption (Typ.)	<15W(w/o PoE Output), Max. PoE output: 150W
Overload Current Protection	Present
Reverse Polarity Protection	Present

Relay Contact	Via 3-pin terminal block

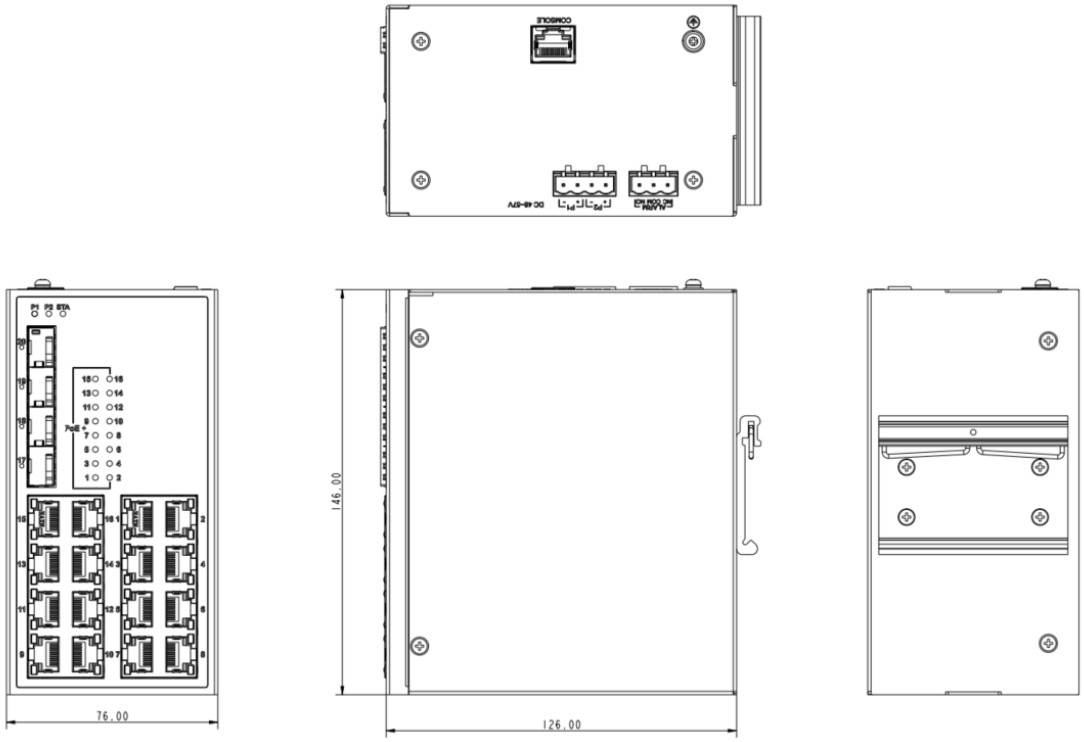
Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +75°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	>36 Years

Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX and 100Base-FX IEEE 802.3ab 1000BASE-T(X) IEEE 802.3z 1000BASE-X IEEE 802.3x flow control IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP, G8032 ERPS IEEE 802.1p QoS IEEE 802.1Q VLAN IEEE 802.3ad LACP IEEE 802.1x Authentication IEEE 802.3af/at Power Over Ethernet
RFC Compliance	RFC 4445 MDI, RFC 1215 Trap, RFC 1213 MIB II, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643, RFC 1757, RSTP MIB, Private MIB, LLDP MIB

Dimensions



Ordering Information

Base	Power Supply	Mount	Ethernet Port	F/O Port	Optional	Description
RDS3120P	MV	D	16PGRJ45	4GSFP		
RDS3120P	|	|	|	|		Base unit
	MV	|	|	|		Dual Input 45~57VDC
		D	|	|		DIN Rail Mount
			16PGRJ45	|		16 x 10/100/1000Mbit/s RJ45 PoE/PoE+ Ports
				4GSFP		4 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
					C	Conformal Coating
					U	User Customization

Example Order Code: RDS3120P-MV-D-16PGRJ45-4GSFP

Description: RDS3120P Industrial Managed Full Gigabit Ethernet Switch, Dual MV input 45-57VDC, 35mm DIN Rail Mount, 16 x 10/100/1000Base-TX PoE/PoE+ RJ45 Ports, 4 x 100/1000Base-X SFP Ports (SFP Transceiver must be ordered separately).

RRS3128P

Intelligent 28 Ports Full Gigabit Layer 2 Managed Ethernet PoE Switch

Product Overview

RRS3128P is an intelligent 28 ports full gigabit managed Ethernet switch with up to 24 x 10/100/1000Base-T(X) RJ45 PoE/PoE+ ports and 4 X 100/1000Base-X SFP ports, with a maximum PoE power output of whole switch is 360W. The switch provides redundancy support through functions such as STP/RSTP/MSTP and ERPS that assuring protection of all mission critical network applications. RRS3128P can be managed via the Web UI, Telnet/SSH, and Console (CLI). The switch accepts a wide voltage range of either 48-57VDC, or 85-264VAC/77-300VDC. The switch is made of IP40 galvanized steel and has a wide operating temperature range from -40°C to +75°C, which is suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ Max. 24 x 10/100/1000Base-T(X) RJ45 PoE+ Ports, Max. 30w per port, Max 360w whole switch. ➢ Max. 4 x 100/1000Base-X SFP Ports ➢ All RJ45 Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +75°C	
19" Rack Mount, 1 U Height	

Table 2. Technical Specification

Description	
10/100/1000Base-T(X) RJ45	24 PoE/PoE+ Ports, Auto MDI/MDIX
100/1000Base-X SFP Port	4
Local Console Management Port	RS232, RJ45 Connector, 115200bps, 8, N, 1
LEDs	Power Supply Status, RJ45 Ports, F/O Ports, Device Status
Technology	
Switching Mode	Store - Forwarding
MAC Table	8K
Jumbo Frame	Up to 10k Bytes
Device Management & Maintenance	SNMP v1/v2/v3 WEB and CL Device Management, Telnet/SSH fore remote management DHCP Client Multi-level user/password Syslog, RMON, PING test and LLDP Firmware upgrade and configuration backup via WEB and CLI management interfaces Switch configuration file backup/restore
PoE	PoE Power Management PoE Port Configuration
Network Security	Access Control List CPU Anti-Attack ARP Security Configuration IP Source Guard MAC-based Security Mechanism DHCP Snooping HTTPS/SSH Port-based IEEE802.1x Authentication RADIUS Authentication Automatic DDOS protection SNMP v3
Redundancy	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s) and G.8032 ERPS(Ethernet Ring Protection Switching) Link Aggregation (Static & IEEE802.3ad LACP)
QoS	8 Priorities, 4 Priority Queues Strict and Relative Priofity IEEE802.1p/DSCP Scheduling
Trafic Filtering	IEEE802.1Q VLAN QinQ Port Mirroring, 1:1 and N:1 IGMP Snooping v1/v2 multicast filtering, Max. 256 groups Rate limit (ingress/egress) Broadcast Storm limit, Limit to broadcast/multicast/unknown unicast
Other Features	VLAN Routing IPv4/v6 Static Routing LLDP RTC RMON syslog

Time Synchronization	SNTP
Power	
Power Input	5-pin terminal block, 48-57VDC Dual Input, or 85-264VAC/77-300VDC Single Input
Power Consumption (Typ.)	<10W@48VDC (w/o payload and PoE output) <25W@48VDC (full payload w/o PoE Output) <390W@48VDC (With Full PoE output)
Overload Current Protection	Present
Reverse Polarity Protection	Present
Relay Contact	Via 3-pin terminal block
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	440(W) x 352(D) x 44(H) mm；
Weight (g)	<5kg

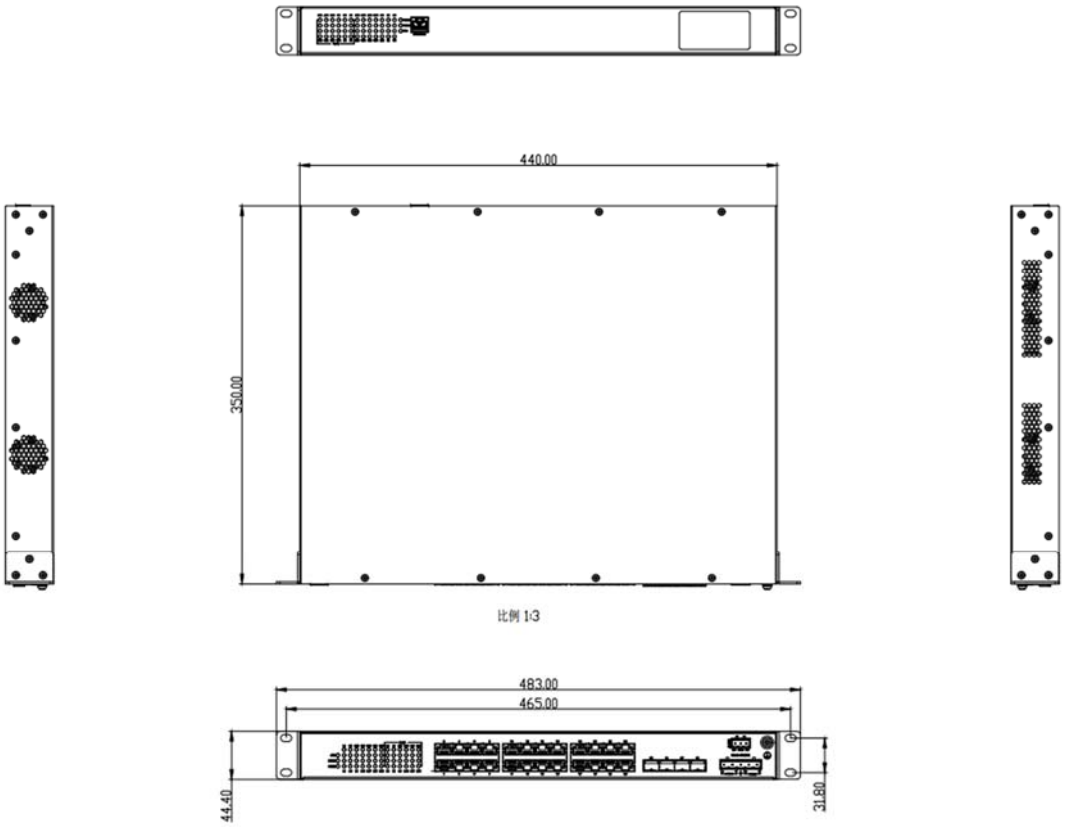
Table 3. Compliance Specifications

Type	**Standards**
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +75°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years

Table 4. Standards and Management

Description	**Specification**
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX and 100Base-FX IEEE 802.3ab 1000BASE-T(X) IEEE 802.3z 1000BASE-X IEEE 802.3x flow control IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP, G8032 ERPS IEEE 802.1p QoS IEEE 802.1Q VLAN IEEE 802.3ad LACP IEEE 802.1x Authentication IEEE 802.3af/at Power Over Ethernet
RFC Compliance	RFC 4445 MDI, RFC 1215 Trap, RFC 1213 MIB II, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643, RFC 1757, RSTP MIB, Private MIB, LLDP MIB

Dimensions



Ordering Information

Base	PS 1	PS 2	Mount	Ethernet Port	F/O Port	Optional	Conformal Coating
RRS3128P	HV	HV	RF		4GGSFP		
RRS3128P	|	|	|	|	|	|	Base Unit
	MV	MV	|	|	|	|	Dual Power Input 48-57VDC
	HV	XX	|	|	|	|	Single Power Input 77-300VDC or 85-264VAC
			RF	|	|	|	Rack Mount, Power Terminals and Ethernet Ports on Rear Panel/ LED and Console on Front Panel
				24PGRJ45	|	|	24 x 10/100/1000Mbit/s RJ45 PoE/PoE+ Ports
					4GSFP	|	4 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
						C	Conformal Coating
						U	User Customization

Example Order Code: RRS3128P-MV-MV-RF-24PGRJ45-4GSFP

Description: RRS3128P Industrial Managed 28Gigabit Layer 2 Ethernet Switch, Dual Redundant MV Input 48-57VDC, 19" Rack Mount, 1U Height, Power Terminals and Ethernet Ports on Rear Panel/ LED and Console on Front Panel, with 24 x 10/100/1000Base-T(X) PoE/PoE+ RJ45 Ports, 4 x 100/1000Base-X SFP Ports (SFP Transceiver must be ordered separately).

RRS3128

Intelligent 28 Ports Full Gigabit Layer 2 Managed Ethernet Switch

Product Overview

RRS3128 is an intelligent full gigabit Layer 2 Ethernet switch designed to withstand the harshest environments of utility substations and rolling stock applications.

RRS3128 supports 24 x 10/100/1000Base-T(X) RJ45 ports and 4 x 100/1000Base-X SFP ports, or 16 x 10/100/1000Base-T(X) RJ45 ports, 8 x 100/1000Base-X SFP ports and 4 x 1000Base-X SFP ports, or 8 x 10/100/1000Base-T(X) RJ45 ports, 16 x 100/1000Base-X SFP ports and 4 x 1000Base-X SFP ports, or 24 x 100/1000Base-X SFP ports and 4 x 1000Base-X SFP ports. The switch is IEC61850-3 and IEEE1613 compliant and provides redundancy support through functions such as STP/RSTP/MSTP and ERPS that assuring protection of all mission critical network applications. RRS3128 can be managed via the Web UI, Telnet/SSH, and Console (CLI). The switch accepts a wide voltage range of 77-300VDC or 85-264VAC. The switch is made of IP40 galvanized steel and has a wide operating temperature range from -40°C to +85°C, which is suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ Max. 28 x Gigabit Ports (Copper and SFP selectable) ➢ All RJ45 Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +85°C	
19" Rack Mount, 1 U Height	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45 Ports	Max. 28, Auto MDI/MDI-X
100/1000Base-X SFP Port	Max. 24
1000Base-X SFP Port	Max. 4
Local Console Management Port	RS232, RJ45 Connector, 115200bps, 8, N, 1
LEDs	Power Supply Status, RJ45 Ports, F/O Ports, Device Status
Technology	
Switching Mode	Store - Forwarding
Latency	<10μs
MAC Table	32K
Jumbo Frame	Up to 10K Bytes
Prioritization	8 Priorities, 4 Priority Queues Strict and Relative Priofity Support of IEEE802.1p/DSCP Scheduling
Redundancy	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s) and G.8032 ERPS(Ethernet Ring Protection Switching) Link Aggregation (Static & IEEE802.3ad LACP)
Trafic Filtering	Port-based VLAN, IEEE802.1Q VLAN No. of VLAN: 4096 Management VLAN Port Mirroring, 1:1 and N:1 IGMP Snooping v1/v2 multicast filtering Rate limit (ingress/egress) Broadcast Storm limit, Limit to broadcast/multicast/unknown unicast
Routing	IPv4/v6 Static Routing, Max. 32 Routes
Network Security	Dynamic ARP Inspection ARP Snooping Protection CPU-Defend Policy Access Control List Enable/Disable Port MAC Binding Port-based IEEE802.1x Authentication RADIUS Authentication Automatic DDOS protection SNMP v1/v2/v3
Device Management & Maintenance	WEB(HTTP/HTTPS) and CL Device Management, Telnet/SSH fore remote management DHCP Client Multi-level user/password Syslog, RMON, PING test and LLDP Firmware upgrade and configuration backup via WEB and CLI management interfaces Switch configuration file backup/restore
Time Synchronization	SNTP
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	440 (W) x 230 (D) x 44.4 (H) mm
Weight (g)	<5kg
Power	

Input Power	LV: 18-48VDC, Redundant Input; HV: 77-300VDC/85-264VAC
Power Consumption (Typ.)	<20W
Overload Current Protection	Present
Reverse Polarity Protection	Present
Relay Contact	Via 3-pin terminal block

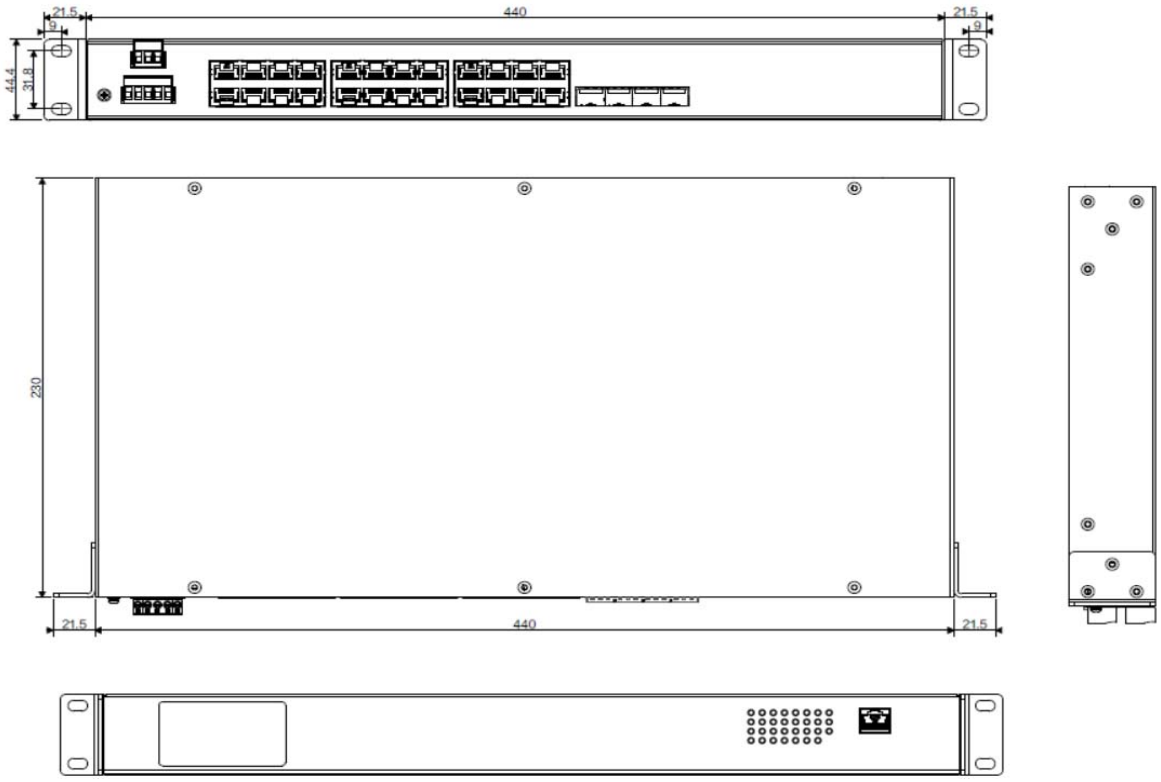
Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	41 Years

Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX and 100Base-X IEEE 802.3ab 1000BASE-T(X) IEEE 802.3z 1000BASE-X IEEE 802.3x flow control IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP, G.8032 ERPS IEEE 802.1p QoS IEEE 802.1Q VLAN IEEE 802.3ad LACP IEEE 802.1x Authentication IEEE 802.1ab LLDP
RFC Compliance	RFC 4445 MDI, RFC 1215 Trap, RFC 1213 MIB II, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643, RFC 1757, RSTP MIB, Private MIB, LLDP MIB

Dimensions



Ordering Information

Base	PS 1	PS 2	Mount	Slot 1	Slot 2	Slot 3	Fixed Port	Optional	Description
RRS3128	HV	HV	RF	8GSFP	8GSFP	8GRJ45	4GSFP		
RRS3128	|	|	|	|	|	|	|	|	Base Unit, with 4 x 1000M SFP Ports and 3 Slots
	|	XX	|	|	|	|	|	|	None
	LV	LV	|	|	|	|	|	|	Power Input 18-48VDC
	MV	MV	|	|	|	|	|	|	Power Input 36-58VDC
	HV	HV	|	|	|	|	|	|	Power Input 77-300VDC or 85-264VAC
			RF	|	|	|	|	|	Rack Mount, Power Terminals and Ethernet Ports on Rear Panel/ LED and Console on Front Panel
				8GRJ45	|	|	|	|	8 x 10/100/1000Base-T(X) RJ45 Ports
				8GSFP	|	|	|	|	8 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
				|	8GRJ45	|	|	|	8 X 10/100/1000Base-T(X) RJ45 Ports
				|	8GSFP	|	|	|	8 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
				|	|	8GRJ45	|	|	8 X 10/100/1000Base-T(X) RJ45 Ports
				|	|	8GSFP	|	|	8 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
				|	|	|	4GSFP	|	4 x 1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
								C	Conformal Coating
								U	User Customization

Example Order Code: RRS3128-HV-HV-RF-8GRJ45-8GSFP-8GSFP-4GSFP

Description: RRS3128 Industrial Managed Full Gigabit Ethernet Switch, Dual Redundant HV Input 77-300VDC or 85-264VAC, 19” Rack Mount, 1U Height, Power Terminals and Ethernet Ports on Rear Panel/ LED and Console on Front Panel, with 8 x 10/100/1000Base-T(X) RJ45 Ports, 16 x 100/1000Base-X SFP Ports (SFP Transceiver must be ordered separately), and 4 x 1000Base-X SFP Ports (SFP Transceiver must be ordered separately).

RRS3228

Intelligent 28 Ports Full Gigabit Layer 3 Managed Ethernet Switch

Product Overview

RRS3228 is an intelligent full gigabit Layer 3 Ethernet switch designed to withstand the harshest environments of utility substations and rolling stock applications.

RRS3228 supports up to 24 x 10/100/1000Base-T(X) RJ45 ports and 4 x 1000Base-X SFP ports, or 16 x 10/100/1000Base-T(X) RJ45 ports, 8 x 100/1000Base-X SFP ports and 4 x 1000Base-X SFP ports, or 8 x 10/100/1000Base-T(X) RJ45 ports, 16 x 100/1000Base-X SFP ports and 4 x 1000Base-X SFP ports, or 24 x 100/1000Base-X SFP ports and 4 x 1000Base-X SFP ports. The switch is IEC61850-3 and IEEE1613 compliant and provides Layer 2 redundancy support through functions such as STP/RSTP/MSTP and ERPS , as well as layer 3 redundancy VRRP that assuring protection of all mission critical network applications. In addition, RRS3228 supports various advanced layer 3 routing features such as static and dynamic routing features including RIP and OSPF, and even multicast routing PIM-SM. RRS3228 can be managed via the Web UI, Telnet/SSH, and Console (CLI). The switch accepts a wide voltage range of 12-36VDC, 36-58VDC, or high voltage of input 77-300VDC or 85-264VAC. The switch is made of IP40 galvanized steel and has a wide operating temperature range from -40°C to +85°C, which is suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ Max. 28 x Gigabit Ports (Copper and SFP selectable) ➢ All RJ45 Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +85°C	
19" Rack Mount, 1 U Height	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45 Port	28, Auto MDI/MDI-X
100/1000Base-X SFP Port	24
1000Base-X SFP Port	4
Local Console Management Port	RS232, RJ45 Connector, 115200bps, 8, N, 1
LEDs	Power Supply Status, RJ45 Ports, F/O Ports, Device Status
Technology	
Switching Mode	Store - Forwarding
MAC Table	32K
Jumbo Frame	Up to 13k Bytes
Layer 3 Features	Static Routing, RIP V1/V2, OSPF, VRRP, PIM-SM
Prioritization	8 Priorities, 4 Priority Queues Strict and Relative Priofity Support of IEEE802.1p/DSCP Scheduling
Redundancy	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s) and G.8032 ERPS(Ethernet Ring Protection Switching) Link Aggregation (Static & IEEE802.3ad LACP)
Trafic Filtering	Port-based VLAN, IEEE802.1Q VLAN No. of VLANs: 4096 Management VLAN Port Mirroring, 1:1 and N:1 IGMP Snooping v1/v2 multicast filtering Rate limit (ingress/egress) Broadcast Storm limit, Limit to broadcast/multicast/unknown unicast
Network Security	Access Control List Port-based MAC filtering MAC Binding Port-based IEEE802.1x Authentication RADIUS Authentication Automatic DDOS protection
Device Management & Maintenance	SNMP v1/v2/v3 WEB and CL Device Management, Telnet/SSH fore remote management DHCP Client Multi-level user/password Syslog, RMON, PING test and LLDP Firmware upgrade and configuration backup via WEB and CLI management interfaces Switch configuration file backup/restore
Time Synchronization	SNTP
Power	
24VDC Power Input	4-pin terminal block, 12-36VDC, Redundant power input optional
48VDC Power Input	4-pin terminal block, 36-58VDC, Redundant power input optional
220V Power Input	4-pin terminal block, 85-264VAC or 77-300VDC, Redundant power input optional
Power Consumption (Typ.)	< 30W
Overload Current Protection	Present
Reverse Polarity Protection	Present
Relay Contact	Via 3-pin terminal block, < 24V/1A
Physical Characteristics	

Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	440(W) x 350(D) x 44(H) mm
Weight (g)	<6kg

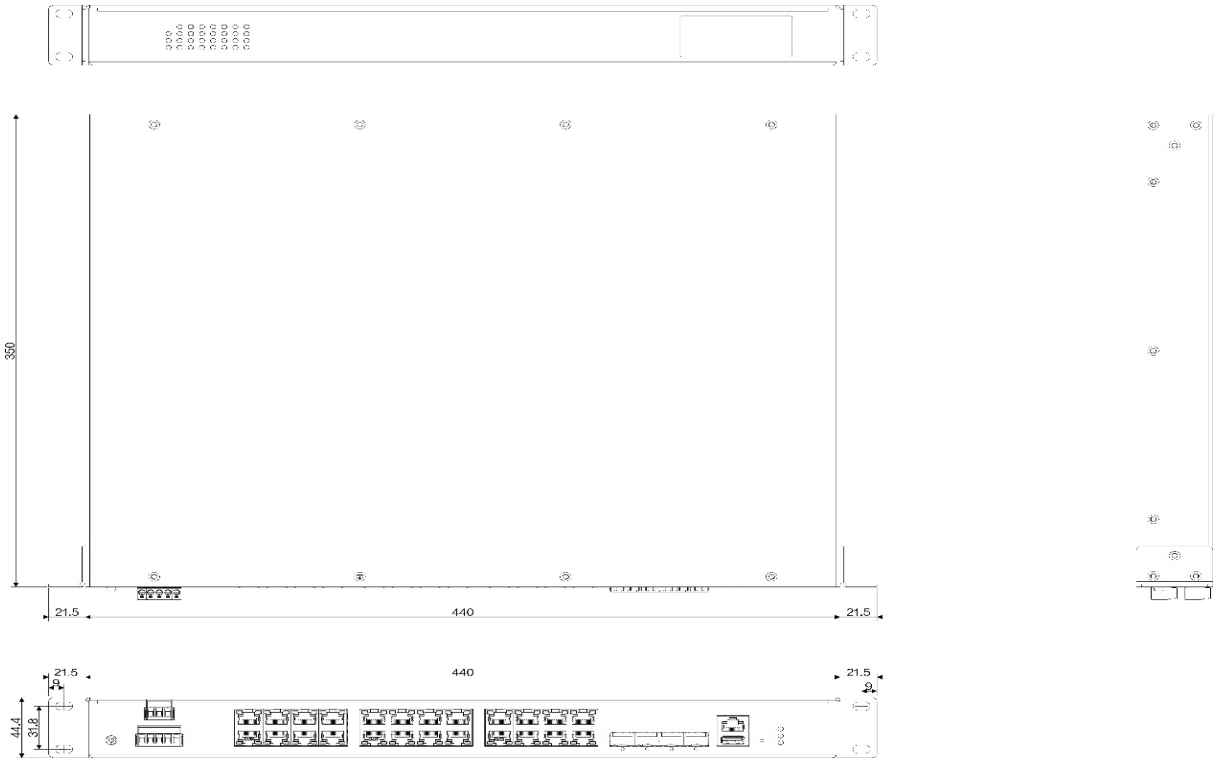
Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	41 Years

Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX and 100Base-FX IEEE 802.3ab 1000BASE-T(X) IEEE 802.3z 1000BASE-X IEEE 802.3x flow control IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP, G.8032 ERPS IEEE 802.1p QoS IEEE 802.1Q VLAN IEEE 802.3ad LACP IEEE 802.1x Authentication
RFC Compliance	RFC 4445 MDI, RFC 1215 Trap, RFC 1213 MIB II, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643, RFC 1757, RSTP MIB, Private MIB, LLDP MIB

Dimensions



Ordering Information

Base	PS 1	PS 2	Mount	Slot 1	Slot 2	Slot 3	Fixed Port	Optional	Description
RRS3228	HV	HV	RF	8GSFP	8GSFP	8GRJ45	4GSFP		
RRS3228	|	|	|	|	|	|	|	|	Base Unit, with 4 x 1000M SFP Ports and 3 Slots
	|	XX	|	|	|	|	|	|	None
	LV	LV	|	|	|	|	|	|	Power Input 12-36VDC
	MV	MV	|	|	|	|	|	|	Power Input 36-58VDC
	HV	HV	|	|	|	|	|	|	Power Input 77-300VDC or 85-264VAC
			RF	|	|	|	|	|	Rack Mount, Power Terminals and Ethernet Ports on Rear Panel/ LED and Console on Front Panel
				8GRJ45	|	|	|	|	8 x 10/100/1000Base-T(X) RJ45 Ports
				8GSFP	|	|	|	|	8 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
				|	8GRJ45	|	|	|	8 x 10/100/1000Base-T(X) RJ45 Ports
				|	8GSFP	|	|	|	8 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
				|	|	8GRJ45	|	|	8 x 10/100/1000Base-T(X) RJ45 Ports
				|	|	8GSFP	|	|	8 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
				|	|	|	4GSFP	|	4 x 1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
								C	Conformal Coating
								U	User Customization

Example Order Code: RRS3228-HV-HV-RF-8GRJ45-8GSFP-8GSFP-4GSFP

Description: RRS3228 Industrial Managed Full Gigabit Layer 3 Ethernet Switch, Dual Redundant HV Input 77-300VDC or 85-264VAC, 19" Rack Mount, 1U Height, Power Terminals and Ethernet Ports on Rear Panel/ LED and Console on Front Panel, with 8 x 10/100/1000Base-T(X) RJ45 Ports, 16 x 100/1000Base-X SFP Ports (SFP Transceiver must be ordered separately), and 4 x 1000Base-X SFP Ports (SFP Transceiver must be ordered separately).

RRS4228

Intelligent 28 Ports 10Gigabit/Gigabit Layer 3 Managed Ethernet Switch

Product Overview

RRS4228 is an intelligent 10Gigabit/Gigabit capable Layer 3 Ethernet switch designed to withstand the harshest environments of utility substations and rolling stock applications.

RRS4228 supports up to 24 x 10/100/1000Base-T(X) ports and 4 x 1G/10G SFP ports, or 16 x 10/100/1000Base-T(X) ports, 8 x 100/1000M SFP Ports and 4 x 1G/10G SFP ports, or 8 x 10/100/1000Base-T(X) ports, 16 x 100/1000M SFP Ports and 4 x 1G/10G SFP ports, or 24 x 100/1000M SFP Ports and 4 x 1G/10G SFP ports. The switch is IEC61850-3 and IEEE1613 compliant and provides layer 2 redundancy support through functions such as STP/RSTP/MSTP and ERPS, as well as layer 3 redundancy VRRP that assuring protection of all mission critical network applications. In addition, RRS4228 supports various advanced layer 3 routing features such as static and dynamic routing features including RIP and OSPF, and even multicast routing PIM-SM. RRS4228 can be managed via the Web UI, Telnet/SSH, and Console (CLI). The switch accepts a wide voltage range of 12-36VDC, 36-58VDC, or high voltage of input 77-300VDC or 85-264VAC. The switch is made of IP-40 galvanized steel and has a wide operating temperature range from -40°C to +85°C, which is suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ Max. 28 x Gigabit Ports (Copper and SFP selectable) ➢ Max. 4 x 1G/10G SFP Ports ➢ All RJ45 Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +85°C	
19" Rack Mount, 1 U Height	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45 Port	Max. 24, Auto MDI/MDI-X
100/1000Base-X SFP Port	Max. 24
1G/10G SFP Port	Max. 4
Local Console Management Port	RS232, RJ45 Connector, 115200bps, 8, N, 1
LEDs	Power Supply Status, RJ45 Ports, F/O Ports, Device Status
Technology	
Switching Mode	Store - Forwarding
MAC Table	32K
Jumbo Frame	Up to 13k Bytes
Layer 3 Features	Static Routing, RIP V1/V2, OSPF, VRRP, PIM-SM
Prioritization	8 Priorities, 4 Priority Queues Strict and Relative Priofity Support of IEEE802.1p/DSCP Scheduling
Redundancy	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s) and G.8032 ERPS(Ethernet Ring Protection Switching) Link Aggregation (Static & IEEE802.3ad LACP)
Trafic Filtering	Port-based VLAN, IEEE802.1Q VLAN No. of VLANs: 4096 Management VLAN Port Mirroring, 1:1 and N:1 IGMP Snooping v1/v2 multicast filtering Rate limit (ingress/egress) Broadcast Storm limit, Limit to broadcast/multicast/unknown unicast
Network Security	Access Control List Port-based MAC filtering MAC Binding Port-based IEEE802.1x Authentication RADIUS Authentication Automatic DDOS protection
Device Management & Maintenance	SNMP v1/v2/v3 WEB and CL Device Management, Telnet/SSH fore remote management DHCP Client Multi-level user/password Syslog, RMON, PING test and LLDP Firmware upgrade and configuration backup via WEB and CLI management interfaces Switch configuration file backup/restore
Time Synchronization	SNTP
Power	
24VDC Power Input	4-pin terminal block, 12-36VDC, Redundant power input optional
48VDC Power Input	4-pin terminal block, 36-58VDC, Redundant power input optional
220V Power Input	4-pin terminal block, 85-264VAC or 77-300VDC, Redundant power input optional
Power Consumption (Typ.)	< 30W
Overload Current Protection	Present
Reverse Polarity Protection	Present
Relay Contact	Via 3-pin terminal block, < 24V/1A

Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	440(W) x 350(D) x 44(H) mm
Weight (g)	< 6kg

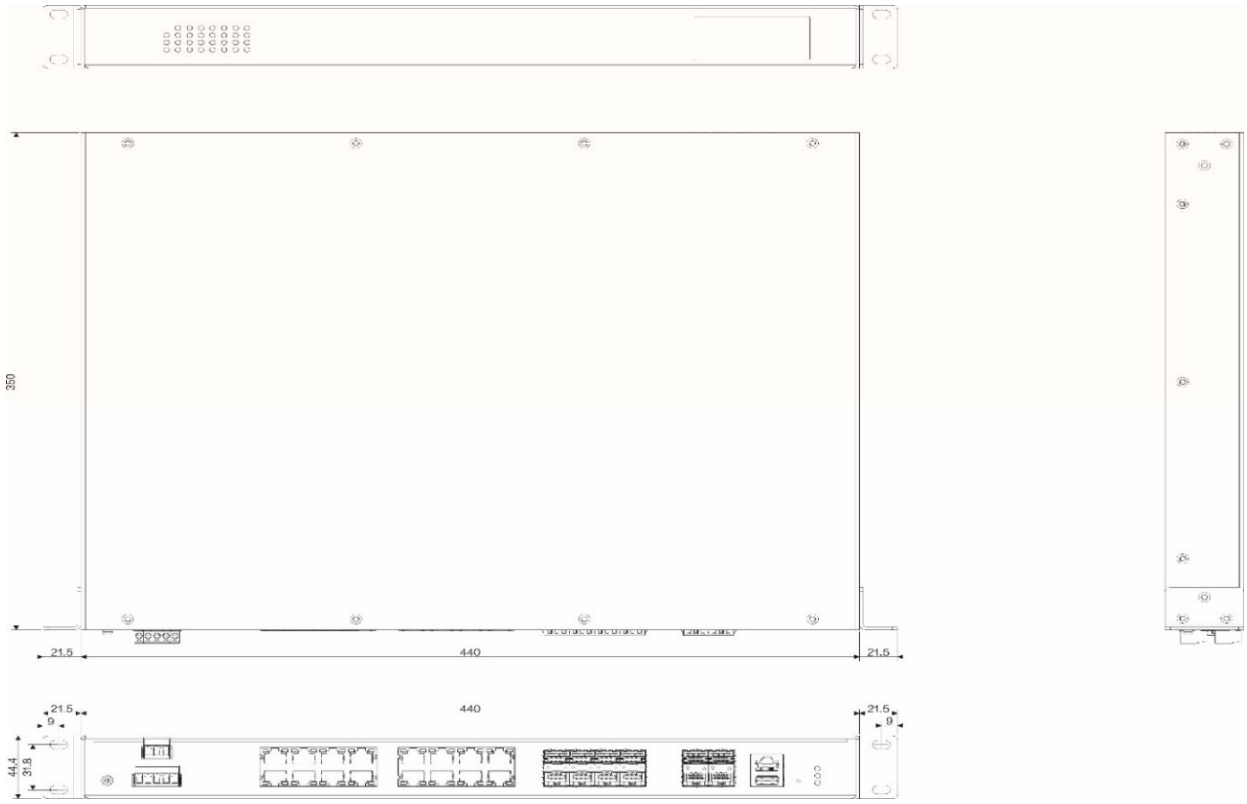
Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	41 Years

Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX and 100Base-FX IEEE 802.3ab 1000BASE-T(X) IEEE 802.3z 1000BASE-X IEEE 802.3aq 10GBASE-LMR IEEE 802.3x flow control IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP, G.8032 ERPS IEEE 802.1p QoS IEEE 802.1Q VLAN IEEE 802.3ad LACP IEEE 802.1x Authentication
RFC Compliance	RFC 4445 MDI, RFC 1215 Trap, RFC 1213 MIB II, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643, RFC 1757, RSTP MIB, Private MIB, LLDP MIB

Dimensions



Ordering Information

Base	PS 1	PS 2	Mount	Slot 1	Slot 2	Slot 3	Fixed Port	Optional	Description
RRS4228	HV	HV	RF	8GSFP	8GSFP	8GRJ45	4TGSFP		
RRS4228	|	|	|	|	|	|	|	|	Base Unit, with 4 x 10G SFP Ports and 3 Slots
	|	XX	|	|	|	|	|	|	None
	LV	LV	|	|	|	|	|	|	Power Input 12-36VDC
	MV	MV	|	|	|	|	|	|	Power Input 36-58VDC
	HV	HV	|	|	|	|	|	|	Power Input 77-300VDC or 85-264VAC
			RF	|	|	|	|	|	Rack Mount, Power Terminals and Ethernet Ports on Rear Panel/ LED and Console on Front Panel
				8GRJ45	|	|	|	|	8 x 10/100/1000Base-T(X) RJ45 Ports
				8GSFP	|	|	|	|	8 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
					8GRJ45	|	|	|	8 x 10/100/1000Base-T(X) RJ45 Ports
					8GSFP	|	|	|	8 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
						8GRJ45	|	|	8 x 10/100/1000Base-T(X) RJ45 Ports
						8GSFP	|	|	8 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately)
							4TGSFP	|	4 x 1G/10G SFP Ports (SFP Transceiver must be ordered separately)
								C	Conformal Coating
								U	User Customization

Example Order Code: RRS4228-HV-HV-RF-8GRJ45-8GSFP-8GSFP-4TGSFP

Description: RRS4228 Industrial Managed 10Gigabit Layer 3 Ethernet Switch, Dual Redundant HV Input 77-300VDC or 85-264VAC, 19” Rack Mount, 1U Height, Power Terminals and Ethernet Ports on Rear Panel/ LED and Console on Front Panel, with 8 x 10/100/1000Base-T(X) RJ45 Ports, 16 x 100/1000Base-X SFP Ports (SFP Transceiver must be ordered separately), and 4 x 1G/10G SFP Ports (SFP Transceiver must be ordered separately).

RRS4252

Intelligent 52 Ports 10Gigabit/Gigabit Layer 3 Managed Ethernet Switch

Product Overview

RRS4252 is an intelligent 10Gigabit/Gigabit capable Layer 3 Ethernet switch designed to withstand the harshest environments of utility substations and rolling stock applications.

RRS4252 supports up to 48 X 10/100/1000Base-TX ports and 4 X 1G/10G ports, or 36 X 10/100/1000Base-TX ports, 12 X 100/1000 SFP ports and 4 X 1G/10G ports, or 24 X 10/100/1000Base-TX ports, 24 X 100/1000 SFP ports and 4 X 1G/10G ports. The switch provides layer 2 redundancy support through functions such as STP/RSTP/MSTP and ERPS, as well as layer 3 redundancy VRRP that assuring protection of all mission critical network applications. In addition, RRS4252 supports various advanced layer 3 routing features such as static and dynamic routing features including RIP and OSPF, and even multicast routing PIM-SM. RRS4252 can be managed via the Web UI, Telnet/SSH, and Console (CLI). The switch accepts a wide voltage range of 12-36VDC, 36-58VDC, or high voltage of input 77-300VDC or 85-264VAC. The switch is made of IP40 galvanized steel and has a wide operating temperature range from -40°C to +85°C, which is suitable for the harshest of environments without the use of fans.

Specifications

Table 1. General

Description	
Support	➢ Max. 48 x Gigabit Ports (Copper and SFP selectable) ➢ Max. 4 x 1G/10G SFP Ports ➢ All RJ45 Ports support auto-negotiation ➢ Store & Forwarding
IP40 Galvanized Steel Enclosure	
Operating Temp. Range: -40°C to +85°C	
19" Rack Mount, 1 U Height	

Table 2. Technical Specification

Description	Specifications
10/100/1000Base-T(X) RJ45 Port	Max. 48, Auto MDI/MDI-X
100/1000Base-X SFP Port	Max. 24
1G/10G SFP Port	Max. 4
Local Console Management Port	RS232, RJ45 Connector, 115200bps, 8, N, 1
LEDs	Power Supply Status, RJ45 Ports, F/O Ports, Device Status
Technology	
Switching Mode	Store - Forwarding
MAC Table	32K
Jumbo Frame	Up to 13k Bytes
Layer 3 Features	Static Routing, RIP V1/V2, OSPF, VRRP, PIM-SM
Prioritization	8 Priorities, 4 Priority Queues Strict and Relative Priofity Support of IEEE802.1p/DSCP Scheduling
Redundancy	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s) and G.8032 ERPS(Ethernet Ring Protection Switching) Link Aggregation (Static & IEEE802.3ad LACP)
Trafic Filtering	Port-based VLAN, IEEE802.1Q VLAN No. of VLANs: 4096 Management VLAN Port Mirroring, 1:1 and N:1 IGMP Snooping v1/v2 multicast filtering Rate limit (ingress/egress) Broadcast Storm limit, Limit to broadcast/multicast/unknown unicast
Network Security	Access Control List Port-based MAC filtering MAC Binding Port-based IEEE802.1x Authentication RADIUS Authentication Automatic DDOS protection
Device Management & Maintenance	SNMP v1/v2/v3 WEB and CL Device Management, Telnet/SSH fore remote management DHCP Client Multi-level user/password Syslog, RMON, PING test and LLDP Firmware upgrade and configuration backup via WEB and CLI management interfaces Switch configuration file backup/restore
Time Synchronization	SNTP
Power	
24VDC Power Input	4-pin terminal block, 12-36VDC, Redundant power input optional
48VDC Power Input	4-pin terminal block, 36-58VDC, Redundant power input optional
220V Power Input	4-pin terminal block, 85-264VAC or 77-300VDC, Redundant power input optional
Power Consumption (Typ.)	< 30W
Overload Current Protection	Present
Reverse Polarity Protection	Present
Relay Contact	Via 3-pin terminal block

Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	440(W) x 360(D) x 44(H) mm
Weight (g)	< 8kg

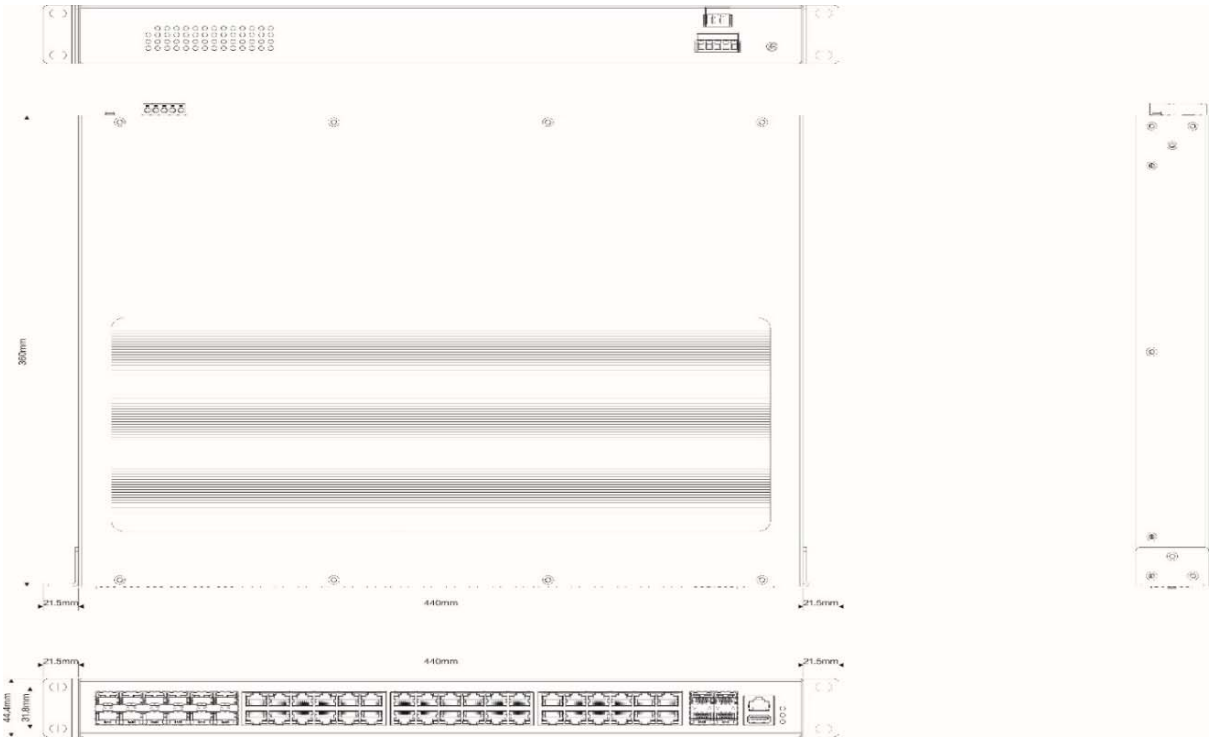
Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, CISPR (EN55022) class A,
Electromagnetic Immunity	EN 61000-4-2 (ESD), EN 61000-4-3 (RS), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge) EN 61000-4-6 (CS), EN 61000-4-8
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Environmental Protection	RoHS and WEEE Compliance
Operating Environment	-40°C to +85°C, No Fans
Storage Environment	-40°C to +85°C
Operating Humidity	5% - 95% (Non-condensing)
Warranty	5 Years
MTBF	41 Years

Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX and 100Base-FX IEEE 802.3ab 1000BASE-T(X) IEEE 802.3z 1000BASE-X IEEE 802.3aq 10GBASE-LMR IEEE 802.3x flow control IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP, G.8032 ERPS IEEE 802.1p QoS IEEE 802.1Q VLAN IEEE 802.3ad LACP IEEE 802.1x Authentication
RFC Compliance	RFC 4445 MDI, RFC 1215 Trap, RFC 1213 MIB II, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643, RFC 1757, RSTP MIB, Private MIB, LLDP MIB

Dimensions



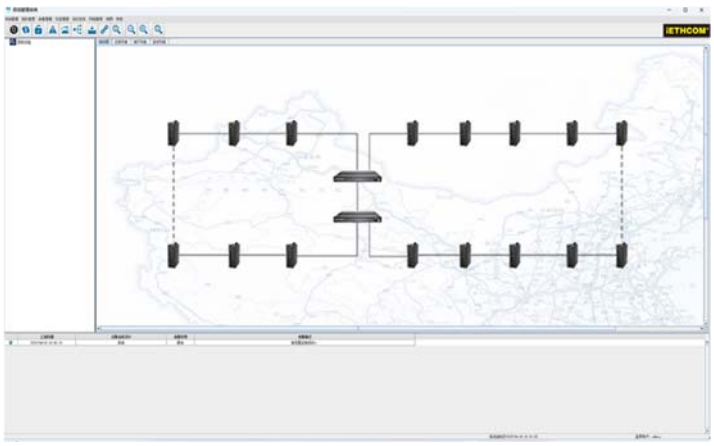
Ordering Information

Base	PS 1	PS 2	Mount	Slot 1	Slot 2	Slot 3	Fixed Port	Optional	Conformal Coating
RRS4252	HV	HV	RF				4TGSFP		
RRS4252	|	|	|	|	|	|	|	|	Base Unit, with 4 x 1G/10G SFP Ports and 3 Slots
	|	XX	|	|	|	|	|	|	None
	LV	LV	|	|	|	|	|	|	Power Input 12-36VDC
	MV	MV	|	|	|	|	|	|	Power Input 36-58VDC
	HV	HV	|	|	|	|	|	|	Power Input 77-300VDC or 85-264VAC
			RF	|	|	|	|	|	Rack Mount, Power Terminals and Ethernet Ports on Rear Panel/ LED and Console on Front Panel
				48GRJ45	|	4TGSFP	|	|	48 x 10/100/1000Base-T(X) RJ45 Ports, 4 x 1G/10G SFP Ports (SFP Transceiver must be ordered separately)
				36GRJ45	12GSFP	4TGSFP	|	|	36 x 10/100/1000Base-T(X) RJ45 Ports, 12 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately), 4 x 1G/10G SFP Ports (SFP Transceiver must be ordered separately)
				24GRJ45	24GSFP	4TGSFP		|	24 x 10/100/1000Base-T(X) RJ45 Ports, 24 x 100/1000BASE-X SFP Ports (SFP Transceiver must be ordered separately), 4 x 1G/10G SFP Ports (SFP Transceiver must be ordered separately)
							|	C	Conformal Coating
								U	User Customization

Example Order Code: RRS4252-HV-HV-RF-36GRJ45-12GSFP-4TGSFP

Description: RRS4252 Industrial Managed 10Gigabit Layer 3 Ethernet Switch, Dual Redundant HV Input 77-300VDC or 85-264VAC, 19" Rack Mount, 1U Height, Power Terminals and Ethernet Ports on Rear Panel/ LED and Console on Front Panel, with 36 x 10/100/1000Base-T(X) RJ45 Ports, 12 x 100/1000Base-X SFP Ports (SFP Transceiver must be ordered separately), and 4 x 1G/10G SFP Ports (SFP Transceiver must be ordered separately).

iETHVIEW NMS



iETHVIEW is a powerful and comprehensive network management system for monitoring networks. To simplify the management of complex networks, iETHVIEW can be configured with a full complement of Fault, Topology, Performance, and Security features.

iETHVIEW enables network administrators to efficiently monitor status and performance of all devices and pinpoint bottlenecks in real-time. With the advanced Fault Management capabilities, iETHVIEW provides alarm filtering, alarm correlation, and alarm handling features that help administrators isolate and correct problems in the network.

iETHVIEW user interface has been designed with ease of use in mind and to simplify network administrator's tasks. Navigation between applications is simple and intuitive, with consistent access to reports and screens.

Features:

- Device Discovery
- Topology Visualization with support to show redundant link information
- Device Status View
- Alarms and Notifications
- Real-time and Historic Device Statistics
- User and Group Management
- Role Based Authorization
- Audit Logs
- Firmware Upgrades
- Configuration Backup and Restore

Topology Display:

iETHVIEW has the intelligence to automatically discover devices in a network and display network details in multiple views:

1. An interactive connectivity view showing all devices and the physical connections between them
2. A link view showing details of each link between devices

Chassis View:

The chassis view provides an instant physical snapshot of supported iETHCOM devices with the real time chassis view. The product image provides a view of each interface, along with asset attributes such as firmware version.

Fault Report:

iETHVIEW offers an intuitive GUI for tracking alarms and recording of all faults in the network. It has a built-in interface for managing the faults. iETHVIEW has a range of publishing and display tools including automatic filtering and forwarding of alarms to email for ensuring timely notification of problems.

Network Performance Reports:

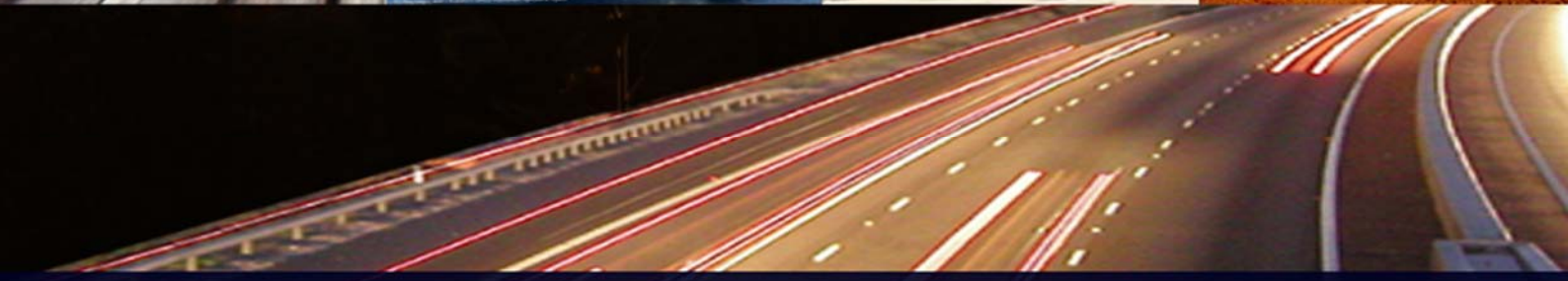
iETHVIEW can monitor multiple key performance metrics continuously for each configured network element and displays the results in multiple report formats for the convenience of the administrators. It can generate reports such as Bytes Received, Bytes Sent, or other key metrics within the defined network. These reports help the administrator to identify quickly the bottlenecks and problems within a specific network.

SYSTEM REQUIREMENTS	
SERVER OPERATING SYSTEM	Windows Server 2019 Windows Server 2016 Windows 10/11
SERVER CONFIGURATION	Processor: >1.6GHz Memory (RAM): > 8GB Disk Space: >100GB

ACCESSORIES

SFP Transceivers

SFP Module #	Description
SFP100-MM-2	SFP 100Mbps Multimode LC Transceiver 2km, 1310nm, -40°C to +85°C
SFP100-SM-20	SFP 100Mbps Singlemode LC Transceiver 20km, 1310nm, -40°C to +85°C
SFP100-SM-60	SFP 100Mbps Singlemode LC Transceiver 60km, 1310nm, -40°C to +85°C
SFP100-SM-80	SFP 100Mbps Singlemode LC Transceiver 80km, 1550nm, -40°C to +85°C
SFP1000-TX	SFP 10/100/1000Mbps TX RJ45 Transceiver 100m, -40°C to +85°C
SFP1000-MM-550	SFP 1Gbps Multimode LC Transceiver 550m, 850nm, -40°C to +85°C
SFP1000-MM-2	SFP 1Gbps Multimode LC Transceiver 2km, 1310nm, -40°C to +85°C
SFP1000-SM-20	SFP 1Gbps Singlemode LC Transceiver 20km, 1310nm, -40°C to +85°C
SFP1000-SM-40	SFP 1Gbps Singlemode LC Transceiver 40km, 1310nm, -40°C to +85°C
SFP1000-SM-80	SFP 1Gbps Singlemode LC Transceiver 80km, 1550nm, -40°C to +85°C
SFP10G-SM-10	SFP 10Gbps Singlemode LC Transceiver 10km, 1310nm, -40°C to +85°C
SFP10G-SM-80	SFP 10Gbps Singlemode LC Transceiver 80km, 1550nm, -40°C to +85°C
SFP10G-MM-300	SFP 10Gbps Multimode LC Transceiver 300m, 850nm, -40°C to +85°C
SFP10G-TX	SFP 10GMbps TX RJ45 Transceiver 100m, -40°C to +85°C
SFP1000BIDI1-SM-20	SFP 1Gbps Bi-Directional Singlemode LC Transceiver 20km, TX1310nm, RX1550nm, -40°C to +85°C
SFP1000BID2-SM-20	SFP 1Gbps Bi-Directional Singlemode LC Transceiver 20km, TX1550nm, RX1310nm, -40°C to +85°C
SFP10GBIDI1-SM-10	SFP 10Gbps Bi-Directional Singlemode LC Transceiver 10km, TX1310nm, RX1550nm, -40°C to +85°C
SFP10GBIDI2-SM-10	SFP 10Gbps Bi-Directional Singlemode LC Transceiver 10km, TX1550nm, RX1310nm, -40°C to +85°C



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