

Rugged Substation Automation Ethernet Switch RSAES

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for the automation of substations

Rugged Substation Automation Ethernet Switch RSAES



Compact DIN Rail Ethernet Switch 3x Gigabit SFP 8x 100 Mbit's copper ports Hardware support for IEEE 1588v2 PTP Redundant 24-48 V DC power input Additional 110 – 300 V DC power input





Precision Timing

Advanced hardware support for IEEE 1588v2, functioning both as a Boundary Clock (BC) and Transparent Clock (TC), ensuring accurate time synchronization across devices.



IEC 61850-3 and IEEE 1613

Rugged system specially made for power substations.



Compact housing

High computing power in a small package.



Diverse Port Configuration

Comes with 8x Fast Ethernet ports and 3x Gbps SFP Fiber links, offering a balanced mix of speed and connectivity options.



DIN-Rail mounting

Designed to be used in switching cabinets with DIN-Rail mounting.



Redundant Power Supply

Features a redundant power supply with a range of 24-48 V DC and an additional power input of 110 - 300 V DC, ensuring uninterrupted operation.

Technical Details

Switch properties

Model Name	RSAES
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Interface

RJ-45 Ports	8 x 10/100BASE-T(X)
Fiber Optics Ports	3 x 100/1000FX SFP Slot
Console Port	RS-232 (RJ-45 connector)
LED Indicators	Power supply 1, 2 and 3, Alarm, Running, Ring Master, Ring, 3 x SFP status, Digital Input, LAN ports
Relay Output	Relay Output (24V/1A) with current carrying capacity of 1A @ 24 VDC
DIP Switch	4 x for Ring Control
Button	Factory Reset

Capacity

Switching Capacity	7.6 Gbps
Switching Fabric	5.7 Mpps
Packet Buffer Size	1.75 Mb
MAC Table Size	4K
Jumbo Frame	9216B

Networking standards

IP Version	IPv4, IPv6
Ethernet Standards	IEEE 802.3 for 10BaseT, IEEE 802.3u for 100BaseT(X), IEEE 802.3z for 1000BaseX, IEEE 802.3x for Flow Control, back pressure flow control, IEEE 802.1d-2004 for Spanning Tree Protocol, IEEE 802.1w for Rapid STP, IEEE 802.1s for Multiple Spanning Tree Protocol, IEEE 802.1q for VLAN Tagging, IEEE 802.1p for Class of Service, IEEE 802.1x for Authentication, IEEE 802.3ad for Port Trunk with LACP, IEEE 802.1ad QinQ, IEEE 802.1AB LLDP
Redundancy	ITU-T G.8032 ERPS Ring / IEEE 802.1d-2004 for STP / IEEE 802.1w for RSTP / IEEE 802.1s for MSTP

VLAN

Max. Number of VLAN	4KB
VLAN ID Range	VID 1 to 4094
VLAN Type	Management VLAN, Port-Based VLAN, 802.1q Tag-Based VLAN, MAC-Based VLAN (up to 512 VLANs), Protocol-Based VLAN
GVRP (GARP VLAN Registration Protocol)	Y

Security

Port Security	Y
AAA	RADIUS, TACACS+
Port Authentication	Y
IP Source Guard	Y
ARP Spoof Prevention	Y

Dynamic ARP Inspection	Y
DHCP Snooping	Y
Access Control List	MAC, IPv4, IPv6
Storm Control	Unicast, Multicast, Broadcast
UDLD Loop Protection	Y

QoS

Number of Priority Queues	8
Queue Selection	Strict Priority (SP), Weighted Round Robin (WRR)
CoS (Class of Service)	802.1p CoS, DSCP
Rate Limit & Shaping	Y

Multicast

IGMP Snooping	v1/v2/v3
MLD Snooping	v1
Max. Number of Static IGMP Groups	128

Link aggregation

Max. Number of Trunk Groups	4
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Time synchronization

Network Time Sync.	NTP Server/Client, SNTP
Precision Network Time Sync.	IEEE 1588 PTP v1/v2 (hardware-based,) IEEE 1588 Hardware-based peer-to-peer / end-to-end transparent clock, PTP - G8265.1 PTP - 802.1AS

Management

Web Interface	HTTP, HTTPS
Command Line Interface	Telnet, SSHv2
User Authentication	Local Database, RADIUS, TACACS+
Automation Profiles	RADIUS, TACACS+
Port Authentication	Modbus/TCP status registers
SNMP	SNMPv1/v2c/v3, SNMP Inform
SNMP MIB	IF-MIB, SNMPv2-MIB, BRIDGE-MIB, LLDP Standard MIB, 802.1q Bridge-MIB, 802.1x PAE MIB, 802.1 MSTP MIB, 802.3ad LACP MIB, RMON MIB Group 1,2,3,9, TIA 1057 LLDP-MED, RFC 1157, RFC 1213 MIB II, RFC 1213, RFC 1215, RFC 1493, RFC 1643, RFC 1757, RFC 2011, RFC 2012, RFC 2013, RFC 2233, RFC 2571, RFC 2613, RFC 2674, RFC 2742, RFC 2819, RFC 2863, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415, RFC 3635, RFC 3636, RFC 4133, RFC 4188, RFC 4292, RFC 4293, RFC 4668, RFC 4670, RFC 4878, RFC 5519
RMON Group	1, 2, 3, 9
LLDP	Y
Alarm	Relay, E-mail (SMTP), LED
Syslog	Y
DHCP Support	DHCP Client, DHCP Relay

DHCP Option	66, 67, 82
BootP	Y
Backup/Restore	HTTP, TFTP
NMU Managed	Y
Diagnostics Utilities	Port Mirror, Ping, Ping6, IPv4/v6 TraceRoute, Cable Diagnostics

Physical

Housing	IP30 SPCC
Dimension (W x H x D)	77 x 163 x 138 mm
Weight	1,500g (3.31lb)
Installation	DIN-Rail mount / Wall mount (optional kit)
Operating Temperature	-40°C to +75°C (-40°F to +167°F)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Ambient Relative Humidity	5% to 95% (Non-condensing test @ 55°C)
Input Voltage	24 - 48 V DC (redundant), 110-300 VDC
Power Consumption	13.1W@52VDC (with input current 0.25A), 10.2W@330VDC for HV Series (with input current 0.03A)
Connector	1 x 5-Pin 5.08mm Lockable Terminal Block, 1 x 4-Pin 5.08mm Lockable Terminal Block, 1 x 3-Pin 5.08mm Lockable Terminal Block
Reverse Polarity Protection	Y

Approvals

CE (EU)	Yes
FCC	Yes
UL/cUL	Yes
RoHs	Yes
IEC 61850-3	Yes
IEEE 1613	Yes
REACH	Yes
CB	Yes

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Contact us

 +49 2554 9130 00

 service@welotec.com

Welotec GmbH
Zum Hagenbach 7
48366 Laer, Germany

Welotec Inc.
4949 S Syracuse - St Ste 550
Denver, CO 80237 - USA

www.welotec.com