



Rugged Substation Automation Gigabit Switch RSAGS

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for the automation of substations

Rugged Substation Automation Gigabit Switch RSAGS



Advanced and flexible ethernet layer 2 switch with up to 28 ports 4x 10 Gbps SFP Ports and up to 24 additional gigabit ports Specially designed to operate in the harsh environments of power substations Meets the IEC 61850-3 and IEEE 1613 requirements Hardware support for HSR and PRP IEEE 1588v2





IEC 61850-3

Specifically tailor-made for power substations, ensuring optimal performance and reliability.



Configurable Design

Features 3x1U hot-swappable port modules, allowing for easy customization and adaptability to various substation needs.



High Port Count

Equipped with 4x 10 Gbps SFP Ports and the capacity to support up to 24 additional gigabit ports, ensuring high-speed connectivity and scalability.



Redundancy Assured

Hardware support for HSR and PRP protocols (with RSAGS-4HSRPRP Module) to guarantee uninterrupted data flow and system uptime.



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.



Reliable Power Supply

Features a redundant power supply ranging from 24 – 120 V DC, 120 – 380 V DC, to 100 to 240 V AC



Wide temperature range

Operates within a temperature range of -40°C to +75°C, ensuring reliable connectivity in diverse climatic conditions across the globe.

Technical Details

Switch properties

Priority Queues	8
VLAN Table	512
MAC-Based VLAN	512
VLAN ID Range	VID 1 to 4094
Trunk Group	8
Static IGMP Groups	128
Dynamic IGMP Groups	256
MAC Table Size	16k
Packet Buffer Size	1.5 MB
Jumbo Frame	9216 Byte
Switching Fabric Capacity	128 Gbps
Maximum throughput	95.24 Mpps

Ethernet

Standards	IEEE 802.3 for 10BASE-T / IEEE 802.3u for 100BASE-T(X) / IEEE 802.3u for 100BASE-FX / IEEE 802.3ab for 1000BASE-T(X) / IEEE 802.3z for 1000BASE-X / IEEE 802.3ae for 10 Gigabit Ethernet Fiber / IEEE 802.3x for Flow Control, backpressure control / IEEE 802.1D-2004 for Rapid Spanning Tree Protocol / 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 802.1AB Link Layer Discovery Protocol (LLDP) / IEEE 802.1Q VLAN / IEEE 802.3ad for Port Trunk
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	with LACP / IEC 62439-3 Clause 4 PRP (Parallel Redundancy Protocol) / IEEE 1588v2 PTP (Hardware-based)
Protocols	IPv4, IPv6, IGMPv1/v2/v3, GMRP, GVRP, SNMPv1/v2c/ v3, SNMP Inform, ICMP, Telnet, SSH, DHCP Server/ Relay/Client, DHCP Option 66/67/82, BootP, TFTP, NTP Server/Client, SNTP, SMTP, RMON, HTTP, HTTPS, Telnet, Syslog, MRP (Manager/Client), ERPS, LLDP, IEEE 1588 PTP V2(Hw-based), 802.1x, RADIUS, TACACS+, HSR, PRP, Voice VLAN, sFlow
Redundancy	IEC 62439-3 Clause 5 High-Avail-Seamless-Redundancy (HSR) - Only with HSR/PRP Module (RSAGS-4HSRPRP-Modul) IEC 62439-3 Clause 4 Parallel-Redundancy-Protocol (PRP) - Only with HSR/PRP Module (RSAGS-4HSRPRP-Modul) ITU-T G.8032 ERPS, STP, RSTP, MSTP, MRP (Manager/Client), Compatible Ring/Chain, U-Ring
Automation Profiles	Modbus TCP
MIB	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9

Precision timing and time synchronization

Network Time	NTP Server/Client, SNTP
Precision Time Protocol	IEEE 1588v2 BC (HW)-ns accuracy / IEEE 1588v2 TC (HW)-ns accuracy
Holdover Accuracy	Boundary Clock / <30 ns/s (IEEE 61850-9-3 compliant)
PTP Mode	Layer-2: Multicast, E2E/P2P, two-steps / Layer-3 (IPv4): Multicast,Unicast,Unicast Neg. (E2E/P2P)
Supported Profiles	C37.238 -2017 Power Profile / IEC/ IEEE

	61850-9-3 Power Profile(2016)
Additional Interfaces	1PPS square pulse issued from a 1PPS output BNC(F)

Physical characteristics

Housing	IP30 metal housing
Dimension (W x H x D)	440 x 44 x 355 mm (not including screws, terminal blocks and rack-mount kit)
Weight	5Kg (not including module but module cover only)
Installation	1U Rack-mount, Rack-mount kit included

Environmental limits

Operating Temperature	-40°C to +75°C (-40°F to +158°F)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Ambient Relative Humidity	5% to 95%, 55°C (Non-condensing)

Approvals

CE (EU)	Yes
RoHs	Yes
REACH	Yes
FCC	Yes
UL/cUL	Yes

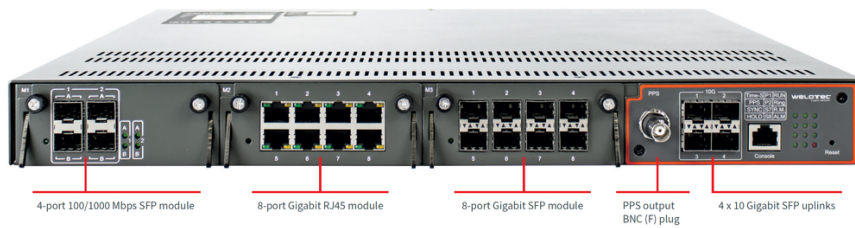
CB	Yes
IEC61850-3	Yes
IEEE 1613	Yes

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Configuration Example

IEC61850-3 certified Layer-2 Managed Switch, with 8 Gigabit ports, 4 100/1000 High-Availability HSR/PRP ports, 8 Gigabit SFP slots, one PPS output BNC (F) plug, and 4 x 10 Gigabit SFP uplinks.



Accessoires



RSAGS-4HSRPRP
4-port 100/1000
Mbps SFP module



RSAGS-8RJ45 8-port
Gigabit RJ45 module



RSAGS-8SFP 8-port
Gigabit SFP module

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