

## FEATURE HIGHLIGHTS



- Maximum 128Gbps switching capacity, 95.24Mpps throughput
- Rugged industrial design for -40~75° C harsh environment operation
- Flexible modular configuration, 3 Module-dedicated slots
- Up to 24 PoE ports, with maximum 720W of PoE power budget
- 4 x 1 Gigabit or 4 x 10 Gigabit SFP Uplink slots
- Up to 20 possible configurations in 4 power input versions
- ITU-T G.8032 ERPS Ring, RSTP, or MRP (client) redundancy
- EN50155 / EN50121-4 Certified for Railway applications
- Advanced management features
- Security features based on IEC62443-4-2

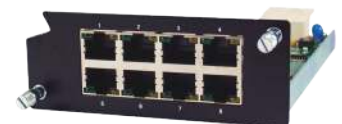
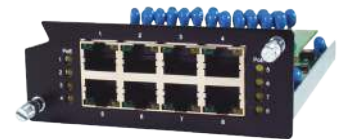
## PRODUCT DESCRIPTION

**Flexible:** Atop's high-density RHG7528 Managed Rack-mount switch will provide you the flexibility your application needs. You will be able to choose among 8 different Core versions (based on power supply and uplink port configurations) and three different 8-Port modules and customize your device in a very simple way.

**Designed for PoE, in wide temperature:** RHG7528 supports up to **24 Gigabit ports in any 8-port multiple configuration**. Specifically designed for bringing power through Ethernet cable virtually anywhere, a **maximum output Power over Ethernet of 720W over the 24 ports is allowed** (PoE/PoE+ configuration - 802.3af/at). Available in **four power input variants**, RHG7528 is EN 60950-1:2006 certified and is designed to withstand the harshest environments. Its fanless design and EMC Level 3 protection guarantee reliable **operations within -40 and +75°C**.

**Powerful and versatile:** With its high performance, it provides network redundant self-recovery mechanism is less than 20ms on full load that enables the user to build a reliable network through almost any redundant ring topology. RHG7528 supports ITU-T G.8032 ERPS Ring, IEEE802.1D-2004 RSTP, STP, MSTP, MRP (Client), iA-Ring, iA-Chain and many compatible rings protocols for network redundancy. With a Multifunctional web dashboard, it offers intelligent features such as Quality of service (QoS), IGMP, Port mirroring and security. To prevent network intrusions, it is necessary to have a good accessing control mechanism that can identify, authenticate and authorize users. RHG7528 supports user account, password policy, and authentication interface managements functions that comply with IEC62443 standard.

The RHG7528 Series is fully **EN50155-certified** to ensure reliable performance under a wide range of power supply conditions, and it complies with essential sections of **EN50121-4** for ground equipment.



## CONFIGURATION EXAMPLE



**RHG7528-CPU-410GSFP-R** Main unit, with 4 x 10 Gigabit SFP uplink slots and redundant AC power input



**RHG7X28-M1**  
8-port Gigabit RJ45 PoE module



**RHG7X28-M2**  
8-port Gigabit RJ45 module



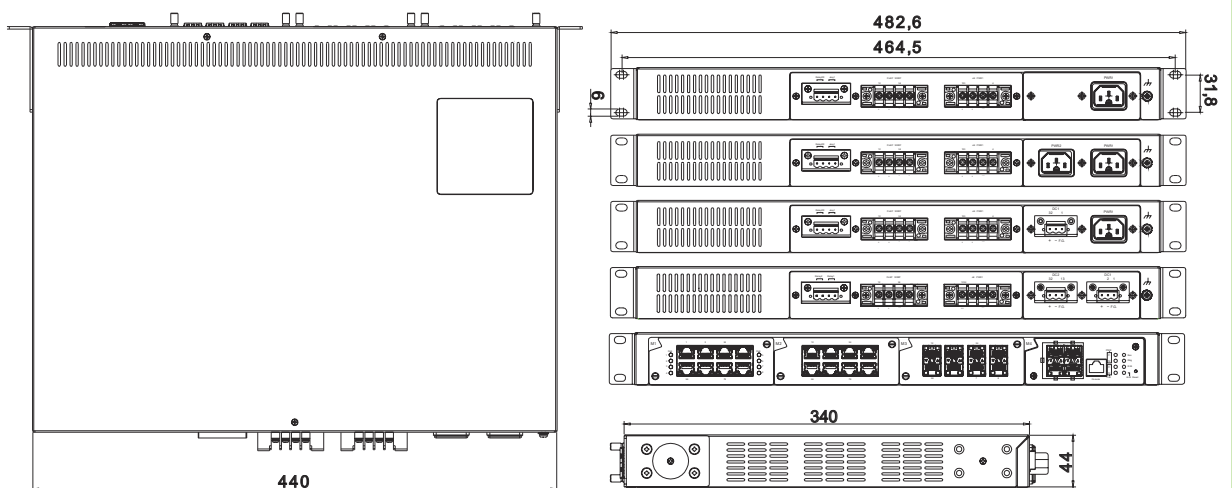
**RHG7X28-M3**  
8 port 100/1000 SFP module



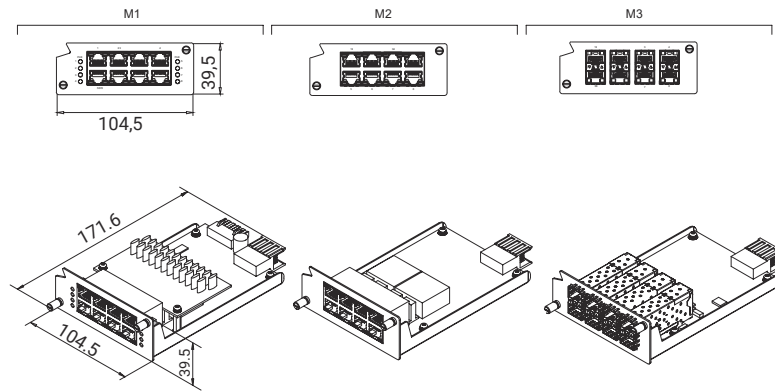
24 port Layer-2 Managed Switch, with 8 Gigabit PoE ports, 8 Gigabit RJ45 ports, 8 100/1000 SFP slots and 4 x 1/10 GbE SFP uplink slots

## DIMENSIONS & LAYOUT

Switch core module



RHG7X28-M1  
RHG7X28-M2  
RHG7X28-M3



## SPECIFICATIONS

### Switch core



### Technical Specifications

Model Name RHG7528

### Switch Properties

Priority Queues	8
VLAN Table	4096
MAC-Based VLAN	512
VLAN ID Range	VID 1 to 4094
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	56 Gbps (1G uplinks) / 128 Gbps (10G uplinks)
Maximum throughput	41.67 Mpps (1G uplinks) / 95.24 Mpps (10G uplinks)

### Ethernet

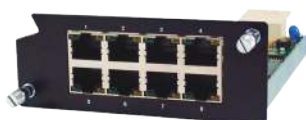
Standards	<ul style="list-style-type: none"> <li>IEEE 802.3 for 10BaseT</li> <li>IEEE 802.3u for 100BaseT(X)</li> <li>IEEE 802.3ab for 1000BaseT(X)</li> <li>IEEE 802.3z for 1000BaseX</li> <li>IEEE 802.3ae For 10 Gigabit Ethernet Fiber</li> <li>IEEE 802.3x for Flow Control, back pressure flow control</li> <li>IEEE 802.1D-2004 for Spanning Tree Protocol</li> <li>IEEE 802.1w for Rapid Spanning Tree Protocol</li> <li>IEEE 802.1s for Multiple Spanning Tree Protocol</li> <li>IEEE 802.1Q for VLAN Tagging</li> <li>IEEE 802.1p for Class of Service</li> <li>IEEE 802.1X for Authentication</li> <li>IEEE 802.3ad for Port Trunk with LACP</li> <li>IEEE 802.3az for Energy Efficient Ethernet</li> </ul>
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Protocols	IPv4, IPv6, IGMPv1/v2/v3, IGMP snooping, GARP, GMRP, GVRP, SNMPv1/v2c/v3, SNMP Inform, ICMP, Telnet, SSH, Client/IP-port-mapping, BootP, TFTP, SMTP, SMTP (Gmail), RMON, HTTP, HTTPS, Syslog, MRP(Client), LLDP, 802.1x,EAP, RADIUS,TACACS+, Mirror port, QoS, ACL, ITU-T G.8032 ERPS Ring, STP, RSTP, MSTP, Compatible Ring/Chain, U-Ring, NTP Server/Client, Serial Console, Modbus/TCP, IEEE 1588 PTP V1/V2, UDLD, Security, PoE, Trunk,LACP, MLD, 802.1Q VLAN, Port-Based VLAN,MAC-Based VLAN, IP-Subnet-Based VLAN, Protocol-Based VLAN, QinQ,802.1x, ARP spoof Prevention, DHCP snooping,IP source Guard, Dynamic ARP Inspection, DHCP relay Agent	
Redundancy	ITU-T G.8032 ERPS Ring, STP, RSTP, MSTP, Compatible Ring/Chain, U-Ring	
Time Synchronization	Network Synchronization	NTP Server/Client, SNTP
	Precision Network Synchronization	IEEE1588v1 OC/BC (Software) IEEE1588v2 TC (Hardware) - ns accuracy IEEE1588v2 OC/BC (Software)
Automation Profiles	Modbus/TCP status registers	
MIB	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9, RFC RFC 1157, RFC 1213, RFC 1215, RFC 1493, RFC 1643, RFC 1757, RFC 2011, RFC 2012, RFC 2013, RFC 2233, RFC 2571, RFC 2742, RFC 2819, RFC 2863, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415, RFC 2674	
<b>Power</b>		
Input Voltage	Switch Core:	DC version: redundant 48~57 VDC AC version: single 110~220 VAC Redundant AC version: dual 110~220 VAC Mixed AC/DC -Redundant: 1x110~220VAC & 48~57VDC
	PoE:	2 x 48-57 VDC (each power input max 360W)
Input Current (Max)	CPU board AC/ redundant AC: 110-220 VAC, 0.58 A Max, 64W Max CPU board redundant DC 48-57 VDC , 0.68A Max, 32.7W Max 802.3af PoE full loading: 45-57 VDC, 8.4A Max, 370W Max 802.3at PoE+ full loading: 51-57 VDC, 14.4A Max, 720W Max	
Connectors	2 x Lockable 5-pin terminal blocks for PoE power input (all vers.) 2 x Lockable 3-pin terminal blocks for DC power input (DC vers.) 1-2 x AC power inlet (non-redundant(x1) / -MR version(x1) / -R(x2) ) 1 x Lockable 3-pin terminal blocks for DC power input (-MR version)	
Reverse Polarity Protection	Yes	
<b>Physical Characteristics</b>		
Housing Dimension (W x H x D) Weight Installation	IP30 SPCC metal housing 440 x 44 x 340 mm (not including screws and rack-mount kit) 5Kg (not including module but module cover only) 1U Rack-mount, Rack-mount kit included	
<b>Environmental Limits</b>		
Operating Temperature Storage Temperature Ambient Relative Humidity	-40°C~75°C (-40°F~167°F) -40°C~85°C (-40°F~185°F) 5%~95%, 55°C (Non-condensing)	

## Switch Modules



RHG7X28-M1



RHG7X28-M2



RHG7X28-M3

Technical Specifications			
Description	8-Port RJ45 PoE module	8-Port RJ45 module	8-Port SFP module
Model Name	RHG7X28-M1	RHG7X28-M2	RHG7X28-M3
Properties			
PoE Power per port	15.4/30W (802.3af/at)	-	-
Total Max Power	240 W	-	-
Number of ports	8	8	8
Port speed	10/100/1000 BASE-T(X)	10/100/1000 BASE-T(X)	100/1000 BASE-F(X)
Interface	RJ45	RJ45	SFP slot
Dimensions	104.5 x 171.6 x 39.5mm	104.5 x 171.6 x 39.5mm	104.5 x 171.6 x 39.5mm
Weight	550 g	500 g	450 g
Fixing	2 x screws (included)	2 x screws (included)	2 x screws (included)

## REGULATORY APPROVALS

Regulatory Approvals				
Safety	UL 60950-1 2nd Ed. /CSA C22.2 No.60950-1-07 2nd Ed. / EN 60950-1 / UL 62368-1 / IEC 62368-1			
EMC	FCC Part 15, Subpart B, Class A EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4			
Test	Item	Value	Level	
IEC 61000-4-2	ESD	Contact Discharge	±8KV	4
		Air Discharge	±15KV	4
IEC 61000-4-3	RS	Enclosure Port	10(V/m), 80-1000MHz	3 *
IEC 61000-4-4	EFT	AC Power Port	±2.0KV	3
		DC Power Port	±2.0KV	3
		Signal Port	±2.0KV	4
IEC 61000-4-5	Surge	AC Power Port	Line-to Line±1.0KV	3
		AC Power Port	Line-to Earth±2.0KV	3
		DC Power Port	Line-to Line±1.0KV	3
		DC Power Port	Line-to Earth±2.0KV	3
		Signal Port	Line-to Earth±2.0KV	3
IEC 61000-4-6	CS	0.15-80MHz	10V rms	3 *
IEC 61000-4-8	PFMF	(Enclosure)	AC 50Hz 10A/m	3
IEC 61000-4-11	DIP	AC Power Port	-	-
Shock Drop Vibration	MIL-STD-810G Method 516.5 MIL-STD-810F Method 516.5 MIL-STD-810F Method 514.5 C-1 & C-2			
Rail Traffic	EN50155 / EN50121-4 Certified			
RoHS2	Yes			
MTBF	12.20 Years			
Warranty	5 years			

\* EMC level 3 on CS/RS pass conditional to the use of Shielded Ethernet Cable

## ORDERING INFORMATION

### Main core switch ordering information

Model Name	Part Number	Slots	Uplink ports	Power supply
RHG7528-CPU-4SFP	1P1RHG7528CPU1G	3	4 x 1 Gb SFP	② <b>Single 110~220 VAC</b> + Dual 48~57 VDC PoE
RHG7528-CPU-4SFP-R	1P1RHG7528CPU2G	3	4 x 1 Gb SFP	② <b>Dual 110~220 VAC</b> + Dual 48~57 VDC for PoE
RHG7528-CPU-4SFP-MR	1P1RHG7528CPU7G	3	4 x 1 Gb SFP	② <b>Single 110~220 VAC and Single 48~57 VDC</b> + Dual 48~57 VDC for PoE
RHG7528-CPU-4SFP-DC	1P1RHG7528CPU3G	3	4 x 1 Gb SFP	② <b>Dual 48~57 VDC</b> + Dual 48~57 VDC for PoE
RHG7528-CPU-410GSFP	1P1RHG7528CPU4G	3	① 4 x 10 Gb SFP / 4 x 1Gb SFP	② <b>Single 110~220 VAC</b> + Dual 48~57 VDC PoE
RHG7528-CPU-410GSFP-R	1P1RHG7528CPU5G	3	① 4 x 10 Gb SFP / 4 x 1Gb SFP	② <b>Dual 110~220 VAC</b> + Dual 48~57 VDC for PoE
RHG7528-CPU-410GSFP-MR	1P1RHG7528CPU8G	3	① 4 x 10 Gb SFP / 4 x 1Gb SFP	② <b>Single 110~220 VAC and Single 48~57 VDC</b> + Dual 48~57 VDC for PoE
RHG7528-CPU-410GSFP-DC	1P1RHG7528CPU6G	3	① 4 x 10 Gb SFP / 4 x 1Gb SFP	② <b>Dual 48~57 VDC</b> + Dual 48~57 VDC for PoE

① Software selectable

② The power supply in **bold** is for main core switch.

### Modules ordering information

Model Name	Part Number	RJ45 PoE ports	RJ45 non-PoE ports	SFP ports
RHG7X28-M1	1P1RHG7X28M101G	8	-	-
RHG7X28-M2	1P1RHG7X28M201G	-	8	-
RHG7X28-M3	1P1RHG7X28M301G	-	-	8

### Optional Accessories

Model name	Part Number	Description
AC power cable for RHG7X28 (US)	50801341G	RHG7X28 US AC Power Cable (SS004-240)
AC power cable for RHG7X28 (EU)	50801351G	RHG7X28 EU AC Power Cable (SS004-241)
SDR-240-48	50502401480001G	DIN RAIL POWER SUPPLY / T;AC 100~240V to 48V~55V DC 5A;240W
SDR-480-48	50504801480001G	DIN RAIL POWER SUPPLY / T;AC 100~240V to 48V~55V DC 10A;480W
LM38-A3S-TI-N	50708051G	SFP Transceiver, 155Mbps, 1310nmFP, Multi-mode, 2km, 3.3V, -40~85°C
LS38-A3S-TI-N	50709431G	SFP Transceiver, 155Mbps, 1310nmFP, Single-mode, 30km, 3.3V, -40~85°C
LM28-C3S-TI-N	50708031G	SFP Transceiver, 1250Mbps, 850nmVCSEL, Multi-mode, 550m, 3.3V, -20~85°C
LM38-C3S-TI-N	50709411G	SFP Transceiver, 1250Mbps, 1310nmFP, Multi-mode, 2km, 3.3V, -40~85°C
LS38-C3S-TI-N	50709391G	SFP Transceiver, 1250Mbps, 1310nmFP, Single-mode, 10km, 3.3V, -40~85°C
LS38-C3L-TI-N	50709441G	SFP Transceiver, 1250Mbps, 1310nmDFB, Single-mode, 30km, 3.3V, -40~85°C
LM28-H3S-TI-N	50710061G	SFP Transceiver, 10.3Gbps, 850nmFP, Multi-mode, 33M(OM1 Fiber)/82M(OM2 Fiber)/300M(OM3 Fiber), 3.3V, -10~85°C