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atop Technologies

INDUSTRIAL NETWORKING BROCHURE

Engineered and manufactured in Taiwan

Contents

Industrial Ethernet 04

Introduction 04
ATOP's added value 05

Entry level Switches 11

Unmanaged Entry-Level Switches 11
Unmanaged Smart Secure Switches 13
Unmanaged Gigabit PoE Switches 15

Harsh Environments Switches 16

Introduction 16
Unmanaged Harsh Environments Switches 17
Layer-2 Managed DIN-Rail Switches 18
Layer-3 Managed Switches 21
Layer-3 Managed DIN-Rail Switches 21
Secure Layer-3 Managed Switches 23
Rack-mount Managed Switches 25
Modular Concept 25
Switch Core Platforms 26
Modules 27

Industry-Specific Ethernet Switches 30

Power Networking: IEC 61850-3 30
IEC61850-3 DIN-Rail Managed Gigabit Switch 32
IEC61850-3 Rack-Mount Managed Gb Switch 33
Railway Networking: EN50155 34
EN 50155 Railway Unmanaged Switches 38
EN 50155 Managed Switches 39

Secure Routers 40

Introduction 40
All-in-one Secure Router and L3 Secure Sw. 41

Industrial Wireless 42

Media Converters 43

44

Serial Device Servers

Introduction 44
Programmable Platform 44
Entry Level Serial Device Servers 45
Wireless / Cellular Serial Device Servers 46
Advanced Serial Device Servers 47
EN50155 – Railway Specific Serial Servers 49

50

Appendix: How to read the Brochure

Industrial Ethernet

Introduction

The latest trend in Industrial Automation is the vision of "Industry 4.0" that was originated by the German government to create the "Smart Factory" based on the concept of computerized manufacturing. This recent vision of industrial advancement involves creation of the cyber-physical system (CPS). The CPS closely linkes and coordinates the physical components in the real world with the software or computational components in the cyber world to create a mechanism that is controlled and monitored by computer-based algorithms. CPS requires a lot of data exchange among various components in the system. The smart factory with the cyber-physical system can be constructed with the recent technologies such as the Internet of Things (IoT) and the cloud computing. It is envisaged that by the end of the twenty-first century, the smart factory will have more than a billion connected devices. This, therefore, raises a lot of concern on the reliability and the security of network communications.

While Ethernet based networks became the backbone of Industrial Automation, Serial Communication remains relevant to connect legacy devices with the latest equipment. Wireless-based communication is becoming a more reliable and trustable solution not only for application where physical wiring is a problem, but also for customer who require minimal network setup and ease of use.

ATOP is a leading company into the design and manufacture of Industrial networking devices. We have an entire suite of offerings for both wired and wireless networking. Our range extends from entry level products to high level products. ATOP offers reliable, secure, and cost-effective solutions for all demanding applications. Our Industrial Ethernet switches with additional advanced features like security, redundancy (through RSTP, ERPS, or MRP Rings), QoS management, VLAN management, LACP link aggregation/port trunking, and Layer-3 routing, provides a backbone to ensure that all information will go through reliably and securely.

ATOP's added value

a) Reliability

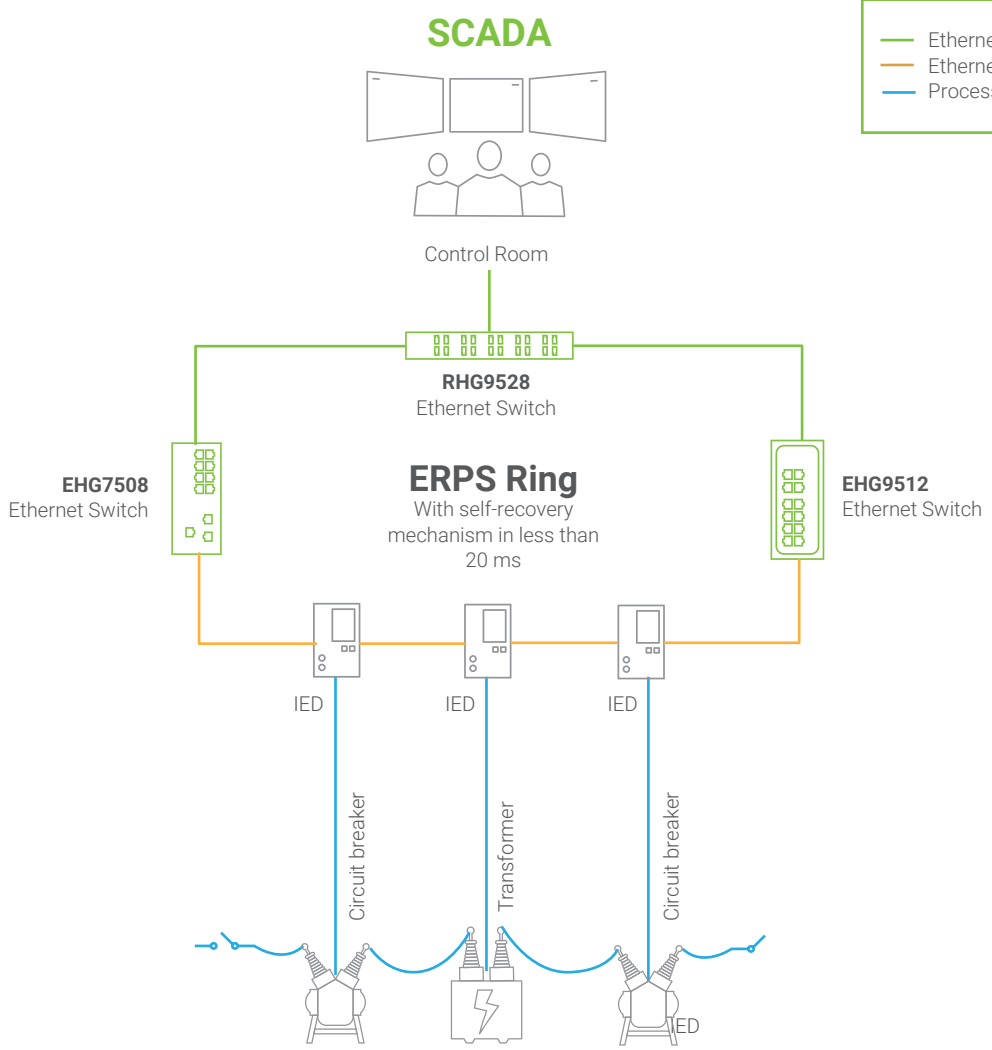
Modern day factories cannot afford any downtime. Unreliable networks lead to delay in production which is not acceptable in the Industry 4.0 era. These events unfortunately do happen.

ATOP's products that are very reliable with 25 -years MTBF (mean-time-between-failures) helps in reducing the risk. It's not enough. To further minimize the event of downtime we have products that provide redundancy features. In an event of link or device failure, ATOP's Smart-Redundancy Feature detects the failure and relay's the cause of the failure back to the control center and automatically recover from such failure thereby providing continuous operation.

Whether a network switch fails or a communication link gets broken, ATOP's device with Ethernet Ring Protection Switching (ERPS), Rapid Spanning Tree Protocol (RSTP) and Media Redundancy Protocol (MRP) ring settings restores the operation and network connectivity instantly.

PROTOCOLS

- Ethernet - Fiber
- Ethernet - Copper
- Process Bus



FEATURED PRODUCTS

EHG7508 : Industrial 8-Port PoE Managed Gigabit Switch (-20~70 °C)

- 8 10/100/1000 RJ45 ports or 1000 SFP slots
- maximum 8 x 30 W PoE ports (240W power budget) `
- Profinet CC-B compatible; Ethernet/IP; ERPS, RSTP, STP, MRP Client redundancy;
- IEEE 1588v2 Hardware-assisted TC and many others

EHG9512 : IEC 61850-3 12-Port Managed Gigabit Switch (-40~85 °C)

- 8 x 10/100/1000 RJ45 ports and 4 Gigabit SFP uplink slots
- IEC 61850-3, IEEE 1613 certified
- UL/cUL/IEC(CB) 61010-2-201 certified
- IEEE 1588v2 Hardware-assisted TC; ERPS, RSTP, STP, MRP Client redundancy;

RHG9528 : IEC 61850-3 modular Managed Switch, max 24 Gigabit and 4 x 10 GbE ports (-40~85 °C)

- 3 x 8-port Gigabit module slots and 4x 1 or 10 Gigabit SFP uplink slots
- Available modules: 8 x 10/100/1000 RJ45 or 8 x 100/1000 SFP
- IEC 61850-3, IEEE 1613, UL/cUL/IEC(CB) 61010-2-201 certified
- IEEE 1588v2 Hardware-assisted TC; ERPS, RSTP, STP, MRP Client redundancy;

b) Harsh Environments

Blast furnace? Sub-zero degree processing? No problem. ATOP's rugged top-of-the-line products are specifically designed to withstand the harshest environments.

With the fanless design and industrial grade components, selected ATOP products support applications from -40°C to +85°C while guaranteeing a long MTBF. This is achieved by having no moving parts which are usually the causes of breakdowns.

c) Electromagnetic Compatibility EMI/EMS

High-voltages and electromagnetic interferences in factories could be fatal if the devices that are installed are not properly shielded and isolated against electromagnetic susceptibility (EMS).

Without proper design of device and precaution against EMS, equipment breakdown could happen. For instance, if a 2,000-Volt surge is applied to the power supply unit, severe damages could be caused to the system. The devices should be also be designed in a way as to not interfere with the surrounding equipment by generating noise (EMI, Electromagnetic Interference).

ATOP devices are specifically designed with embedded isolation to withstand the harshest industrial-grade electromagnetic interference and susceptibility.

ATOP's devices confirm to the electromagnetic compatibility (EMC) Level 3 and Level 4 requirements and they are also compliant with the strictest regulations for susceptibility and interference such as UL61010 and EN61000-6-2 and EN61000-6-4.

d) Security/Encryption

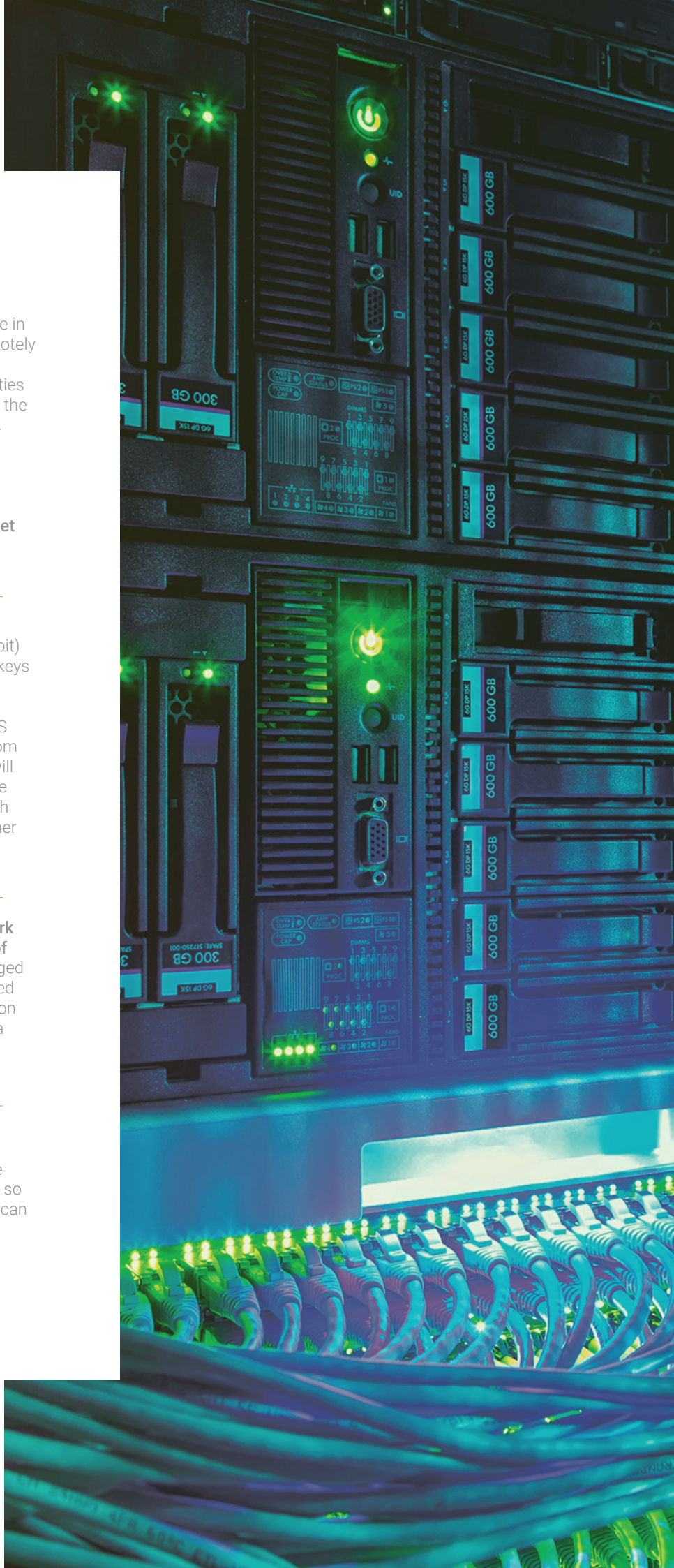
Security of data in network is a very important issue in Industry 4.0. The more the devices that can be remotely controlled in smart factories the more is the are vulnerability to various threats and malicious activities such as network penetration, taking over control of the system, and disrupting the manufacturing process.

ATOP's security solutions provide seamless and cost-effective encrypted links for LANs through MACsec (IEEE Medium Access Control Security Standard, IEEE 802.1AE) and for WANs and Internet through IPsec (Internet Protocol Security) or OpenVPN.

MACsec or IEEE 802.1AE protocol enhances your network with hop-to-hop AES (128- or 192- or 256-bit) encryption and defines the way Public and Private keys are managed.
If both connected devices support MACsec, the authentication is auto-negotiated through a RADIUS server before establishing a secure connection. From that point on, all data transferred through the link will be encrypted at the source with a high performance computing hardware that guarantees full bandwidth utilization and decrypted at the other end. If the other end does not support the MACsec, the data will be transmitted without encryption.

ATOP is a pioneer in the field of security of network devices. We have introduced a whole new range of products. This includes, Secure L3 Routers, Managed L2 and L3 switches, and a cost-effective unmanaged smart and secure switch. With the 256-bit encryption managed through hardware our solutions provide a seamless experience and unprecedented performance.

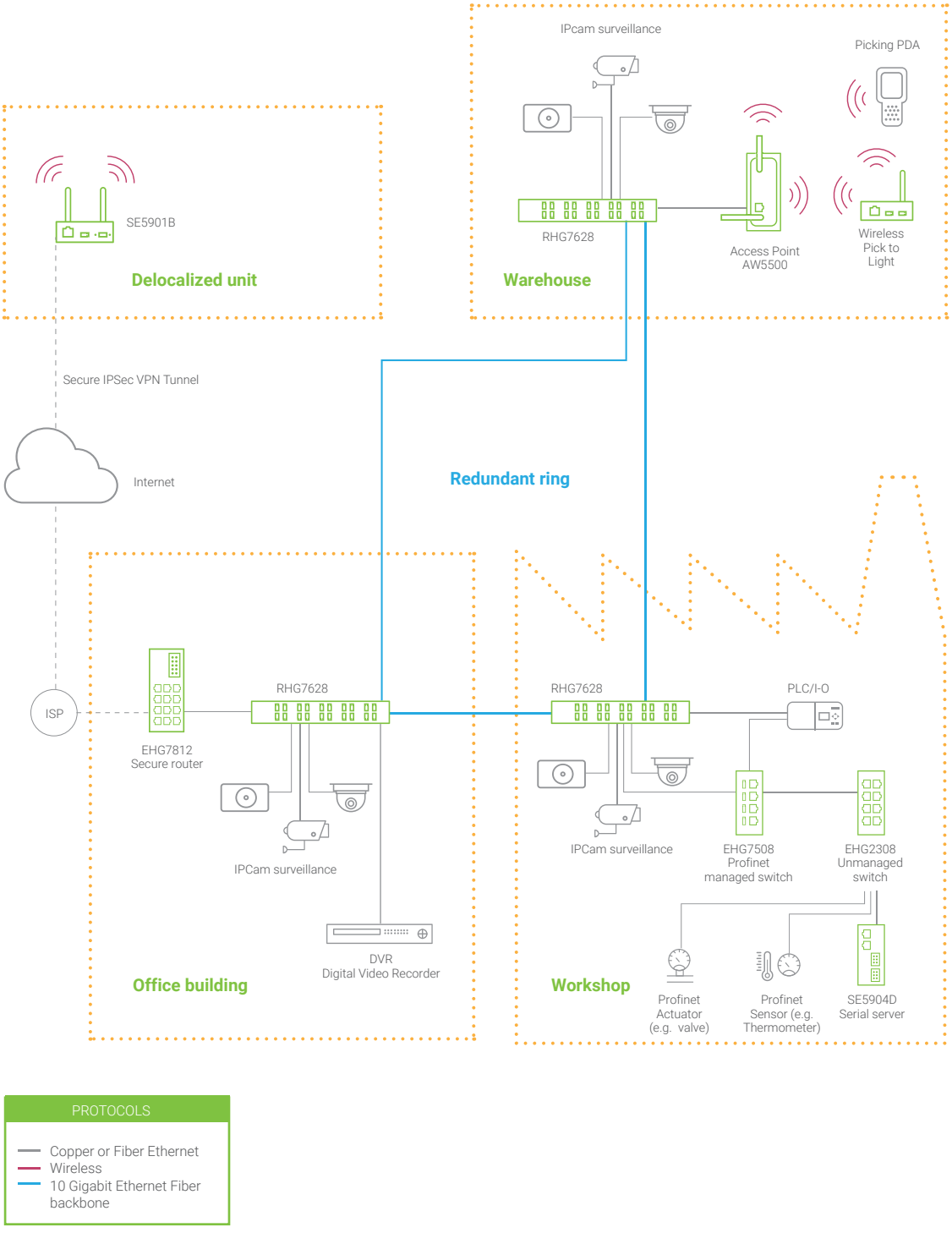
ATOP's Routers and Serial device servers provide embedded security measure through virtual private network (VPN) using IP security (IPSec) encryption so that all information going in and out of the devices can be properly protected from potential attacks.



e) Performance/Fast Responsiveness

Integration of legacy network equipment with new infrastructures always has problems on mismatch of speed or data throughput. **While the new technologies offer much wider bandwidth and have more and stricter requirement the legacy equipment are generally slow and do not have frequent data updates. ATOP managed to solve this problem in several ways.** For example, our new network device can autonomously poll data from legacy network device and store them in the internal memory until a master device running on the new protocol or on the new physical layer asks for an update. This helps in reducing bottlenecks and increases system performance.

...our Application Example



...more information on our Application Example

RHG7628 - Layer-3 Modular Gigabit Managed PoE Rack-Mount Switch

- Modular architecture for up to 24 Gigabit ports and 4x1 or 4x10 Gigabit Ethernet uplink SFP slots.
- Flexible configuration allows PoE, RJ45, SFP, secure RJ45-SFP ports to be embedded in one device.
- Up to 24 PoE 802.3af-802.3at ports, with maximum 720 W power budget
- -40~75 °C operational temperature.
- Proffinet Conformance Class B compatible
- Redundancy through ERPS/ RSTP/MRP (client) protocols
- IEEE 1588v2 hardware-based transparent clock

EHG7508 - DIN-Rail 8-Port Managed Gigabit Ethernet PoE switch

- 8 Gigabit ports, in different RJ45/PoE/SFP configurations.
- Up to 8 802.3af 802.3at PoE ports allowing 240 W maximum PoE power Budget
- -20~70 °C operational temperature
- Proffinet Conformance Class B compatible
- Redundancy through ERPS/RSTP rings and MRP (client).
- Redundant power supply and relay output.

EHG2308 - DIN-Rail 8-Port Unmanaged Gigabit Ethernet switch

- 8-Gigabit RJ45 ports
- -10~70 °C operational temperature
- Profinet packet priorization
- UL/cUL listed
- Redundant power input

EHG7808/ EHG7812 - DIN-Rail 8/12-port Secure VPN Router and Secure Layer-3 Managed Switch

- Total 8 or 12 Gigabit RJ45 ports or SFP slots
- 2 dedicated Gigabit WAN ports, with hardware-accelerated Encryption for VPN tunnels
- Up to 100 VPN tunnels, high performance
- 6 or 10 Gigabit secure ports with hw-based encryption, low latency, 99% throughput guaranteed
- Profinet Conformance Class B compatible
- -40~75 °C operational temperature. Redundant power supply and relay output.
- Redundancy through ERPS/ RSTP/MRP (client), IEEE 1588v2 hardware-based transparent clock

SE5901B - DIN-Rail 3G/4G LTE Industrial Serial Device Server

- One Gigabit RJ45 port
- One sw-selectable RS-485/232 serial port
- Battery Feature [opt] provides 10-15s additional power for alarm relay in case of power failure
- 2 Digital inputs / 2 Digital outputs [optional]
- -40~75 °C operational temperature

AW5500 - DIN-Rail IEEE 802.11 a/b/g/n high-performance Access Point

- IEEE 802.11 a/b/g/n radio, supporting 2 x 2 MIMO, 2.4 and 5.0 GHz
- One 10/100/1000 RJ45 Ethernet port
- -10~60 °C operational temperature
- Different operating mode and Topology Options (WDS Bridge and AP Client)

Entry Level Switches

Unmanaged Entry-Level Switches

ATOP's Entry Level DIN-Rail-mount unmanaged switches offer a reliable, robust, and cost-effective solution to most of the simple network topologies.

With IP30 rating, all of them are certified for Industrial EMC (EN61000-6-4 and EN61000-6-2). You can choose from plastic, steel or aluminium housing.

All models support redundant power-input for enhanced safety and DIN-Rail-mount, and can operate in temperatures ranging from -10 to 70 °C (except products with plastic that support 0 to 60 °C operating temperature).

Some selected products support Packet Prioritization for Profinet.

Our products range from 4 to 8 Fast Ethernet or Gigabit Ethernet ports and have both single-mode or multi-mode fiber-optic uplink. These products being unmanaged switches need no configuration efforts.
power supply and Ethernet cables.

Unmanaged Fast-Ethernet Switches DIN-Rail mount Plastic Housing

0°C 60°C DIN IP30 IEC60529

SKU		Description	10/100 RJ45 ports	10/100 /1000 RJ45 ports	Fiber ports	Max PoE Ports	Additional features
	EH2005-Fm	5-Port Unmanaged Switch with Fiber Optics, plastic	4	-	1 multi-mode max 2 Km	-	
	EH2005-Fs	5-Port Unmanaged Switch with Fiber Optics, plastic	4	-	1 Single-mode max 20 Km	-	
	EH2006	6-Port Unmanaged Switch, Plastic	6	-		-	

Unmanaged Fast-Ethernet Switches, DIN-Rail mount, Metal Housing

-10°C 70°C DIN IP30 IEC60529

SKU		Description	10/100 RJ45 ports	SFP slots	Fiber ports	Max PoE Ports	Additional features
	EH2305-1Fm	5-Port Unmanaged Switch with Fiber Optics, Metal Housing	4	-	1 (Multi-Mode) – max 2 Km	-	
	EH2305-1Fm	5-Port Unmanaged Switch with Fiber Optics, Metal Housing	4	-	1 (single-mode) – max 20 Km	-	
	EH2306	6-Port Unmanaged Switch, Metal housing	6	-	-	-	
	EH2308	8-Port Unmanaged Switch, Metal housing	8	-	-	-	
	EH2304-PR	4-Port Unmanaged switch, Metal slim housing	4	-	-	-	Profinet packet prioritization, Profinet connectors
	EH2308-PR	8-Port Unmanaged switch, Metal housing	8	-	-	-	Profinet packet prioritization, Profinet connectors

Unmanaged Gigabit Ethernet Switches, DIN-Rail mount, Metal Housing

-10°C 70°C DIN IP30 IEC60529

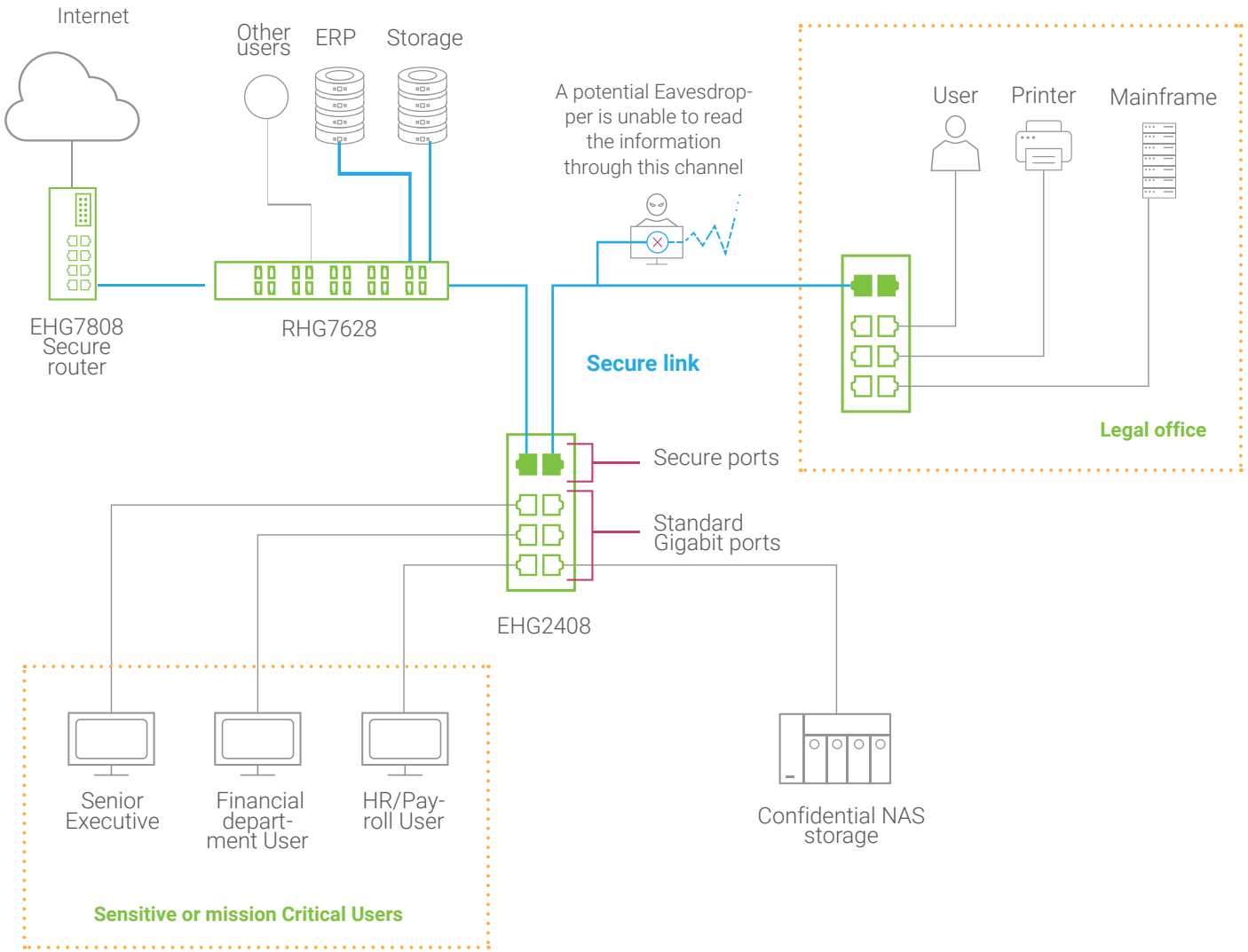
SKU		Description	10/100 RJ45 ports	10/100 /1000 ports	Fiber ports	Max PoE Ports	Additional features
	EHG2308	8-Port Unmanaged switch, Metal slim housing	-	8	-	-	Profinet packet prioritization

Unmanaged Smart Secure Switches

This product is very useful if customers would like to secure an uplink towards core servers or throughout the backbone. ATOP's Gigabit Unmanaged Smart and Secure Switch is embedded with 6 x 10/100/1000 RJ45 ports and 2 x 10/100/1000 Secured RJ45 or SFP ports that can also work with non MACsec-capable devices.

The embedded CPU will handle a hassle-free key-negotiation with the host automatically. The user does not have to access the switch individually and key in any configurable parameter to get going, but it may change in any-moment the pre-shared key or the encryption mode.

This product is definitely the easiest and the most effective solution in order to bring security into your network.



PROTOCOLS

Copper or Fiber Ethernet
Secure link

...more information on our Application Example

RHG7628 - Layer-3 Modular Gigabit Managed PoE Rack-Mount Switch

- Modular architecture for up to 24 Gigabit ports and 4x1 or 4x10 Gigabit Ethernet uplink SFP slots.
- Flexible configuration allows PoE, RJ45, SFP, secure RJ45-SFP ports to be embedded in one device.
- Up to 24 PoE 802.3af-802.3at ports, with maximum 720 W power budget
- -40~75 °C operational temperature.
- Proffinet Conformance Class B compatible
- Redundancy through ERPS/ RSTP/MRP (client) protocols
- IEEE 1588v2 hardware-based transparent clock

EHG7808/ EHG7812 - DIN-Rail 8/12-port Secure VPN Router and Secure Layer-3 Managed Switch

- Total 8 or 12 Gigabit RJ45 ports or SFP slots
- 2 dedicated Gigabit WAN ports, with hardware-accelerated Encryption for VPN tunnels
- Up to 100 VPN tunnels, high performance
- 6 or 10 Gigabit secure ports with hw-based encryption, low latency, 99% throughput guaranteed
- Profinet Conformance Class B compatible
- -40~75 °C operational temperature. Redundant power supply and relay output.
- Redundancy through ERPS/ RSTP/MRP (client), IEEE 1588v2 hardware-based transparent clock

EHG2408 - DIN-Rail 8-Port Smart Secure Unmanaged Gigabit switch

- 6-Gigabit non-Secure RJ45 ports
- 2-Gigabit Secure MACsec RJ45 ports or SFP slots
- Simple plug-and-play security
- -10~70 °C operational temperature
- Profinet packet priorization
- UL/cUL listed
- Redundant power input

Unmanaged Gigabit Ethernet Secure Switches, DIN-Rail mount, Metal Housing

NEW
2017 Q1

-20°C 70°C DIN IP30 IEC60529

SKU		Description	10/100 RJ45 ports	100 SFP slots	10/100 /1000 RJ45 ports	1000 SFP slots	Max PoE Ports	Additional features
	EHG2408	8 port Unmanaged gigabit switch with 2 secure RJ45 ports, Metal Housing	-	-	8 *	-	-	Prioritizes Profinet packets
	EHG2408-2SFP	8 port Unmanaged gigabit switch with 2 secure SFP slots, Metal Housing	-	-	6	2	-	Prioritizes Profinet packets

* The 2 uplink port out of the 8 ports available is MACsec capable

Unmanaged Gigabit PoE Switches

ATOP's Entry Level DIN-Rail mount unmanaged switches product line is enhanced with Power-over-Ethernet (PoE) and Gigabit SFP support.With IP30 rating, it guarantees the capability of operating at the temperature ranging from -10 to 70 °C and with embedded redundant-DC power input.

The capability of Power over Ethernet (PoE) and Gigabit speed are also embedded to ensure their suitability for simple industrial applications.

Unmanaged Gigabit Switches with PoE, DIN-Rail mount, Metal Housing

-10°C 70°C DIN IP30 IEC60529

SKU		Description	10/100 RJ45 ports	100 SFP slots	10/100 /1000 RJ45 ports	1000 SFP slots	Max PoE Ports	Additional features
	EHG6308-4PoE	8-Port Unmanaged Gigabit Switch with 4 PoE Ports, Metal Housing	-	-	8	-	4	
	EHG6308-4PoE-4SFP	8-Port Unmanaged Gigabit Switch with 4 PoE Ports and 4 SFP Uplinks	-	-	4	4	4	

Harsh Environments Switches

Introduction

ATOP's advanced DIN-Rail mount product line offers a range **of 14 models with over 60 different configurations to choose from**. Our harsh environment switches are the best choice to support networks that are very demanding

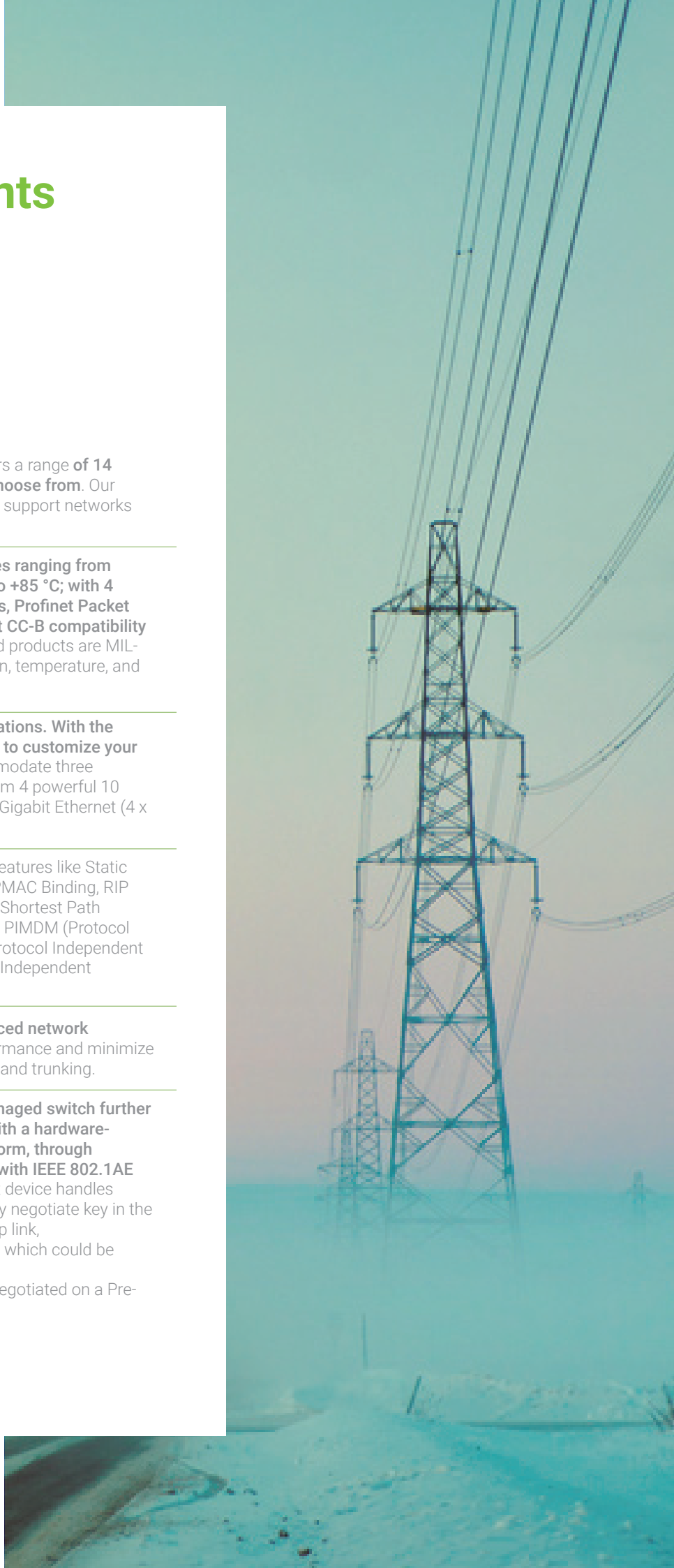
Our products support wide operating temperatures ranging from -20 to +70°C and many products supporting -40 to +85 °C; with 4 to 20 Fast Ethernet or Gigabit ports, Relay Outputs, Profinet Packet Priotization for unmanaged switches and Profinet CC-B compatibility for managed switches. Additionally, some selected products are MIL-STD (Military Standard) certified for shock, vibration, temperature, and humidity.

In addition, we also provide Rack-mount configurations. With the modular architecture of the product, it is possible to customize your devices. The same hardware platform can accommodate three different modules that allows flexibly to choose from 4 powerful 10 Gigabit Ethernet (4 x 10GbE) SFP uplink ports or 4 Gigabit Ethernet (4 x 1GbE) SFP uplink ports.

ATOP's Layer-3 switch series provides advanced features like Static Routing, Dynamic Routing, RFC 2674 VLAN MIB, IPMAC Binding, RIP (Routing Information Protocol) v1/v2, OSPF (Open Shortest Path Frist), DVMRP (Distance Vector Multicast Routing), PIMDM (Protocol Independent Multicast – Dense Mode), PIM-SM (Protocol Independent Multicast – Sparse Mode) and PIM-SSM (Protocol Independent Multicast – Source-Specific Multicast).

ATOP's managed switches provide flexible advanced network management features to maximize network performance and minimize down-times, such as ERPS/RSTP ring, VLAN, QoS, and trunking.

For high level network security, **ATOP's Secure Managed switch further enhances all the functions of ATOP's L3 switch with a hardware-based high-performance intelligent security platform, through (128-,192-, or 256-bit) AES encryption combined with IEEE 802.1AE** also known as MACsec protocol. ATOP's intelligent device handles authentication of the node through a autonomously negotiate key in the RADIUS server, for establishing a secure hop-to-hop link, and automatically decrypt the incoming messages which could be addressed to non-MACsec capable devices.
In case there is no RADIUS server, the Key will be negotiated on a Pre-Shared-Key base.



Unmanaged Harsh Environments Switches

ATOP's advanced unmanaged switches provide rugged and solid networking solutions for harsh-environment deployments with an easy "plug & play" installation.
The key features of this series are the availability of **5 to 10 Fast Ethernet or Gigabit Ethernet ports,** embedded **Power over Ethernet** (PoE) on selected models, and a variety of port configurations such as RJ45, SFP, and single- or multi-mode fiber optics. Additionally, the **Atex Zone 2 certification** makes this product suitable for using in well areas or mines with a high risk of explosion.

Unmanaged Gigabit Switches with/without PoE, DIN-Rail mount Metal Housing

NEW

-40°C 70°C Industrial EMC MILD-STD 810F DIN IP30 IEC60529

SKU		Description	10/100 /1000 RJ45 ports	1000 SFP slots	Max PoE Ports	Additional features
	EHG7305	5-Port Unmanaged Harsh-Env. Gigabit Atex Switch	5	-	-	Atex Zone 2 certified
	EHG7306-1SFP	6-Port Unmanaged Harsh-Env. Gigabit Atex switch with 1 SFP uplink	5	1	-	
	EHG7307-2SFP	7-Port Unmanaged Harsh-Env. Gigabit Atex switch with 2 SFP uplink	5	2	-	
	EHG7305-4PoE	5-Port Unmanaged Harsh-Env. Gigabit Atex switch with 4 PoE Ports	5	-	4	
	EHG7306-4PoE-1SFP	6-Port Unmanaged Harsh-Env. Gigabit Atex switch with 1 SFP uplink and 4 PoE Ports	5	1	4	
	EHG7307-4PoE-2SFP	7-Port Unmanaged Harsh-Env. Gigabit Atex switch with 2 SFP uplink and 4 PoE Ports	5	2	4	

Layer-2 Managed DIN-Rail Switches

ATOP's advanced Layer-2 (L2) managed Ethernet switches for harsh environments provide rugged and solid solutions for managing advanced networks. This series of switches can introduce a high degree of link redundancy, flow control, and configurability to your network. All models in this series are designed to withstand strictest EMC requirements of compliance level 3 and level 4. Our high-performance components guarantee a real-time packet switching, even on full load.

They are available in Fast-Ethernet and Full-Gigabit Ethernet versions with configurations of 4 to 20 ports, with RJ45 or SFP connector, and optional PoE support. ATOP's L2 managed switch family supports:

- **a.** IEEE802.1d for Spanning Tree Protocol (STP)
- **b.** IEEE802.1w/ IEEE802.1D:2004 for Rapid Spanning Tree Protocol (RSTP)
- **c.** ITU-T
- **c.** IEEE802.1q for VLAN Tagging
- **d.** IEEE802.1p for Class of Service
- **e.** IEEE802.1x for Authentication
- **f.** IEEE802.3ad for Port Trunk with Link Aggregation Control Protocol (LACP)
- **g.** IGMP (Internet Group Management Protocol) v1/v2
- **h.** SNMP (Simple Network Management Protocol) v1/v2/v3
- **i.** GVRP (GARP VLAN Registration Protocol)
- **j.** ICMP (Internet Control Message Protocol)
- **k.** ARP (Address Resolution Protocol)
- **l.** Telnet
- **m.** DHCP (Dynamic Host Configuration Protocol) client
- **n.** TFTP (Trivial File Transfer Protocol)
- **o.** SNTP (Simple Network Time Protocol)
- **p.** SMTP (Simple Mail Transfer Protocol)
- **q.** RMON (Remote Monitoring)
- **r.** HTTP/HTTPS (Hypertext Transfer Protocol) configuration
- **s.** Syslog
- **t.** Profinet CC-B compatible
- **u.** Modbus/TCP
- **v.** Ethernet/IP
- **w.** LLDP (Link Layer Discovery Protocol)
- **x.** IEEE1588v2 (Precision Time Protocol) hardware assisted transparent clock or IEEE1588v1/v2 sw-assisted boundary clock
- **y.** IPv4 (selected versions IPv6)
- **z.** NTP (Network Time Protocol) client
- **aa.** RADIUS (Remote Authentication Dial-In User Service)
- **ab.** EAP
- **ac.** MRP (Client)

Industrial Managed Fast-Ethernet PoE Switches, DIN-Rail mount

-20°C 70°C PROFINET IEEE 1588 Ring Industrial EMC DIN IP30 IEC60529

SKU		Description	10/100 RJ45 ports	10/100 /1000 RJ45 ports	10/100 /1000 SFP slots	1/10 GbE SFP slots	Max PoE Ports
	EH7506-2SFP	6-Port Managed Fast-Ethernet Switch, 2 SFP	4	-	2	-	-
	EH7506-4PoE-2SFP	6-Port Managed Fast-Ethernet Switch with 4 PoE and 2 SFP	4	-	2	-	4
	EH7508-4G-4SFP	8-Port Managed Fast-Ethernet Switch with 4 Gigabit Combo uplink ports	4	(4)	(4)	-	-
	EH7508-4G-4PoE-4SFP	8-Port Managed Fast-Ethernet Switch with 4 Gigabit Combo uplink ports	4	(4)	(4)	-	4
	EH7512-4G-4SFP	12-Port Managed Fast-Ethernet Switch with 4 Gigabit Combo uplink ports	8	(4)	(4)	-	-
	EH7512-4G-4PoE-4SFP	12-Port Managed Fast-Ethernet Switch with 4 Gigabit Combo uplink ports and 4 PoE ports	8	(4)	(4)	-	4
	EH7512-4G-8PoE-4SFP	12-Port Managed Fast- Ethernet Switch with 4 Gigabit Combo uplink ports and 8 PoE ports	8	(4)	(4)	-	8
	EH7520-4G-4SFP	20-Port Managed Fast-Ethernet Switch with 4 Gigabit Combo uplink ports	16	(4)	(4)	-	-
	EH7520-4G-4PoE-4SFP	20-Port Managed Fast-Ethernet Switch with 4 Gigabit Combo uplink ports and 4 PoE ports	16	(4)	(4)	-	4
	EH7520-4G-8PoE-4SFP	20-Port Managed Fast-Ethernet Switch with 4 Gigabit Combo uplink ports and 8 PoE ports	16	(4)	(4)	-	8

Industrial Managed Gigabit PoE Switches, DIN-Rail mount

NEW

-20°C 70°C PROFINET IEEE 1588 Ring Industrial EMC DIN IP30 IEC60529

SKU		Description	10/100 RJ45 ports	10/100 /1000 RJ45 ports	1000 SFP slots	1/10 GbE SFP slots	Max PoE Ports
	EHG7504	4-Port Managed Gigabit Switch	-	4	-	-	-
	EHG7504-4PoE	4-Port Managed Gigabit Switch with 4 PoE ports	-	4	-	-	4
	EHG7504-2SFP	4-Port Managed Gigabit Switch with 2 SFP slots	-	2	2	-	-
	EHG7504-2PoE-2SFP	4-Port Managed Gigabit Switch with 2 SFP slots and 2 PoE ports	-	2	2	-	2
	EHG7504-4SFP	4-Port Managed Gigabit Switch with 4 SFP slots	-	-	4	-	-
	EHG7508	8-Port Managed Gigabit Switch	-	8	-	-	-
	EHG7508-4SFP	8-Port Managed Gigabit Switch with 4 SFP slots	-	4	4	-	-
	EHG7508-4PoE-4SFP	8-Port Managed Gigabit Switch with 4 SFP slots and 4 PoE ports	-	4	4	-	4
	EHG7508-8PoE	8-Port Managed Gigabit Switch with 8 PoE ports	-	8	-	-	8

Industrial Managed Gigabit PoE Switches, DIN-Rail mount

NEW 2017 Q3

-40°C 70°C

PROFINET IEEE 1588 Ring Industrial EMC DIN MILD-STD 810F IP30 IEC60529

SKU	Description	10/100 RJ45 ports	10/100 /1000 RJ45 ports	100/1000 SFP slots	1/10 GbE SFP slots	Max PoE Ports
EHG7512-4SFP	12-Port Managed Din-Rail Gigabit Switch with 4 SFP slots	-	8	4 *	-	-
EHG7512-4SFP-4PoE	12-Port Managed Din-Rail Gigabit Switch with 4 SFP slots and 4 PoE ports	-	8	4 *	-	4
EHG7512-4SFP-8PoE	12-Port Managed Din-Rail Gigabit Switch with 4 SFP slots and 8 PoE ports	-	8	4 *	-	8
EHG7512-8SPF	12-Port Managed Din-Rail Gigabit Switch with 8 SFP slots	-	4	8 *	-	-
EHG7512-8SPF-4PoE	12-Port Managed Din-Rail Gigabit Switch with 8 SFP slots and 4 PoE ports	-	4	8 *	-	4
EHG7516-4SFP (**)	16-Port Managed Din-Rail Gigabit Switch with 4 SFP slots	-	12	4 (0) *	0 (4)	-
EHG7516-4SFP-4PoE (**)	16-Port Managed Din-Rail Gigabit Switch with 4 SFP slots and 4 PoE ports	-	12	4 (0) *	0 (4)	4
EHG7516-4SFP-8PoE (**)	16-Port Managed Din-Rail Gigabit Switch with 4 SFP slots and 8 PoE ports	-	12	4 (0) *	0 (4)	8
EHG7516-8SFP (**)	16-Port Managed Din-Rail Gigabit Switch with 8 SFP slots	-	8	8 (4) *	0 (4)	-
EHG7516-8SFP-4PoE (**)	16-Port Managed Din-Rail Gigabit Switch with 8 SFP slots and 4 PoE ports	-	8	8 (4) *	0 (4)	4
EHG7516-8SFP-8PoE (**)	16-Port Managed Din-Rail Gigabit Switch with 8 SFP slots and 8 PoE ports	-	8	8 (4) *	0 (4)	4
EHG7516-12SFP (**)	16-Port Managed Din-Rail Gigabit Switch with 12 SFP slots	-	4	12 (8) *	0 (4)	-
EHG7516-12SFP-4PoE (**)	16-Port Managed Din-Rail Gigabit Switch with 12 SFP slots and 4 PoE ports	-	4	12 (8) *	0 (4)	4
EHG7516-16SFP (**)	16-Port Managed Din-Rail Gigabit Switch with 16 SFP slots	-	-	16 (12) *	0 (4)	-
EHG7520-4SFP (**)	20-Port Managed Din-Rail Gigabit Switch with 4 SFP slots	-	16	4 (0) *	0 (4)	-
EHG7520-4SFP-4PoE (**)	20-Port Managed Din-Rail Gigabit Switch with 4 SFP slots and 4 PoE ports	-	16	4 (0) *	0 (4)	4
EHG7520-4SFP-8PoE (**)	20-Port Managed Din-Rail Gigabit Switch with 4 SFP slots and 8 PoE ports	-	16	4 (0) *	0 (4)	8
EHG7520-8SFP (**)	20-Port Managed Din-Rail Gigabit Switch with 8 SFP slots	-	12	8 (4) *	0 (4)	-
EHG7520-8SFP-4PoE (**)	20-Port Managed Din-Rail Gigabit Switch with 8 SFP slots and 4 PoE ports	-	12	8 (4) *	0 (4)	4
EHG7520-8SFP-8PoE (**)	20-Port Managed Din-Rail Gigabit Switch with 8 SFP slots and 8 PoE ports	-	12	8 (4) *	0 (4)	8
EHG7520-12SFP (**)	20-Port Managed Din-Rail Gigabit Switch with 12 SFP slots	-	8	12 (8) *	0 (4)	-
EHG7520-16SFP (**)	20-Port Managed Din-Rail Gigabit Switch with 16 SFP slots	-	4	16 (12) *	0 (4)	-
EHG7520-16SFP-4PoE (**)	20-Port Managed Din-Rail Gigabit Switch with 16 SFP slots and 4 PoE ports	-	4	16 (12) *	0 (4)	4
EHG7520-20SFP (**)	20-Port Managed Din-Rail Gigabit Switch with 20 SFP slots	-	-	20 (16) *	0 (4)	-

* Four out of all SFP ports are working in 1000 Mb/s speed only. Separate version, on 16-20 port only, offer four GbE ports as 10-GbE speed capable.
** Only versions without 10GbE uplink ports are shown above. Rely to the datasheet for more information

Layer-3 Managed Switches

ATOP's advanced Layer-3 (L3) managed Ethernet switches for harsh environments provide a rugged and solid solution for managing advanced networks that require high degree of security and Layer-3 switching capabilities.
Our L3 switches carry out real-time packet routing based on the local network's IP address instead of MAC address of the destination device. This series of switches support:

a. IPv4 Unicast Static Routing
b. IPv6 Unicast Static Routing
c. Dynamic Routing RIP (Routing Information Protocol) V1/V2
d. OSPFv2 (Open Shortest Path First),
e. VRRP (Virtual Router Redundancy Protocol),
f. DVMRP (Distance Vector Multicast Routing Protocol),
g. PIM-DM (Protocol Independent Multicast – Dense Mode),
h. PIM-SM (Protocol Independent Multicast – Sparse Mode),
i. PIM-SSM (Protocol Independent Multicast – Source-Specific Multicast)
j. IGMP (Internet Group Management Protocol)

All models in this series are designed to withstand strictest EMC requirements of compliant level 3 and level 4. **Our high-performance components guarantee a real-time packet switching even on full load.** They are available in Full-Gigabit versions with 4- to 20-port configurations, RJ45 or SFP connector, and PoE support.

Layer-3 Managed DIN-Rail Switches

Industrial Layer-3 Managed Gigabit PoE Switches, DIN-Rail Mount

NEW 2016 Q4 | -20°C 70°C | PROFINET | IEEE 1588 | Ring | L3 | Industrial EMC | DIN | IP30 IEC60529

SKU		Description	10/100 RJ45 ports	10/100 /1000 RJ45 ports	1000 SFP slots	1/10 GbE SFP slots	Max PoE Ports
	EHG7604	4-Port Managed Gigabit Switch	-	4	-	-	-
	EHG7604-4PoE	4-Port Managed Gigabit Switch with 4 PoE ports	-	4	-	-	4
	EHG7604-2SFP	4-Port Managed Gigabit Switch with 2 SFP slots	-	2	2	-	-
	EHG7604-2PoE-2SFP	4-Port Managed Gigabit Switch with 2 SFP slots and 2 PoE ports	-	2	2	-	2
	EHG7604-4SFP	4-Port Managed Gigabit Switch with 4 SFP slots	-	-	4	-	-
	EHG7608	8-Port Managed Gigabit Switch	-	8	-	-	-
	EHG7608-4SFP	8-Port Managed Gigabit Switch with 4 SFP slots	-	4	4	-	-
	EHG7608-4PoE-4SFP	8-Port Managed Gigabit Switch with 4 SFP slots and 4 PoE ports	-	4	4	-	4
	EHG7608-8PoE	8-Port Managed Gigabit Switch with 8 PoE ports	-	8	-	-	8

Industrial Layer-3 Managed Gigabit PoE Switches, DIN-Rail mount

NEW 2017 Q3 | -40°C | 70°C | PROFINET | IEEE 1588 | Ring | L3 | Industrial EMC | DIN | MILD-STD 810F | IP30 IEC60529

SKU		Description	10/100 RJ45 ports	10/100 /1000 RJ45 ports	100/1000 SFP slots	1/10 GbE SFP slots	Max PoE Ports
	EHG7612-4SFP	12-Port Managed Din-Rail Gigabit Switch with 4 SFP slots	-	8	4 *	-	-
	EHG7612-4SFP-4PoE	12-Port Managed Din-Rail Gigabit Switch with 4 SFP slots and 4 PoE ports	-	8	4 *	-	4
	EHG7612-4SFP-8PoE	12-Port Managed Din-Rail Gigabit Switch with 4 SFP slots and 8 PoE ports	-	8	4 *	-	8
	EHG7612-8SPF	12-Port Managed Din-Rail Gigabit Switch with 8 SFP slots	-	4	8 *	-	-
	EHG7612-8SPF-4PoE	12-Port Managed Din-Rail Gigabit Switch with 8 SFP slots and 4 PoE ports	-	4	8 *	-	4
	EHG7616-4SFP (**)	16-Port Managed Din-Rail Gigabit Switch with 4 SFP slots	-	12	4 (0) *	0 (4)	-
	EHG7616-4SFP-4PoE (**)	16-Port Managed Din-Rail Gigabit Switch with 4 SFP slots and 4 PoE ports	-	12	4 (0) *	0 (4)	4
	EHG7616-4SFP-8PoE (**)	16-Port Managed Din-Rail Gigabit Switch with 4 SFP slots and 8 PoE ports	-	12	4 (0) *	0 (4)	8
	EHG7616-8SFP (**)	16-Port Managed Din-Rail Gigabit Switch with 8 SFP slots	-	8	8 (4) *	0 (4)	-
	EHG7616-8SFP-4PoE (**)	16-Port Managed Din-Rail Gigabit Switch with 8 SFP slots and 4 PoE ports	-	8	8 (4) *	0 (4)	4
	EHG7616-8SFP-8PoE (**)	16-Port Managed Din-Rail Gigabit Switch with 8 SFP slots and 8 PoE ports	-	8	8 (4) *	0 (4)	4
	EHG7616-12SFP (**)	16-Port Managed Din-Rail Gigabit Switch with 12 SFP slots	-	4	12 (8) *	0 (4)	-
	EHG7616-12SFP-4PoE (**)	16-Port Managed Din-Rail Gigabit Switch with 12 SFP slots and 4 PoE ports	-	4	12 (8) *	0 (4)	4
	EHG7616-16SFP (**)	16-Port Managed Din-Rail Gigabit Switch with 16 SFP slots	-	-	16 (12) *	0 (4)	-
	EHG7620-4SFP (**)	20-Port Managed Din-Rail Gigabit Switch with 4 SFP slots	-	16	4 (0) *	0 (4)	-
	EHG7620-4SFP-4PoE (**)	20-Port Managed Din-Rail Gigabit Switch with 4 SFP slots and 4 PoE ports	-	16	4 (0) *	0 (4)	4
	EHG7620-4SFP-8PoE (**)	20-Port Managed Din-Rail Gigabit Switch with 4 SFP slots and 8 PoE ports	-	16	4 (0) *	0 (4)	8
	EHG7620-8SFP (**)	20-Port Managed Din-Rail Gigabit Switch with 8 SFP slots	-	12	8 (4) *	0 (4)	-
	EHG7620-8SFP-4PoE (**)	20-Port Managed Din-Rail Gigabit Switch with 8 SFP slots and 4 PoE ports	-	12	8 (4) *	0 (4)	4
	EHG7620-8SFP-8PoE (**)	20-Port Managed Din-Rail Gigabit Switch with 8 SFP slots and 8 PoE ports	-	12	8 (4) *	0 (4)	8
	EHG7620-12SFP (**)	20-Port Managed Din-Rail Gigabit Switch with 12 SFP slots	-	8	12 (8) *	0 (4)	-
	EHG7620-16SFP (**)	20-Port Managed Din-Rail Gigabit Switch with 16 SFP slots	-	4	16 (12) *	0 (4)	-
	EHG7620-16SFP-4PoE (**)	20-Port Managed Din-Rail Gigabit Switch with 16 SFP slots and 4 PoE ports	-	4	16 (12) *	0 (4)	4
	EHG7620-20SFP (**)	20-Port Managed Din-Rail Gigabit Switch with 20 SFP slots	-	-	20 (16) *	0 (4)	-

* Four out of all SFP ports are working in 1000 Mb/s speed only. Separate version, on 16-20 port only, offer four GbE ports as 10-GbE speed capable.
** Only versions without 10GbE uplink ports are shown above. Rely to the datasheet for more information

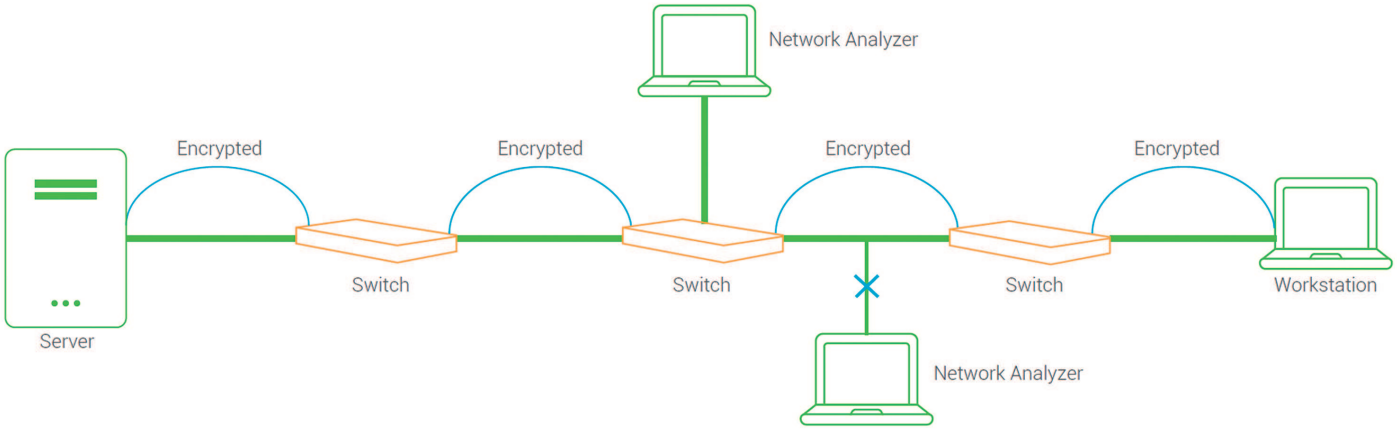
Secure Layer-3 Managed Switches

ATOP's Secured Layer-3 managed switches add security to the industrial network!

The communication between trusted entities in the network is secured through the combination of the following protocols: IEEE 802.1ae protocol (or MACsec), IEEE 802.1x-2010 protocol for network access control, and strong cryptography of 128-,192-,or 256-bit of GCM-AES.

These products support all authentication, integrity, and confidentiality requirements. Hop-by-Hop encrypted communication with IEEE 802.1x-2010 authentication protocol (i.e., decrypted upon receipt and then encrypted again with a different key before forwarding) **protects the network not only from wiretapping, masquerading, man-in-the-middle attacks, and denial-of-service attacks, but also from impersonation and replay attacks.**

Security in Short Hops



802. 1AE encrypts frames between network devices, not end to end.

The frames are decrypted in the switches, processed, then re-encrypted and sent to the next device.Network traffic can't be monitored from the wire although a network Analyzer attached to a switch Mirroring port or to a Hub can do this.

Industrial Secure Layer-3 Managed Gigabit PoE Switches, DIN-Rail Mount

NEW 2017 Q2 -40°C 70°C PROFINET IEEE 1588 Ring L3 Industrial EMC DIN MILD-STD 810F IP30 IEC60529

SKU		Description	10/100 RJ45 ports	10/100 / 1000 RJ45 ports*	1000 SFP slots*	1/10 Gigabit Uplink	Max PoE Ports
	EHG7704	4-Port Managed Din-Rail Secure Gigabit Layer-3 Switch	-	4	-	-	-
	EHG7704-2SFP	4-Port Managed Din-Rail Secure Gigabit Layer-3 Switch with 2 SFP slots	-	2	2	-	-
	EHG7704-2PoE-2SFP	4-Port Managed Din-Rail Secure Gigabit Layer-3 Switch with 2 SFP slots and 2 PoE ports	-	2	2	-	2
	EHG7708	8-Port Managed Din-Rail Secure Gigabit Layer-3 Switch	-	8	-	-	-
	EHG7708-4PoE	8-Port Managed Din-Rail Secure Gigabit Layer-3 Switch with 4 PoE ports	-	8	-	-	4
	EHG7708-8PoE	8-Port Managed Din-Rail Secure Gigabit Layer-3 Switch with 8 PoE ports	-	8	-	-	8
	EHG7708-8SFP	8-Port Managed Din-Rail Secure Gigabit Layer-3 Switch with 8 SFP slots	-	-	8	-	-
	EHG7708-4SFP	8-Port Managed Din-Rail Secure Gigabit Layer-3 Switch with 4 SFP slots	-	4	4	-	-
	EHG7708-4PoE-4SFP	8-Port Managed Din-Rail Secure Gigabit Layer-3 Switch with 4 SFP slots and 4 PoE ports	-	4	4	-	4

* all ports are MACsec capable

Rack-mount Managed Switches

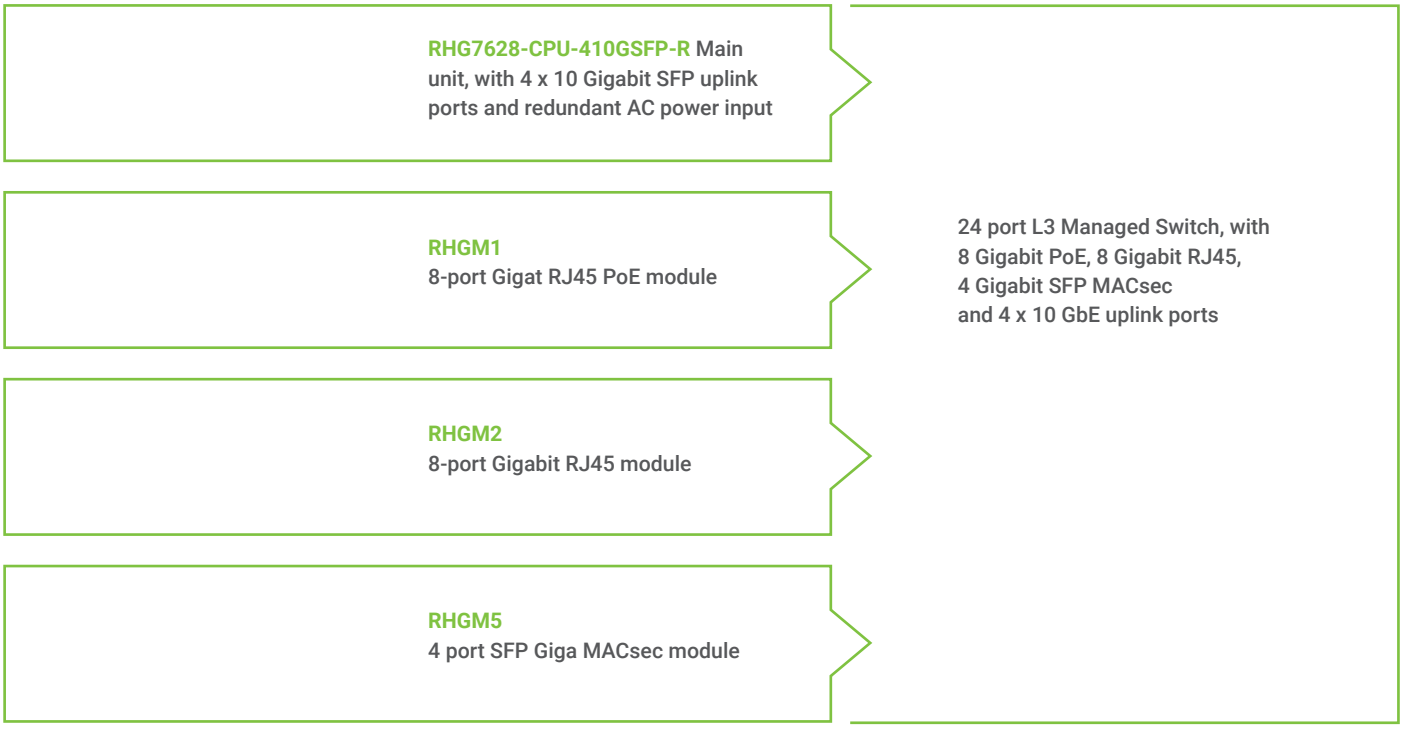
ATOP's Rack-mount Switches provide affordable, rugged, reliable, and secure solutions for the network!

ATOP's Rack-mount Switching products are equipped with **high port density, PoE, Layer-3 routing, secure communication using MACsec encryption, and rugged to withstand harsh environments.**

Equipped with redundant Power Input for both Switching Core and PoE, all ATOP's Rack-mount Switching solutions have the flexibility of more than 500 different combinations, with swappable modules.

And if your needs change in time, you can easily convert ATOP's Rack-mount switch to a completely unit just in minutes!

Modular Concept

ATOP's Managed Rack-mount switches provide the flexibility that the application needs in a modular concept. A custom device can be built in a very simple way. You could choose from among five different hardware versions and five different 8-port hot-swappable modules.

The software automatically detects the connected module and enables the related set-up panels.