



Network Infrastructure

Industrial Switches and ETHERNET Components





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Portfolio and Functions Overview

Industrial Unmanaged Switch



Eco Unmanaged

- Plug & play operation (Auto MDI-X)
- Megabit and gigabit variants
- Vibration and shock resistance
- DIN-rail adapter

From page 5



Standard Unmanaged

- Up to 16 Gigabit ports + SFP slots
- Diagnostics with LED and relay
- High temperature range (-40 ... 70 °C)
- Redundant power supply

From page 7

Industrial Managed Switch



Lean Managed

- Intuitive configuration for automation engineers
- Simple network diagnostics in the browser
- Media redundancy with RSTP/ERPS
- Network security basic functions

From page 8



PROFINET® Managed

- Configuration/diagnostics in the PROFINET® system
- PROFINET®-certified (CC-B)
- Cyclically readable process image
- Potential-free networking over 80 km

From page 12



Fully Managed

- Fast network redundancy (< 30 ms)
- Diagnostics (SNMPv3, Modbus®, Syslog, ...)
- Security (SSH, VLAN, 802.1X, ACL, ...)
- Extended network functions (Routing, IPv6, LACP, DHCP, ...)

From page 14

Functional range increases (see page 26).

Compact footprint

Just 23.4 mm (9.21 inches) wide

Power supply (9 ... 48 V)

- Pluggable connector
- Maintenance-free, vibration-proof spring pressure connections

5 ETHERNET ports

- Autonegotiation 10/100/1000
- Auto MDI/MDI-X: Auto-Crossing
- Status LEDs: PWR/Activity

Rugged design

- Adapter for DIN-35 rail and metal housing
- High vibration and shock resistance
- Surrounding air temperature (operation): -40 ... +70°C



Industrial Unmanaged Switches

Eco – Economical and Compact

	Fast ETHERNET		Gigabit	
				
Item number	852-111	852-112	852-1111	852-1112
Ports	5 x 10/100BASE-TX	8 x 10/100BASE-TX	5 x 10/100/1000BASE-T	8 x 10/100/1000BASE-T
Power supply	18 ... 30 VDC	18 ... 30 VDC	9 ... 48 VDC	9 ... 57 VDC
Dimensions (W x H x D)	23.4 x 73.8 x 109.2 mm	109.2 x 23.4 x 73.8 mm	23.4 x 73.8 x 109.2 mm	46 x 99.6 x 116 mm
Surrounding air temperature (operation)	-40 ... +70 °C	-40 ... +70 °C	-40 ... +70 °C	0 ... +60 °C
Approvals	UL, DNV GL	UL	UL, DNV GL	UL
Prioritization	-	-	IEEE 802.1 p	IEEE 802.1 p
PROFINET®	-	-	CC-A²	CC-A²

¹ No PROFINET® configuration and diagnostics with conformity class A

Power supply (24 ... 57 V)

- Pluggable connector
- Vibration-proof, maintenance-free power supply connection (24 V)

Status LEDs

- Power supply is connected.
- PoE sensor is powered.
- Communication partner is connected.
- Data is being transmitted.

4 ports with PoE+ (30 W)

5 ETHERNET ports with up to 1 Gbit/s

Use of SFP modules* with 1 Gbit/s



Surrounding air temperature (operation): -40 ... +70 °C

* Small Form-factor Pluggable Interface for fiber optic cables

Eco with PoE – Power Supply via ETHERNET Cable

"Power over Ethernet" (PoE+) technology supplies PoE-capable devices via network cable using a switch. This allows, for example, PoE-capable IP cameras, IoT sensors or HMI systems to be economically integrated into the network – no need for separately installing power and data cables. Other advantages include diagnostics performed within the system.

	PoE+		
			
Item number	852-1411	852-1417	852-1411/0000-0001
Copper ports	5 x 10/100/1000BASE-T	5 x 10/100/1000BASE-T	5 x 10/100/1000BASE-T
PoE+ ports	4 x PoE+ (30 W per port)	4 x PoE+ (30 W per port)	4 x PoE+ (30 W per port)
SFP ports	-	2 x SFP 1000BASE-SX/-LX/-ZX ¹	-
Power supply	24 ... 57 VDC	24 ... 57 VDC	24 ... 57 VDC
Dimensions (W x H x D)	50 x 120 x 160 mm	50 x 120 x 160 mm	50 x 115 x 100
Surrounding air temperature (operation)	-40 ... +70 °C -10 ... +60 °C per UL 61010	-40 ... +70 °C -10 ... +60 °C per UL 61010	-40 ... +70 °C -10 ... +60 °C per UL 61010
Approvals	UL	UL	UL ³
Prioritization	IEEE 802.1 p	IEEE 802.1 p	IEEE 802.1 p
PROFINET®	CC-A ²	CC-A ²	CC-A ²

¹ Suitable SFP modules on page 21

² No PROFINET® configuration and diagnostics with conformity class A

³ For supply voltage < 48 VDC, the PoE power budget is limited to 60 W.

Redundant power supply

Alarm contact configuration via DIP switches

Rugged design

- Adapter for DIN-35 rail and metal housing
- Surrounding air temperature (operation): -40 ... +70 °C
- High vibration and shock resistance








Alarm contact

- Monitors the primary power supply
- Monitors the secondary power supply
- Monitors ETHERNET ports
- Signals via PLC or remote I/O (e.g., indicator light on the front of the control cabinet)



Industrial Unmanaged Switches

STANDARD – Versatile Use

	Fast ETHERNET			Gigabit	
					
Item number	852-101	852-102	852-103	852-1102	852-1106
Copper ports	5 x 10/100BASE-TX	8 x 10/100BASE-TX	8 x 10/100BASE-TX	8 x 10/100/1000BASE-T	16 x 10/100/1000BASE-T
SFP ports	-	-	2 x SFP 100BASE-FX ¹	-	-
Power supply	9 ... 48 VDC	9 ... 48 VDC	9 ... 48 VDC	9 ... 57 VDC	12 ... 60 VDC
Redundant power supply	■	■	■	■	■
Alarm contact	■	■	■	■	■ ³
Dimensions (W x H x D)	50 x 120 x 105 mm	50 x 120 x 162 mm	50 x 120 x 162 mm	50 x 120 x 105 mm	50 x 120 x 162 mm
Surrounding air temperature (operation)	-40 ... +70 °C	-40 ... +70 °C	-40 ... +70 °C	-40 ... +70 °C	-40 ... +70 °C
Approvals	UL	UL	UL	UL, DNV GL, LR ⁴	UL, DNV GL, LR ⁴
Prioritization	-	-	-	IEEE 802.1 p	IEEE 802.1 p
PROFINET®	-	-	-	CC-A ²	CC-A ²

¹ Suitable SFP modules on page 21

² No PROFINET® configuration and diagnostics with conformity class A

³ Only power supply

⁴ DNV GL and LR starting from hardware version 5

Configuration/Diagnostics/Maintenance

- Port Mirroring, Modbus® Register
- SNMPv3, SNMP Trap Events
- Alarm Threshold
- Port Statistic
- Back-up and Restore
- System Log
- Syslog Server
- Command Line Interface with SSH/Telnet

Security

- Network segmentation per IEEE 802.1Q
- Authentication of network participants per IEEE802.1X
- Firewall functions using Access Control List/Service Control
- Port security



Redundancy/Availability

- Loop detection
- STP/RSTP
- ETHERNET Ring Protection Switching (ERPS)
- Redundant power supply
- Storm control



Lean Managed Switches

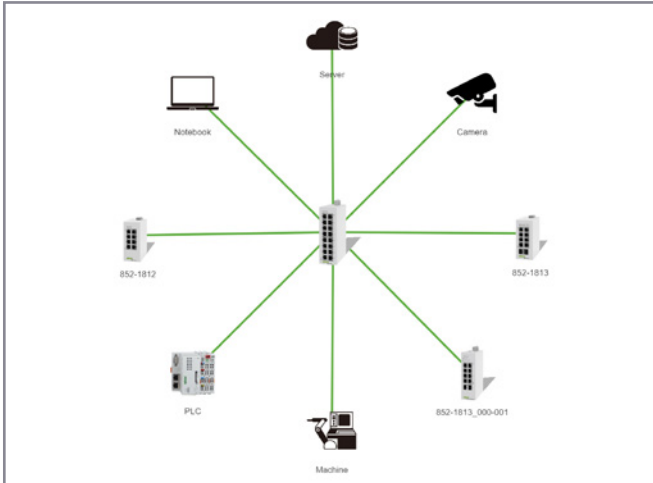
Monitor and Configure Networks Intuitively

				
Item number	852-1812	852-1813	852-1813/000-001	852-1816
Copper ports	8 x 10/100/1000BASE-T	8 x 10/100/1000BASE-T	8 x 10/100/1000BASE-T	16 x 10/100/1000BASE-T
PoE+ ports	-	-	8 x PoE+ (30W per port) ¹	-
SFP ports	-	2 x SFP 100BASE or 1000BASE ^{1,2}	2 x SFP 100BASE or 1000BASE ^{1,2}	-
Power supply	24 ... 48 V	24 ... 48 V	24 ... 57 V	12 ... 60 V
Redundant power supply	■	■	■	■
Alarm contact	■	■	■	■
Dimensions (W x H x D)	50 x 116 x 100 mm	50 x 116 x 100 mm	50 x 120 x 160 mm	50 x 120 x 160 mm
Surrounding air temperature (operation)	-40 ... +60 °C	-40 ... +60 °C	-40 ... +60 °C	-40 ... +60 °C
Approvals	UL	UL	UL	UL
Prioritization	IEEE 802.1Q	IEEE 802.1Q	IEEE 802.1Q	IEEE 802.1Q
Topology map/dashboard	■	■	■	■

¹ Suitable SFP modules on page 21

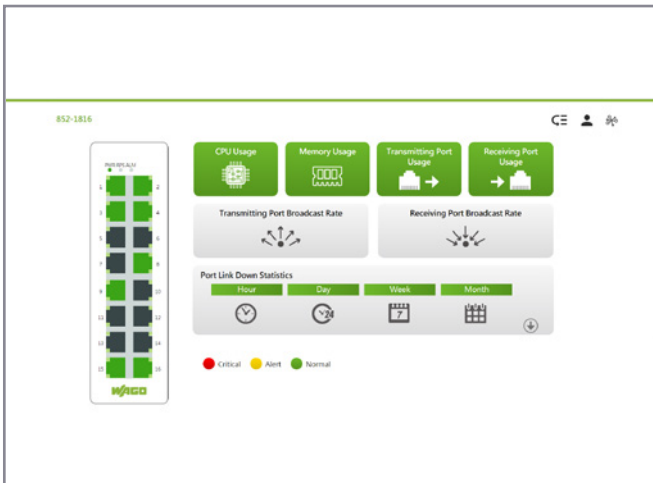
² Configurable via Webserver or DIP switch

Intuitive Diagnostics and Operation



Clear Usability

WAGO has placed a great emphasis on creating an intuitive and easy-to-use interface. Web-Based Management allows installation, commissioning and diagnostics to be performed without extensive IT knowledge. Users enter the switch's IP address in a standard browser and then directly access the diagnostic dashboard or network view (topology map).



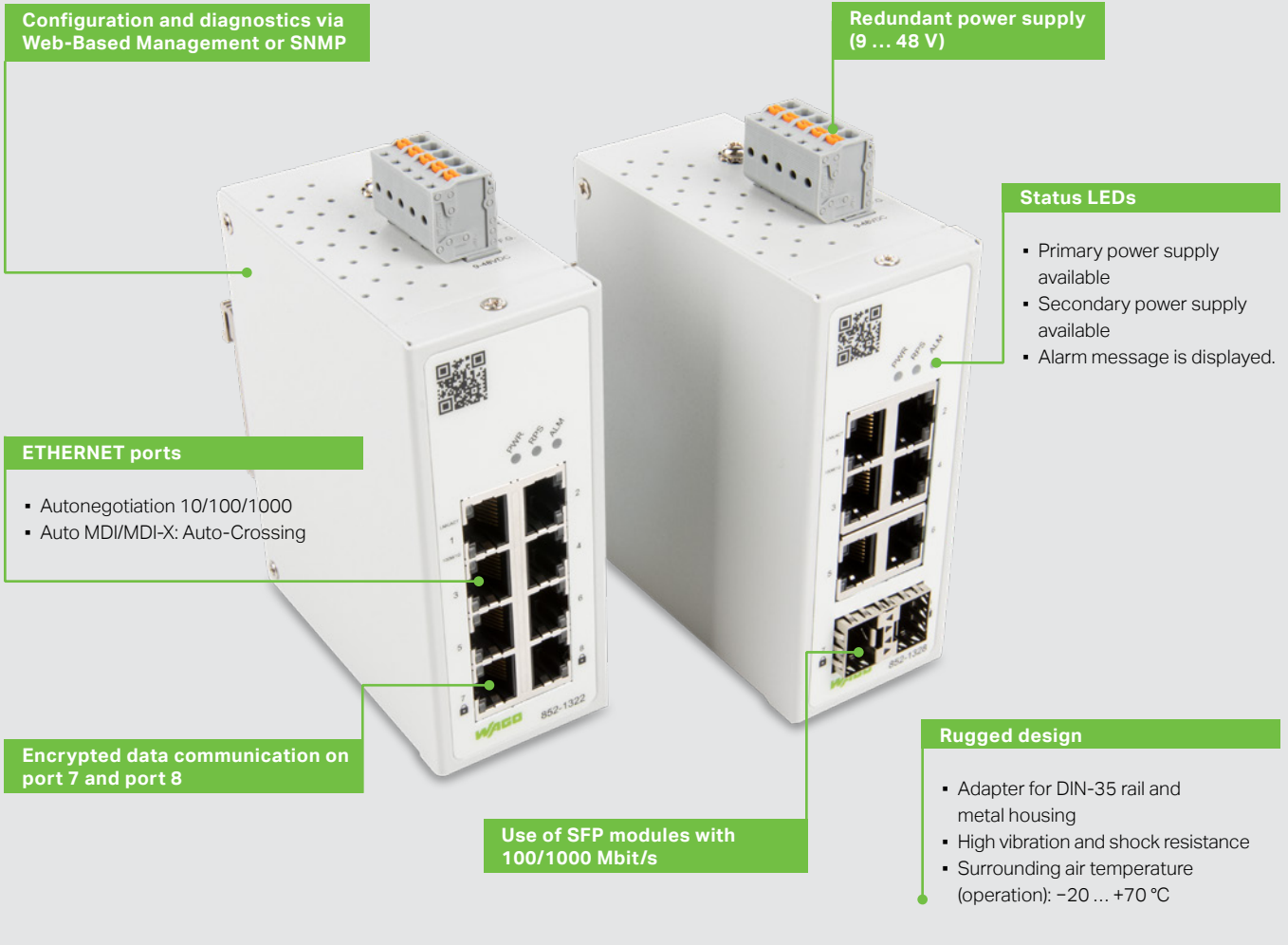
Easier Diagnostics

The diagnostic pages of WAGO's Lean Managed Switches accelerate system troubleshooting. The individual connection status is clearly indicated by green, yellow and red traffic lights. Hovering over a connection with the mouse displays a detailed status overview of the individual connections. In a new window, the user can then see the bandwidth, the load and any transmission errors.



Robust and Reliable

Both hardware and WAGO's new switches' operational design are perfectly matched. In addition to their easy-to-use and compact design, these DIN-rail mount switches also feature an extended temperature range. A redundant power supply ensures even more uptime. Security features such as network segmentation per IEEE802.1Q, authentication of network devices per IEEE802.1X, and port security complete the total package.



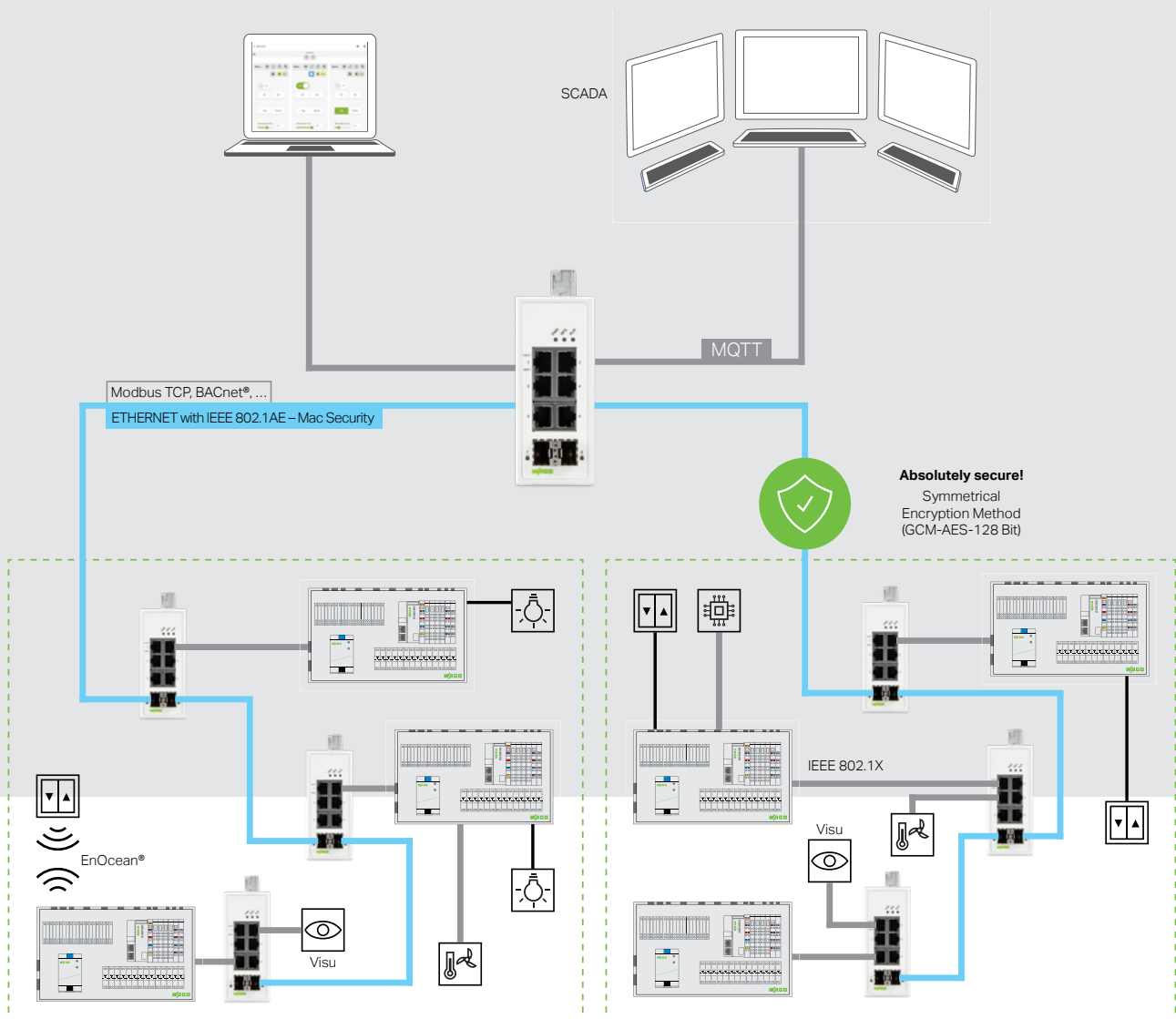
Industrial Managed Switches

MAC Security – Security via Hardware-Based Encryption

		
Item number	852-1322	852-1328
Copper ports	10/100/1000BASE-T	10/100/1000BASE-T
SFP ports	-	2 x SFP 100BASE or 1000BASE ^{1,2}
Power supply	9 ... 48 V	9 ... 48 V
Redundant power supply	■	■
Dimensions (W x H x D)	45 x 110 x 92 mm	
Surrounding air temperature (operation)	-20 ... +70 °C	
Approvals	UL	UL
Prioritization	IEEE 802.1 p	IEEE 802.1 p

¹ Suitable SFP modules on page 21

² Configurable via Webserver



Cybersecurity is an important trend in automation technology. With WAGO's new switches, users can easily increase the security of their applications. The innovation integrates cybersecurity functions: Any data packets are encrypted with 128 bits on two ports. This makes it possible to integrate secure data transmission into an existing network – regardless of the protocol and without changes in the application. The encryption meets the IEEE 802.1AE standard (IEEE MAC Security Standard), ensuring data integrity and authentication of the transmitter alongside high data throughput.

Your Benefits:

- Increasing network security without in-depth IT knowledge
- Data integrity via hardware-based encryption
- Optional authentication of network subscribers
- Network diagnostics via Modbus® or SNMP
- Potential-free communication with SFP modules (up to 80 km)

Redundant power supply

Alarm contact

- Monitoring the primary and secondary power supply
- Monitors ETHERNET ports
- Signaling via PLC or remote I/Os

Switch configuration via PROFINET® Configurator (GSD)

Potential-free connection via SFP modules: cable lengths up to 80 km



PROFINET® diagnostics from the application: cyclically readable process image

Flexible port mirroring configuration: via GSDML or Web-based management

Integrated Web-Based Management for configuration or diagnostics

** Small Form-factor Pluggable Interface for fiber optic cables*

Industrial Managed Switches

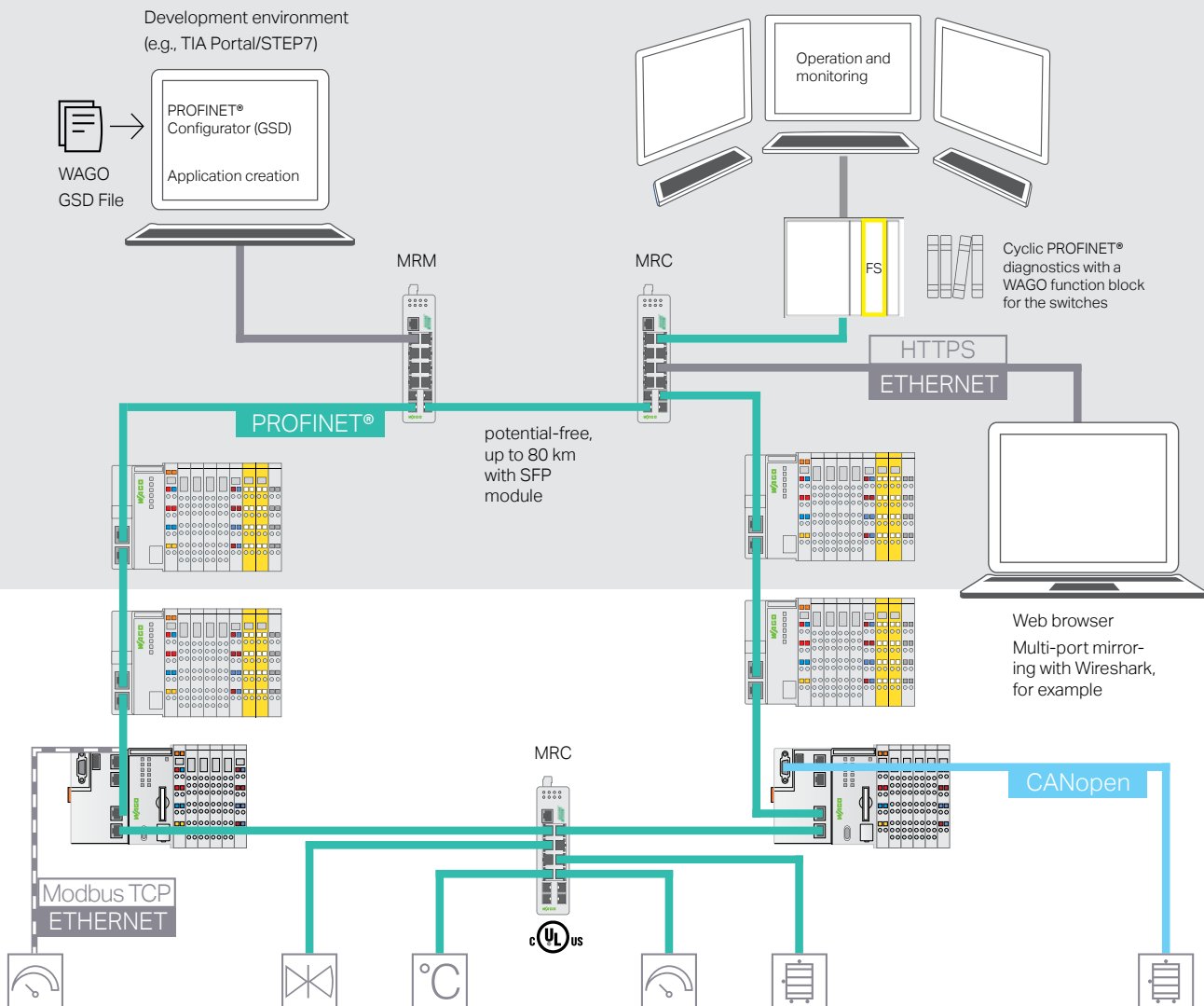
PROFINET® – Use in Industrial Automation

	Fast ETHERNET		Gigabit
Item number	852-602	852-603	852-1605
SFP ports	-	2 x SFP 100BASE or 1000BASE ^{1,2}	4 x SFP 1000BASE-SX/-LX/-ZX ¹
Copper ports	8 x 10/100BASE-TX	8 x 10/100BASE-TX	8 x 10/100/1000BASE-T
Power supply	12 ... 60 VDC	12 ... 60 VDC	12 ... 60 VDC
Redundant power supply	■	■	■
Alarm contact	■	■	■
Dimensions (W x H x D)	50 x 162 x 122 mm	50 x 162 x 122 mm	50 x 162 x 122 mm
Surrounding air temperature (operation)	-40 ... +70 °C	-40 ... 70 °C	-40 ... 70 °C
Approvals	UL	UL	UL
Prioritization	IEEE 802.1Q	IEEE 802.1Q	IEEE 802.1Q
PROFINET®	CC-B	CC-B	CC-B

¹ Suitable SFP modules on page 21

² Configurable via DIP switch (1000BASE-SX/-LX/-ZX or 100BASE-FX)

PROFINET®-Specific Features



The following products meet the requirements of PROFINET® conformity class A (CC-A):
 852-1111, 852-1112, 852-1411,
 852-1411/000-001 and 852-1417

Special Product Features (CC-A):

- Prioritized PROFINET® data packet forwarding
- Configuration via GSDML file not possible
- Neighborhood detection and PROFINET® diagnostics not possible

Your Benefits:

- Use in industrial automation thanks to PROFINET® certificate (conformity class B)
- Port-independent configuration of the media redundancy protocol as a manager (MRM) or client (MRC)
- Flexible multi-port mirroring configuration via device description file
- Switch configuration via device description file

Redundant power supply

Status LEDs

- Primary power supply available
- Secondary power supply available
- Alarm message is displayed.

RS-232 interface for command-based configuration

Integrated Web-Based Management for configuration or diagnostics

Use of SFP modules* with 1 Gbit/s

Alarm contact

- Jet ring diagnostics
- ERPS ring diagnostics
- Monitoring the primary and secondary power supply
- Monitoring of ETHERNET ports
- Signaling via PLC or remote I/O (e.g., indicator light on the front of the control cabinet)

USB interface

- Firmware update
- Saving the diagnostics (Syslog)
- Loading/saving the configuration

Configurable functions

- Network security
- Availability (redundancy and diagnostics)
- Performance
- Data transmission

* *Small Form-factor Pluggable* Interface for fiber optic cables

Industrial Managed Switches

Fully Managed – Powerful and Secure

	PoE+			
Item number	852-303	852-1305⁴	852-1305/000-001	852-1505/000-001
Copper ports	8 x 10/100BASE-TX	8 x 10/100/1000BASE-T	8 x 10/100/1000BASE-T	8 x 10/100/1000BASE-T
PoE+ ports	-	-	-	8 x PoE+ 30 W per port
SFP ports	2 x SFP 100BASE or 1000BASE ^{1,2}	4 x SFP 1000BASE-SX/LX/ZX ¹	4 x SFP 1000BASE-SX/LX/ZX ¹	4 x SFP 1000BASE-SX/LX/ZX ¹
Power supply	12 ... 60 VDC	12 ... 60 VDC	12 ... 48 VDC	24 ... 57 VDC
Redundant power supply	■	■	■	■
Alarm contact	■	■	■	■
Dimensions (W x H x D)	50 x 120 x 162 mm	50 x 120 x 162 mm	50 x 120 x 162 mm	50 x 120 x 162 mm
Surrounding air temperature (operation)	-40 ... +70 °C	-40 ... +70 °C	-40 ... +70 [°]C	-40 ... +70 °C -10 ... +60 °C per UL 61010
Approvals	UL, DNV GL	UL, DNV GL	UL, IEC 61850-3	UL ³ , IEC 61850-3, DNV GL, LR
Prioritization	IEEE 802.1Q	IEEE 802.1Q	IEEE 802.1Q	IEEE 802.1Q

¹ Suitable SFP modules on page 21

² Configurable via DIP switch (1000BASE-SX/-FX/-ZX or 100BASE-FX)

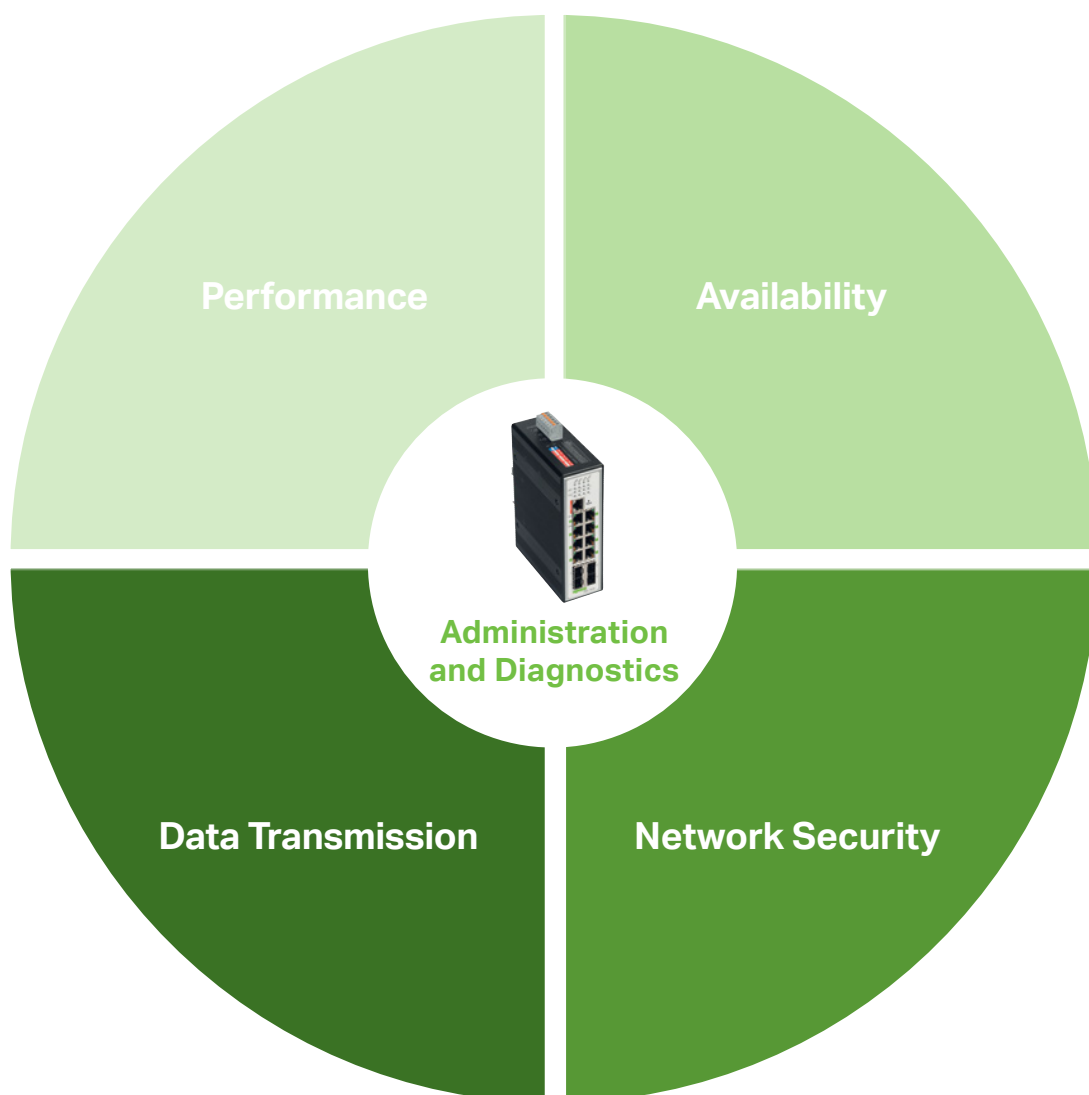
³ For supply voltage < 48 VDC, the PoE power budget is limited to 120 W.

⁴ Auch als PoE-Version erhältlich (852-1505)

Functions Overview: Fully Managed Switches

- Storm Control
- Bandwidth Control
- Auto-Provisioning
- Link Aggregation
- ...

- ERPS
- Dual Homing
- Xpress/Jet Ring
- Dual Ring
- STP/RSTP
- MRM/MRC ^{*1}
- ...



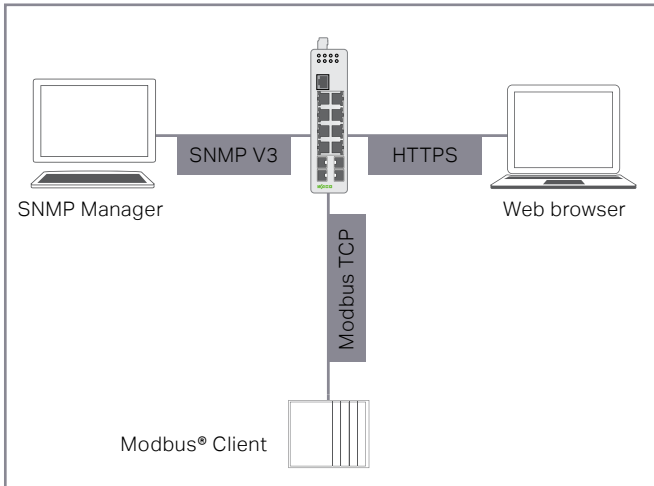
- VLAN
- IGMP Snooping
- IP-based VLAN
- MAC-based VLAN
- ...

- IEEE 802.1X Authentication
- Access Control List
- DHCP Snooping
- Port Security
- Service Control
- ...

¹ Only available in 852-602, 852-603 and 852-1605.

Administration and Diagnostics

Simplified Commissioning and Maintenance



Configuration Interfaces

Configuration and Diagnostics

Several Options

- Configuration via Web-Based Management
- Configuration via command line (SSH, Telnet, RS-232)
- Network management via SNMP v1, v2c, v3
- Support for MIB standards (*Management Information Base*)
- Diagnostics via Modbus TCP
Comprehensive data available for easy diagnostics via Modbus®

Informations SFP	
Câble fibre	Link Up
Connecteur	LC
Longueur d'ondes(nm)	850
Distance de transfert(nm)	550m(50um, OM2), Multi mode
DDM supporté(nm)	YES (Internally Calibrated)
Nom du fabricant(nm)	WAGO
Référence du fabricant(nm)	852-1200
Versión du fabricant(nm)	V2.0
Numéro de série du fabricant (nm)	AX16330002559
Code date(nm)	160809

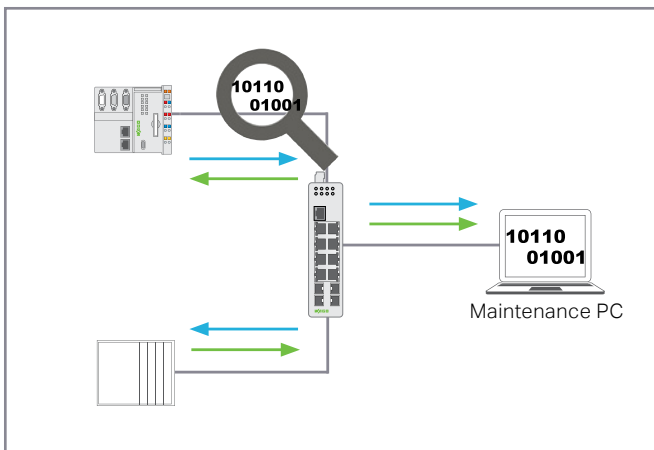
Informations DDMI(nm)					
	Courant(nm)	Alarme haute (nm)	Alarme basse (nm)	Avert. haut (nm)	Avert. bas(nm)
Température(C)	36.148	90.000	-45.000	85.000	-40.000
Tension(V)	3.290	3.500	3.000	3.500	3.100
Tx Bias(mA)	6.754	25.000	1.000	20.000	2.000
Tx Power(mW)	0.210	0.501	0.009	0.398	0.112
Tx Power(dBm)	-6.788	-3.000	-10.505	-4.001	-9.506
Rx Power(mW)	0.252	0.631	0.016	0.501	0.020
Rx Power(dBm)	-5.995	-2.004	-18.016	-3.000	-17.012

DDM

DDM: Digital Diagnostic Monitoring

Always Up to Date

- Automatic detection of a connected SFP module
- Detailed module information
- Monitoring in real time
 - Temperature
 - Supply voltage
 - Transmission power
 - Reception power



Port Mirroring

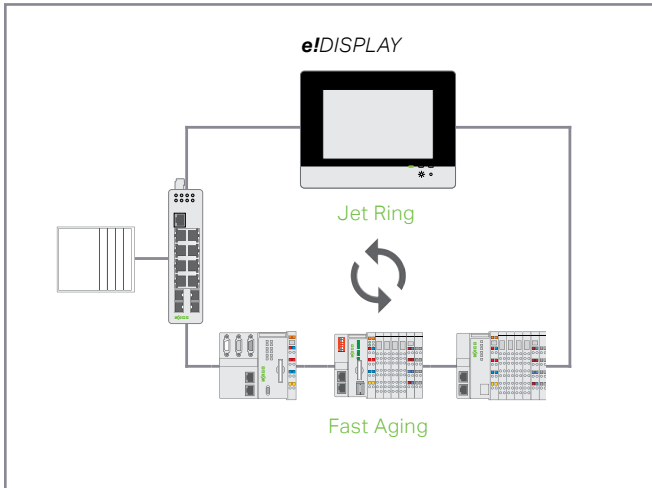
Monitoring and Diagnostics

Simplified Maintenance

- Port mirroring:
Mirrors the network traffic
- LLDP:
Automatically detects adjacent devices
- Email notifications

Availability

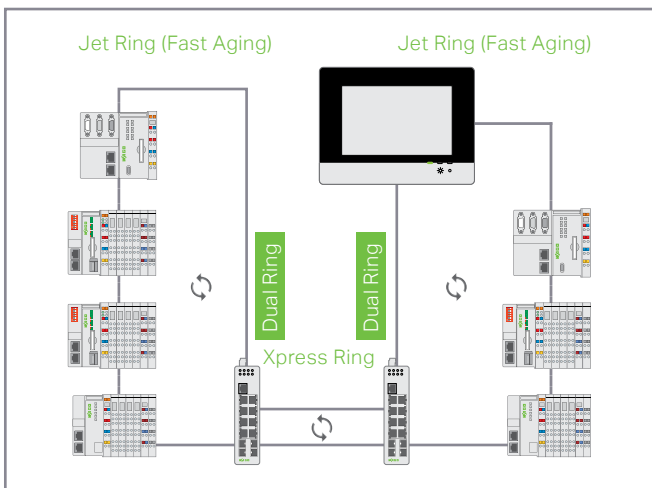
via Communication Redundancy



Jet Ring

Jet Ring

- Typical switching time of 400 ms (depends on the application)
- Extremely easy configuration (on or off)
- Up to 20 switches in a Jet Ring
- WAGO ETHERNET devices (Fast Aging) can be used in the Jet Ring



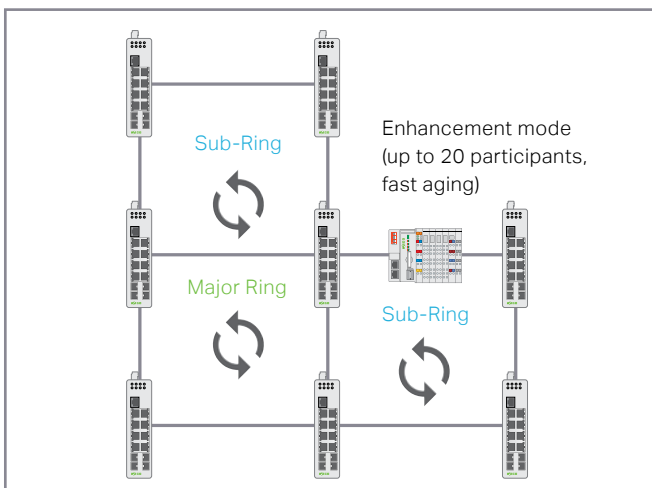
Xpress Ring and Dual Ring

Xpress Ring

- Switching time < 20 ms
- Easy configuration (3 parameters per switch)
- Up to 200 switches in one Xpress Ring
- 2 Xpress Rings per switch

Dual Ring

- Combination of both redundancy types
- 1 Jet Ring and 1 Xpress Ring per switch



ERPS V2

ERPS: ETHERNET Ring Protection Switching The Fast and Open Solution

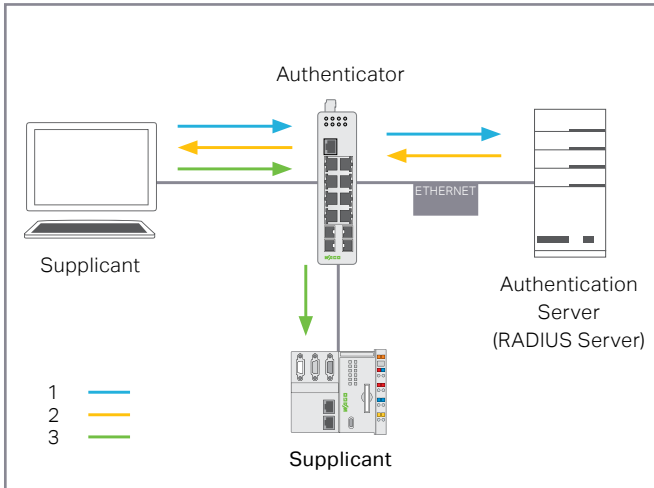
- Standardized and open technology
- Switching time < 50 ms
- Nested topologies with up to 6 rings per switch
- Realization of one-fault tolerance (SPOF – Single Point of Failure)

ERPS – Enhancement Mode

- WAGO devices with an integrated switch and Fast Aging configuration
- Typical switching time of 400 ms (depends on the application)

Network Security

Absolutely Secure Industrial Networks



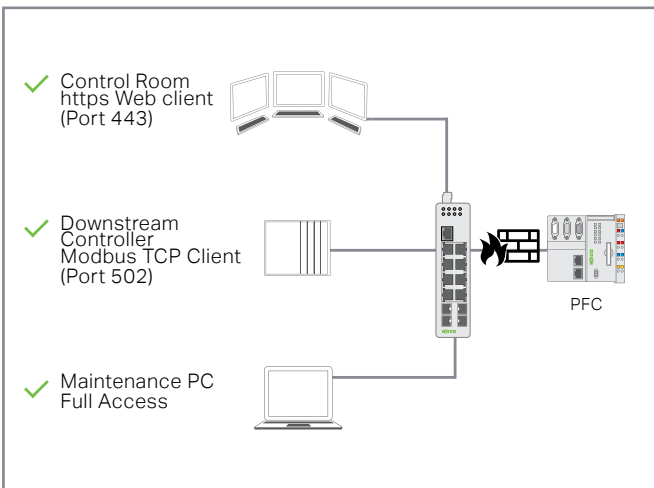
IEEE 802.1X

IEEE 802.1X Authentication The Security Standard for IT Networks

Secure authentication and authorization in ETHERNET networks (locally on the switch or via RADIUS server)

Process:

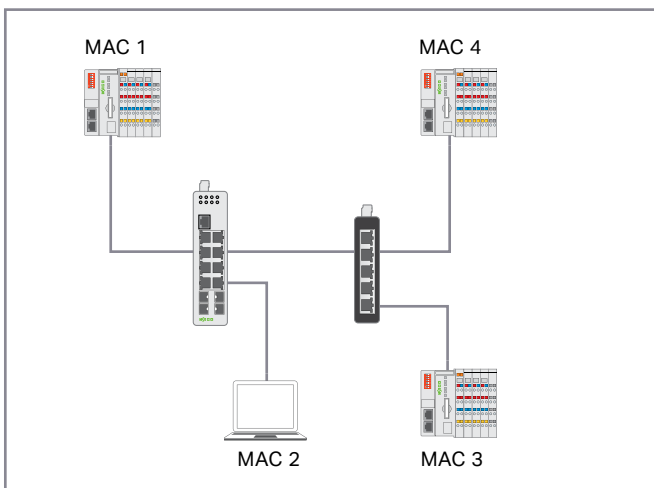
- Authentication of a subscriber is performed by the authenticator.
- The authenticator checks the authentication information of the subscriber (supplicant) with an authentication server.



Firewall

Firewall – Access Control List Authorization Only for the Required Services

- Filtering data packets via:
 - Source MAC or source IP address
 - Destination MAC or destination IP address
 - Range of MAC or IP addresses
 - UDP/TCP source or destination ports
 - MAC-based white/black list per port



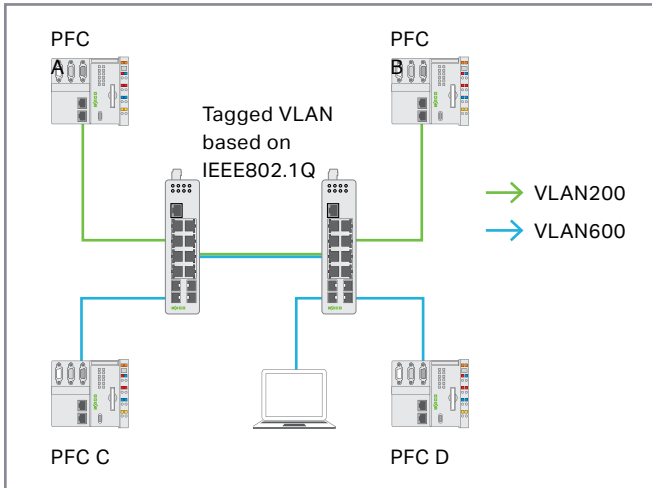
Ports

Port Security

- Dynamically learns MAC addresses per port
- Limitation of MAC addresses per port
- MAC-based white/black list per port

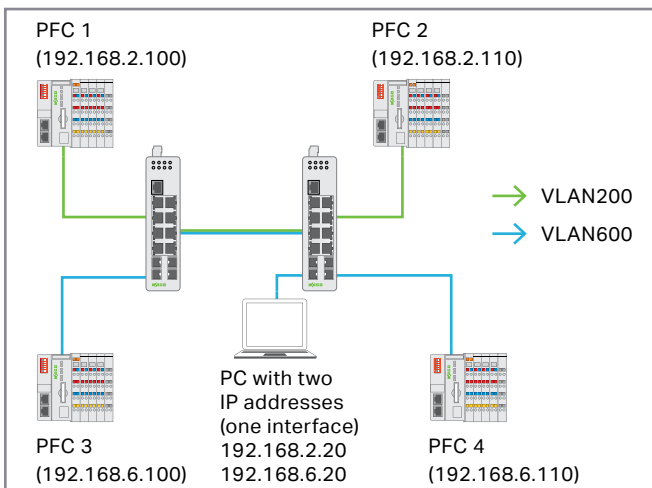
Data Transmission

Optimized ETHERNET Networks



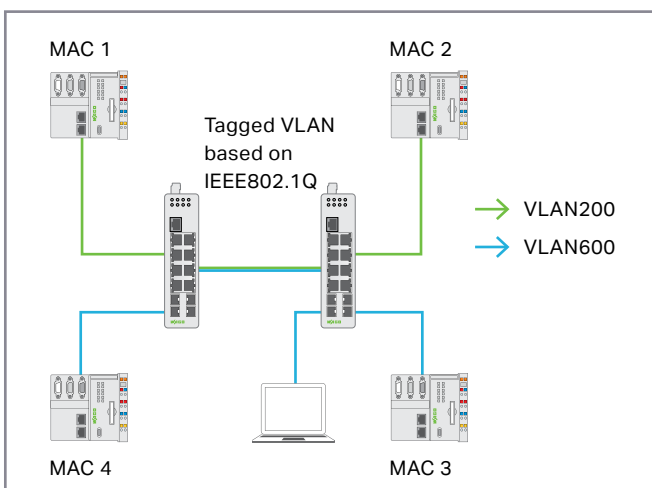
Logical Network Segmentation

- VLAN (e.g., per IEEE 802.1Q) Segmentation into logical, virtual networks:
 - Broadcast limitation
 - Network security improvement
 - Data flow prioritization
 - Subdivision of machines and office networks



IP-Based VLAN

- Routing of data packets between VLANs based on the IP address
- Communication from one participant in two or more VLANs
- Economical connection of networks to higher-level routers
- Prioritization of data packets based on the IP address

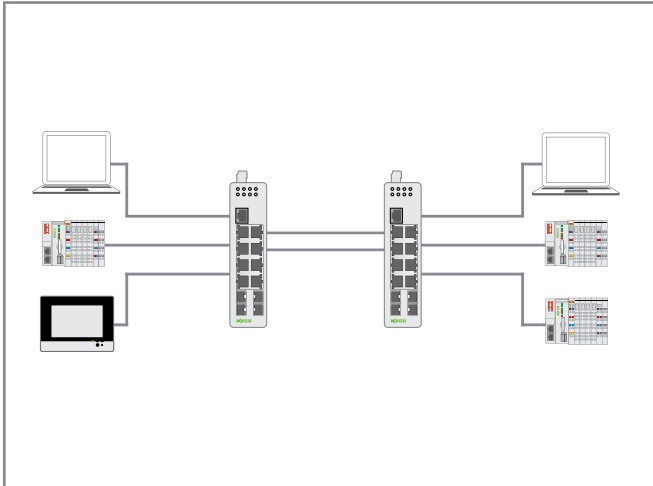


MAC-Based VLAN

- Assignment of data packets to a VLAN based on the MAC address
- Prioritization of data packets based on the MAC address

Performance

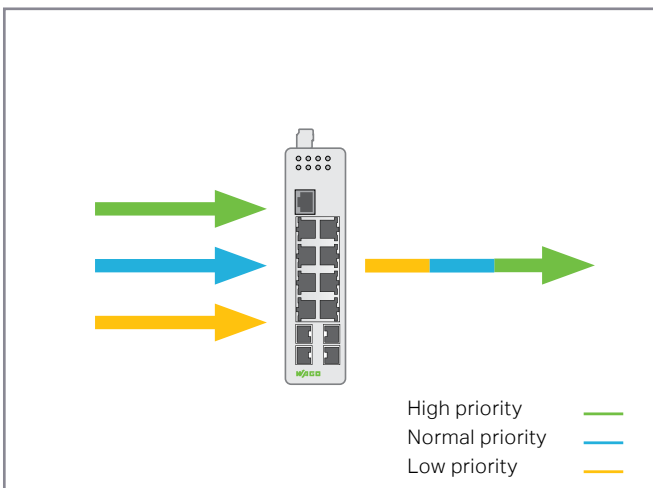
Optimized ETHERNET Networks



Link Aggregation

Network Optimization

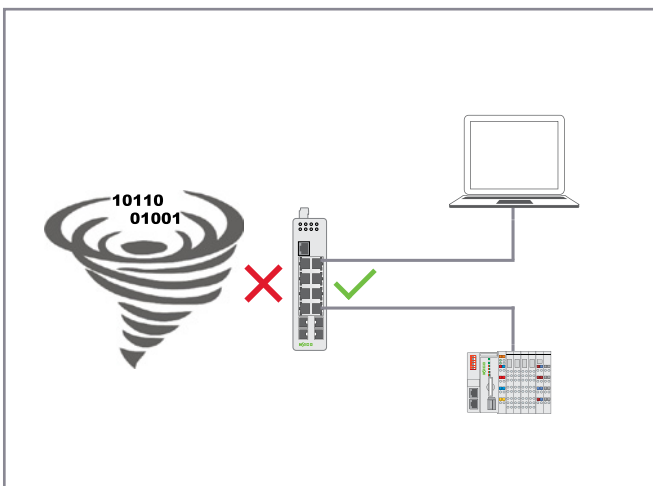
- LACP link aggregation
Merge multiple data connections into a single logical link:
 - Increased transmission rate
 - Link redundancy



QoS

Traffic Prioritization and Limitation

- Faster transfer of important data packets through the switch
- Prioritization of data packets per IEEE 802.1 Q
- Limitation of the bandwidth or number of packets per unit of time per port
- Increase in data transmission quality



Storm Control

Mastering Data Traffic

- Stopping broadcast storms
- Ensuring network availability
- Limiting broadcast and multicast data flows (packets/time)

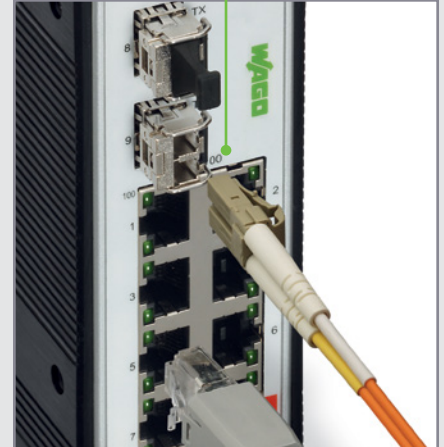
Insertion during operation



Mechanical locking mechanism



Adapts to the fiber type



SFP Modules

Interfaces for Fiber Optic Cables

	SFP Modules, 100BASE			SFP Modules, 1000BASE		
						
Item number	852-201/107-002	852-201/107-030	852-202	852-1200	852-1210	852-1280
	100BASE-FX	100BASE-FX	100BASE-FX	1000BASE-SX	1000BASE-LX	1000BASE-ZX
Laser type	Multimode	Single-mode	Multimode	Multimode	Single-mode	Single-mode
Wavelength	1310 nm	1310 nm	1310 nm	850 nm	1310 nm	1550 nm
Connector	LC duplex	LC duplex	LC duplex	LC duplex	LC duplex	LC duplex
Cable length (max.)	2 km	30 km	2 km	550 m, 300 m	10 km	80 km
Operating temperature	-40 ... +70 °C	-40 ... +70 °C	-40 ... +100 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
DDM	-	-	■	■	■	■
Compatible with	852-103 852-303 852-603 852-1813 ¹ 852-1328	852-103 852-303 852-603 852-1813 ¹ 852-1328	852-103 852-303 852-603 852-1813 ¹ 852-1328 750-8211	852-303 852-603 852-1305 ¹ 852-1505 ¹ 852-1605 852-1417 852-1813 ¹ 852-1328	852-303 852-603 852-1305 ¹ 852-1505 ¹ 852-1605 852-1417 852-1813 ¹ 852-1328	852-303 852-603 852-1305 ¹ 852-1505 ¹ 852-1605 852-1417 852-1813 ¹ 852-1328

¹ Includes variant: 852-xxxx/000-001

WLAN 802.11 a/b/g/n/d/r and Bluetooth® 4.0

- Robust communication with high data throughput

Access point functionality

- Build a network of up to 7 clients

Rugged design

- Protection type: IP65
- Temperature (operation): -30 ... +65 °C
- Direct mounting outside the housing

Version with external antenna

- Antenna gain of 3 dBi (max.)

A single solution for everything

- Wi-Fi and Bluetooth® in one device
- Client or access point
- Range: up to 400 m (open air)

Buttons

- Easy configuration
- Advanced configuration via Webserver or Telnet

Diagnostic LEDs

- Power supply
- Network connections
- Wireless signal quality



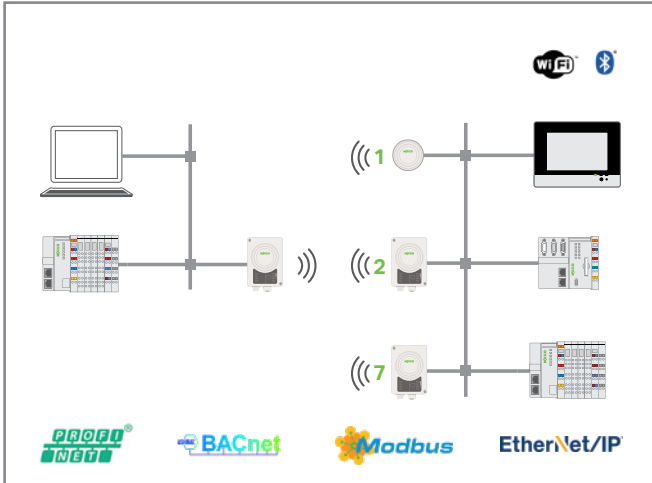
Wireless Devices

	Wireless ETHERNET Gateway		Wireless Access Point
			
Item number	758-918¹	758-918/000-001	758-919
Antenna type	Directional, internal (3 antennas)	Non-directional, RP SMA plug (1 antenna)	Directional, internal (1 antenna)
Wireless technology	<i>Bluetooth® 2.1, Bluetooth® 4.0 (Low Energy), Wi-Fi 802.11 a/b/g/n/d/r</i>		
Security	<i>Bluetooth® 2.1: NIST-compliant; FIPS-approved (authentication and authorization, encryption and data security, privacy and discretion) Bluetooth® 4.0 (Low Energy): AES-CCM encryption WLAN: WEP 64/128, WPA, WPA-PSK and WPA2, TKIP and AES/CCMP, LEA, PEAP including MS-CHAP</i>		
Operating modes	Access point (max. 7 clients), client or gateway mode		
Configuration	Webserver, Telnet and buttons		Webserver and Telnet
Transmission range	Up to 400 m (open air)		Up to 200 m (open air)
Surrounding air temperature (operation)	-30 ... +65 °C		-40 ... +65 °C
Power supply	24 VDC (9 ... 30 VDC)		24 VDC (19 ... 36 VDC) or PoE (DTE Type 1 per IEEE 802.3af)
Protection type	IP65		Top: IP66/IP67/UL NEMA 4X Base: IP21

¹ Cable recommendation: - Power supply (e.g., 756-3101/040-020)

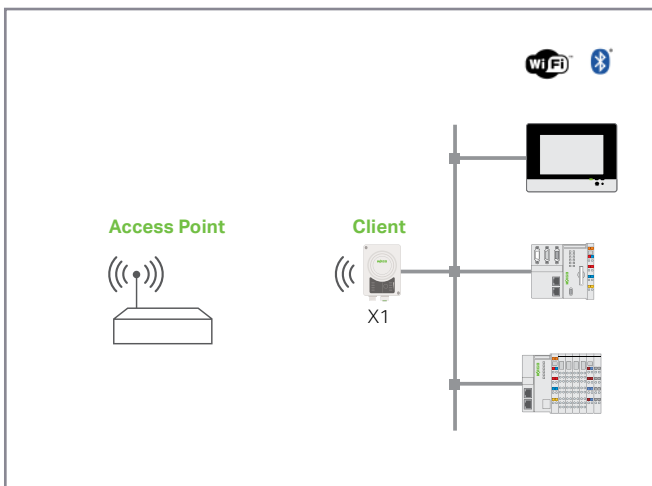
- Data cable (e.g., 756-1203/060-050 or 756-1201/060-020 and 750-978/000-012)

Applications – Wireless Devices



ETHERNET Bridge

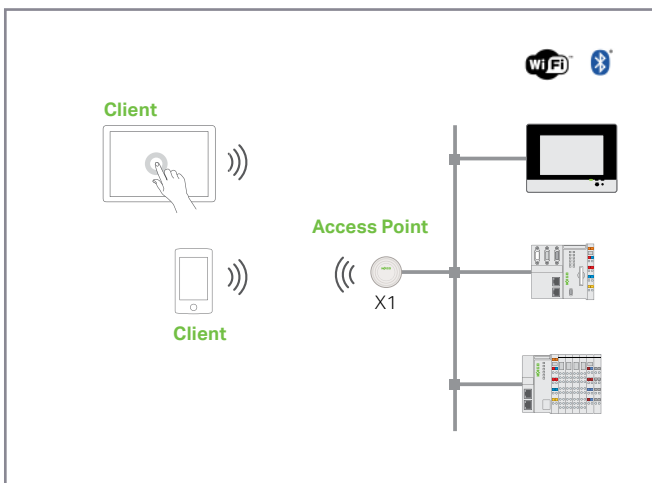
- Transmission of each TCP/IP also of prioritized PROFINET RT and EtherNet/IP™ frames
- Pairing via device's push-button (758-918 only)
- Up to 7 clients
- Use of Wi-Fi or *Bluetooth*®



Client for Existing Access Point

- Connection to a Wi-Fi 802.11 a/b/g/n/d/r
- Protocols like TCP, EtherNet/IP™, BACnet/IP, ...
- Possibility of connecting multiple devices after the client

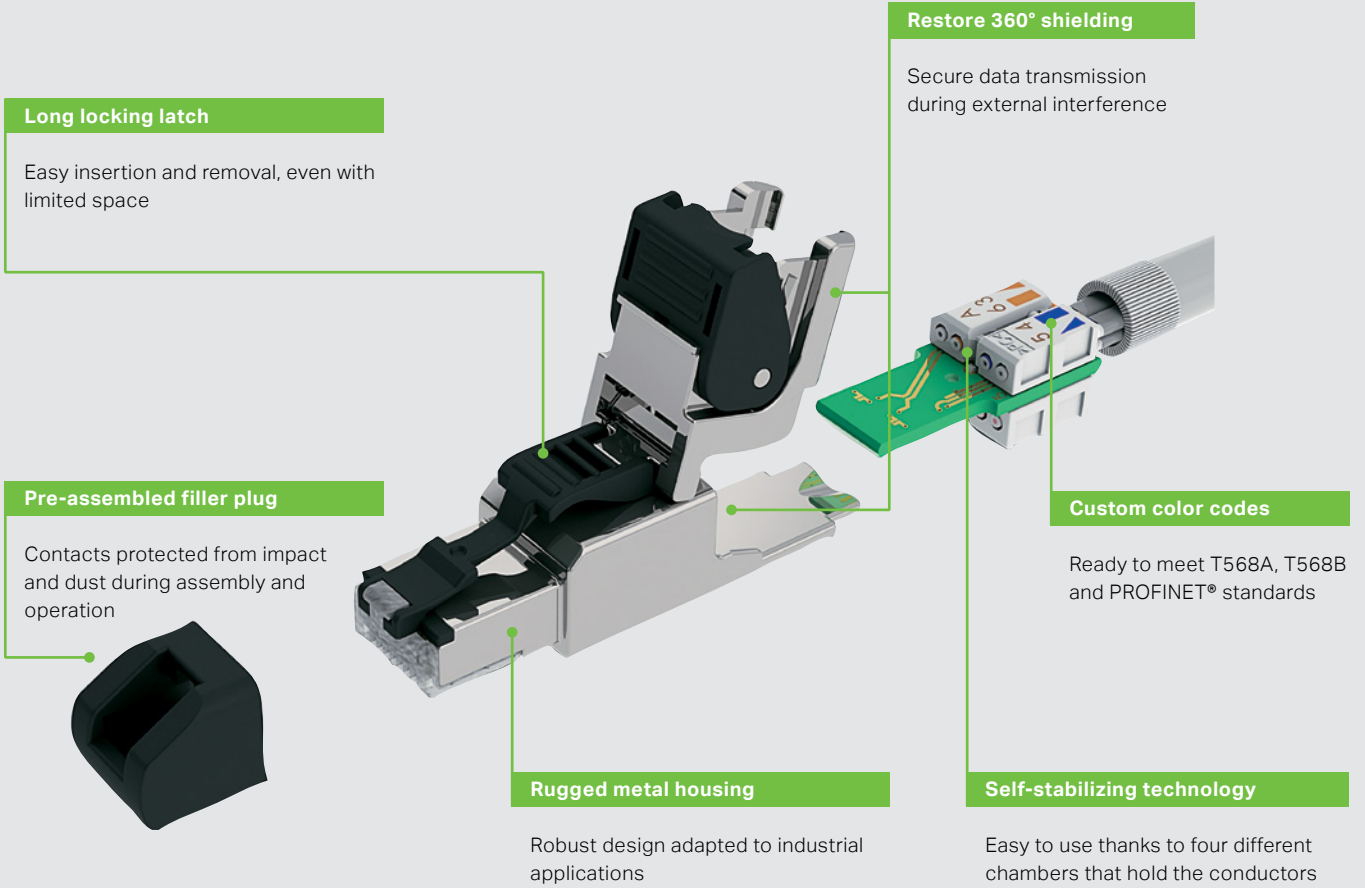
Note X1: 758-918 or 758-919



Access Point

- Setup of a Wi-Fi 802.11 a/b/g/n/d/r or *Bluetooth*®
- Connection of tablets, smartphones, ...
- Up to 7 clients simultaneously

Note X1: 758-918 or 758-919



RJ-45 Connectors

Fast and Tool-Free Installation

RJ-45 Connectors				
ETHERNET T568B ²	750-977/000-012	750-978/000-012	750-979/000-012	750-975
PROFINET® ³	750-977/000-013	750-978/000-013	750-979/000-013	750-976
Category	Cat. 6a	Cat. 6a	Cat. 6a	Cat. 5e
Max. rate	10 Gbit/s	10 Gbit/s	10 Gbit/s	1 Gbit/s
Housing material	Metal	Metal	Metal	Plastic
Surrounding air temperature (operation)	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +70 °C
Cable clamp	-	Straight output	Angled output	Straight output
Conductor cross-section¹	0.21 ... 0.32 mm ²	0.21 ... 0.32 mm ²	0.21 ... 0.32 mm ²	0.13 ... 0.24 mm ²

¹ Also available for conductors ranging from 0.13 to 0.21 mm², Item No. 750-97x/000-02x

² Also available for ETHERNET T568A, Item No. 750-97x/000-011

³ Max. rate for PROFINET®: 100 Mbit/s

WAGO Power Supply Pro 2

- Up to 96% efficiency
- Fit for digitalization thanks to communication module
- Versatile configuration options
- Fast and reliable tripping of miniature circuit breakers thanks to temporary output currents up to 600%
- Quick charging of capacitors and fast switching of contactors thanks to output currents of up to 150% for five seconds
- Extended temperature range: -40 ... +70 °C



WAGO Power Supply Compact

- Compact, low-profile design
- Ideal for decentralized applications
- Surrounding air temperature (operation): -25 ... +60 °C



WAGO Power Supply Eco

- Budget-friendly for basic applications
- Flexible mounting of DIN-rail adapter
- Flexible installation via screw-mount clips



WAGO Power Supply Classic

- Integrated TopBoost (787-16xx with ≥ 120 W)
- DC OK signal/contact
- Up to 93% efficiency
- Surrounding air temperature (operation): -25 ... +70 °C

Power Supplies

WAGO Power Supply	Pro 2		Classic							Eco			Compact			
Item number	2787-2144	2787-2448	787-1602	787-1606	787-1622	787-1632	787-1623	787-1633	787-1635	787-1702	787-1712	787-1722	787-1102	787-1112	787-1122	787-1226
Nominal output voltage [DC]	24 V	24 V	24 V	24 V	24 V	24 V	48 V	48 V	48 V	24 V	24 V	24 V	24 V	24 V	24 V	24 V
Nominal output current [DC]	5 A	10 A	1 A	2 A	5 A	10 A	2 A	5 A	10 A	1.25 A	2.5 A	5 A	1.3 A	2.5 A	4 A	6 A
Industrial Eco Switches (852-111, 852-112, 852-1111, 852-1112)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Industrial Eco Switches (PoE) (852-1411, 852-1417)	■	■	-	-	■	■	-	■	■	-	-	■	-	-	-	-
Industrial Switches (852-101, 852-102, 852-103/040-000, 852-1102, 852-1106)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Industrial Lean Managed Switches (852-1812; 852-1813; 852-1816)	■	■	-	■	■	■	■	■	■	-	■	■	-	■	■	■
Industrial Lean Managed Switches (PoE) (852-1813/000-001)	-	■	-	-	-	■	-	■	■	-	-	-	-	-	-	■
Industrial Managed Switches (852-303, 852-1305, 852-1305/000-001, 852-1322; 852-1328)	■	■	-	■	■	■	■	■	■	-	■	■	-	■	■	■
Industrial Managed Switches (PoE) (852-1505)	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-
Industrial Managed Switches (PoE) (852-1505/000-001)	-	■	-	-	-	■	-	■	■	-	-	-	-	-	-	-
PROFINET® Managed Switches (852-602, 852-603, 852-1605)	■	■	-	■	■	■	■	■	■	-	■	■	-	■	■	■

■ ■ Recommendation

■ Useable– Limited usability or none at all

Industrial Switches

		Unmanaged											Managed														
		Eco					Standard						Lean Managed			MAC-sec		Fully Managed				PROFINET®					
		852-111	852-112	852-1111	852-1112	852-1411	852-1411/000-001	852-1417	852-101	852-102	852-103	852-1102	852-1106	852-1812	852-1813	852-1813/000-001	852-1816	852-1322	852-1328	852-303	852-1305	852-1305/000-001	852-1505	852-1505/000-001	852-602	852-603	852-1605
Hardware	Number of copper ports	5	8	5	8	5	5	5	8	8	8	16	8	8	8	16	8	6	8	8	8	8	8	8	8	8	8
	▲100 Mbit/s ▲1 Gbit/s	▲	▲	■	■	■	■	■	▲	▲	▲	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	PoE+ ports among these (1 Gbit/s)	0	0	0	0	4	4	4	0	0	0	0	0	0	8	0	0	0	0	0	0	8	8	0	0	0	0
	Number of SFP ports	0	0	0	0	0	0	2	0	0	2	0	0	0	2	2	0	0	2	2	4	4	4	4	0	2	4
	▲100 Mbit/s ▲1 Gbit/s	-	-	-	-	-	-	▲	-	-	▲	-	-	-	■	■	-	-	■	■	▲	▲	▲	▲	-	■	▲
Approvals	Alarm relays	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	-	-	■	■	■	■	■	■	■	■	■
	CE	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	DNV GL	■	-	■	-	-	-	-	-	-	-	1	1	-	-	-	-	-	■	■	-	-	-	1	-	-	-
	UL 61010	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	-	■	■	■	■
	IEC 61850-3 (standard)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	-	■	-	-	-	-
	PROFINET® CC-B (certificate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	■
Hardware Features	Auto-negotiation	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Auto-crossing	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	PROFINET® CC-A	-	-	■	■	■	■	■	-	-	-	■	■	FW 2 or higher		■	■	■	■	■	■	■	■	■	■	■	■
Configuration	DIP switch (diagnostics)	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Web-Based Management	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	SNMP (MIB)	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	CLI (SSH, Telnet)	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	CLI with RS-232	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■
	PROFINET® Configurator (GSD)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	■
	USB storage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	-	■	-	-	-
Diagnostics	Status LED (LINK active)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Status LED (LINK down)	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Status LED (alarm)	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	SNMP (MIB and traps)	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Modbus® register	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Web-Based Management	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Dashboard and topology map	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Acyclic and cyclic PROFINET® diagnostics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	■
Redundancy	Neighborhood detection (LLDP)	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Redundant power supply	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Jet Ring and XPress Ring	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■
	ETHERNET Ring Protection Switching	-	-	-	-	-	-	-	-	-	-	-	■	2	2	2	2	-	-	■	■	■	■	■	■	■	■
	Media Redundancy Protocol (MRP) (client/manager)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	■
Security	RSTP/STP	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Segmentation (VLAN)	-	-	-	-	-	-	-	-	-	-	-	■	3	3	3	3	■	■	■	■	■	■	■	■	■	■
	Authentication (IEEE 802.1X)	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Access Control List (MAC, IP, Port)	-	-	-	-	-	-	-	-	-	-	-	■	4	4	4	4	-	-	■	■	■	■	■	■	■	■
	Port security	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	MAC Security (IEEE 802.1AE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	-	-	-	-	-	-	-	-
Data Transmission	LACP link aggregation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■
	Prioritization (IEEE 802.1 p)	-	-	■	■	■	■	■	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Quality of Service (IEEE 802.1 Q)	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Bandwidth limitation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■
	Broadcast limitation	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Routing within VLANs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■
	Static Route	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	■	■	■	■	■	■	■

¹ DNV GL and LR starting from version 5

³ Supports up to five VLANs

² Supports two ERPS rings with a switchover time of less than 800 ms

⁴ Supports up to 32 entries (based on MAC and IP address)

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