Network Infrastructure

Industrial Switches and ETHERNET Components

Content

Portfolio and Function Overview

Industrial Unmanaged Switches

Eco Unmanaged

- Plug-and-play operation (Auto MDI-X)
- Megabit and gigabit variants
- Vibration and shock resistance
- DIN-rail adapter
- PoE up to 90 watts

Page 5

Standard Unmanaged

- Up to 16 Gbit ports + SFP slots
- Diagnostics via LEDs and relay
- High temperature range (−40 … 70 °C)
- Redundant power supply

Page 7

Industrial Managed Switches

Lean Managed

- Intuitive configuration for automation engineers
- Simple network diagnostics in a browser
- Media redundancy with RSTP/ERPS
- Basic network security functions
- MAC security switches

Page 8

PROFINET® Managed

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

Page 14

Fully Managed

- Fast network redundancy (< 30 ms)
- Protocol support: SNMPv3, Modbus®, Syslog, etc.
- Security: SSH, VLAN, 802.1X, ACLs, etc.
- Advanced networking: Routing, IPv6, LACP, DHCP, etc.

Page 16

Expanded Scope of Functions (see page 30)

Media Converters / Wireless Devices

Media Converters

- Communication up to 80 km with fiber optic cables
- Communication up to 1000 m with Single Pair Ethernet
- SFP modules for various applications
- DIN-rail mounting/robustness
- PoE for powering devices

Page 24

Wireless Devices

- ETHERNET bridge
- Client for existing access point
- Access point

Page 26

Compact footprint

- Just 46 mm wide

Power supply (9 … 48 V)

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

8 ETHERNET ports

- Autonegotiation 10/100/1000
- Auto MDI/MDI-X: autocrossing
- Status LEDs: PWR/activity

Rugged design

- Adapter for DIN-35 rail and metal housing
- High vibration and shock resistance
- Ambient temperature (operation): −40 … +70°C

Industrial Unmanaged Switches

Eco – Economical and Compact

	Fast ETHERNET		Gigabit		
					
Item number	**852-111/000-001**	**852-112/000-001**	**852-1111/000-001**	**852-1112/000-001**	**852-1116**
Ports	5 × 10/100BASE-TX	8 × 10/100BASE-TX	5 × 10/100/1000 BASE-T	8 × 10/100/1000 BASE-T	16 × 10/100/1000
Supply voltage	18 … 30 VDC	18 … 30 VDC	9 … 48 VDC	9 … 57 VDC	12 … 48 VDC (+/−15 %)
Dimensions (W × H × D)	23.4 × 109.2 × 73.8 mm	50 × 116 × 100 mm	23.4 × 109.2 × 73.8 mm	46 × 116 × 110 mm	50 × 162 × 120 mm
Ambient temperature (operation)	−40 … +70 °C	−40 … +70 °C	−40 … +70 °C	0 … +60 °C	−40 … +70 °C
Approvals	UL, DNV GL	UL	UL, DNV GL	UL	UL
Prioritization	-	-	IEEE 802.1 p	IEEE 802.1 p	IEEE 802.1p
PROFINET®	-	-	CC-A[1]	CC-A[1]	CC-A[1]

[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 transmitted

Four ports with PoE+ (30 W)

Five ETHERNET ports up to 1 Gbit/s

Ambient temperature (operation): –40 … +70 °C

Use of 1 Gbit/s SFP* modules

* *Small Form-Factor Pluggable* interface for fiber optics

Eco with PoE – Power Supply via ETHERNET Cable

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

	PoE+			PoE Injector
				
Item number	**852-1411**	**852-1417**	**852-1411/0000-0001**	**852-1731 & 852-1732**
Copper ports	5 × 10/100/1000BASE-T	5 × 10/100/1000BASE-T	5 × 10/100/1000BASE-T	2 × 10/100/1000 BASE-T
PoE+ ports	4 × PoE+ (30 W per port)	4 × PoE+ (30 W per port)	4 × PoE+ (30 W per port)	1 × PoE++ (60 or 90 W)
SFP ports	-	2 × SFP 1000BASE[1]	-	-
Supply voltage	24 … 57 VDC	24 … 57 VDC	24 … 57 VDC	24 … 57 VDC
Dimensions (W × H × D)	50 × 160 × 120 mm	50 × 160 × 120 mm	50 × 104 × 115 mm	25 × 116 × 100 mm
Ambient temperature (operation)	–40 … +70 °C[3]	–40 … +70 °C[3]	–40 … +70 °C[3]	–40 … +70 °C
Approvals	UL	UL	UL[2]	UL
PoE budget	120 W	120 W	60 W or 120 W[2]	852-1731: 60 W 852-1732: 90 W

[1] Suitable SFP modules on page 23

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

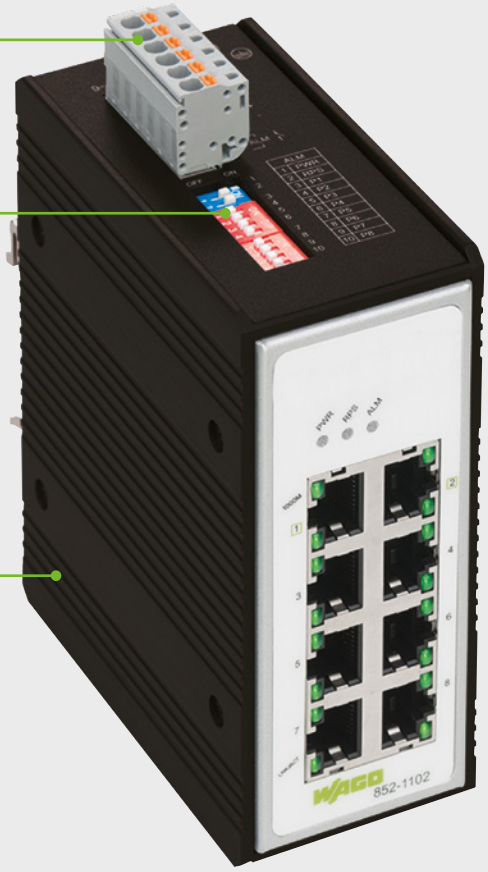
[3] –10 … +60 °C per UL 61010

Redundant power supply

Alarm contact configuration via DIP switches

Rugged design

- Adapter for DIN-35 rail and metal housing
- Ambient 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
- Signaling via PLC or remote I/O (e.g., indicator light on the front of the control cabinet)

Industrial Unmanaged Switches

Standard – Versatile

	Fast ETHERNET			Gigabit	
					
Item number	**852-101**	**852-102**	**852-103**	**852-1102**	**852-1106**
Copper ports	5 × 10/100BASE-TX	8 × 10/100BASE-TX	8 × 10/100BASE-TX	8 × 10/100/1000BASE-T	16 × 10/100/1000BASE-T
SFP ports	-	-	2 × SFP 100BASE-FX[1]	-	-
Supply voltage	9 … 48 VDC	9 … 48 VDC	9 … 48 VDC	9 … 57 VDC	12 … 60 VDC
Redundant supply voltage	■	■	■	■	■
Alarm contact	■	■	■	■	■[3]
Dimensions (W × H × D)	50 × 105 × 120 mm	50 × 162 × 120 mm	50 × 162 × 120 mm	50 × 105 × 120 mm	50 × 162 × 120 mm
Ambient 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 23

[2] No PROFINET® configuration and diagnostics with conformity class A

[3] Only power supply

[4] DNV GL and LR with hardware version 5 and above

Configuration/Diagnostics/Maintenance

- Port mirroring, Modbus® register
- SNMPv3, SNMP trap events
- Alarm threshold
- Port statistics
- Backup 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

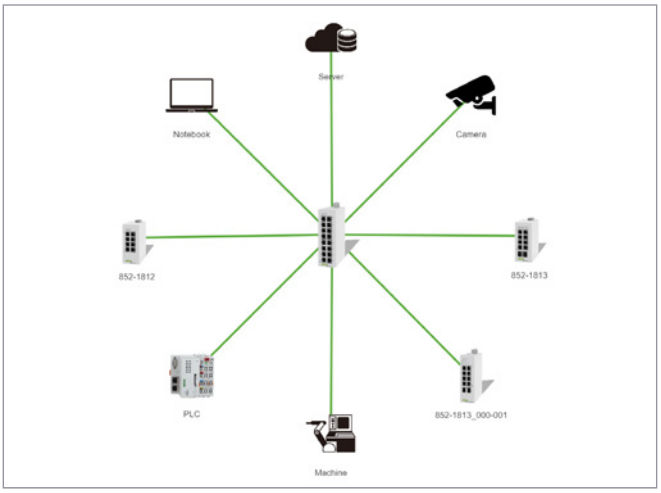
Intuitive Network Monitoring and Configuration

				
Item number	**852-1812**	**852-1813**	**852-1813/000-001**	**852-1816**
Copper ports	8 × 10/100/1000BASE-T	8 × 10/100/1000BASE-T	8 × 10/100/1000BASE-T	16 × 10/100/1000BASE-T
PoE+ ports	-	-	8 × PoE+ (30 W per port)[1]	-
SFP ports	-	2 × SFP 100Base or 1000Base[1,2]	2 × SFP 100Base or 1000Base[1,2]	-
Supply voltage	24 … 48 V	24 … 48 V	24 … 57 V	12 … 60 V
Redundant power supply	■	■	■	■
Alarm contact	■	■	■	■
Dimensions (W × H × D)	50 × 116 × 100 mm	50 × 116 × 100 mm	50 × 160 × 120 mm	50 × 160 × 120 mm
Ambient 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 23

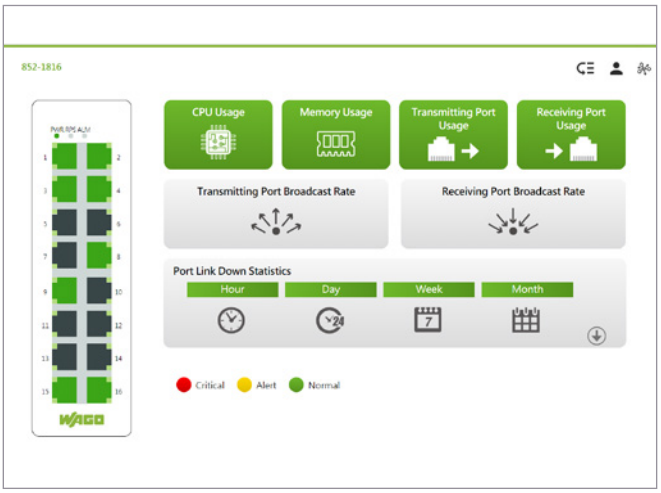
[2] Configurable via Webserver or DIP switch

Intuitive Diagnostics and Operation



Clear Operating Principle

For WAGO, an intuitive, easy-to-use interface is a high priority. Web-Based Management supports installation, commissioning and diagnostics without extensive IT knowledge. Users can enter the switch's IP address in a standard browser and then access the diagnostic dashboard or network view (topology map) directly.



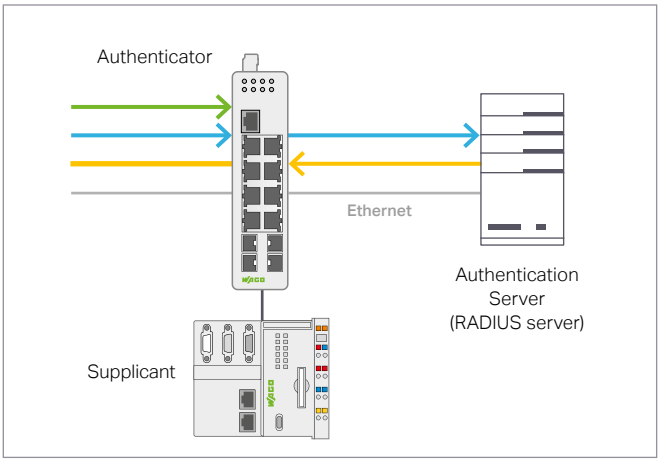
Easier Diagnostics

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

The new switches' operating principle and hardware are perfectly coordinated. In addition to their ease of 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 like network segmentation per IEEE802.1Q, network device authentication per IEEE802.1X and port security complete the total package.

Security



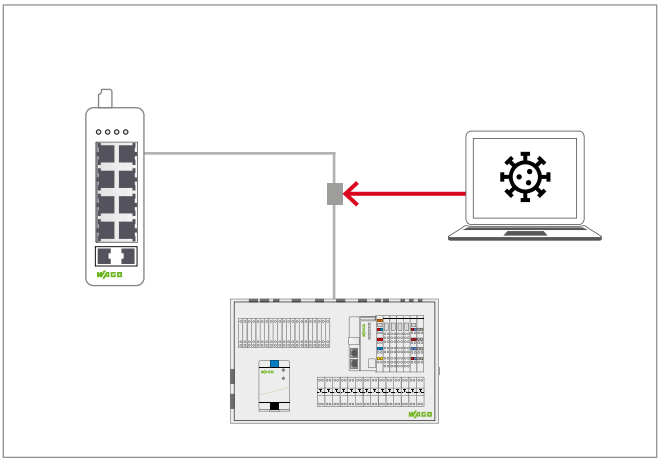
IEEE 802.1X Authentication

The Security Standard for IT Networks

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

Procedure:

- Subscriber authentication is handled by the authenticator
- The authenticator uses an authentication server to check the authentication information of the subscriber (supplicant)



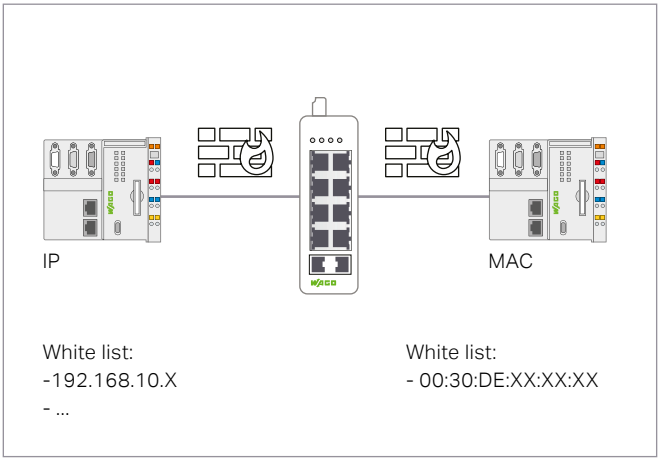
Advanced Port Security

Disabling Ports for Security

If a configured port loses its connection to a connected device, the port is automatically disabled.

Procedure:

- Monitored ports configured
- Monitored ports automatically configured
- Port automatically disabled in the event of a link-down; an administrator can re-enable the port (CLI or WBM)



Black List/White List with Access Control List

Increased Safety through Rules

If the incoming data packets do not follow the set rules (e.g., MAC or IP range), the data packets are deleted.

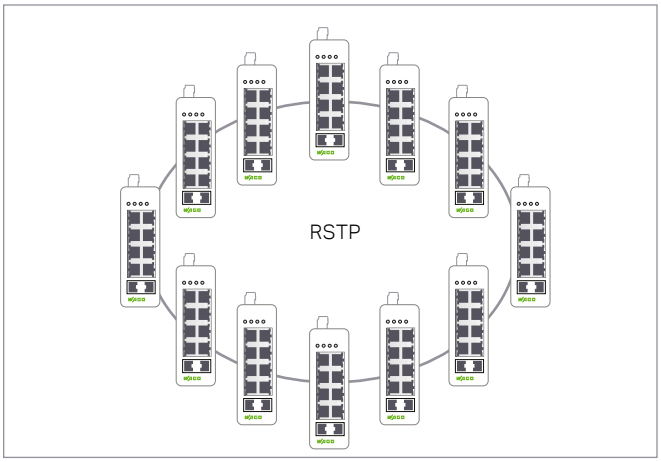
Procedure:

- The received data packets are analyzed
- If a specified rule applies, the data packet is deleted

Let's work together to strengthen your cybersecurity!

The threat of cyber attacks is steadily increasing, and new EU directives, such as the Cyber Resilience Act (CRA) and the NIS-2 Directive, require comprehensive security measures. In the future, companies will need to protect both their OT and IT systems. We provide the help you need – with an integrated security concept and OT security consulting services, supplemented by a combination of precisely tailored hardware and software solutions.

Availability/Redundancy



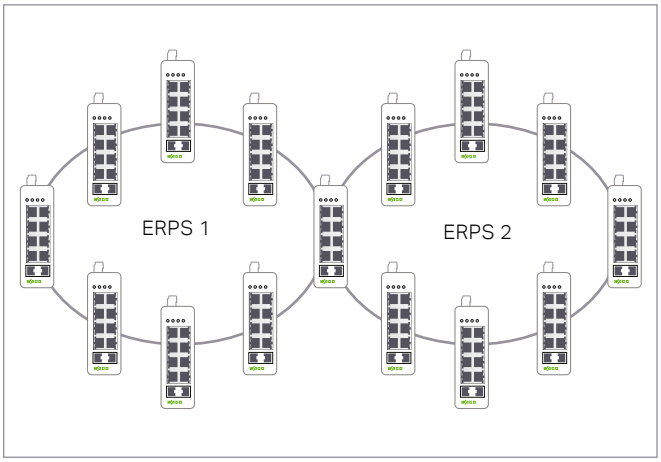
Rapid Spanning Tree Protocol (RSTP)

Increased Availability through Redundancy

- Up to 20 switches in one ring
- Switching times around one second
- Very easy to configure

Other applications:

- Combination with RSTP-capable devices
- Implementation of merged networks

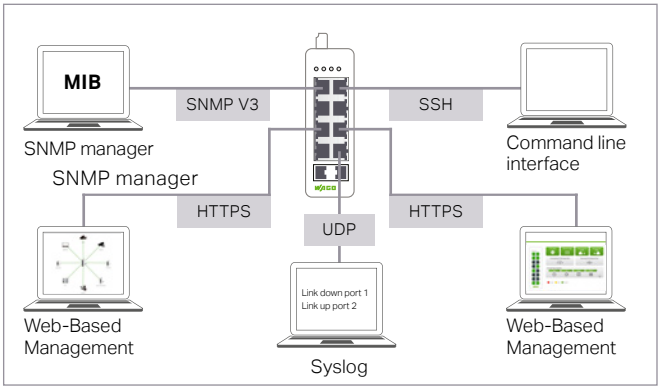


Ethernet Ring Protection Switching (ERPS)

Increased Availability through ERPS

- One switch supports up to two ERPS rings
- Up to 20 switches in one ERPS ring
- Switching times around one second
- Combination with ERPS-capable devices

Configuration/Diagnostics

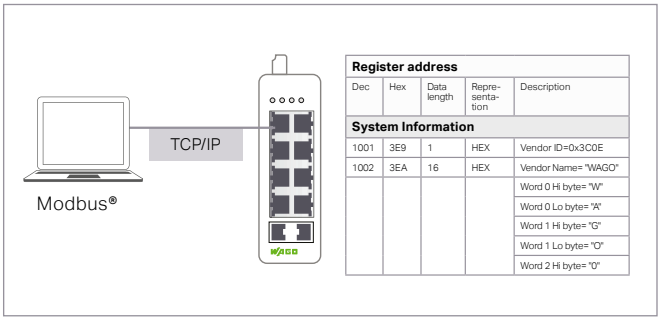


Configuration

- Web-Based Management with https
- Command line interface with SSH
- Network management tool with SNMPv3

Diagnostics

- Web-Based Management (dashboard, topology map, ...)
- Syslog messages, SNMP traps

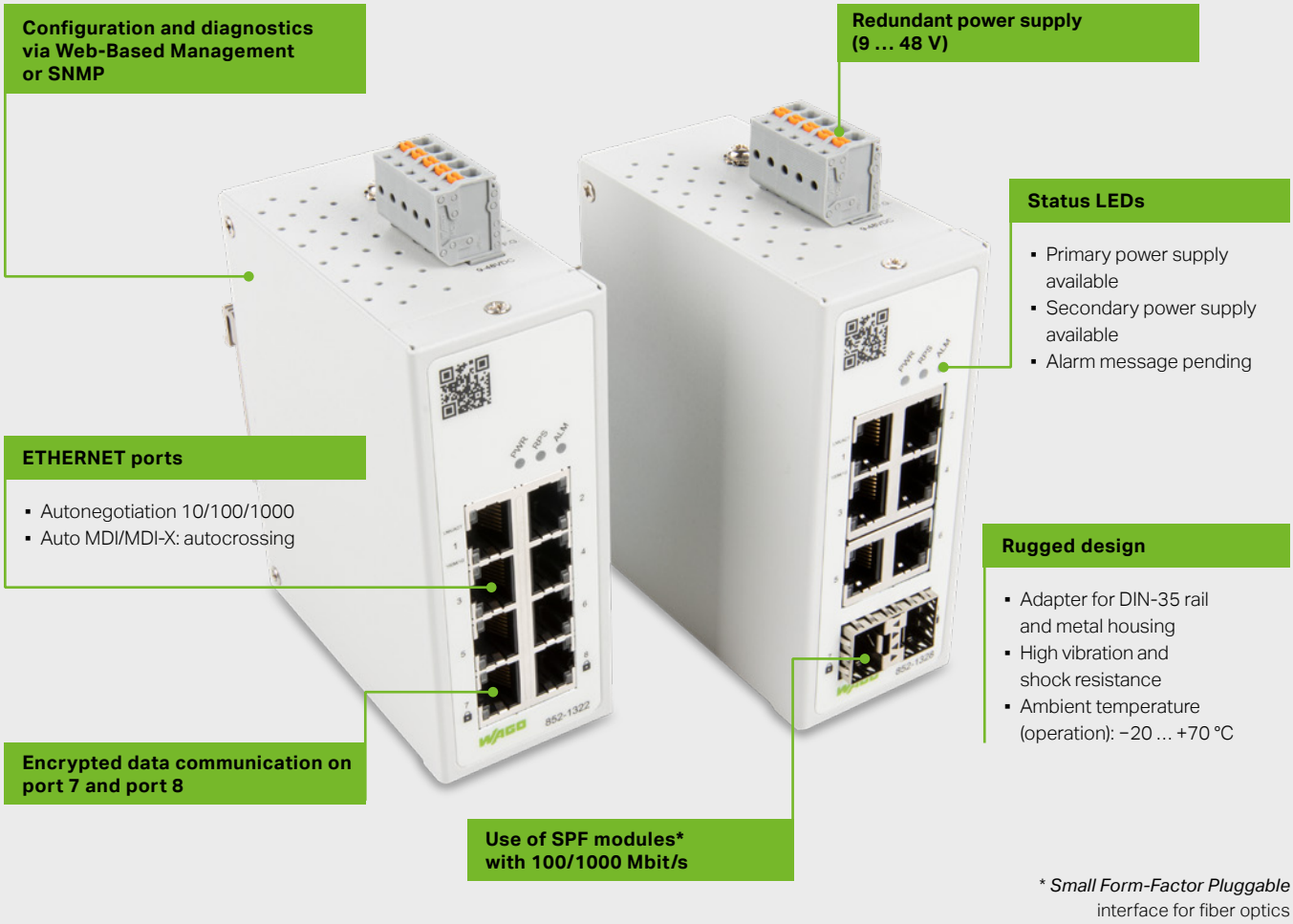


Diagnostics with Modbus TCP

Read Access to a Large Number of Parameters

Selected parameters:

- Port information (link status, speed, etc.)
- MAC address and serial number
- ERPS status
- Error status



** Small Form-Factor Pluggable* interface for fiber optics

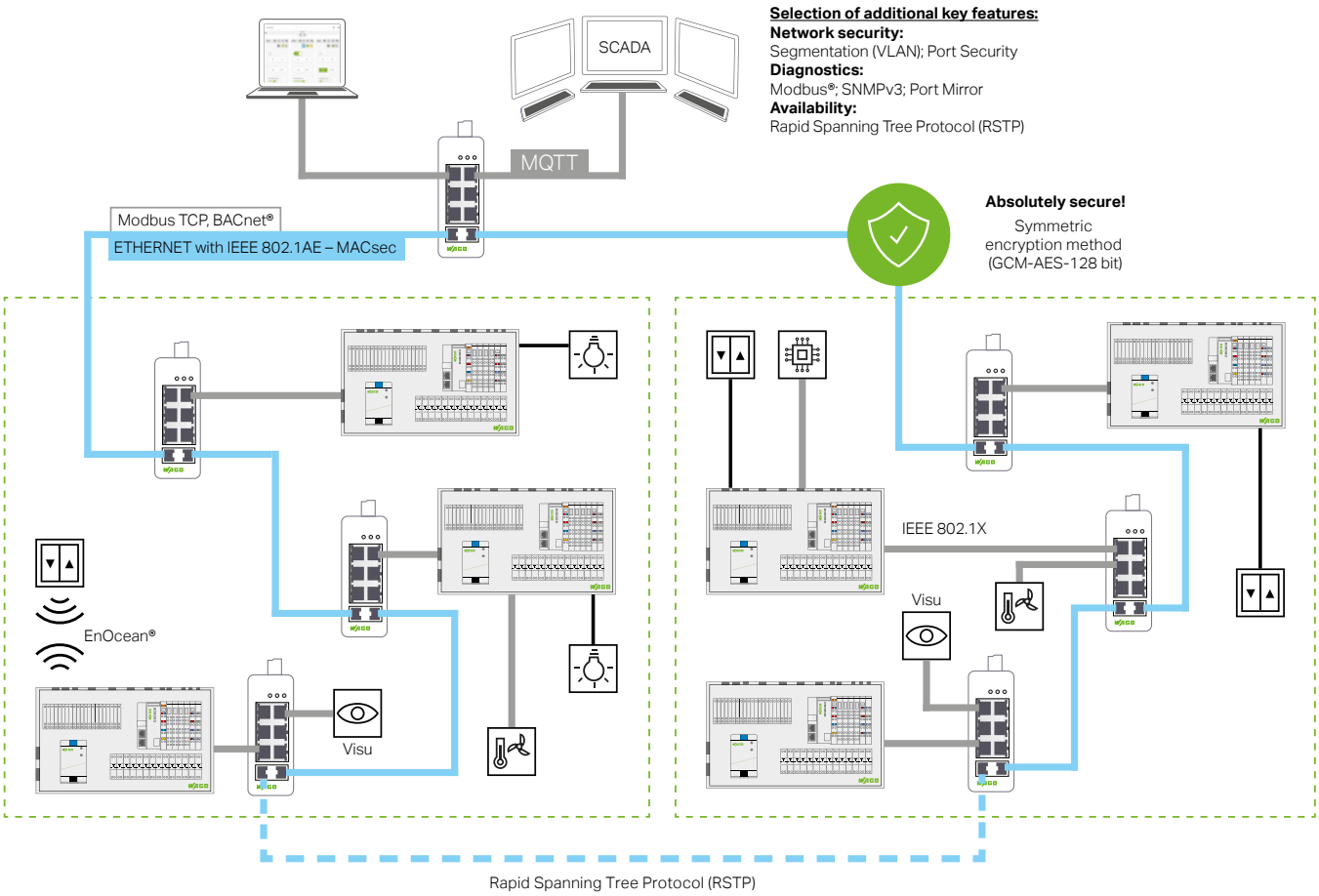
Industrial Managed Switches

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 × SFP 100Base or 1000Base[1, 2]
Supply voltage	9 … 48 V	9 … 48 V
Redundant power supply	■	■
Dimensions (W × H × D)	45 × 110 × 92 mm	45 × 110 × 92 mm
Ambient temperature (operation)	−20 … +70 °C	−20 … +70 °C
Approvals	UL	UL
Prioritization	IEEE 802.1 p	IEEE 802.1 p

[1] Suitable SFP modules on page 23

[2] Configurable in the Webserver



Cybersecurity is a key issue in automation technology. With WAGO's new switches, users can easily increase the security of their applications. This innovation integrates cybersecurity functions: All data packets undergo 128 bit encryption 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 (IEEE MAC Security Standard) standard, ensuring data integrity and sender authentication with high data throughput.

Key Benefits:

- Increase 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)

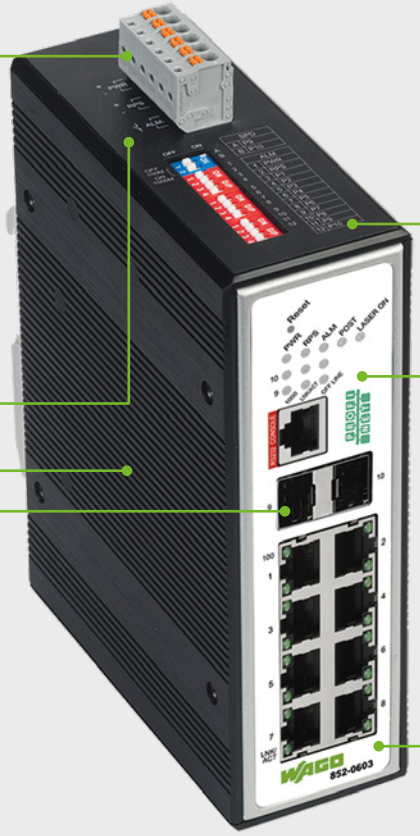
Redundant power supply

Alarm contact

- Monitors the primary and secondary power supplies
- 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 optics

Industrial Managed Switches

PROFINET® – for Use in Industrial Automation

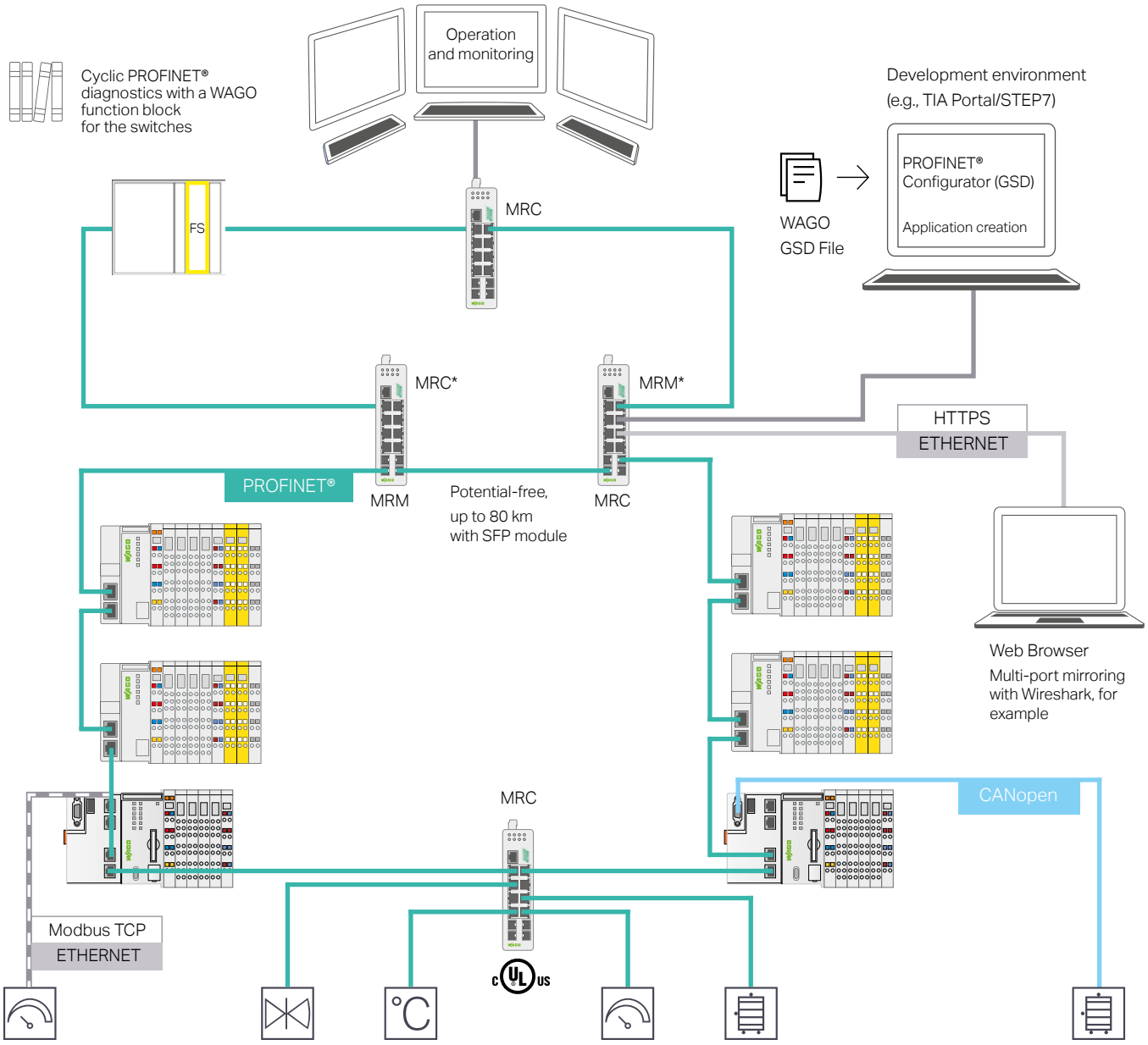
	Fast ETHERNET		Gigabit	
				
Item number	**852-602**	**852-603**	**852-1605**	**852-1605/000-001**
SFP ports	-	2 × SFP 100Base or 1000Base[1, 2]	4 × SFP 1000BASE-SX/-LX/-ZX[1]	4 × SFP 1000BASE-SX/-LX/-ZX[1]
Copper ports	8 × 10/100BASE-TX	8 × 10/100BASE-TX	8 × 10/100/1000BASE-T	8 × 10/100/1000BASE-T
Supply voltage	12 … 60 VDC	12 … 60 VDC	12 … 60 VDC	12 … 48 VDC
Redundant power supply	■	■	■	■
Alarm contact	■	■	■	■
Dimensions (W × H × D)	50 × 162 × 122 mm	50 × 162 × 122 mm	50 × 162 × 122 mm	50 × 162 × 122 mm
Ambient temperature (operation)	−40 … +70 °C	−40 … 70 °C	−40 … 70 °C	−40 … 70 °C
Approvals	UL	UL	UL	UL
Prioritization	IEEE 802.1Q	IEEE 802.1Q	IEEE 802.1Q	IEEE 802.1Q
PROFINET®	CC-B	CC-B	CC-B	CC-B
Redundancy	MRC or MRM	MRC or MRM	MRC or MRM	MRC and MRM[3]

[1] Suitable SFP modules on page 23

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

[3] MRM and MRM or MRC and MRM or MRC and MRC

PROFINET®-Specific Features



* Item number 852-1605/000-001

The following products meet the requirements of PROFINET® conformity class A (CC-A):
Item numbers 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

Key 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

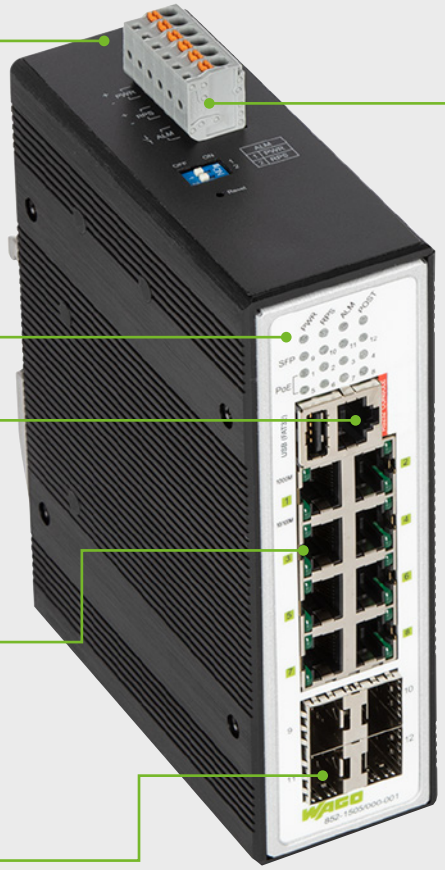
Status LEDs

- Primary power supply available
- Secondary power supply available
- Alarm message pending

RS-232 interface for command-based configuration

Integrated Web-based management for configuration or diagnostics

Use of 1 Gbit/s SFP modules



Alarm contact

- Jet ring diagnostics
- ERPS ring diagnostics
- Monitors the primary and secondary power supplies
- Monitors 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 diagnostics (Syslog)
- Loading/saving the configuration

Configurable functions

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

* *Small Form-Factor Pluggable* interface for fiber optics

Industrial Managed Switches

Fully Managed – Powerful and Secure

				PoE+
				
Item number	**852-303**	**852-1305**	**852-1305/000-001**	**852-1505/000-001**
Copper ports	8 × 10/100BASE-TX	8 × 10/100/1000BASE-T	8 × 10/100/1000BASE-T	8 × 10/100/1000BASE-T
PoE+ ports	-	-	-	8 × PoE+ 30 W per port
SFP ports	2 × SFP 100BASE or 1000BASE[1, 2]	4 × SFP 1000BASE-SX/-LX/-ZX[1]	4 × SFP 1000BASE-SX/-LX/-ZX[1]	4 × SFP 1000BASE-SX/-LX/-ZX[1]
Supply voltage	12 … 60 VDC	12 … 60 VDC	12 … 48 VDC	24 … 57 VDC
Redundant power supply	■	■	■	■
Alarm contact	■	■	■	■
Dimensions (W × H × D)	50 × 162 × 120 mm	50 × 162 × 120 mm	50 × 162 × 120 mm	50 × 162 × 120 mm
Ambient 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 23

[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.

Function Overview: Fully Managed Switches

Performance

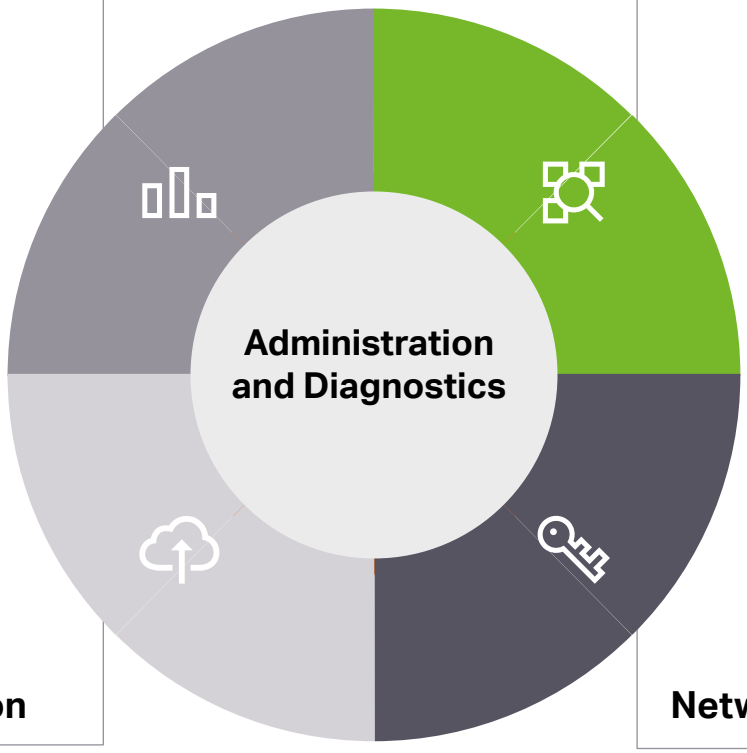
- Storm control
- Bandwidth control
- Auto-provisioning
- Link aggregation
- And more...

Page 22

Availability

- ERPS
- Dual homing
- Xpress/jet ring
- Dual ring
- STP/RSTP
- MRM/MRC *1
- And more...

Page 19



Data Transmission

- VLAN
- IGMP snooping
- IP-based VLAN
- MAC-based VLAN
- And more...

Page 21

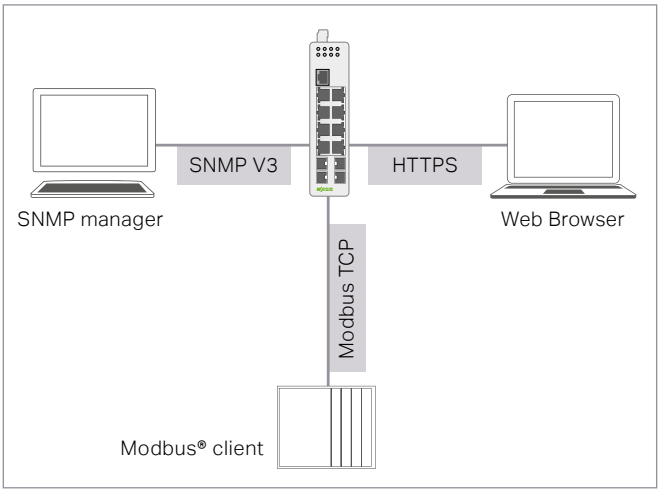
Network Security

- IEEE 802.1X authentication
- Access control list
- DHCP snooping
- Port security
- Service control
- And more...

Page 20

Administration and Diagnostics

Simplified Commissioning and Maintenance

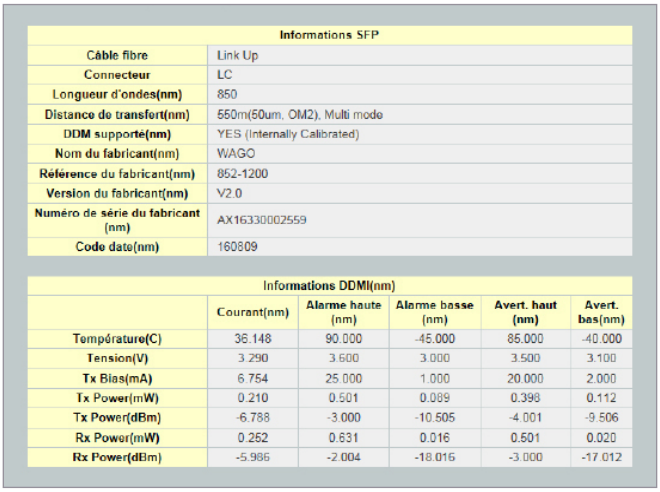


Configuration interfaces

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 (*Management Information Base*) standards
- 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
Version du fabricant(nm)	V2.0
Numéro de série du fabricant (nm)	AX16330002559
Code date(nm)	160809

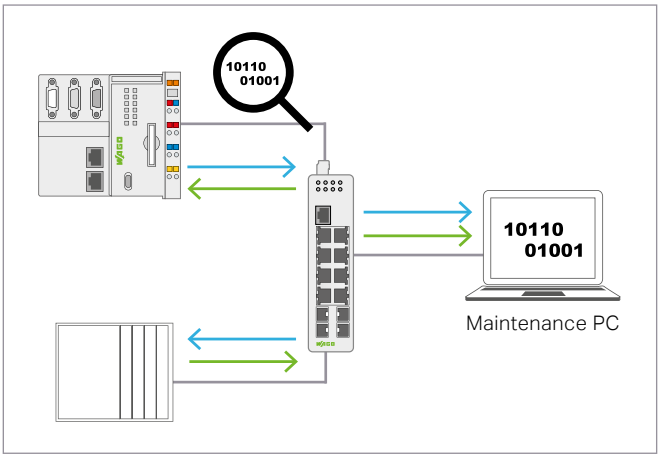
Informations DDMI(nm)					
	Courant(nm)	Alarme haute (nm)	Alarme basse (nm)	Avert. haut (nm)	Avert. bas(nm)
Température(C)	36.148	90.000	-45.000	85.000	-40.000
Tension(V)	3.290	3.600	3.000	3.500	3.100
Tx Bias(mA)	6.754	25.000	1.000	20.000	2.000
Tx Power(mW)	0.210	0.501	0.089	0.398	0.112
Tx Power(dBm)	-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)	-5.986	-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
- Real-time monitoring
  - Temperature
  - Supply voltage
  - Transmission power
  - Received power



Port mirroring

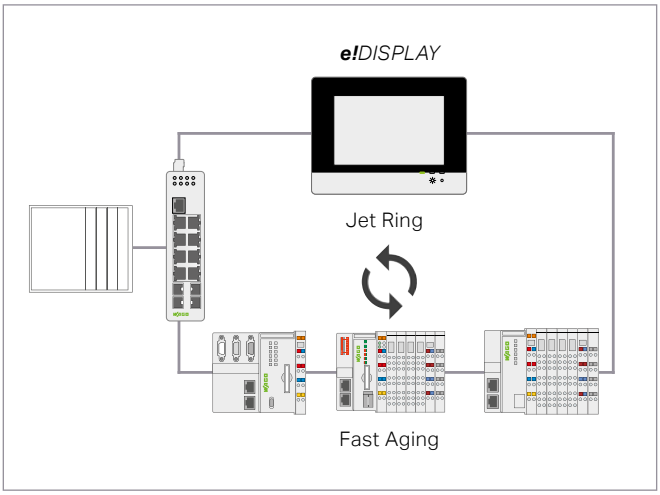
Monitoring and Diagnostics

Simplified Maintenance

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

Availability

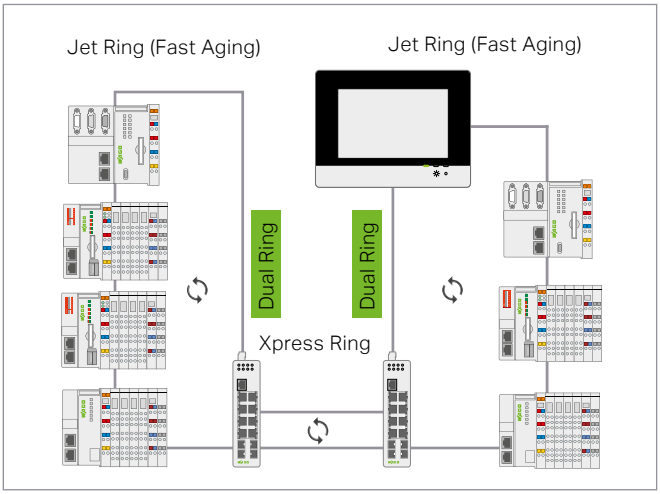
via Communication Redundancy



Jet Ring

Jet Ring

- Typical switching time of 400 ms (depending 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



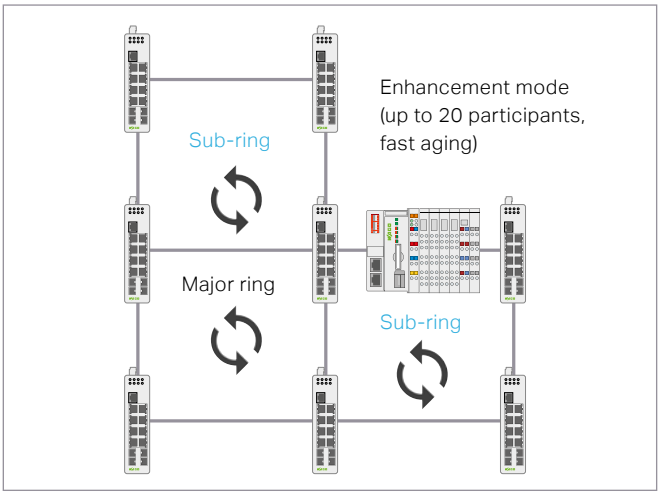
Xpress ring and dual ring

Xpress Ring

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

Dual Ring

- Combination of both redundancy types
- One Jet Ring and one Xpress ring per switch or two Xpress Rings per switch



ERPS V2

ERPS: ETHERNET Ring Protection Switching

The Fast and Open Solution

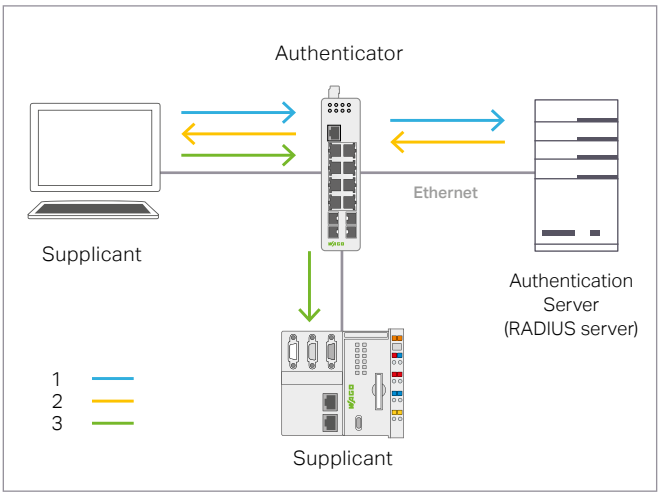
- Standardized, open technology
- Switching time < 50 ms
- Nested topologies with up to six rings per switch
- Implementation of one-fault tolerance (SPOF – Single Point of Failure)

ERPS – Enhancement Mode

- WAGO devices with integrated switch and fast aging configuration
- Typical switching time of 400 ms (depending on the application)

Network Security

Absolutely Secure Industrial Networks



IEEE 802.1X

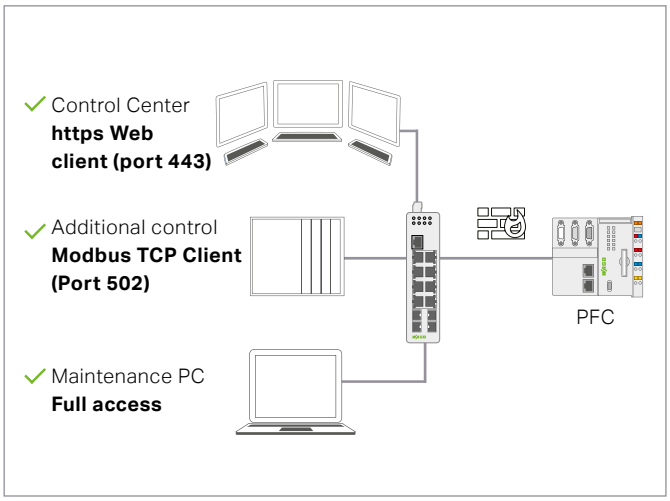
IEEE 802.1X Authentication

The Security Standard for IT Networks

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

Procedure:

- Subscriber authentication is handled by the authenticator
- The authenticator uses an authentication server to check the authentication information of the subscriber (supplicant)

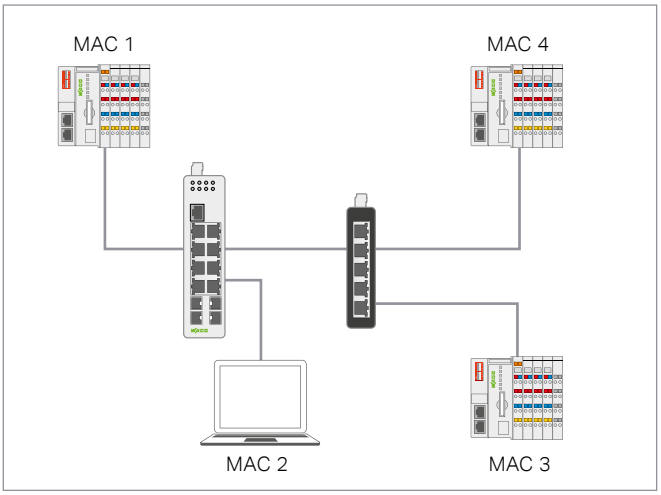


Firewall

Firewall – Access Control List

Authorization Only for the Required Services

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



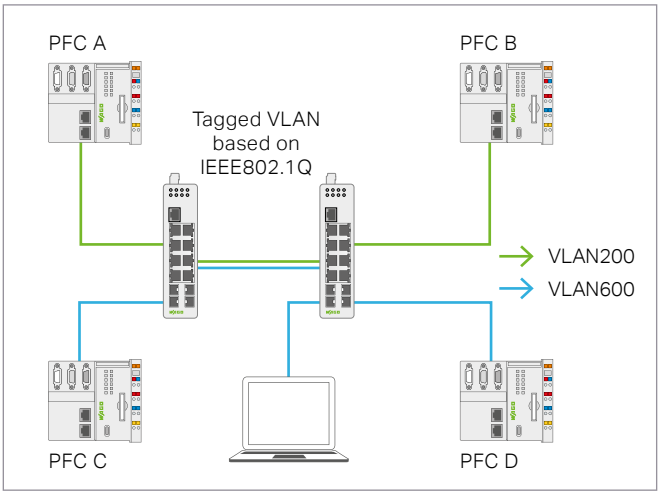
Ports

Port Security

- Dynamically learns MAC addresses for each port
- Limitation of MAC addresses for each port
- MAC-based white/blacklist for each port

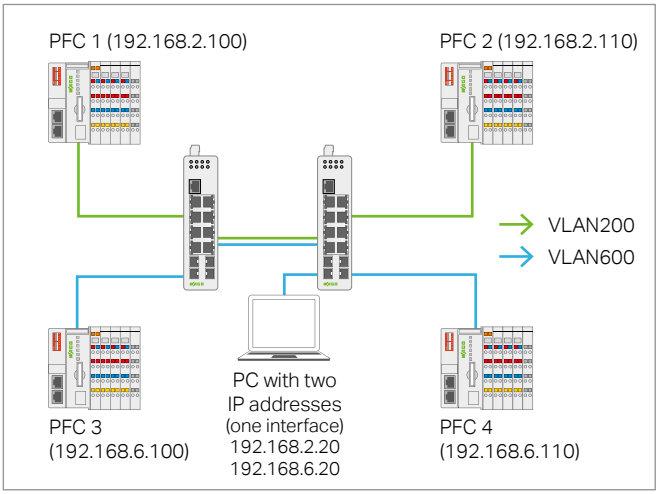
Data Transmission

Optimized ETHERNET Networks



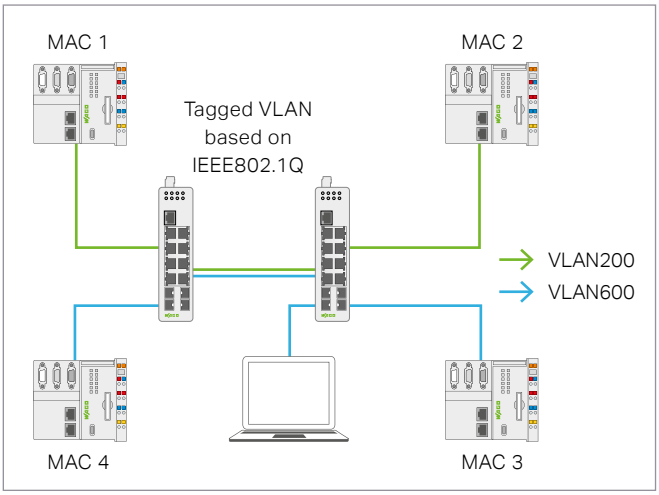
Logical Network Segmentation

- 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, for example



IP-Based VLAN

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

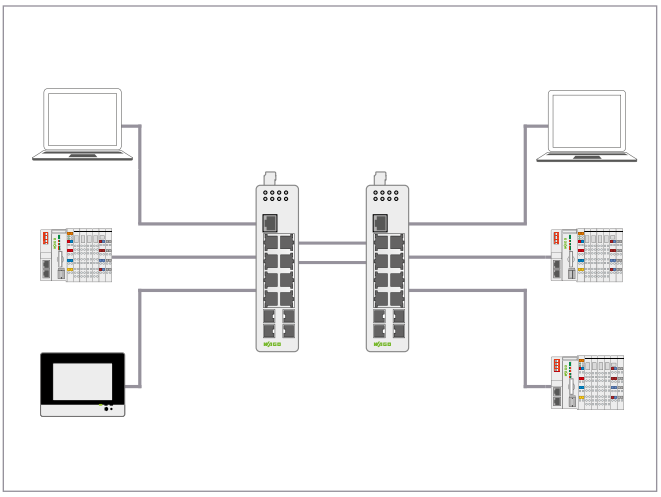


MAC-Based VLAN

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

Performance

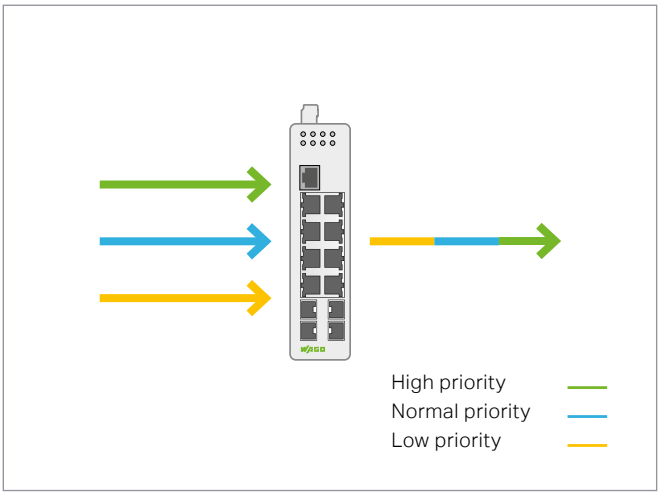
Optimized ETHERNET Networks



Link aggregation

Network Optimization

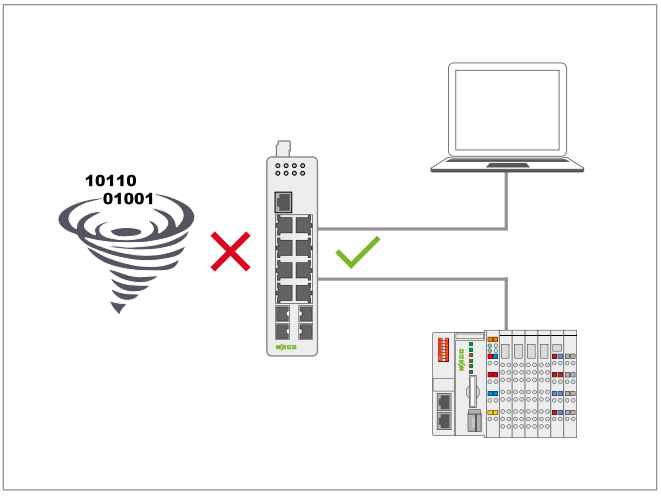
- LACP link aggregation
  Merge multiple data connections into a single logical link:
  - Increased transmission rate
  - Link redundancy



QoS

Data Traffic Prioritization and Limitation

- Faster forwarding 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



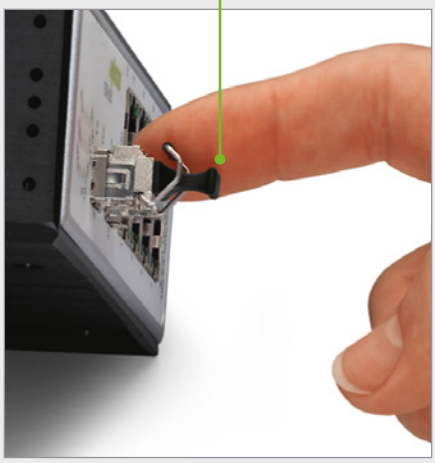
Storm control

Handling Data Traffic

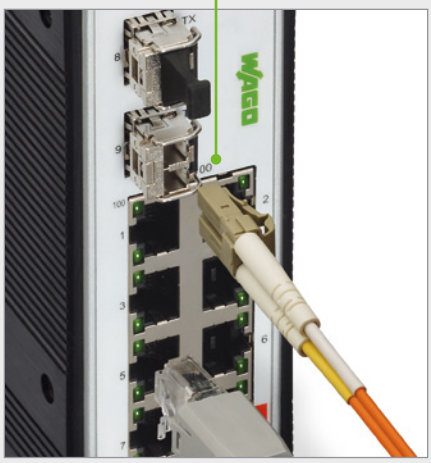
- Stopping broadcast storms
- Ensuring network availability
- Limiting broadcast and multicast data flows (packets/time)

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 the following item numbers	852-103 852-303 852-603 852-1813[1)] 852-1328 852-1701 852-1702	852-103 852-303 852-603 852-1813[1)] 852-1328 852-1701 852-1702	852-103 852-303 852-603 852-1813[1)] 852-1328 852-8211 852-1701 852-1702	852-303 852-603 852-1305[1)] 852-1505[1)] 852-1605[1)] 852-1417 852-1813[1)] 852-1328 852-1701 852-1702	852-303 852-603 852-1305[1)] 852-1505[1)] 852-1605[1)] 852-1417 852-1813[1)] 852-1328 852-1701 852-1702	852-303 852-603 852-1305[1)] 852-1505[1)] 852-1605[1)] 852-1417 852-1813[1)] 852-1328 852-1701 852-1702

[1] Including version 852-xxx/000-001

Status LEDs

- Link/activity/bandwidth
- Power
- Connected PoE device**

ETHERNET interface

- 100/1000 Mbit/s
- Automatic detection of PoE end devices
- PoE 15.4 W / PoE+ 30 W**

Optical interface

- SFP slot
- 100/1000 Mbit/s
- Automatic detection

Metal housing

- Robust DIN-rail adapter
- Protection type: IP30
- Minimal space requirements

Mains connections

- 12 … 57 VDC
- Pluggable connector
- CAGE CLAMP® with push-button

*** Only relevant for the PoE version*

Industrial Media Converters

			
Item number	**852-1701**	**852-1702**	**852-1705**
Copper ports	1 × 100/1000BASE-T	1 × 100/1000BASE-T	1 × 10BASE-T
SFP or T1L ports	1 × 100/1000BASE	1 × 100/1000BASE	1 × 10BASE-T1L (Single Pair ETHERNET)
Supply voltage	12 … 57 VDC	48 … 57 VDC	12 … 48 VDC (UL)
PoE budget	–	30 W	–
Dimensions (W × H × D)	60.5 × 50 × 42.5 mm	60.5 × 50 × 42.5 mm	23.4 × 68 × 103.4 mm
Ambient temperature (operation)	–40 … +75 °C	–40 … +75 °C	–40 … +75 °C
Approvals	UL	UL	UL
Range	Depends on SFP module	Depends on SFP module	Up to 1,000 m with SPE cable

ETHERNET interface

- 10 BASE-T (10 Mbit/s)
- Autonegotiation for plug-and-play functionality
- Status LEDs for link/activity

Power supply

- 12 … 48 VDC
- Pluggable connectors with levers
- Low power consumption

SPE interface

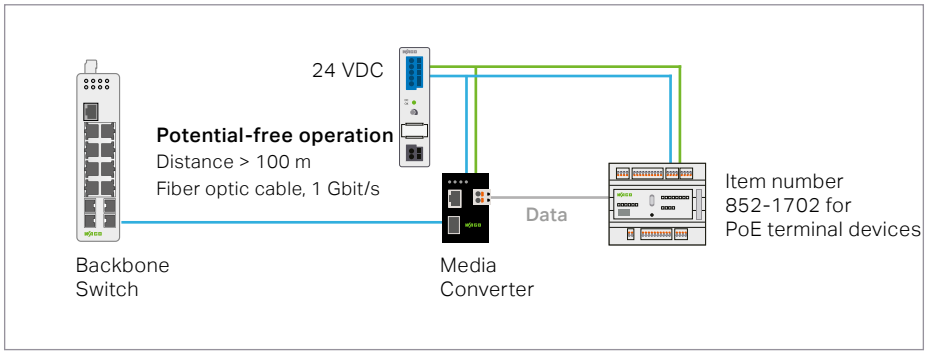
- IEEE/IEC ETHERNET standard
- 10BASE-T1L (10 Mbit/s)
- Communication up to 1000 m*
- Easy connection of twisted-pair cables* – only two cables necessary
- Pluggable connectors with levers

Metal housing

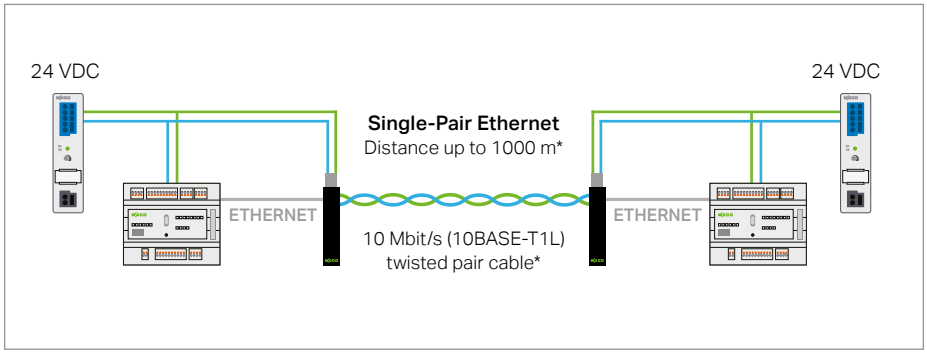
- Robust DIN-rail adapter
- Vibration and shock resistance
- Temperature range: −40 … +75 °C

** Compatible with IEEE 802.3cg (10BASE-T1L)*

Communication up to 80 km via fiber optic cable



Communication with Single Pair Ethernet (SPE)



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 max. 3 dBi

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

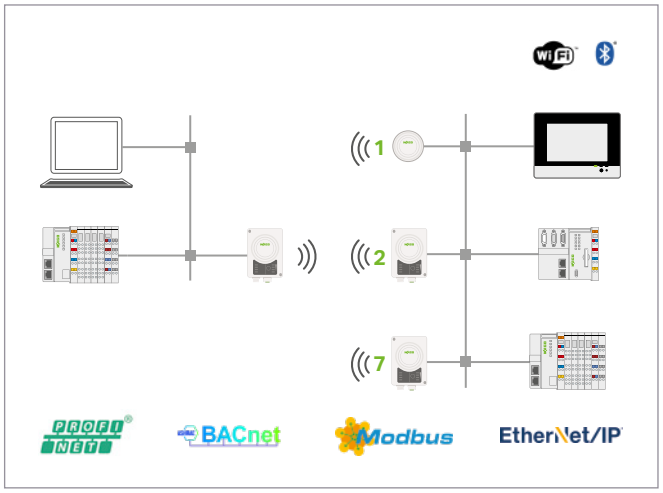
- Supply voltage
- Network connections
- Wireless signal quality

Wireless Devices

	Wireless ETHERNET gateway		Wireless Access Point
			
Item number	**758-918**[1]	**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	*Bluetooth*® 2.1, *Bluetooth*® 4.0 (Low Energy), Wi-Fi 802.11 a/b/g/n/d/r		
Security	*Bluetooth*® 2.1: NIST-compliant; FIPS-approved (authentication and authorization, encryption and data security, data protection 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		
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)
Ambient temperature (operation)	−30 … +65 °C		−40 … +65 °C
supply voltage	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

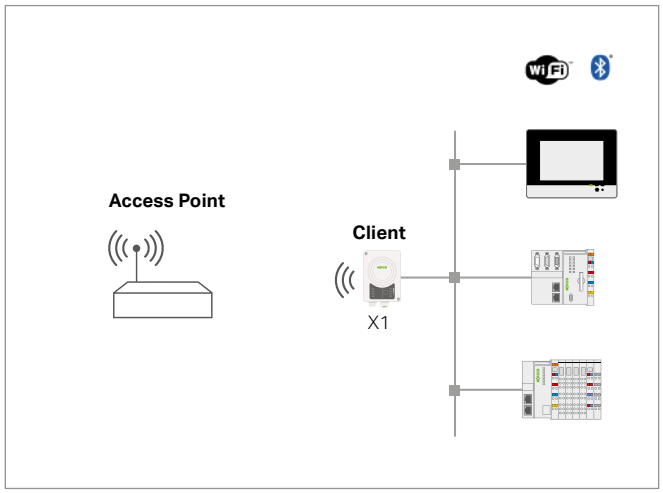
[1] Cable recommendation: power supply (e.g., 756-3101/040-020), data cable (e.g., 756-1203/060-050 or 756-1201/060-020 and 750-978/000-012)

Applications – Wireless Devices



ETHERNET Bridge

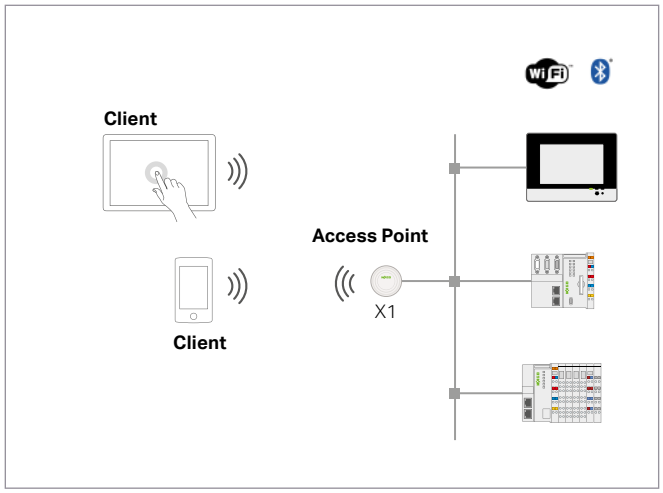
- Transmission of any TCP/IP protocol, including prioritized PROFINET® RT and EtherNet/IP™ frames
- Pairing via device's push-button (758-918 only)
- Up to seven clients
- Use of Wi-Fi or *Bluetooth*®



Client for Existing Access Point

- Connection to a Wi-Fi 802.11a/b/g/n/d/r network
- Protocols such as Modbus TCP, EtherNet/IP™, BACnet/IP, and more
- Allows connection of multiple devices after the client

Note on X1: item no. 758-918 or 758-919



Access Point

- Setting up a Wi-Fi 802.11a/b/g/n/d/r or *Bluetooth*® network
- Connecting tablets, smartphones , and more
- Up to seven clients simultaneously

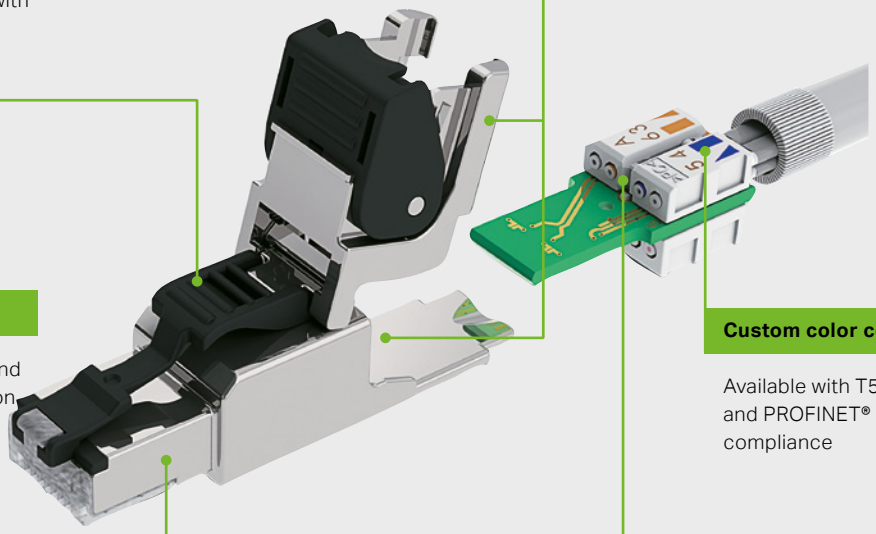
Note on X1: item no. 758-918 or 758-919

Long locking latch

Easy insertion and removal, even with limited space

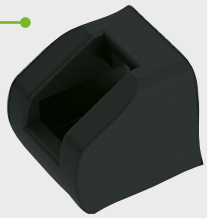
Continuation of the 360° shielding

Secure data transmission even with external interference



Pre-assembled filler plug

Contacts protected from impact and dust during assembly and operation



Custom color codes

Available with T568A, T568B and PROFINET® standards compliance

Rugged metal housing

Robust design adapted to industrial applications

Self-stripping technology

Easy to use thanks to four different chambers that hold the conductors

RJ45 Connectors

Fast, Tool-Free Installation

		RJ45 Connectors			
					
Item number	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
Ambient temperature (operation)		−40 … +85 °C	−40 … +85 °C	−40 … +85 °C	−40 … +70 °C
Cable clamp		-	Straight output	Angled output	Straight output
Conductor range[1]		0.21 … 0.32 mm²	0.21 … 0.32 mm²	0.21 … 0.32 mm²	0.13 … 0.24 mm²

[1] Also available for conductor sizes 0.13 … 0.21 mm², item number 750-97x/000-02x
[2] Also available for ETHERNET T568A, item number 750-97x/000-011
[3] Max. rate for PROFINET®: 100 Mbit/s

WAGO Pro 2 Power Supply

- Up to 96 % efficiency
- Ready for digitization thanks to communication module
- Versatile configuration options
- Fast, 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 up to 150 % for five seconds
- Extended temperature range: −40 … +70 °C

WAGO Power Supply Base

- Compact design with a robust metal housing
- Front-entry wiring with Push-in CAGE CLAMP® connection technology
- High temperature range: −30 … +70 °C

WAGO Compact Power Supply

- Compact, low-profile design
- Ideal for decentralized applications
- Ambient temperature (operation): −25 … +60 °C

WAGO Eco 2 Power Supply

- Simple, tool-free, maintenance-free lever connection with push-in technology
- Slim design saves DIN-rail space
- Long service life: MTBF > 1 million hours

Power Supplies

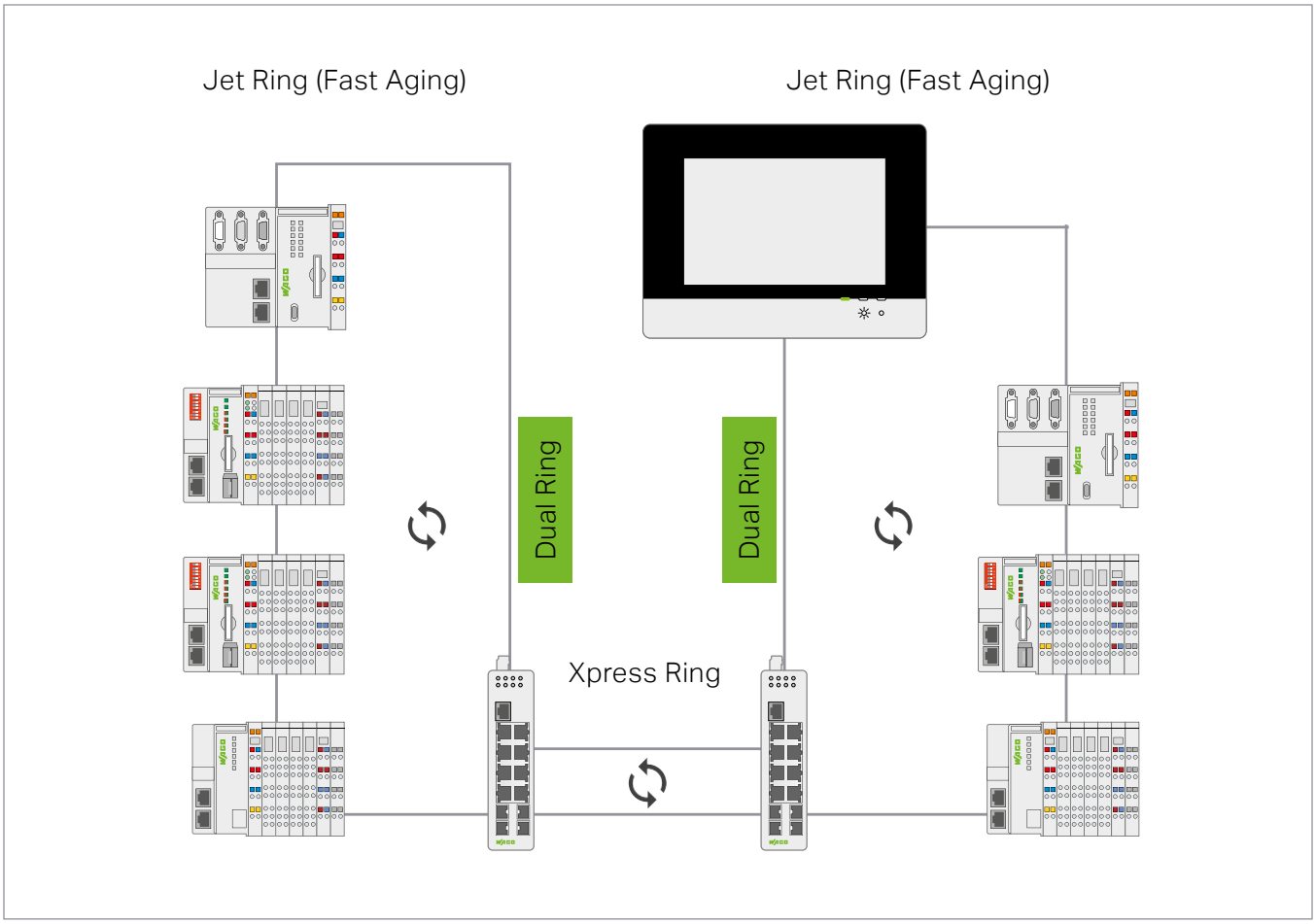
WAGO Power Supply	Pro 2				Eco			Base			Classic			Compact		
Item number	**2787-2144**	**2787-2146**	**2787-2154**	**2787-2157**	**2687-2143**	**2687-2144**	**2687-2146**	**2587-2144**	**2587-2146**	**2587-2147**	**787-1623**	**787-1633**	**787-1635**	**787-1212**	**787-1216**	**787-1226**
Input voltage	230 V				230 V			230 V			230 V			230 V		
DC output voltage	24 V	24 V	48 V	48 V	24 V	24 V	24 V	24 V	24 V	24 V	48 V	48 V	48 V	24 V	24 V	24 V
Output current	5 A	10 A	2.5 A	10 A	2.5 A	5 A	10 A	5 A	10 A	20 A	2 A	5 A	10 A	2.5 A	4.2 A	6 A
Eco Unmanaged Switches	■	◤	■	◤	■■	■■	■	■■	■■	■	■	◤	◤	■■	■	◤
Eco Unmanaged Switches (PoE)	■	◤	■	■■	–	■	■	■	■■	■■	■	■■	■■	–	–	■■
Standard Unmanaged Switches	■	◤	■	◤	■■	■■	■	■■	■■	■	■	◤	◤	■■	■■	■
Lean Managed Switches	■	■	■	◤	■■	■■	◤	■■	■■	■	■	■■	◤	■■	■	◤
Lean Managed Switches (PoE)	–	■	–	■■	–	–	■	–	■	■■	–	■	■■	–	–	–
Managed Switches	■■	■	■■	◤	■■	■■	■	■■	■■	■	■	■■	■	■	■■	■
Managed Switches (PoE)	–	■	–	■■	–	–	■	–	■	■■	–	■	■■	–	–	–
Media Converter	■■	■	■■	◤	■	■■	■	■■	■■	■	■	■■	■	–	■	■■
Media Converter (852-1702)	–	–	■■	■	–	–	–	–	–	–	■	■■	■	–	–	–

■■ Recommended ■ Can be used ◤ Oversized – Limited or unusable

Industrial Switches

		Unmanaged										Managed														
		Eco									Standard					Lean Managed				MAC-sec		Fully Managed				PROFINET®			
		852-111	852-111/000-001	852-112	852-112/000-001	852-1111/000-001	852-1112/000-001	852-1116	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	852-1505/000-001	852-602	852-603	852-1605	852-1605/000-001
Hardware	Number of copper ports	5	5	8	8	5	8	16	5	5	5	5	8	8	8	16	8	8	8	16	8	6	8	8	8	8	8	8	8	8
	◤100 Mbit/s ◢1 Gbit/s ⊠ both	◤	◤	◤	◤	■	■	■	■	■	■	◤	◤	◤	■	■	■	■	■	■	■	■	◤	■	■	■	◤	◤	■	■
	PoE+ ports among these (1 Gbit/s)	0	0	0	0	0	0	0	4	4	4	0	0	0	0	0	0	0	8	0	0	0	0	0	0	8	0	0	0	0
	Number of SFP ports	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	2	2	0	0	2	2	4	4	4	0	2	4	4
	◤100 Mbit/s ◢1 Gbit/s ⊠ both	–	–	–	–	–	–	–	–	–	◢	–	–	◤	–	–	–	■	■	–	–	■	■	◢	◢	◢	–	■	◢	◢
	Alarm relay	–	–	–	–	–	–	–	–	–	–	■	■	■	■	■	■	■	■	■	–	–	■	■	■	■	■	■	■	■
Approvals	CE	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	DNV GL	■	–	■	–	■	–	–	–	–	–	–	–	–	■[1]	■[1]	–	–	–	–	–	–	■	■	–	■[1]	–	–	–	–
	UL 61010	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	IEC 61850-3 (standard)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	■	■	–	–	–	–
	PROFINET® CC-B (certificate)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	■	■	■	■
Hardware features	Autonegotiation	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Autocrossing	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	PROFINET® CC-A	–	■	–	■	■	■	■	■	■	■	–	–	–	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Configuration	DIP switches (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® registers	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	■	■	■	■	■	■	■	■	■	■	–	–	–	–
	Web-Based Management	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Dashboard and topology map	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	■	■	■	■	–	–	–	–	–	–	–	–	–	–
	Acyclic and cyclic PROFINET® diagnostics	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	■	■	■	■
	Neighborhood detection (LLDP)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	■	■	■	■	–	–	■	■	■	■	■	■	■	■
Redundancy	Redundant power supply	–	–	–	–	–	–	–	–	–	–	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Jet ring and Xpress ring	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	■	■	■	■	–	–	–	–
	ETHERNET Ring Protection Switching	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	■[2]	■[2]	■[2]	■[2]	–	–	■	■	■	■	–	–	–	–
	Media Redundancy Protocol (MRP) (client/manager)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	■	■	■	■[5]
	RSTP/STP	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Security	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 VLAN	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	■	■	■	■	■	■	■	■
	Static route	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	■	■	■	■	–	–	–	–

[1] DNV GL and LR with hardware version 5 and above
[2] Supports two ERPS rings with a switchover time less than 800 ms
[3] Supports up to five VLANs
[4] Supports up to 32 entries (based on MAC and IP address)
[5] MRM and MRM or MRC and MRM or MRC and MRC



Your Application

Advanced Features of the Fully Managed Switches:

Performance	Link Aggregation Control Protocol (LACP), bandwidth control, IGMP snooping
Diagnostics	Hardware monitor, mail alarm, RMON statistics
Security	Extended access control list (1000 entries), IP source guard, DHCP snooping, Q-in-Q VLAN
Redundancy	Jet ring, Xpress ring (< 20 ms), dual ring, ERPS (< 50 ms), dual homing, MSTP
Routing	Static route, IP subnet VLAN, MAC-based VLAN, protocol-based VLAN
PoE	PoE schedule, PD alive check, power delay
Management	IPv6, DHCP option 82, binding table, static multicast address
Tacas + FSTP	

WAGO GmbH & Co. KG
Postfach 2880 · 32385 Minden
Hansastraße 27 · 32423 Minden
info@wago.com
www.wago.com

Headquarters +49 (0)571/ 887 - 0
Sales +49 (0)571/ 887 - 44 222
Orders +49 (0)571/ 887 - 44 333

MM-467040 - 0888-0137/0103-6901 – SWITCHES BROCHURE 1.4 US – 05/2025 – Printed in Germany – Subject to changes.