

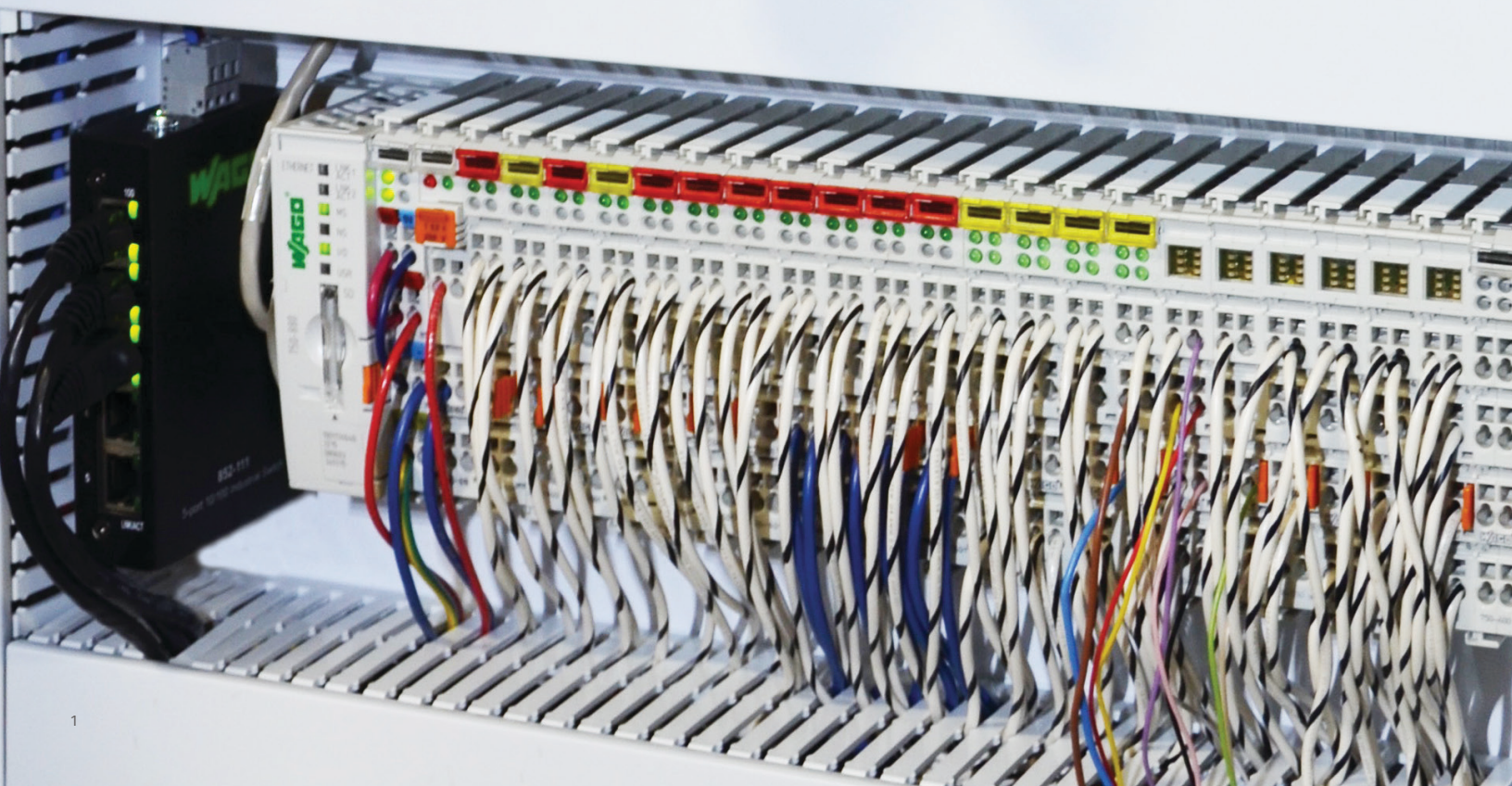


## INDUSTRIAL ETHERNET SWITCHES

WAGO Solutions at the Heart of the Industrial ETHERNET



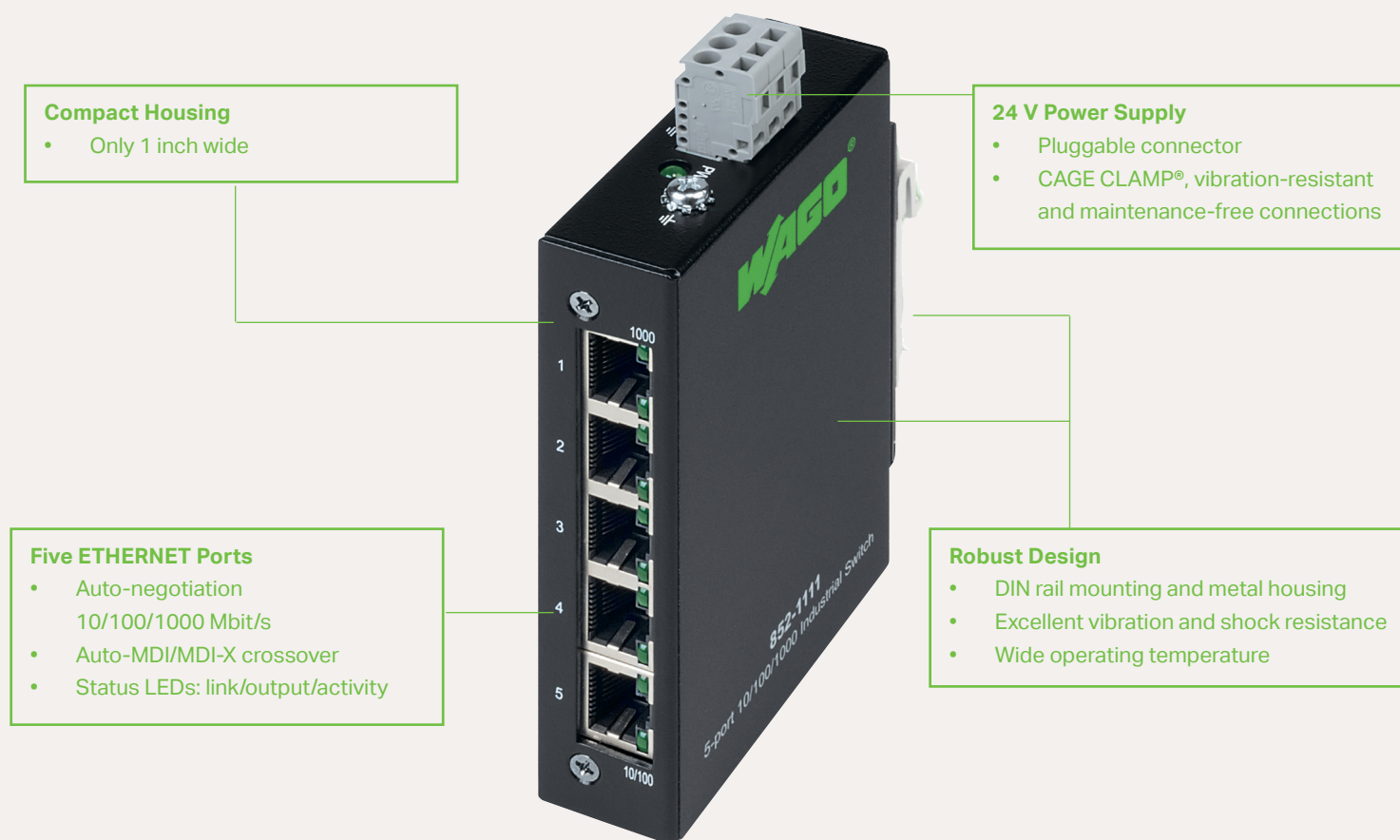




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# ETHERNET ECO SWITCHES

Economical and Compact

Type	FAST ETHERNET		GIGABIT		STAINLESS STEEL ADAPTER (DNV)
					
Ports	5 x 10/100	8 x 10/100	5 x 10/100/1000	8 x 10/100/1000	Use with 852-111 and 852-1111
Dimensions (W x H x D)	23.4 x 109.2 x 73.8 mm 0.92 x 4.3 x 2.9 in	109.2 x 73.8 x 23.4 mm 4.3 x 2.9 x 0.92 in	23.4 x 109.2 x 73.8 mm 0.92 x 4.3 x 2.9 in	46 x 116 x 99.6 mm 1.8 x 4.6 x 3.9 in	
Temperature	-40 °C ... +70 °C -40 °F ... +158 °F	-40 °C ... +70 °C -40 °F ... +158 °F	-40 °C ... +70 °C -40 °F ... +158 °F	0 °C ... +60 °C +32 °F ... +140 °F	
Approvals	UL, DNV <sup>1</sup>	UL	UL <sup>2</sup> , DNV <sup>1</sup>	UL <sup>2</sup>	
PROFINET	-	-	CC-A	CC-A	
Part Number	852-111	852-112	852-1111	852-1112	852-9101

<sup>1</sup> With DIN 852-9101 rail adapter

<sup>2</sup> In progress



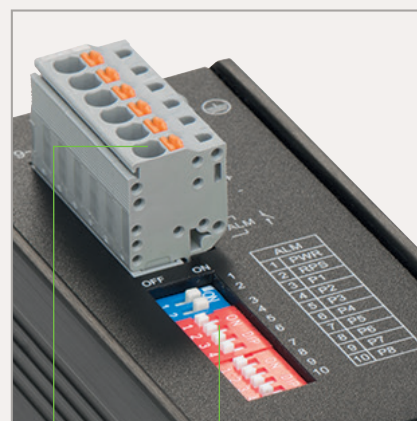


#### 24 V Power Contacts

- Redundant power supply terminals
- Wide voltage range: 9 VDC ... 57 VDC
- Pluggable connector

#### Robust Design

- DIN rail mounting and metal housing
- Excellent vibration and shock resistance
- Temperature range: -40 °F ... +158 °F








#### Configuration via DIP switches

#### Alarm Contact

- Monitor power supplies
- ETHERNET port monitoring
- Signaling via PLC or remote I/O
- Indicator LEDs on front panel of cabinet

# ETHERNET STANDARD SWITCHES

## Robust and Versatile

Type	FAST ETHERNET			GIGABIT	
					
Copper Ports	5 x 10/100	8 x 10/100	8 x 10/100	8 x 10/100/1000	16 x 10/100/1000
Fiber-Optic Ports	-	-	2 x SFP 100	-	-
Redundant Power Supply	Yes	Yes	Yes	Yes	Yes
Alarm Contact	Yes	Yes	Yes	Yes	Yes
Dimensions (W x H x D)	50 x 120 x 105 mm 2 x 4.7 x 4.1 in	50 x 162 x 105 mm 2 x 6.4 x 4.1 in	50 x 162 x 105 mm 2 x 6.4 x 4.1 in	50 x 120 x 105 mm 2 x 4.7 x 4.1 in	50 x 162 x 105 mm 2 x 6.4 x 4.1 in
Temperature	-40 °C ... +70 °C -40 °F ... +158 °F	-40 °C ... +70 °C -40 °F ... +158 °F	-40 °C ... +70 °C -40 °F ... +158 °F	-40 °C ... +70 °C -40 °F ... +158 °F	-40 °C ... +70 °C -40 °F ... +158 °F
Approvals	UL	UL	UL	UL <sup>1</sup>	UL <sup>1</sup>
PROFINET	-	-	-	CC-A	CC-A
Part Number	852-101	852-102	852-103/040-000	852-1102	852-1106

<sup>1</sup> In progress

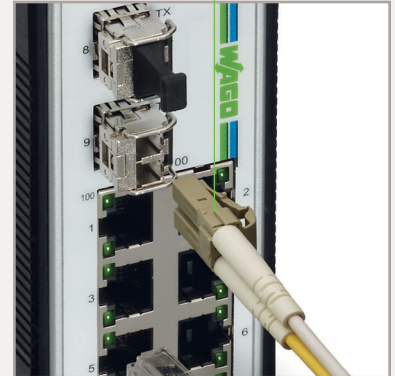
Large choice of SFPs



Mechanical lock

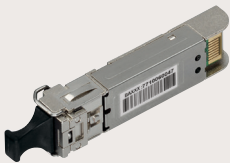
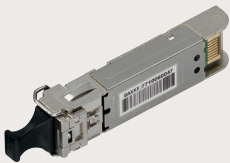


Single and multimode types



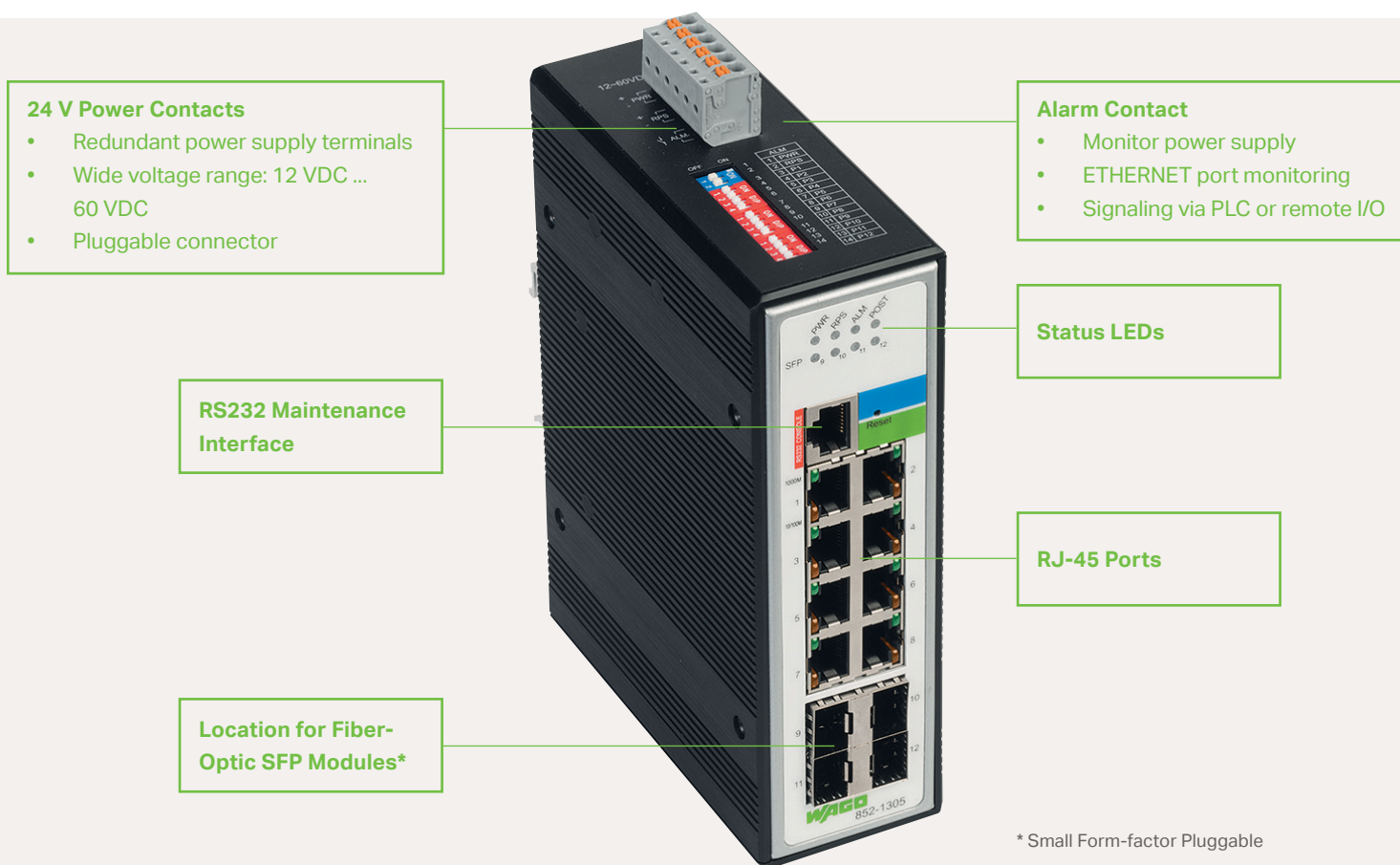
# SFP MODULES

## Interface for Fiber-Optic

Category	FAST ETHERNET			GIGABIT		
						
Use With	852-103	852-103	852-103, 852-303	852-303, 852-1305	852-303, 852-1305	852-303, 852-1305
Mode	Multimode	Single mode	Multimode	Multimode	Single mode	Single mode
Max. Distance	2 km / 1.2 mi	30 km / 18.5 mi	2 km / 1.2 mi	0.55 km / 0.4 mi	10 km / 6.2 mi	80 km / 49.7 mi
DDM*	No	No	No	Yes	Yes	Yes
Operating Temp.	0 °C ... +60 °C +32 °F ... +140 °F	0 °C ... +60 °C +32 °F ... +140 °F	-40 °C ... +70 °C -40 °F ... +158 °F	-40 °C ... +85 °C -40 °F ... +185 °F	-40 °C ... +85 °C -40 °F ... +185 °F	-40 °C ... +85 °C -40 °F ... +185 °F
Network Speed	100 Mbit	100 Mbit	100 Mbit	1000 Mbit	1000 Mbit	1000 Mbit
Part Number	852-201/107-022	852-201/107-030	852-201/040-002	852-1200	852-1210	852-1280



\* Digital Diagnostic Monitoring





# MANAGED ETHERNET SWITCHES

Performance, Security, Flexibility

		
<b>Copper Ports</b>	8 x 10/100	8 x 10/100/1000
<b>Fiber-Optic Ports</b>	2 x SFP 100/1000	4 x SFP 100/1000
<b>Redundant Power Supply</b>	Yes	Yes
<b>Alarm Contact</b>	Yes	Yes
<b>Dimensions (W x H x D)</b>	50 x 162 x 120 mm 2 x 6.4 x 4.7 in	50 x 162 x 120 mm 2 x 6.4 x 4.7 in
<b>Temperature</b>	-40 °C ... +70 °C -40 °F ... +158 °F	-40 °C ... +70 °C -40 °F ... +158 °F
<b>Approvals</b>	UL, DNV	UL, DNV
<b>PROFINET</b>	CC-A	CC-A
<b>Part Number</b>	<b>852-303</b>	<b>852-1305</b>

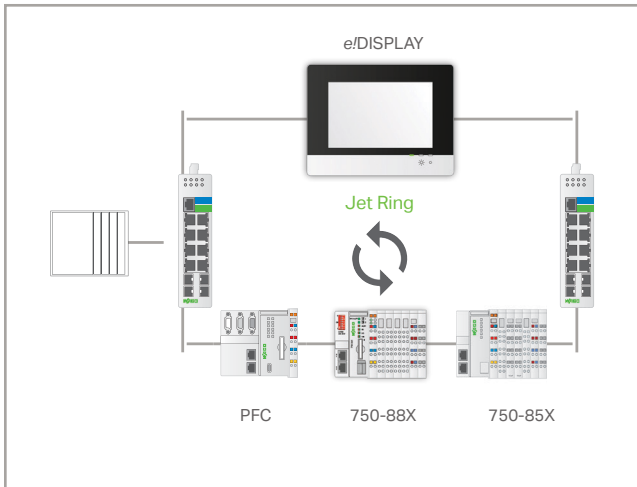
WAGO's industrial managed switches offer users advanced networking features to configure, manage and monitor your LAN.

The industrial managed ETHERNET switches can be used to help increase network security, performance and diagnostics.

The fully configurable firewall and 802.1x authentication and SysLog can be enabled to enhance system security. Multiple solutions for network redundancy such as RSTP, Jet Ring or Express Ring technologies provide increased network availability. The creation of virtual networks (VLAN) permits the separation of networks in order to optimize performance and security. Network health can be monitored via the alarm relay and Modbus registers. All of this is offered in a compact, robust industrial managed switch.

# MANAGED SWITCHES

## Redundancy



Jet Ring

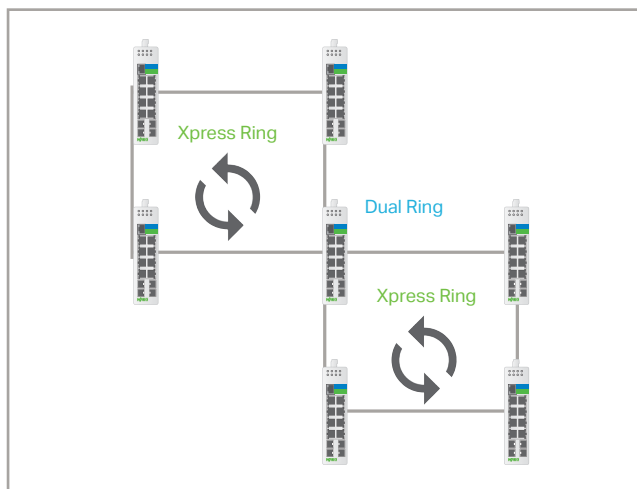
### Jet Ring

#### Redundancy in simple and flexible ring

- Proprietary ring topology
- Recovery time < 300 ms
- Very simple to configure
- Copper or fiber

#### Integration in the Jet Ring

- Managed configured switches in Jet Ring mode
- WAGO PLCs and bus couplers with integrated switch and Fast Aging configuration



Xpress Ring and Dual Ring

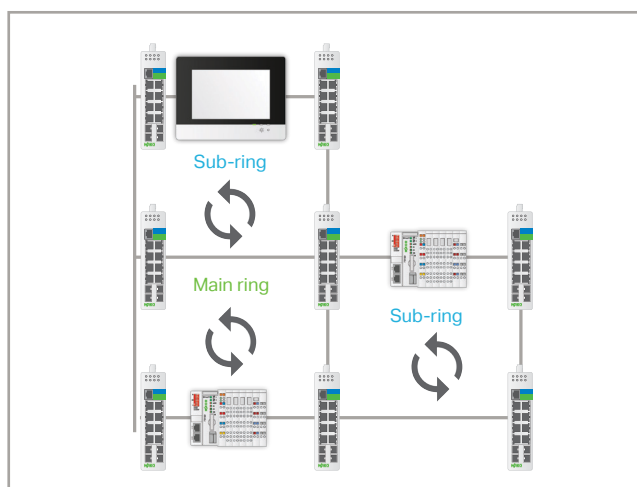
### Xpress Ring and Dual Ring

#### Redundancy in high-performance ring

- Proprietary ring topology
- Recovery time < 10 ms
- Simple to configure
- Copper or fiber

#### Integration in the Xpress Ring

- Managed switches configured in Xpress Ring mode



ERPS V2

### ERPS: ETHERNET Ring Protection Switching

#### The rapid and open solution

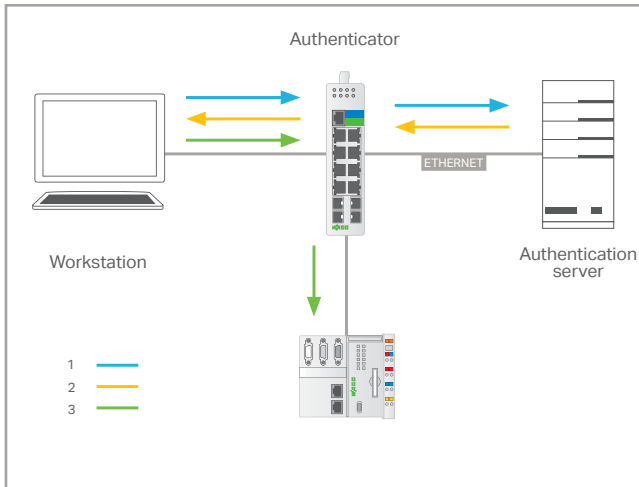
- Standardized and open technology
- Recovery time < 50 ms
- Intertwined topologies up to 6 rings per switch
- Elimination of Single Points of Failure

#### Integration in the ERPS Ring V2

- Managed switches configured in ERPS mode V2
- WAGO PLCs and bus couplers with integrated switch and Fast Aging configuration



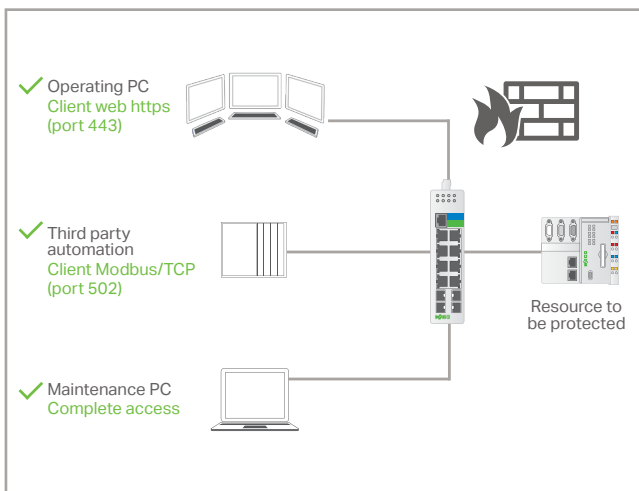
# Security



## Authentication 802.1X

### The security standard for IT networks

- Authenticator profile
- Active/inactive protection by port
- Opportunities for profile management:
  - In local mode, database hosted in the switch
  - Via network, database on a RADIUS authentication server

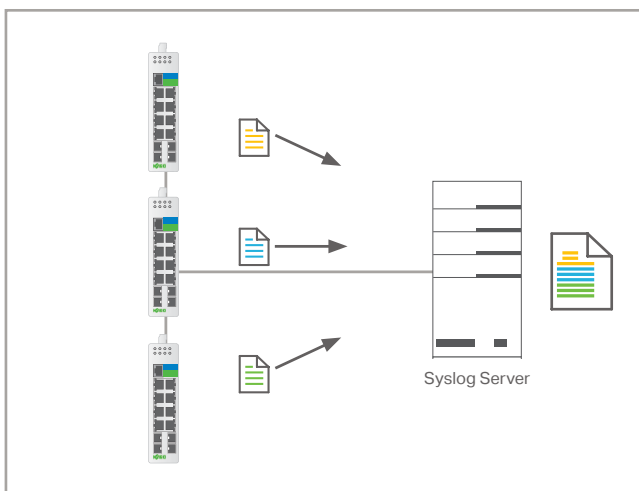


## Level 3 Firewall - Access Control List

### Authorize only necessary services

Creation of selective rules for the following functions:

- IP source address
- TCP/UDP source port
- IP address of the destination
- TCP/UDP port of the destination
- Transport protocol: TCP and/or UDP
- Source interface



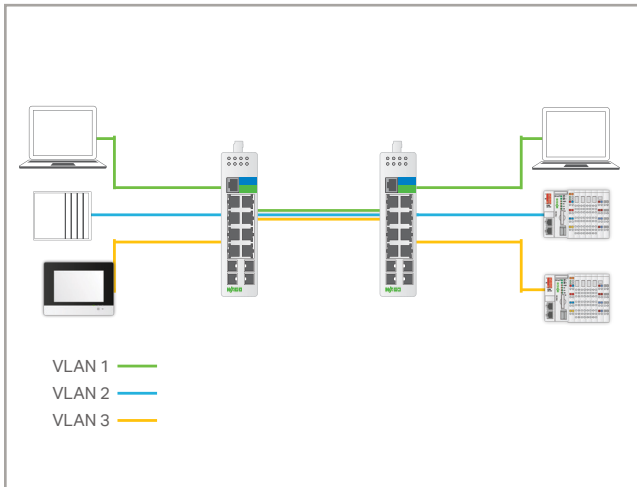
## Advanced Functions

### Prevention and monitoring

- Local or remote SysLog logging
- DHCP snooping
  - Prevention of DHCP spoofing attacks (identity theft from a legitimate DHCP server)
- Management host (3 configurable addresses)
  - The configured addresses are the only ones allowed to access the configuration interfaces

# MANAGED SWITCHES

## Performance

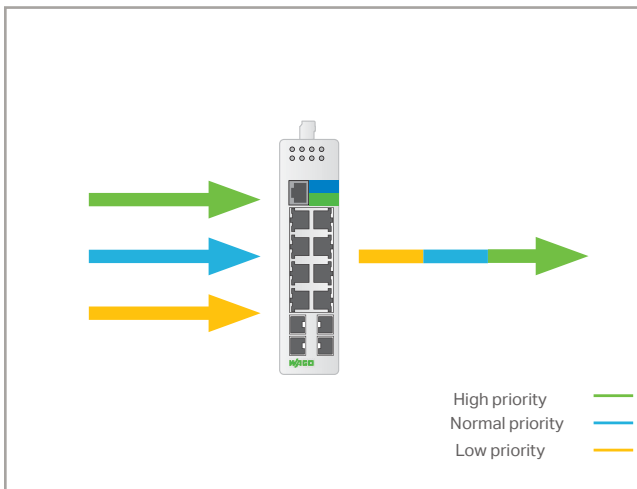


VLAN

### Network Optimization

#### With a wide range of options

- VLAN  
Segmentation into virtual logical networks:
  - Limitation of the broadcasts
  - Improvement in security
  - Prioritization of the data feed
- IGMP Snooping and MVR (Multicast VLAN Registration)  
Optimization of the multicast data feed

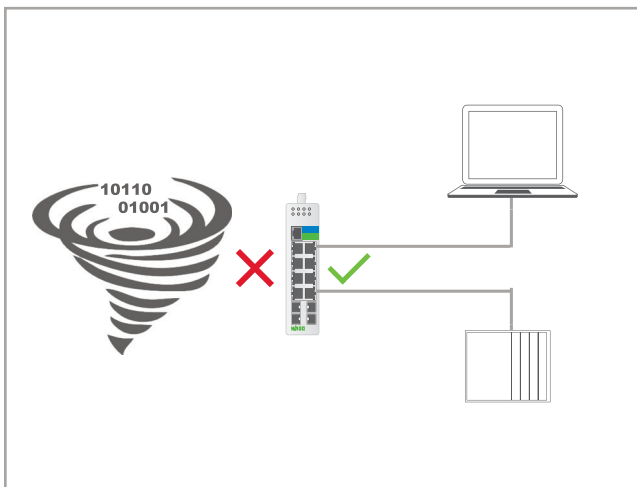


QoS

### Monitoring Performance

#### Controlled bandwidth

- QoS (*Quality of Service*)  
Prioritization of the data feed
- Bandwidth control  
Prevention of traffic overloads



Storm Control

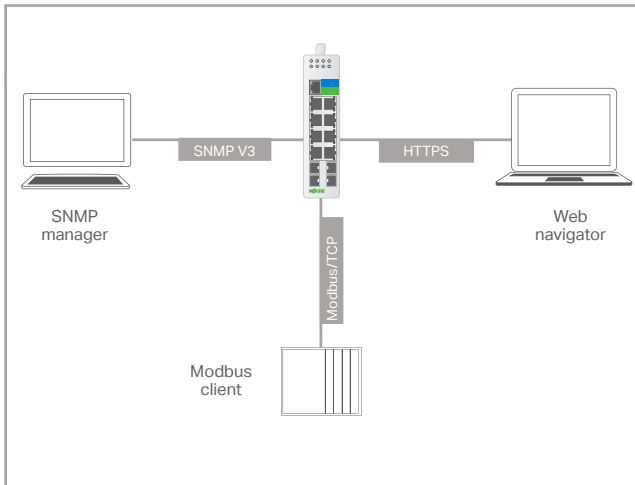
### Traffic Control

#### Guaranteed reliability

- Storm Control  
Limitation of the broadcast and multicast data feed



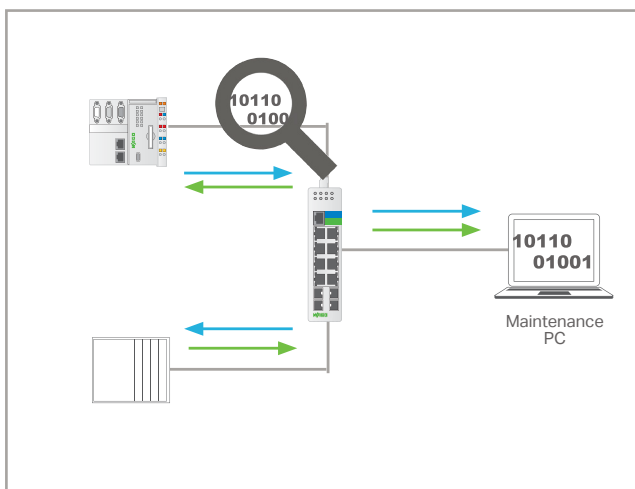
# Administration and Diagnostics



Configuration interfaces

SFP Information					
Fiber Cable	Link Up				
Connector	LC				
Wavelength(nm)	1310				
Transfer Distance(nm)	10km, Single mode				
DDM Supported(nm)	YES (Internally Calibrated)				
Vendor Name(nm)	WAGO				
Vendor PN(nm)	852-1210				
Vendor rev(nm)	V2.0				
Vendor SN(nm)	AX16500009214				
Date code(nm)	161209				
DDMI Information(nm)					
	Current(nm)	High-Alarm(nm)	Low-Alarm(nm)	High-Warn(nm)	Low-Warn(nm)
Temperature(C)	42.980	90.000	-45.000	85.000	-40.000
Voltage(V)	3.238	3.600	3.000	3.500	3.100
Tx Bias(mA)	21.022	60.000	3.000	50.000	5.000
Tx Power(mW)	0.263	0.631	0.089	0.501	0.112
Tx Power(dBm)	-5.807	-2.004	-10.505	-3.000	-9.506
Rx Power(mW)	0.000	0.631	0.008	0.501	0.010
Rx Power(dBm)	-39.000	-2.004	-21.028	-3.000	-20.000

DDM



Port Mirroring

## Configuration Interfaces

### Wide range of options

- Configure via secure web server with a clear and intuitive interface
- Or configure via the command line interface, commonly used by IT professionals
- Leverage the SNMP agent for email or text notifications
- Retrieve diagnostic information via the managed switch's Modbus/TCP server

## Digital Diagnostic Monitoring (DDM)

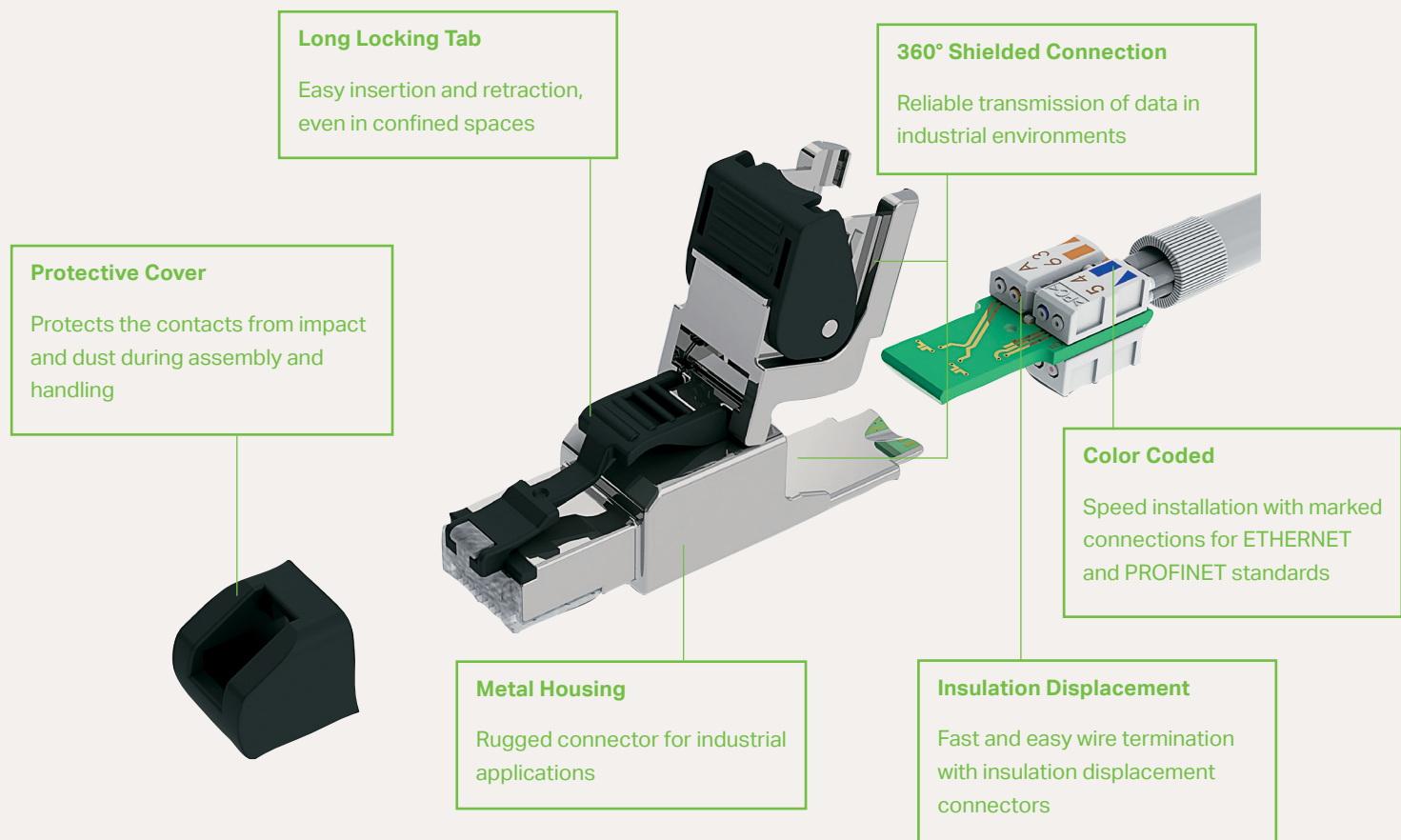
### The optical links under control

- Automatic detection of connected SFP modules
- Real-time monitoring of SFP health

## Monitoring and Diagnostics



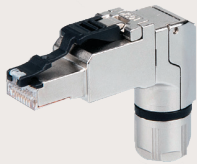
### Simplified maintenance

- Monitor network traffic via Port Mirroring
- Use LLDP for automatic detection of network topologies
- RS232 serial port for direct configuration



# CAT 6A RJ-45 CONNECTORS

## Rapid Assembly

RJ-45 CONNECTORS				
	Part Number	Configuration	Network	Wire Size
	750-977/000-011	Straight - No strain relief	ETHERNET T568A	22 AWG
	750-977/000-012	Straight - No strain relief	ETHERNET T568B	22 AWG
	750-977/000-013	Straight - No strain relief	PROFINET	22 AWG
	750-977/000-021	Straight - No strain relief	ETHERNET T568A	24 AWG
	750-977/000-022	Straight - No strain relief	ETHERNET T568B	24 AWG
	750-978/000-011	Straight - With strain relief	ETHERNET T568A	22 AWG
	750-978/000-012	Straight - With strain relief	ETHERNET T568B	22 AWG
	750-978/000-013	Straight - With strain relief	PROFINET	22 AWG
	750-978/000-021	Straight - With strain relief	ETHERNET T568A	24 AWG
	750-978/000-022	Straight - With strain relief	ETHERNET T568B	24 AWG
	750-979/000-011	90 Degree - With strain relief	ETHERNET T568A	22 AWG
	750-979/000-012	90 Degree - With strain relief	ETHERNET T568B	22 AWG
	750-979/000-013	90 Degree - With strain relief	PROFINET	22 AWG
	750-979/000-021	90 Degree - With strain relief	ETHERNET T568A	24 AWG
	750-979/000-022	90 Degree - With strain relief	ETHERNET T568B	24 AWG



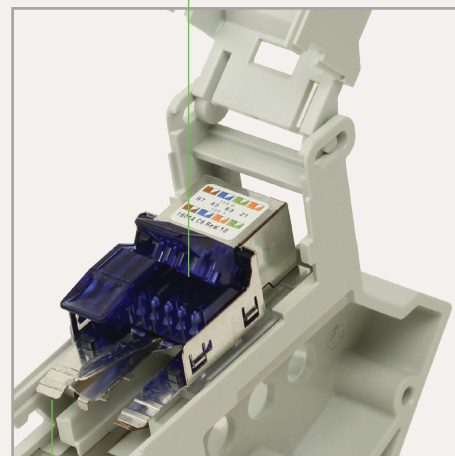


#### Features

- Category 6
- PoE and PoE+ compatible

#### Simple Handling Without Specialty Tools

- Insulation displacement connectors
- Dual labeling: T568A and T568B



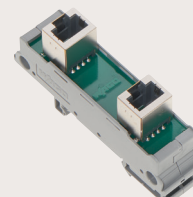
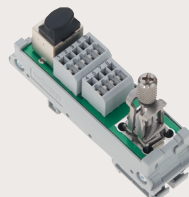
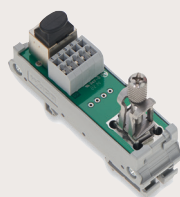
#### Shielded Connection

Safe transmission of data

# DIN RAIL MOUNT RJ-45 INTERFACES

## ETHERNET Cabling on DIN Rail

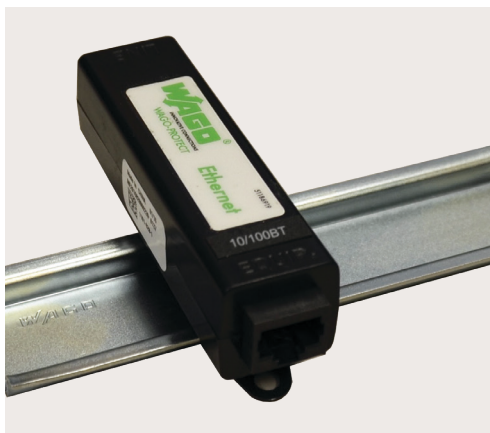
### RJ-45 INTERFACES



Category	Cat 6	Cat 5	Cat 5	Cat 5
Max. Output	10 Gbit/s	100 Mbit/s	100 Mbit/s	100 Mbit/s
Dimensions (W x H x D)	26.8 x 64.4 x 81.4 mm 1 x 2.5 x 3.2 in	24 x 40 x 85 mm 1 x 1.6 x 3.4 in	24 x 40 x 85 mm 1 x 1.6 x 3.4 in	20.5 x 51 x 85 mm 0.79 x 2 x 3.4 in
Connection	IDC	CAGE CLAMP®	CAGE CLAMP®	-
Temperature	-10 °C ... +60 °C +14 °F ... +140 °F	-40 °C ... +85 °C -40 °F ... +185 °F	-40 °C ... +85 °C -40 °F ... +185 °F	-40 °C ... +85 °C -40 °F ... +185 °F
Shield Clamp	No	Yes	Yes	No
Conductors Section	24 ... 22 AWG	28 ... 14 AWG	28 ... 14 AWG	-
Part Number	<b>289-195</b>	<b>289-174/790-108</b>	<b>289-175/790-108</b>	<b>289-172</b>

# WAGO PROTECT

## 10/100 Mb Fast ETHERNET Surge Protection



The WAGO Protect 10/100 Mb ETHERNET surge suppressor is a high-speed, high-current, solid-state DIN rail mount device designed to protect equipment from transient over-voltages on high-speed data lines. It performs this function by limiting the magnitude of transient over-voltages that are present on each wire pair relative to each other and relative to ground. Continuous bi-polar, bi-directional, non-interrupting protection is provided.

WAGO PROTECT			
Max. Operating Voltage	7.5 V	Max. Response Time	< 5ns
Connector Type	RJ-45	Attenuation	3 db @ 90 MHz
Protected RJ-45 Pins	All pins	Max. Leakage Current	1 Micro Amp
Clamping Voltage	12 V	Operating and Storage Temp.	-40 °C ... +85 °C -40 °F ... +185 °F
Max. Voltage Protection Level	25 Vp @ 100 A	Relative Humidity	90%
Part Number	51186919	Mounting	DIN 35 mm rail

# BULKHEAD SOCKETS

## Convenient Way to Pass RJ-45 or USB Networks Through a Control Enclosure

BULKHEAD SOCKETS		
		
Connection	RJ-45	USB with 2 foot extender cable
Degree of Protection	IP65 with closed cover IP20 in use	IP65 with closed cover IP20 in use
Mounting	22 mm hole	22 mm hole
Number of Poles	8	9
Class/Category	Cat 5	3.0 Type A Plug
Operating and Storage Temp.	-25 °C ... +70 °C -13 °F ... +158 °F	-25 °C ... +70 °C -13 °F ... +158 °F
Part Number	51205068	51205157

# ASSOCIATED PRODUCTS

WAGO has a complete offering for automation applications

For more than 20 years, the WAGO automation range has been expanding every year to offer a wider range of solutions.

The *EPSITRON*® power supply system is an ideal complement to active elements of the network infrastructure. From the most simple power supplies to the most advanced secured power supplies, WAGO suggests a tailored response to each application case.

WAGO's line of automation products integrates perfectly into industrial ETHERNET applications. A broad offering of PLCs and distributed couplers support industrial protocols such as Ethernet/IP, Modbus/TCP and PROFINET. Pair these devices with our more than 500 digital, analog and specialty I/O modules to meet and exceed your application requirements.



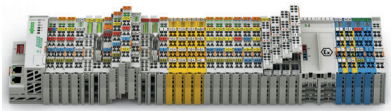
**POWER SUPPLIES**  
[wago.us/epsitron](http://wago.us/epsitron)



**UNINTERRUPTIBLE POWER SUPPLIES**  
[wago.us/ups](http://wago.us/ups)



**ELECTRONIC CIRCUIT BREAKERS**  
[wago.us/ecb](http://wago.us/ecb)



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[wago.us/iosystem](http://wago.us/iosystem)



**PROGRAMMABLE CONTROLLERS**  
[wago.us/pfc200](http://wago.us/pfc200)



**INDUSTRIAL DISPLAYS**  
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