TECHDOCS

WAGO Industrial Managed Switch

Industrial Managed Switch; 8 Ports 100Base-TX; 2 SFP Fast/Gigabit Ethernet Ports

0852-0303/0000-0001



Product manual
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Every conceivable measure has been taken to ensure the accuracy and completeness of this documentation. However, as errors can never be fully excluded, we always appreciate any information or suggestions for improving the documentation.

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We wish to point out that the software and hardware terms as well as the trademarks of companies used and/or mentioned in the present documentation are generally protected by trademark or patent.

WAGO is a registered trademark of WAGO Verwaltungsgesellschaft mbH.

Table of Contents

1 Provisions ... 5
1.1 Intended Use ... 5
1.2 Typographical Conventions ... 6
1.3 Legal Information ... 8

2 Safety ... 10
2.1 General Safety Regulations ... 10
2.2 Electrical Safety ... 10
2.3 Mechanical Safety ... 11
2.4 Thermal Safety ... 11
2.5 Indirect Safety ... 11

3 Overview ... 12

4 Properties ... 13
4.1 View ... 13
4.2 Type Plate ... 14
4.3 Connections ... 15
4.3.1 Supply Voltage ... 15
4.3.2 USB Connection ... 15
4.3.3 Console Connection ... 16
4.4 Display Elements ... 16
4.4.1 Status LEDs ... 16
4.4.2 LED Indicators – Network Connections ... 17
4.5 Control Elements ... 17
4.5.1 DIP Switch ... 17
4.5.2 Reset Button ... 18

5 Planning ... 19
5.1 Data Security ... 19
5.2 Safety Measures at the Installation Location ... 19
5.3 Functional grounding ... 20
5.4 Mounting Position ... 20
5.5 EMC Installation ... 20

6 Commissioning ... 22

7 Transport and Storage ... 23

8 Installation and Removal ... 24
8.1 Mounting on the DIN-Rail ... 24
8.2 Removal from the DIN-Rail ... 24

9 Connection ... 25

10 Decommissioning ... 26
10.1 Disposal and Recycling ... 26

11 Appendix ... 27
11.1 Technical Data, Approvals, Guidelines and Standards ... 27
11.1.1 Datenblatt_852-0303/0000-0001 ... 28

11.2 Protected Rights 30

1 Provisions

This document applies to the following product:

852-303/000-001 (industrial managed switch; 8 ports 100BASE-T; 2 SFP Fast/Gigabit ETHERNET ports)

Product detail page	https://www.wago.com/852-303/000-001

The product must only be installed and operated in accordance with the operating instructions. Knowledge of the operating instructions is required for proper use. You can find all documents and information on the detailed product page.

Note

Note applicable documents!

The complete operating instructions for the product consists of several, applicable documents. The product must only be installed and operated in accordance with the complete operating instructions. Knowledge of all applicable documents is required for proper use. You can find all documents and information on the product detail page.

Applicable document

Function Manual Industrial Managed Switch
- Functions
- Commissioning
- Service

1.1 Intended Use

This product is for setting up ETHERNET networks.

The product is an open type device and is designed for installation in an additional enclosure.
- This product is intended for installation in automation technology systems.
- Operation of the products in industrial area is permitted.
- The product is designed for use in dry indoor rooms.
- Operation of the product in other application areas is only permitted when corresponding approvals and labeling are present.

Improper Use

Improper use of the product is not permitted.

Improper use occurs in particular in the following cases:
- Non-observance of the intended use
- Use without protective measures in an environment in which moisture, salt water, salt spray mist, dust, corrosive fumes, gases, direct sunlight or ionizing radiation can occur
- Implementation of a Known Misuse
- Use of the product in areas with special risk that require continuous fault-free operation and in which failure of or operation of the product can result in an imminent risk to life, limb or health or cause serious damage to property or the environment (such as the operation of nuclear power plants, weapons systems, aircraft and motor vehicles)

Known Misuse

Known misuse of the product is not permitted.

Known misuse occurs in particular in the following cases:

- Use of the product in residential, business and commercial areas, as well as small businesses, without prior checking of the information in the data sheet for the products used

Warranty and Liability

The provisions of the latest WAGO General Terms and Conditions of Deliveries and Services (GTC) apply as well as the Software License Terms for Standard Software (SW-License) applicable to software products und software embedded in WAGO hardware products, both available at: **www.wago.com**.

In particular, the warranty is void when:

- The product is improperly used.
- The defect is based on (customer-)specific specifications (hardware and software configurations).
- Modifications of the hardware or software by the user or third parties were made that are not described in this documentation and are at least responsible for the occurrence of the defect.

Individual agreements always take precedence.

Obligations of the installer/operator

Installers and operators bear responsibility for the safety of an installation or a system assembled with the product.

The installer/operator is responsible for the proper installation and the safety of the system. It must comply with the laws, standards, guidelines, local regulations, the state and the rules of technology applicable at the time of installation and must observe the guidelines and instructions described in the operating instructions. The installation requirements of the approvals must also be met.

In the event of non-compliance, operation of product within the scope of the approval is not permitted.

1.2 Typographical Conventions

Number Notation

100	Decimals: Normal notation
0x64	Hexadecimals: C-notation
'100'	Binary: In single quotation marks
'0110.0100'	Nibbles separated by a period

Text Markups

italic	Names of paths or files
bold	Menu items, entry or selection fields, emphasis
`Code`	Excerpts from program code
>	Selection of a menu point from a menu

"Value"	Value entries
[F5]	Identification of buttons or keys

Links

	Link to a topic in a document
	Link to a separate document
	Link to a website
	Link to an email address
Glossary	Link to a glossary entry

Sequence of Action

✓ This symbol identifies a precondition.

1. Action step
2. Action step

   ⇨ This symbol identifies an intermediate result.

➡ This symbol identifies the result of an action.

- Individual action step

Lists

- Lists, first level
  - Lists, second level

Figures

Figures in this documentation are for better understanding and may differ from the actual product design.

Warning Messages

⚠ DANGER

Type and source of hazard

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

- Action step to reduce risk

⚠ WARNING

Type and source of hazard

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

- Action step to reduce risk

⚠ CAUTION

Type and source of hazard

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

- Action step to reduce risk

ⓘ *NOTICE*

Type and source of malfunction (property damage only)

Indicates a potentially hazardous situation which, if not avoided, may result in damage to property.

- Action step to reduce risk

Information Notices

ⓘ Note

Information

Indicates information, clarifications, recommendations, referrals, etc.

1.3 Legal Information

Intellectual property

The intellectual property of this document belongs to WAGO GmbH & Co. KG. The reproduction and distribution of its content (in whole or in part) is prohibited, unless otherwise provided by statutory provisions, written agreements or this document. In case of doubt, the written consent of WAGO GmbH & Co. KG must be obtained in advance.

Third-party products are always mentioned without any reference to patent rights. WAGO GmbH & Co. KG, or the manufacturer of third-party products, retains all rights regarding patent, utility model or design registration.

Third-party trademarks are referred to in the product documentation. The "®" and "™" symbols are omitted hereinafter. The trademarks are listed in the Appendix: **Protected Rights [▸ 30]**.

Subject to Change

The instructions, guidelines, standards, etc., in this manual correspond to state of the art at the time the documentation was created and are not subject to updating service. The installer and operator bear sole responsibility to ensure they are complied with in their currently applicable form. WAGO GmbH & Co. KG retains the right to carry out technical changes and improvements of the products and the data, specifications and illustrations of this manual. All claims for change or improvement of products that have already been delivered – excepting change or improvement performed under guarantee agreement – are excluded.

Licenses

The product contains open-source software. The requisite license information is saved in the product. This information is also available under www.wago.com.

2 Safety



This section presents hazards that could occur if the product is used. Builders and operators must take all hazards into account when analyzing the risk of their installed systems. Measures to reduce the risk of hazards that are foreseeable from the manufacturer's point of view (i.e., without knowledge of the specific system built) are explained in the respective sections of this documentation (e.g., in "Planning").
Builders and operators must implement explained risk reduction measures and also take their own measures depending on the residual risk.

2.1 General Safety Regulations

- This documentation is part of the product. Therefore, retain the documentation during the entire service life of the product. Pass on the documentation to any subsequent user of the product. In addition, ensure that any supplement to this documentation is included, if necessary.
- The product must only be installed and put into operation by qualified electrical specialists per EN 50110-1/-2 and IEC 60364.
- Changes to switch configurations in the network must always be performed by qualified personnel with sufficient skills.
- Set up permissions management for authorized persons.
  - Physical access may only be made by authorized persons.
  - Digital access may only be made by authorized persons.
- Comply with the laws, standards, guidelines, local regulations and accepted technology standards and practices applicable at the time of installation.

2.2 Electrical Safety

- Make sure the product does not carry any voltage before starting work.

Power Supply

- Connecting impermissible current or frequency values may destroy the product.
- Plan for voltage buffering if the requirement for voltage buffering according to EN 61131-2 is to be met.

Grounding/Protection/Fuses

- When handling the product, please ensure that environmental factors (personnel, work space and packaging) are properly equalized. Do not touch any conducting parts.

Cables

- To minimize interference (e.g., by electromagnetic interference), maintain a spatial separation between control, signal and data lines and the power supply lines.
- Always design the connection cables for the maximum anticipated current load.
- High currents and the inherent head generated by the product can cause additional heat generation at the clamping point. Plan for a correspondingly higher temperature range for the connecting cables, or reduce inherent heat by selecting larger conductor cross-sections.
- Only one conductor may be connected to each connection point (e.g., CAGE CLAMP® connection).

2.3 Mechanical Safety

- Before startup, please check the product for any damage that may have occurred during shipping. Do not put the product into operation in the event of mechanical damage.
- Do not open the product housing.
- Avoid conductive contamination.

2.4 Thermal Safety

- The surface of the housing heats up during operation. Under special conditions (e.g., in the event of a fault or increased surrounding air temperature), touching the product may cause burns. Allow the product to cool down before touching it.
- If the surface temperature of the product can exceed 40 °C, wear protective gloves and attach protective covers and/or touch-proof protection.
- The temperature inside the additional enclosure must not exceed the ambient temperature permitted for the mounted product.
- Cooling of the product must not be impaired. Ensure air can flow freely and that the minimum clearances from adjacent products/areas are maintained.

2.5 Indirect Safety

- Do not use any contact spray for cleaning.
- Do not use hard objects that could cause scratches for cleaning.
- The product is not resistant to materials with seeping and insulating properties, such as aerosols, silicones or triglycerides (found in some hand creams). If these substances occur in the environment of the product, install the product in an additional housing that is resistant to these substances as well.
- Observe possible different technical specifications for mounting that does not correspond to the nominal mounting position.
- Only use accessories authorized by WAGO.

3 Overview

The product is an industrial, configurable managed ETHERNET switch with eight Fast Ethernet ports (10/100BASE-T) and two SFP Fast/Gigabit ETHERNET ports.

Switching Technology

Industrial ETHERNET primarily uses switching technology. This technology allows any network subscriber to send at any time, because the subscriber always has an open peer-to-peer connection to the next switch. The connection is bidirectional, i.e., the subscriber can send and receive at the same time (full duplex operation). Targeted use of switching technology can increase real-time capability, because the peer-to-peer connection prevents collisions in network communication.

Auto-Negotiation

Auto-negotiation allows two interconnected ETHERNET ports to independently set the highest possible transmission rate and transmission type for their communication link. Auto-negotiation is available to ETHERNET subscribers connected to the switch via a twisted pair cable.

Autocrossing

Autocrossing (Auto-MDI/MDI-X, "Medium Dependent Interface") automatically reconfigures the receive and transmit signals for twisted-pair interfaces as needed. This allow users to use wired and crossover cables in the same manner one-to-one.

Store-and-Forward Switching Mode

WAGO's industrial switches operate in store-and-forward switching mode. In this mode, the ETHERNET switch caches the entire data telegram and uses the the CRC checksum to verify its correctness and validity. If there are no errors, the data telegram is queued and forwarded to the destination address using the MAC table. Faulty or damaged data telegrams are not further distributed in the network. The delay the data telegram requires in order to pass the store-and-forward switch depends on the telegram length.

4 Properties

4.1 View

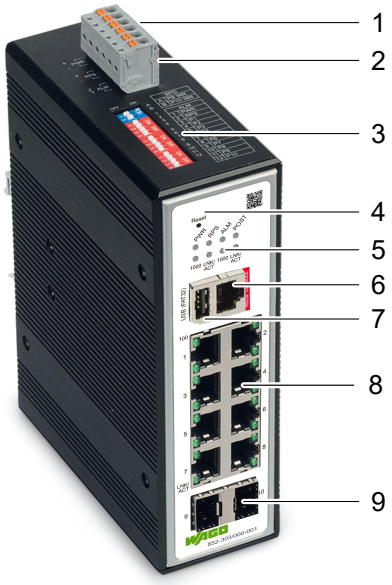


Figure 1: Frontansicht

1	Grounding screw	Functional grounding [▸ 20]
2	Plug for power consumption	Supply Voltage [▸ 15]
3	DIP switch	Control Elements [▸ 17]
4	Reset button	Control Elements [▸ 17]
5	Indicators	Display Elements [▸ 16]
6	Console connection	Console Connection [▸ 16]
7	USB connection	USB Connection [▸ 16]
8	10/100BASE-TX-Ports	LED Indicators – Network Connections [▸ 17]
9	Fast/Gigabit ETHERNET SFP ports	

4.2 Type Plate

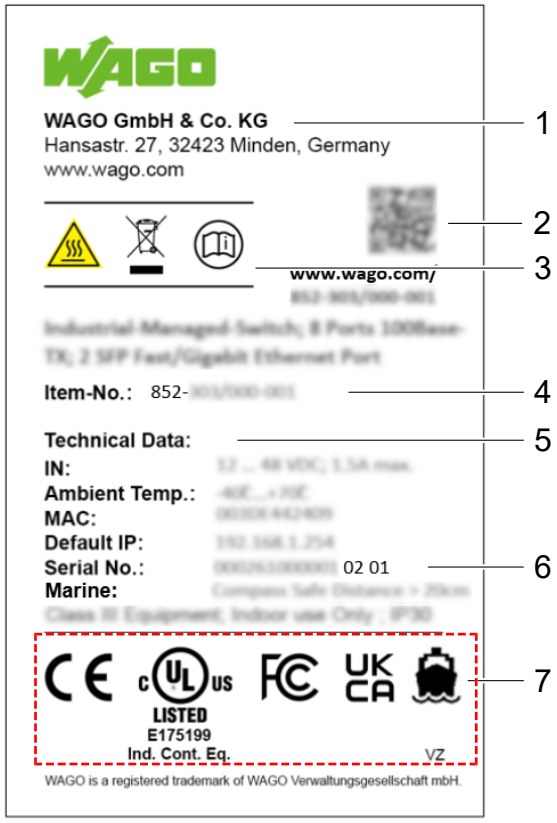


Figure 2: Type Plate (Example)

No.	Designation	Description
1		WAGO logo and address
2		QR code with link to product detail page www.wago.com/<item number>
3	**Warning and Information Symbols**	
		**Warning:** Do not touch hot surfaces! The housing surface can become hot during operation. If the product has been used at high ambient temperatures, let it cool down before touching it.
		**Note:** Electrical and electronic equipment must not be disposed of with household waste! Electrical and electronic equipment contains materials and substances that can be harmful to the environment and health. Electrical and electronic equipment must be disposed of properly after use. More information about this topic: **Disposal and Recycling [▸ 26]**.
		**Note:** Observe the product documentation!
4	Item No.	Item Number
5	Technical Data	**Technical Data, Approvals, Guidelines and Standards [▸ 27]**
6	Serial No.	Product serial number in text form: <Serial number> <Firmware version> (left sequence of digits; example: 02) <Hardware version> (right sequence of digits; example: 01)

No.	Designation	Description
7	**Approvals**	
		With the CE mark, WAGO declares that the product meets the applicable requirements as set out in Community harmonization legislation per EC Regulation 765/2008, which allows the product to carry this mark.
		"Certification Mark for Safety" of UL-listed products for the North America and Canadian market
		With the FCC marking, WAGO declares conformity with the regulations of the US Federal Communications Commission.
		The UKCA (UK Conformity Assessed) mark declares that the conformity requirements for the UK market are met.
		Collective icon for marine approvals

4.3 Connections

4.3.1 Supply Voltage

The female connector (Item No. 2231-106/026-000) can be connected to the 6-pole male connector located on the top. The male connector has the following pin assignment:

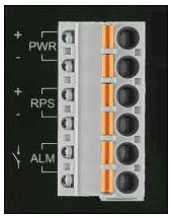


Figure 3: Power Supply Connection (Example)

Connection	Description
+ PWR	Primary DC input: Plus potential
- PWR	Primary DC input: Minus potential
+ RPS	Secondary DC input: Plus potential
- RPS	Secondary DC input: Minus potential
ALM	Switching contact for external alarm (24V, 1A)

4.3.2 USB Connection

The USB 2.0 host interface is designed with a 4-pole type A socket. The following functions can be executed via the USB port:

- Uploading the firmware
- Saving the configuration file
- Saving the syslog file
- Uploading the configuration file

These functions are disabled from the factory. They can be enabled through Web-Based Management or CLI commands. The first time a USB stick is inserted, the required folder structure is created on it.

4.3.3 Console Connection

The "Command Line Interface" (CLI) can be called up via the console connection.

Use the included console cable to connect the product console port to a COM port.

Table 1: Default Settings for the Console Connection

Baud rate	38400
Parity	None
Number of data bits	8
Number of stop bits	1
Flow Control	None

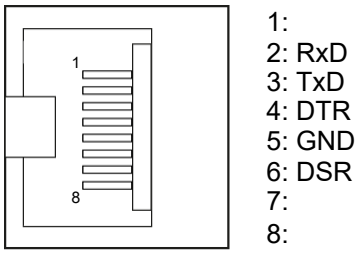


Figure 4: Assignment of console connection

4.4 Display Elements

4.4.1 Status LEDs

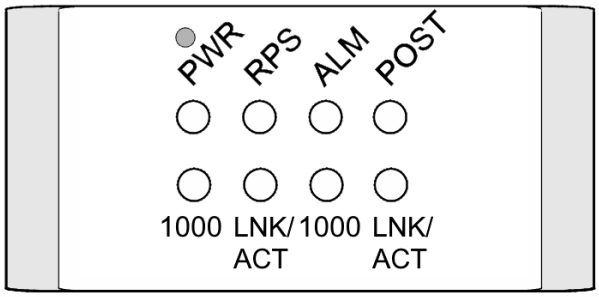


Figure 5: Status LEDs

LED	Name	Status	Description
PWR	Primary Power LED	Green	Primary power supply in use
		OFF	Primary power supply switched OFF or error
RPS	Redundant Power LED	Green	Use of the secondary power supply
		Off	Secondary power supply switched off or error
ALM	Alarm LED	Red	There is no power supply to the primary or secondary (PWR or RPS) power supply. Failure of a port connection or other alarm. The alarm setting made in the Web-Based Management System is used. The alarm contact is enabled.
		Off	No alarm reported
POST	Power-On-Self-Test LED	Green	The POST is completed.
		Flashing	The POST is executed.

LED	Name	Status	Description
		OFF	No power supply, or error detected in the POST function.
1000	1000 Mbit/s LED for the corresponding port (9/10)	Green	1000 Mbit/s connection
		Off	1000 Mbit/s or no connection
LNK/ ACT	LNK/ACT LED for the corresponding port (9/10)	Green	The port is in operation.
		Flashing	Data packet transfer is active.
		Off	There is no connection.

4.4.2 LED Indicators – Network Connections

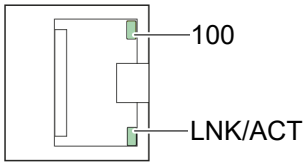


Figure 6: LED Indicators – Network Connections

Name	Color	Status	Description
100	Green	ON	100 Mbit/s connection
		OFF	10 Mbit/s or no connection
LNK/ACT	Green	On	Port is running at 10 or 100 Mbit/s.
		Flickering	Data packet transfer is active.
		Off	There is no connection.

4.5 Control Elements

4.5.1 DIP Switch

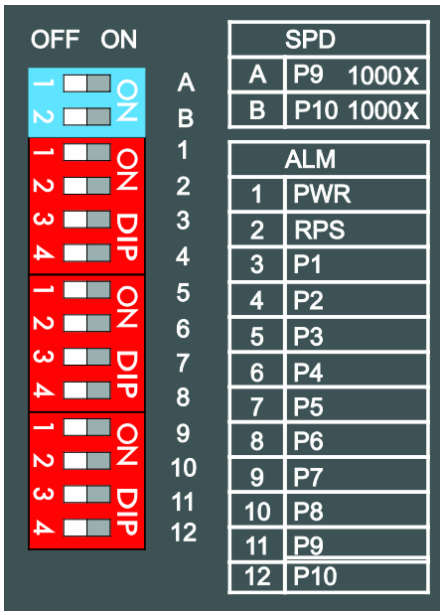


Figure 7: DIP Switch

No.	Name	Status	Description
A	P9 1000X	ON	Port 9 (SFP) is enabled for a transmission speed of 1000 Mbit/s.
		OFF	The transmission speed set in the Web-Based Management System is used.
B	P10 1000X	ON	Port 10 (SFP) is enabled for a transmission speed of 1000 Mbit/s.
		OFF	The transmission speed set in the Web-Based Management System is used.
1	PWR	ON	The alarm function is enabled for the primary power supply.
		OFF	The alarm setting made in the Web-Based Management System is used for the primary power supply.
2	RPS	ON	The alarm function for the secondary power supply is enabled.
		OFF	The alarm setting made in the Web-Based Management System is used for the secondary power supply.
3... 12	P1...P10	ON	The alarm function for the connection of the corresponding port is enabled.
		OFF	The alarm setting made in the Web-Based Management System is used for the corresponding port.

4.5.2 Reset Button



Figure 8: Reset Button

The reset button is installed within a recess to prevent accidental operation. It is a short-travel button with a low actuating force. The button can be pressed with suitable object (e.g., a pen).

Actuation	Function
2 seconds	The product is restarted.
10 seconds	The product is reset to factory settings.

5 Planning

5.1 Data Security

Professional planning and design is an important requirement for securing data confidentiality, availability and integrity.

Random Influences

Data transmission and processing can be disrupted by random influences, such as temporary electromagnetic disturbances. Proper setup can significantly reduce the likelihood of corruption or destruction of data.

For additional information see: EMC Installation [▸ 20].

Deliberate Influences

Use in ETHERNET Areas

ETHERNET products are designed for use in local networks. Please note the following when using ETHERNET products in your system:

- Do not connect control components and control networks to an open network such as the Internet or an office network.
  WAGO recommends putting control components and control networks behind a firewall.
- In the control components, close all ports and services not required by your application to minimize the risk of cyber attacks and to enhance cybersecurity.
  Only open the ports and services for the duration of the commissioning/configuration.
- Limit physical and electronic access to all automation components to authorized personnel only.
- To reduce the risk of unauthorized access to your system, change the default passwords during initial commissioning.
- To reduce the risk of unauthorized access to your system, regularly change the passwords used.
- To verify that the measures taken meet your security requirements, regularly perform threat analyses.
- To restrict access to and control of individual products and networks, employ a "defense-in-depth" mechanism in your system's security configuration.

Additional document

- White Paper Cybersecurity in Production Facilities

All the documentation and information is available at: www.wago.com.

5.2 Safety Measures at the Installation Location

Additional Enclosure

The product is an open type device.

It must only be installed in suitable enclosures, cabinets or electrical operating rooms that meet the following requirements at a minimum:

- Offer adequate protection against direct or indirect contact.
- Offer adequate protection against UV irradiation.
- Restrict access to authorized personnel and may only be opened with tools.
- Ensure the required pollution degree in the vicinity of the system.
- Prevent fire from spreading outside of the enclosure.
- Guarantee mechanical stability.

5.3 Functional grounding

The product must be grounded. The following options are available for this:

- Grounding screw

Do not operate the product without a properly installed functional ground.

5.4 Mounting Position

All specifications and handling steps refer to the nominal mounting position. Deviating mounting positions affect, for example:

- Air circulation

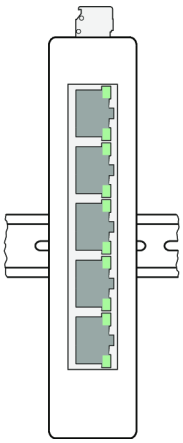


Figure 9: Nominal Mounting Position

5.5 EMC Installation

- **Ground DIN-rails.**
  Ground the DIN-rails to divert electromagnetic interference.
- **Use shielded cables for data and signal lines.**
  Electromagnetic interference is reduced and signal quality increased. Measurement errors, data transmission faults and interference due to excessive voltage can be prevented!
- **Keep data and signal lines separate from interference sources.**
  Route data and signal lines separately from all power supply cables and other sources of high electromagnetic emissions (e.g., frequency converters or drives).
- **Connect the cable shielding with the ground potential.**
  Integrated shielding is mandatory to meet technical specifications regarding measurement accuracy. Establish the connection between the cable shielding and ground potential at the inlet of the cabinet or housing. This grounding allows induced interferences to dissipate and be kept away from devices in the cabinet or housing.

- **Improve shielding performance with a large contact area.**
  A low-impedance connection between shielding and ground achieves better shielding performance. For this purpose, connect the shielding over a large surface area, e.g., using the WAGO Series 790 Shield Connection System. This is especially recommended for large-scale systems where equalizing or high impulse currents may occur.

6 Commissioning

To open the Web-Based Management (WBM), use a Web browser.

Table 2: Default setting

Setting	Default Setting
IP adress	192.168.1.254
User	admin
Password	wago

7 Transport and Storage

The original packaging offers optimal protection during transport and storage.

- Store the product in suitable packaging, preferably the original packaging.
- Only transport the product in suitable containers/packaging.
- Make sure the product contacts are not contaminated or damaged during packing or unpacking.
- Observe the specified ambient climatic conditions for transport and storage.

Long-Term Storage

- For long-term storage, power must be applied to the product for five minutes at least every two years.

8 Installation and Removal

8.1 Mounting on the DIN-Rail

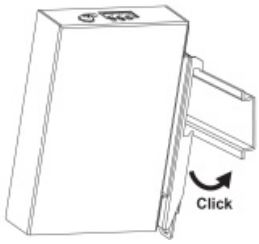


Figure 10: Mounting Product on DIN-Rail

1. Tilt the product slightly.
2. Place the product, with the DIN-rail guide, on the top edge of the DIN-rail.
3. Press the product onto the DIN-rail.
4. Push down until the product audibly snaps into place.
   ⇨ If the product does not lock into place automatically, pull down the DIN-rail mounting/removal latch with an operating tool while pressing the product onto the bottom fastener.
5. Gently shake the product to ensure that it is correctly locked into place.

8.2 Removal from the DIN-Rail

⚠ CAUTION

Hot Surface!

The surface of the housing heats up during operation. Under special conditions (e.g., in the event of a fault or increased surrounding air temperature), touching the product may cause burns.

- Allow the product to cool down before touching it!

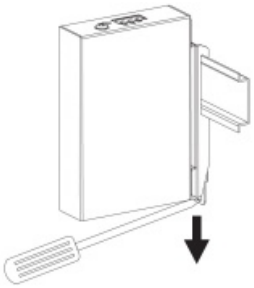


Figure 11: Removing the Product from the DIN-Rail

1. To remove the product, pull down the DIN-rail removal latch.
   Use an operating tool for this purpose.
   ⇨ The product is now unlocked.
2. Tilt the product forward and unhook it from the DIN-rail.

9 Connection

Solid conductors, as well as stranded and fine-stranded conductors with ferrules, are terminated by pushing them into Push-in CAGE CLAMP® Connectors. For all conductor types, an operating tool must be used to open the Push-in CAGE CLAMP®. Only one conductor may be connected to each clamping unit.

To connect a conductor, proceed as follows:

✓ You need an operating tool.

1. Use the operating tool to press and hold the push-button next to the connection in question in order to open the Push-in CAGE CLAMP®.
2. Insert the conductor into the corresponding connection opening (round housing opening).
3. Release the push-button to close the Push-in CAGE CLAMP®.

➡ The conductor is now securely clamped.

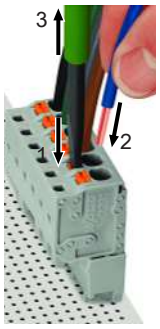


Figure 12: Connecting Conductor to Push-in CAGE CLAMP®

Removing Conductor

✓ You need an operating tool.

1. Use the operating tool to press and hold the push-button next to the connection in question in order to open the Push-in CAGE CLAMP®.
2. Remove the conductor.
3. Release the push-button to close the Push-in CAGE CLAMP®.

➡ The conductor is now detached.

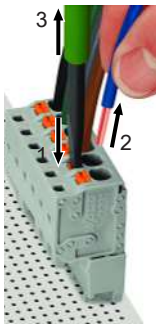
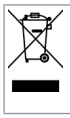


Figure 13: Removing Conductor from Push-in CAGE CLAMP®

10 Decommissioning

10.1 Disposal and Recycling

	**WEEE Mark** Electrical and electronic equipment may not be disposed of with household waste. This also applies to products without this mark.

Electrical and electronic equipment contain materials and substances that can be harmful to the environment and health. Electrical and electronic equipment must be disposed of properly after use. Environmentally friendly disposal benefits health, protects the environment from harmful substances in electrical and electronic equipment and enables sustainable and efficient use of resources.

- Observe the national and local regulations for the disposal of electrical and electronic equipment, lithium-ion batteries, lead–acid batteries and packaging.
- Clear any data stored on electrical and electronic equipment.
- Remove lithium-ion batteries, lead–acid batteries or memory cards that are added to the electrical and electronic equipment.
- Wear appropriate personal protective equipment when removing the lithium-ion batteries/lead–acid batteries.
- Dispose of the removed lithium-ion batteries/lead–acid batteries according to your local waste regulations (e. g. collection boxes at the retail or local collection points).
- Have electrical and electronic equipment sent to a local collection point.
- Dispose of all types of packaging to ensure a high level of recovery, reuse and recycling.
- Transport packages from the B2B area can be taken back free of charge via a return system in accordance with the Packaging Act. Please contact our service provider Interseroh directly. The corresponding certificate can be found at: **corporate-certificates**.
- Throughout Europe, Directives 2006/66/EC, 94/62/EC and 2012/19/EU (WEEE) apply. National directives and laws may differ.

11 Appendix

11.1 Technical Data, Approvals, Guidelines and Standards

Note

Subject to changes!

Please also observe the further product documentation! You can generate the current datasheet at any time at: www.wago.com /<item number>.

See also

Datenblatt_852-0303/0000-0001 [▶ 28]

Data Sheet | Item Number: 852-303/000-001

Industrial Managed Switch; 8-port 100Base-TX; 2 SFP Fast/Gigabit Ethernet Ports

https://www.wago.com/852-303/000-001

The industrial, configurable ETHERNET switch (Item No. 852-303/000-001) features 8 × 10/100BASE-TX ports and 2 × SFP Fast/Gigabit Ethernet ports (SFP modules available separately).
Housed in a rugged enclosure, the switch provides a redundant power supply and relay-based function monitoring. The topology map offers a clear overview of the switch and connected devices, while key diagnostic information is displayed in the diagnostics dashboard.

Features:

- Web-based/SNMP management
- Redundant DC power supply
- Power supply range: 12 … 48 VDC (±15%)
- Firmware updates and switch configuration via USB storage medium
- DIP switches for alarm configuration
- Support for various redundancy and ring protocols, e.g., RSTP, MSTP, Xpress Ring, and ERPS
- Auto-negotiation and Auto MDI/MDIX (crossover) on all 10/100BASE-TX ports
- VLAN (802.1Q)
- IGMP snooping for multicast filtering
- Port trunking
- SNMP v1/v2c/v3, RMON, and Modbus®

Technical data

Switching mode	Store-and-forward; non-blocking
Number of 100 Mbps ports	8
Number of 1 Gb/s ports SFP	2
Communication standards	IEEE 802.3i 10BASE-T IEEE 802.3u 100BASE-TX/FX IEEE 802.3z 1000BASE-SX/LX IEEE 802.3 Autonegotiation IEEE 802.3az Energy Efficient Ethernet IEEE 802.3x Flow Control IEEE 802.1ab Link Layer Discovery Protocol (LLDP) IEEE 802.1ad QinQ IEEE 802.1d Spanning Tree Protocol (STP) IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) IEEE 802.1p Prioritization IEEE 802.1Q VLAN Tagging IEEE 802.1X Port Authentication IEEE 1588v2 Precision Time Protocol (PTP)
Redundancy function	Redundant DC power supply; STP; RSTP; MSTP; Jet Ring < 300 ms; Xpress Ring < 20 ms; Dual Homing < 20 ms; Dual Ring; ERPSv2 < 50 ms; LACP
Configuration options	Web-based management including topology map and dashboard Command Line Interface SNMPv1/v2c/v3 USB storage medium DIP switch
Diagnostics	Signal contact; Modbus TCP; Port status; Port statistics; Port load; Traffic monitor; SFP information; Syslog; Mail alarm; SNMP traps; Loop detection; … Alarm contact; Alarm relay; NO; 1 A at 24 VDC
Security	Access Control List with >1,000 entries (MAC, IP, Port); Port Security; Authentication IEEE 802.1X; RADIUS; TACACS; Segmentation (VLAN)
Function	Routing: Static Route, IP Subnet Vlan, MAC-based Vlan, Protocol-based Vlan
MAC table (size)	16000 addresses
Jumbo frame size	10000 bytes
Supply voltage	12 … 48 VDC; (±15 %)
Power consumption (max.)	14 W
Current consumption (max.)	1500 mA
Transmission rate	Copper cable: 10/100 Mbit/s; Fiber optic:100/1000 Mbit/s
Transmission medium (communication/fieldbus)	Copper cable: Cat. 5e or higher, 100 m maximum cable length; Fiber optic: The transmission medium and achievable cable length depend on the SFP module used.
Optical fiber type	Single-mode and multi-mode
Control Elements	14 x DIP switches: alarm function for supply voltages and ports 1 … 10, 100/1000 Mbps SFP ports; 1 x Reset button: system restart
Indicators	Device: LED (PWR, RPS), green: power supply (primary, secondary); LED (ALM), red: alarm; LED (POST), green: self-test status; SFP ports: LED (1000, LNK/ACT), green: 1000 Mbit/s status, link and activity status; RJ-45 ports: LED (100, LNK/ACT), green: 100 Mbit/s status, link and activity status

Connection Data

Connection technology: communication/fieldbus	Copper cable: 8 x RJ-45; Fiber optic: 2 x SFP ports (e.g., with SFP module and LC fiber-optic connector)
Connection technology: supply	1 x Built-in male connector: 231-436/001-000; included female connector (*MCS* Connectors): 2231-106/026-000
Connection technology: device configuration	1 x RS-232 serial interface

Physical data

Width	50 mm / 1.969 inches
Height	162 mm / 6.378 inches
Depth	120 mm / 4.724 inches

Mechanical data

Weight	944 g
Housing material	Aluminum
Conformity marking	CE

Environmental requirements

Ambient temperature (operation)	-40 … +70 °C (-25 … +70 °C (DNV))
Ambient temperature (storage)	-40 … +80 °C
Protection type	IP30
Note on protection type	Use per UL 61010: Indoor
Pollution degree	2 per UL 61010
Relative humidity (without condensation)	95 %
Mounting type	DIN-35 rail
Mounting (note)	Compass safe distance: > 20 cm
Vibration resistance	Per IEC 60068-2-6
Shock resistance	per IEC 60068-2-27
EMC immunity to interference	per EN 61000-6-2
EMC emission of interference	per EN 61000-6-4

Commercial data

PU (SPU)	1 pcs
Packaging type	Box
Country of origin	TW
GTIN	4066966906202
Customs tariff number	85176200000

Approvals

Approvals	CE DNV, LR cULus OrdLoc

Environmental Product Compliance

RoHS Compliance Status	Compliant,No Exemption

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List of Tables

Table 1 Default Settings for the Console Connection 16
Table 2 Default setting 22

List of Figures

Figure 1 Frontansicht ... 13
Figure 2 Type Plate (Example) ... 14
Figure 3 Power Supply Connection (Example) ... 15
Figure 4 Assignment of console connection ... 16
Figure 5 Status LEDs ... 16
Figure 6 LED Indicators – Network Connections ... 17
Figure 7 DIP Switch ... 17
Figure 8 Reset Button ... 18
Figure 9 Nominal Mounting Position ... 20
Figure 10 Mounting Product on DIN-Rail ... 24
Figure 11 Removing the Product from the DIN-Rail ... 24
Figure 12 Connecting Conductor to Push-in CAGE CLAMP® ... 25
Figure 13 Removing Conductor from Push-in CAGE CLAMP® ... 25

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