SIEMENS

SIMATIC NET

Industrial Remote Communication Remote Networks SCALANCE M874, M876

Operating Instructions

02/2023
C79000-G8976-C331-12

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠ DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠ WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠ CAUTION

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠ WARNING

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Ⓟ 03/2023 Subject to change

Preface

Purpose of the operating instructions

These operating instructions contain information with which you can install and connect the SCALANCE device correctly. The configuration and the integration of the device in a network are not described in these instructions.

Scope of validity

These operating instructions cover the following products:

Product	Description	Article numbers
SCALANCE M874-2	Mobile wireless router for 2G (GPRS/EDGE)	6GK5874-2AA00-2AA2
SCALANCE M874-3	Mobile wireless router for 3G (HSPA+)	6GK5874-3AA00-2AA2
SCALANCE M876-3	Mobile wireless router for 3G (HSPA+) with antenna diversity	6GK5876-3AA02-2BA2 6GK5876-3AA02-2EA2 (ROK)
SCALANCE M876-4	Mobile wireless router for 4G (LTE) with antenna diversity	6GK5876-4AA00-2BA2 (EU) 6GK5876-4AA00-2DA2 (NAM)
	Mobile wireless router for 4G (LTE) optimized for worldwide use	6GK5876-4AA10-2BA2

These operating instructions apply to the following firmware version:

- SCALANCE M-800/S615 version 7.2 or later

Designations used

Classification	Description	Terms used
Product line	For all devices and variants of all product groups within the SCALANCE M-800 product line, the term **M-800** is used.	M-800
Product group	For all devices and variants of a product group, only the product group is used.	M874 stands for M874-2 and M874-3 M876 stands for M876-3 and M876-4 M87x stands for M874-2, M874-3, M876-3 and M876-4
Device	For a device, only the device name is used.	M874-2 M874-3 M876-3 M876-4

You will find the article numbers for the Siemens products of relevance here in the following catalogs:

- SIMATIC NET Industrial Communication / Industrial Identification, catalog IK PI
- SIMATIC Products for Totally Integrated Automation and Micro Automation, catalog ST 70
- Industry Mall - catalog and ordering system for automation and drive technology, Online catalog (https://mall.industry.siemens.com)

You can request the catalogs and additional information from your Siemens representative.

Supplementary documentation

Documentation on the Internet

You can find the current version of the document on the Internet at. (https://support.industry.siemens.com/cs/ww/en/ps/15987/man)

Enter the name or article number of the product in the search filter.

Documentation on configuration

You will find detailed information on configuring the devices in the following configuration manuals:

- SCALANCE M-800 Web Based Management
- SCALANCE M-800 Command Line Interface

Note

Make sure that you read the explanations and instructions in the readme.htm file.

Further documentation

- System manual "Industrial Ethernet"
  The system manual contains information on other SIMATIC NET products that you can operate along with the devices of this product line in an Industrial Ethernet network. There, you will find among other things optical performance data of the communications partner that you require for the installation.
  The "SIMATIC NET Industrial Ethernet" system manual can be found on the Internet pages of Siemens Industry Online Support under the following entry ID: 27069465 (https://support.industry.siemens.com/cs/ww/en/view/27069465)
- "Passive network components" system manual
  This system manual contains installation instructions for several of the most common components and guidelines for setting up networked automation plants in buildings.
  The "Passive network components" system manual can be found on the Internet pages of Siemens Industry Online Support under the following entry ID: 84922825 (https://support.industry.siemens.com/cs/ww/en/view/84922825)

SIMATIC NET manuals

You will find SIMATIC NET manuals on the Internet pages of Siemens Industry Online Support:

- using the search function:
  Link to Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/)
  Enter the entry ID of the relevant manual as the search item.
- In the navigation panel on the left hand side in the area "Industrial Communication":
  Link to the area "Industrial Communication" (https://support.industry.siemens.com/cs/ww/en/ps/15247/pm)
  Go to the required product group and make the following settings:
  tab "Entry list", Entry type "Manuals"

You will find the documentation for the SIMATIC NET products relevant here on the data medium that ships with some products:

- Product CD / product DVD
- SIMATIC NET Manual Collection

Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit
https://www.siemens.com/industrialsecurity (https://www.siemens.com/industrialsecurity).

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under
https://www.siemens.com/cert (https://www.siemens.com/cert).

Firmware

The firmware is available on the Internet pages of the Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/ps/15982/dl):

Note on firmware/software support

Check regularly for new firmware/software versions or security updates and apply them. After the release of a new version, previous versions are no longer supported and are not maintained.

Error/fault

If a fault develops, send the device to your SIEMENS representative for repair. Repairs on-site are not permitted.

Decommissioning

Shut down the device properly to prevent unauthorized persons from accessing confidential data in the device memory.

To do this, restore the factory settings on the device.

Also restore the factory settings on the storage medium.

Recycling and disposal

The products are low in pollutants, can be recycled and meet the requirements of the WEEE directive 2012/19/EU for the disposal of electrical and electronic equipment.

Do not dispose of the products at public disposal sites.

For environmentally friendly recycling and the disposal of your old device contact a certified disposal company for electronic scrap or your Siemens contact (Product return (https://support.industry.siemens.com/cs/ww/en/view/109479891)).

Note the different national regulations.

Trademarks

The following and possibly other names not identified by the registered trademark sign ® are registered trademarks of Siemens AG:

SCALANCE, SINEMA, KEY-PLUG, C-PLUG

Open source license conditions

Note

Open source software

Read the license conditions for open source software carefully before using the product.

You will find license conditions in the following documents on the supplied data medium:

- OSS_Scalance-M-800-S615_86.pdf

SIMATIC NET glossary

The SIMATIC NET glossary describes terms that may be used in this document.

You will find the SIMATIC NET glossary in the Siemens Industry Online Support at the following address:

50305045 (https://support.industry.siemens.com/cs/ww/en/view/50305045)

Table of contents

Safety notices

1

⚠ CAUTION

To prevent injury and damage, read the manual before using the device.

Read the safety notices

Note the following safety notices. These relate to the entire working life of the device.

You should also read the safety notices relating to handling in the individual sections, particularly in the sections "Installation" and "Connecting up".

⚠ WARNING

Hot surfaces

Electric devices have hot surfaces. Do not touch these surfaces. They could cause severe burns.

- Allow the device to cool down before starting any work on it.

⚠ WARNING

EXPLOSION HAZARD

Do not open the device when the supply voltage is turned on.

Security recommendations 2

2.1 Security recommendations

To prevent unauthorized access to the device and/or network, observe the following security recommendations.

Note

Note that GPS signals can be obfuscated or blocked by malicious third-party devices.

General

- Check the device regularly to ensure that these recommendations and/or other internal security policies are complied with.
- Evaluate the security of your location and use a cell protection concept with suitable products. For more information, refer to:
  Link: (https://www.siemens.com/industrialsecurity)
- When the internal and external network are disconnected, an attacker cannot access internal data from the outside. If possible, operate the device only within a protected network area.
- Use VPN to encrypt and authenticate communication from and to the devices.
- For data transmission via a non-secure network, use an encrypted VPN tunnel (IPsec, OpenVPN).
- Check the user documentation of other Siemens products that are used together with the device for additional security recommendations.
- Using remote logging, ensure that the system protocols are forwarded to a central logging server. Make sure that the server is within the protected network and check the protocols regularly for potential security violations or vulnerabilities.

Authentication

Note

Accessibility risk - Risk of data loss

Do not lose the passwords for the device. Access to the device can only be restored by resetting the device to factory settings which completely removes all configuration data.

- Replace the default passwords for all user accounts, access modes and applications (if applicable) before you use the device.
- Define rules for the assignment of passwords.

- Use passwords with a high password strength. Avoid weak passwords, (e.g. password1, 123456789, abcdefgh) or recurring characters (e.g. abcabc).
  This recommendation also applies to symmetrical passwords/keys configured on the device.
- Make sure that passwords are protected and only disclosed to authorized personnel.
- Do not use the same passwords for multiple user names and systems.
- Store the passwords in a safe location (not online) to have them available if they are lost.
- Regularly change your passwords to increase security.
- A password must be changed if it is known or suspected to be known by unauthorized persons.
- When user authentication is performed via RADIUS, make sure that all communication takes place within the security environment or is protected by a secure channel.
- Watch out for link layer protocols that do not offer their own authentication between endpoints, such as ARP or IPv4. An attacker could use vulnerabilities in these protocols to attack hosts, switches and routers connected to your layer 2 network, for example, through manipulation (poisoning) of the ARP caches of systems in the subnet and subsequent interception of the data traffic. Appropriate security measures must be taken for non-secure layer 2 protocols to prevent unauthorized access to the network. Physical access to the local network can be secured or secure, higher layer protocols can be used, among other things.

Certificates and keys

- There is a pre-installed Web server certificate (RSA, 2048 bit key length) and an SSH Private Key in the device. Replace this certificate with a user-generated, high-quality certificate with key. Use a certificate signed by a reliable external or internal certification authority. You can install the certificate in the WBM via "System > Load and Save".
- Use the certification authority including key revocation and management to sign the certificates.
- Use password-protected certificates in the format "PKCS #12".
- Use certificates with a key length of 4096 bits.
- Make sure that user-defined private keys are protected and inaccessible to unauthorized persons.
- If there is a suspected security violation, change all certificates and keys immediately.
- SSH and SSL keys are available for admin users. Make sure that you take appropriate security measures when shipping the device outside of the trusted environment:
  - Replace the SSH and SSL keys with disposable keys prior to shipping.
  - Decommission the existing SSH and SSL keys. Create and program new keys when the device is returned.
- Verify certificates based on the fingerprint on the server and client side to prevent "man in the middle" attacks. Use a second, secure transmission path for this.
- Before sending the device to Siemens for repair, replace the current certificates and keys with temporary disposable certificates and keys, which can be destroyed when the device is returned.

Physical/remote access

- If possible, operate the devices only within a protected network area. Attackers cannot access internal data from the outside when the internal and the external network are separate from each other.
- Limit physical access to the device exclusively to trusted personnel.
  The memory card or the PLUG (C-PLUG, KEY-PLUG, CLP) contains sensitive data such as certificates and keys that can be read out and modified. An attacker with control of the device's removable media could extract critical information such as certificates, keys, etc. or reprogram the media.
- Lock unused physical ports on the device. Unused ports can be used to gain forbidden access to the plant.
- We highly recommend that you keep the protection from brute force attacks (BFA) activated to prevent third parties from gaining access to the device. For more information, see the configuration manuals, section "Brute Force Prevention".
- If possible, use the VPN functionality to encrypt and authenticate communication for communication via non-secure networks.
- When you establish a secure connection to a server (for example for an upgrade), make sure that strong encryption methods and protocols are configured for the server.
- Terminate the management connections (e.g. HTTPS, SSH) properly.
- Make sure that the device has been powered down completely before you decommission it. For more information, refer to "Decommissioning (Page 6)".
- We recommend formatting a PLUG that is not being used.

Hardware / Software

- Use VLANs whenever possible as protection against denial-of-service (DoS) attacks and unauthorized access.
- Restrict access to the device by setting firewall rules or rules in an access control list (ACL).
- Selected services are enabled by default in the firmware. It is recommended to enable only the services that are absolutely necessary for your installation.
  For more information on available services, see "List of available services (Page 19)".
- To ensure you are using the most secure encryption methods available, use the latest web browser version compatible with the product. Also, the latest web browser versions of Mozilla Firefox, Google Chrome, and Microsoft Edge have 1/n-1 record splitting enabled, which reduces the risk of attacks such as SSL/TLS Protocol Initialization Vector Implementation Information Disclosure Vulnerability (for example, BEAST).
- Ensure that the latest firmware version is installed, including all security-related patches. You can find the latest information on security patches for Siemens products at the Industrial Security (https://www.siemens.com/industrialsecurity) or ProductCERT Security Advisories (https://www.siemens.com/cert/en/cert-security-advisories.htm) website.
  For updates on Siemens product security advisories, subscribe to the RSS feed on the ProductCERT Security Advisories website or follow @ProductCert on Twitter.
- Enable only those services that are used on the device, including physical ports. Free physical ports can potentially be used to gain access to the network behind the device.

- Use the authentication and encryption mechanisms of SNMPv3 if possible. Use strong passwords.
- Configuration files can be downloaded from the device. Ensure that configuration files are adequately protected.
  Configuration files can be password protected during download. You enter passwords on the WBM page "System > Load & Save > Passwords".
- When using SNMP (Simple Network Management Protocol):
  - Configure SNMP to generate a notification when authentication errors occur.
    For more information, see WBM "System > SNMP > Notifications".
  - Ensure that the default community strings are changed to unique values.
  - Use SNMPv3 whenever possible. SNMPv1 and SNMPv2c are considered non-secure and should only be used when absolutely necessary.
  - If possible, prevent write access.

Secure/ non-secure protocols

- Use secure protocols if access to the device is not prevented by physical protection measures.
- Restrict the use of non-secure protocols. While some protocols are secure (e.g. HTTPS, SSH, 802.1X, etc.), others were not designed for the purpose of securing applications (e.g. SNMPv1/v2c, RSTP, etc.).
  Therefore, take appropriate security measures against non-secure protocols to prevent unauthorized access to the device/network. Use non-secure protocols on the device using a secure connection (e.g. SINEMA RC).
- If non-secure protocols and services are required, ensure that the device is operated in a protected network area.
- Check whether use of the following protocols is necessary:
  - Telnet
  - HTTP
  - Broadcast pings
  - Non authenticated and unencrypted interfaces
  - ICMP (redirect)
  - LLDP
  - DHCP Options 66/67
  - SNTP
  - NTP
  - TFTP
  - TIA Portal Cloud Connector (not available with SCALANCE MUM85x)
  - VRRPv3
  - DNS
  - SNMPv1/V2c

- If a secure alternative is available for a protocol, use it.
  The following protocols provide secure alternatives:
  - SNMPv1/v2 → SNMPv3
    Check whether use of SNMPv1 is necessary. SNMPv1 is classified as non-secure. Use the option of preventing write access. The product provides you with suitable setting options. If SNMP is enabled, change the community names. If no unrestricted access is necessary, restrict access with SNMP.
  - HTTP → HTTPS
  - Telnet → SSH
  - NTP → Secure NTP
  - TFTP → SFTP
  - TIA Portal Cloud Connector using a secure connection. Use the "TIA Portal Cloud Connector" integrated in the product over a VPN solution (e.g. SINEMA RC).
    Configure the firewall settings of the SCALANCE M800/S615 (e.g. predefined IPv4 rules "Cloud Connector" to prevent unauthorized access of network devices to the "TIA Portal Cloud Connector Server").
- Using a firewall, restrict the services and protocols available to the outside to a minimum.
- For the DCP function, enable the "Read Only" mode after commissioning.

2.2 Available services

List of available services

The following is a list of all available protocols and services as well as their ports through which the device can be accessed.

The table includes the following columns:

- **Service**
  The services that the device supports.
- **Protocol / Port number**
  Port number assigned to the protocol.
- **Default port status**
  The port status on delivery (factory setting) distinguishes between local and external access.
  - Local access: The port is accessed via a local connection (vlan1).
  - External access: The port is accessed via an external connection (vlan2).
- **Configurable port/service**
  Indicates whether the port number or the service can be configured via WBM / CLI.
- **Authentication**
  Specifies whether an authentication of the communication partner takes place or whether an authentication can be configured.
- **Encryption**
  Specifies whether the transfer is encrypted or whether the encryption can be configured.

Service	Protocol/ Port number	Default port status		Configurable		Authentication	Encryption [2]
		Local access	External access [1]	Port	Service		
DHCPv4 Client	UDP/68	Closed [3]	Closed	--	✓	--	--
DHCPv6 Client	TCP/546 UDP/546	Open	Open	--	--	--	--
DHCPv4-Server	UDP/67	Closed	Closed [4]	--	✓	--	--
DNS Client	TCP/53 UDP/53	Outgoing only	Outgoing only	--	✓	--	--
DNS Server	TCP/53 UDP/53	Open [5]	Closed	--	✓	--	--
DynDNS	TCP/80 UDP/80 TCP/443 UDP/443	Outgoing only	Outgoing only	--	✓	✓	--
HTTP	TCP/80	Open	Closed	✓	✓	✓	--
HTTP Proxy	TCP/3128 TCP/8080	Outgoing only	Outgoing only	✓	✓	Optional	--
HTTPS WBM Server/Client	TCP/443	Open	Closed	✓	✓	✓	✓
IPsec/IKE	UDP/500 UDP/4500	Closed	Closed	--	✓	✓	✓
NTP Client	UDP/123	Outgoing only	Outgoing only	✓	✓	--	--
NTP Client (secure)	UDP/123	Outgoing only	Outgoing only	✓	✓	✓	--
NTP Server	UDP/123	Closed	Closed	✓	✓	--	--
NTP Server (secure)	UDP/123	Closed	Closed	✓	✓	✓	--
OpenVPN	UDP/1194 TCP/1194	Outgoing only	Outgoing only	✓	✓	✓	✓
Ping	ICMP	Open	Closed	--	✓	--	--
PROFINET	UDP/34964 UDP/49154 UDP/49155	Open	Closed	--	✓	--	--
RADIUS Client	UDP/1812	Closed	Closed	✓	✓	✓	Optional
	UDP/1813						--
SFTP Server	TCP/22	Outgoing only	Outgoing only	✓	✓	✓	✓
Siemens Remote Service (cRSP/ SRS)	TCP/443	Outgoing only	Outgoing only	--	✓	Optional	✓

Service	Protocol/ Port number	Default port status		Configurable		Authentication	Encryption [2]
		Local access	External access [1]	Port	Service		
SINEMA RC	HTTPS/443 and TCP/UDP depending on the server configuration	Outgoing only	Outgoing only	✓	✓	✓	✓
SMTP Client	TCP/25	Outgoing only	Outgoing only	✓	✓	--	--
SMTP (secure)	TCP/465 TCP/587	Outgoing only	Outgoing only	✓	✓	Optional	✓
SNMPv1/v2c	UDP/161	Open	Closed	✓	✓	--	--
SNMPv3 Server	UDP/161	Open	Closed	✓	✓	Optional	Optional
SNMP Trap	UDP/161	Open	Closed	✓	✓	Optional	Optional
SNTP Client	UDP/123	Closed	Closed	✓	✓	--	--
SSH CLI	TCP/22	Open	Closed	✓	✓	✓	✓
Syslog Client	UDP/514	Outgoing only	Outgoing only	✓	✓	--	--
Syslog Client TLS	TCP/6514	Outgoing only	Outgoing only	✓	✓	--	✓
Telnet	TCP/23	Closed	Closed	✓	✓	✓	--
TFTP	UDP/69	Outgoing only	Outgoing only	✓	✓	--	--
TIA Portal Cloud Connector [6]	TCP/9023	Closed	Closed	✓	✓	--	--
TCP Event	TCP/26864	Closed	Closed	✓	✓	--	--
SMS Relay [7]	TCP/26864	Closed	Closed	✓	✓	--	--
VXLAN [8]	UDP/4789	Closed	Closed	✓	✓	--	--

[1] With SCALANCE M826 and M804PB, only access via vlan1 is possible in the delivery state (factory setting).

[2] You can find additional information on the encryption methods used in the WBM appendix "Ciphers used".

[3] Only open with SCALANCE M826

[4] Only open with SCALANCE S615

[5] Only closed with SCALANCE S615

[6] Not available with SCALANCE MUM85x

[7] Only available with the SCALANCE M87x and MUM85x

[8] Only available with SCALANCE MUM85x

The following is a list of all available Layer 2 services through which the device can be accessed.

The table includes the following columns:

- **Layer 2 service**
  The Layer 2 services that the device supports**.**
- **Default status**
  The default status of the service (open or closed).
- **Service configurable**
  Indicates whether the service can be configured via WBM / CLI.

Layer 2 service	Default status	Configurable
DCP	Open (when configured)	✓
LLDP	Open (when configured)	✓
SIMATIC NET TIME	Open (when configured)	✓
VLAN	Open (when configured)	✓
VXLAN [1)]	Open (when configured)	✓

[1)] Only with SCALANCE MUM85x

Description of the device

3

3.1 Product characteristics

Interfaces

Functionality	SCALANCE M874-2 SCALANCE M874-3	SCALANCE M876-3 SCALANCE M876-4
Connectors for external antennas	1 SMA antenna connector	2 SMA antenna connectors
Ethernet interface	2 x RJ45 10 / 100 Mbps	4 x RJ45 10 / 100 Mbps
Digital input/output	1/1	1/1

Using the device in a PROFINET environment

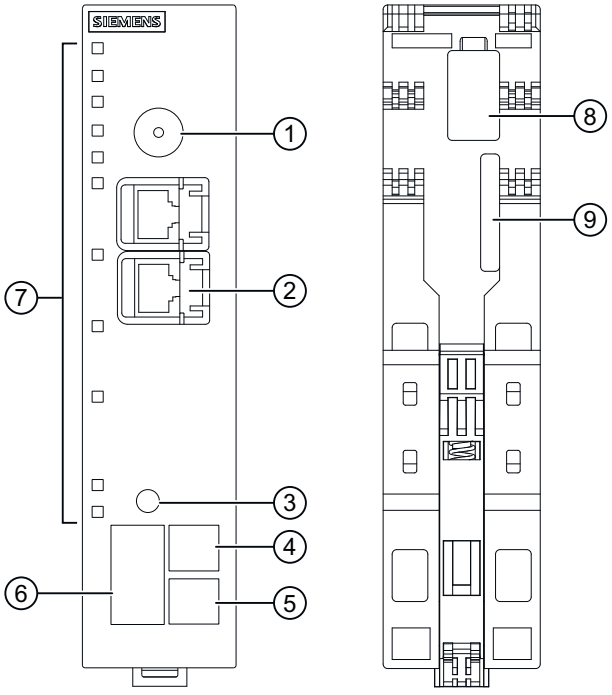
Note

When using the device in a PROFINET environment, follow the configuration instructions in the configuration manuals:

- Web Based Management: Description > Requirements for operation > Use in a PROFINET environment
- Command Line Interface: General > Use in a PROFINET environment

3.2 Device views

3.2.1 SCALANCE M874



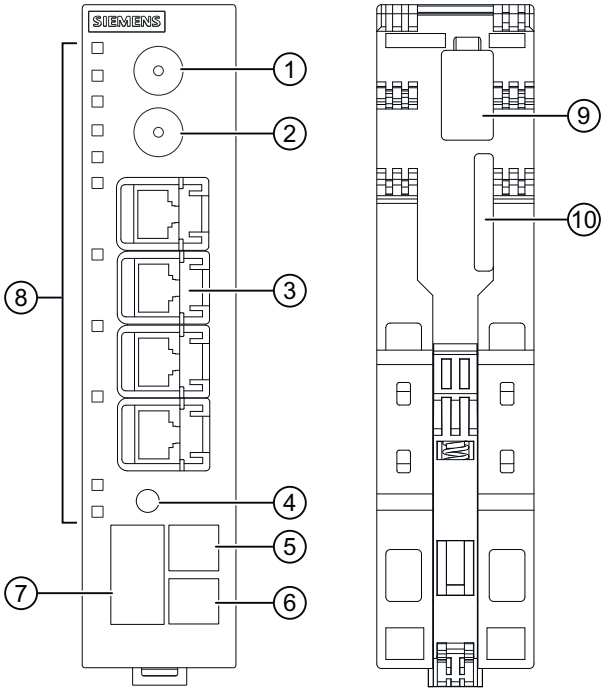
On the device front:

① Antenna connector A1, type SMA female
② Ethernet connectors (P1, P2)
③ SET button
④ Digital input (DI)
⑤ Digital output (DO)
⑥ Power supply connection
⑦ LED display

On the device rear:

⑧ PLUG slot
⑨ Slot for the mini SIM card 2FF

3.2.2 SCALANCE M876



On the device front:

① Antenna connector A2, type SMA female
② Antenna connector A1, type SMA female
③ Ethernet connectors (P1, P2, P3, P4)
④ SET button
⑤ Digital input (DI)
⑥ Digital output (DO)
⑦ Power supply connection
⑧ LED display

On the device rear:

⑨ PLUG slot
⑩ Slot for the mini SIM card 2FF

3.3 Scope of delivery

The following components ship with the product:

- One SCALANCE M device
- A 5-pin terminal block for the power supply
- A 2-pin terminal block for the digital output
- A 2-pin terminal block for the digital input
- A product DVD

Please check that the consignment you have received is complete. If the consignment is incomplete, contact your supplier or your local Siemens office.

Note

Not included with the product

The following components do not ship with the product:

- KEY-PLUG / C-PLUG
  You will find more detailed information in "PLUG (Page 27)".
- Antennas
  You will find more detailed information in "Accessories (Page 29)".
- Mini SIM card
  Use the 2FF SIM card from the chosen mobile wireless provider.

Unpacking and checking

WARNING

Do not use any parts that show evidence of damage

If you use damaged parts, there is no guarantee that the device will function according to the specification.

If you use damaged parts, this can lead to the following problems:

- Injury to persons
- Loss of the approvals
- Violation of the EMC regulations

Use only undamaged parts.

1. Make sure that the package is complete.
2. Check all the parts for transport damage.

3.4 Accessories

Technical data subject to change.

You will find further information on the range of accessories in the Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10022025)

Use the TIA Selection Tool (https://mall.industry.siemens.com/tst/) for configuring the device.

3.4.1 Installation

Type	Properties	Article number
19" mounting frame	SCALANCE M-800 19" mounting frame for installation in 19" rack	6GK5898-8MR00
Desktop pedestal	SCALANCE M-800 desktop pedestal for table mounting for SCALANCE M812 / M816 / M874-X / M876-X / S615	6GK5898-8MD00

3.4.2 PLUG

Type	Properties	Article number
C-PLUG	Removable data storage medium (256 MB) for the configuration data	6GK1900-0AB10
KEY-PLUG SINEMA RC	Removable data storage medium (256 MB) to enable the connection functionality to SINEMA Remote Connect and for storing configuration data	6GK5908-0PB00

3.4.3 Flexible connecting cables, antennas and accessories

3.4.3.1 Flexible connecting cables

Type	Properties	Article number
SIMATIC NET CABLE N-Connect/SMA	Flexible connecting cable SCALANCE M antenna, pre-assembled, various lengths	
	0.3 meters	6XV1875-5LE30
	1 meter	6XV1875-5LH10
	2 meters	6XV1875-5LH20
	5 meters	6XV1875-5LH50
	Flexible connecting cable SCALANCE M antenna, preassembled, various lengths, railway applications.	
	1 meter	6XV1875-5UH10
	2 meters	6XV1875-5UH20
	5 meters	6XV1875-5UH50

Type	Properties	Article number
SIMATIC NET N-Connect Male/Male	Flexible connecting cable, e.g. for connecting antennas, suitable for IWLAN and mobile wireless, different lengths	
	1 meter	6XV1875-5AH10
	2 meters	6XV1875-5AH20
	5 meters	6XV1875-5AH50
	5 meters	6XV1875-5AH50
	10 meters	6XV1875-5AN10
	Flexible connecting cable, e.g. for connecting antennas, suitable for IWLAN and mobile wireless, different lengths, railroad applications	
	1 meter	6XV1875-5SH10
	2 meters	6XV1875-5SH20
	5 meters	6XV1875-5SH50

3.4.3.2 Antennas

Type	Properties	Article number
ANT794-4MR	Omnidirectional antenna for GSM (2G), UMTS (3G) and LTE (4G); weatherproof for indoor and outdoor areas; 5 m connecting cable connected permanently to the antenna; SMA connector, including installation bracket, screws, wall plugs	6NH9860-1AA00
ANT896-4MA	IRC antenna for GSM (2G), UMTS (3G) and LTE (4G) networks, omnidirectional characteristic, radial swiveling, with additional joint, antenna gain: 2 dBi, incl. SMA connector, IP54, (-40 to +85 °C), observe national approvals, for direct mounting with SMA connection system	6GK5896-4MA00-0AA3
ANT896-4ME	IRC antenna for GSM (2G), UMTS (3G) and LTE (4G) networks, omnidirectional characteristic incl. N-female connector: 3 dBi; IP66 (-40 to +70 °C), observe national approvals; mounting on control cabinet	6GK5896-4ME00-0AA0
ANT896-6MH	Mobile wireless antenna for GSM (2G), UMTS (3G) and LTE (4G) networks, suitable for railroad applications, omnidirectional characteristic incl. N-female connector; 5/6 dBi; IP69K (-40 to +85 °C), observe national approvals; mounting on vehicle roof	6GK5896-6MH00-0AA0

Type	Properties	Article number
ANT897-4MA	Mobile wireless antenna with omnidirectional characteristic for public and private LTE 4G/5G mobile wireless networks worldwide; 600 ... 5000 MHz; antenna gain: 1 ... 2 dBi, incl. SMA connector (male); IP65, -20 ... +65 °C, for direct mounting on SCALANCE devices with SMA connection system	6GK5897-4MA00-0AA3
ANT897-4ME	Antenna for public 3/4/5G mobile wireless networks and private 5G networks worldwide; omnidirectional characteristic; 600...6000 MHz; antenna gain: 2...6 dBi, incl. N-Connect female connector, IP65; -40..+85°C; observe national approvals; mounting on wall or mast	6GK5897-4ME00-0AA0

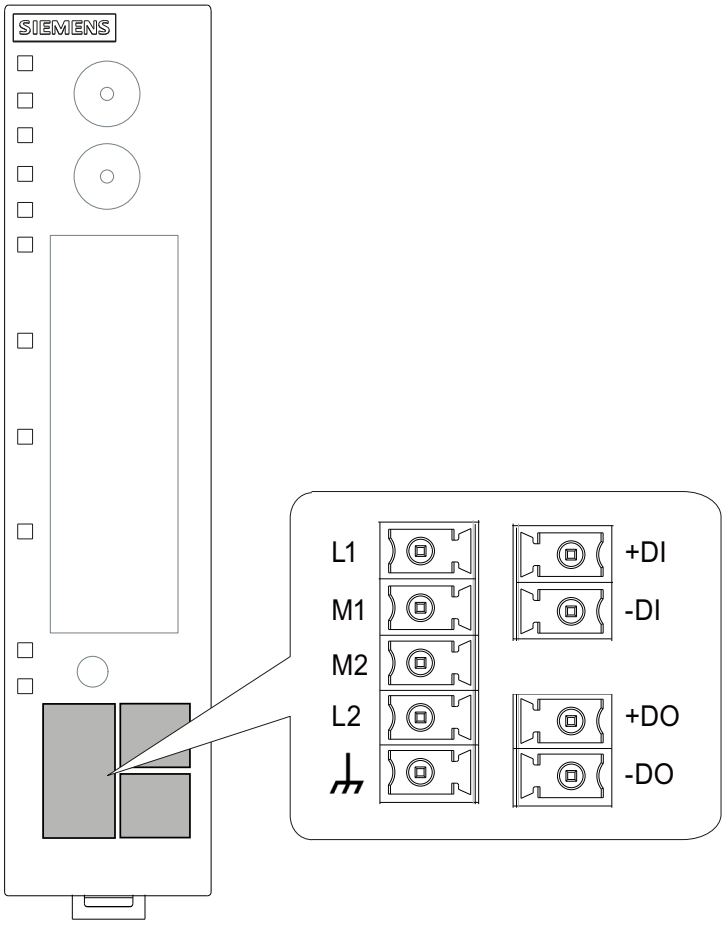
3.4.3.3 Accessories

Type	Properties	Article number
SIMATIC NET Lightning Protector LP798-1N	Lightning protection element with N-Connect/N-Connect female/female connector, IP65 (-40 to +100 °C), 0 ... 6 GHz, with gas discharge technology for SCALANCE W and M antennas	6GK5798-2LP00-2AA6
SIMATIC NET Panel Feedthrough N-Connect/ N-Connect Female/ Female	Cabinet bushing for wall thickness of maximum 4.5 mm, 2.4/5 GHz	6GK5798-2PP00-2AA6
SIMATIC NET Winkeladapter SMA/SMA Male/ Female	Angled adapter with two connectors SMA male and SMA female. This adapter simplifies the mounting of an antenna connecting cable on a SCALANCE M and allows, for example, a space-saving infeed from above or below	6GK5898-1CV00-4AA0

3.5 Terminals

Position

The device has a 5-pin plug-in terminal block for the power supply and two 2-pin plug-in terminal blocks for the digital input and output.



Connectors and terminal markings

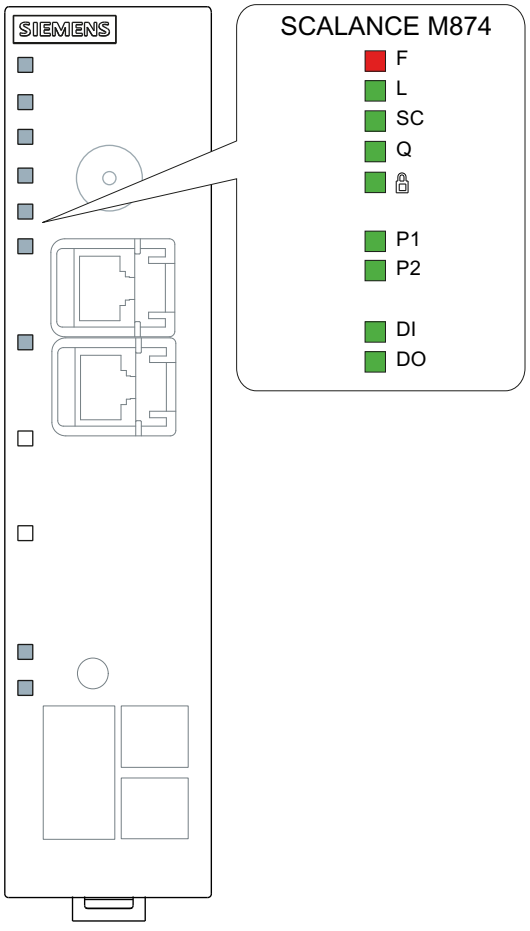
L1, M1, L2, M2	Input for the power supply	Terminal block with five terminal connectors
⏚	Functional grounding	
+DI, -DI	Digital input	Terminal block with two terminal connectors
+DO, -DO	Digital output	Terminal block with two terminal connectors

Terminals and wiring

Connectors	+DI, -DI /+D0, -DO	L1, M1, L2, M2
AWG	28 AWG	16 AWG
Wire end ferrule without plastic collar to DIN 46228/1	0.2 mm^2	1.5 mm^2
Wire end ferrule with plastic collar to DIN 46228/4	0.2 mm^2	1.5 mm^2
Stripped length	7 mm	7 mm

3.6 LED display

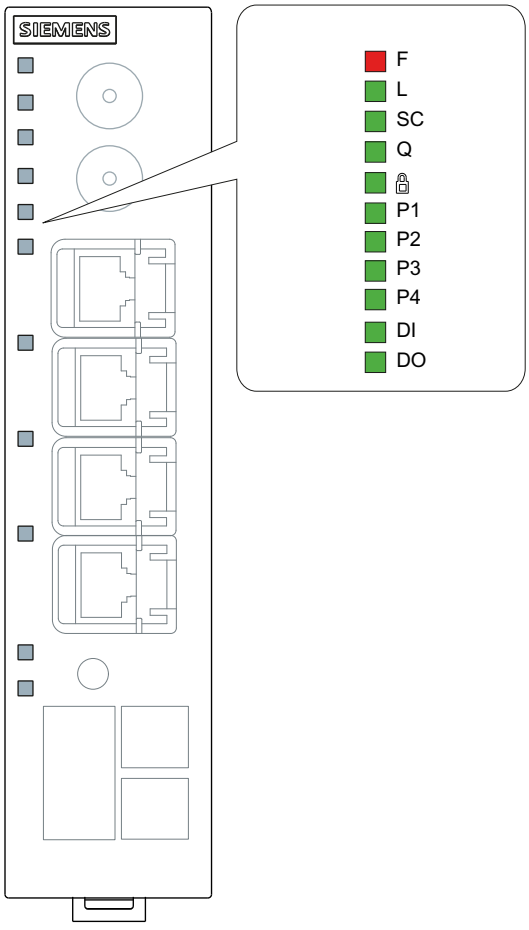
3.6.1 SCALANCE M874



LED	Status	Meaning
F	OFF 	No fault/error.
	ON 	The device is starting up or an error has occurred. Possible errors/faults: • Wrong PIN number • The inserted PLUG has an invalid or incompatible configuration.
	Flashing 	The bootloader waits in this state for a new firmware file that you can download using TFTP.
	Flashing  at the interval: 2000 ms on / 200 ms off	Firmware on PLUG The device is performing a firmware update or downgrade.
L	OFF 	Device turned off, no power supply.
	ON 	Device turned on, power supply present.
SC	OFF 	SIM card OK, no connection.
	ON 	Wrong PIN number / SIM card error.
	ON 	Connection established.
Q	OFF 	No reception or mobile wireless disabled Signal strength: < -109 dBm
	Flashing 	Signal strength bad: -89 dBm to -109 dBm
	On 	Signal strength medium: -73 dBm to -89 dBm
	ON 	Signal strength good: > -73 dBm

LED	Status	Meaning
🔒	OFF	No VPN connection is established.
	ON	All configured VPN connections are established.
	Flashing 	Only some of the configured VPN connections are established.
P1/P2	OFF	Ethernet connection to local computer or LAN not established.
	ON	Ethernet connection to local computer or LAN established.
	ON	Device receiving/sending data.
DI	OFF	Digital input inactive.
	ON	Digital input active.
DO	OFF	Digital output inactive.
	ON	Digital output active.

3.6.2 SCALANCE M876



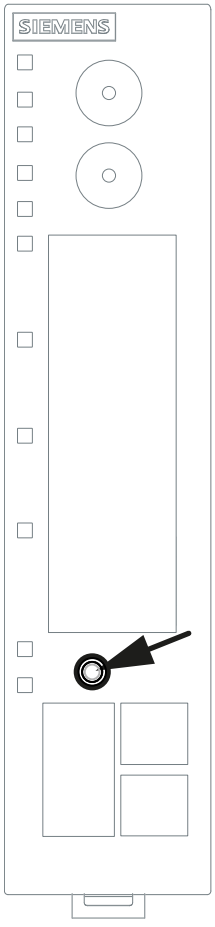
LED	Status	Meaning
F	OFF 	No fault/error.
	ON 	The device is starting up or an error has occurred. Possible errors/faults: • Wrong PIN number • The inserted PLUG has an invalid or incompatible configuration.
	Flashing 	The bootloader waits in this state for a new firmware file that you can download using TFTP.
	Flashing  at the interval: 2000 ms on / 200 ms off	Firmware on PLUG The device is performing a firmware update or downgrade.
L	OFF 	Device turned off, no power supply.
	ON 	Device turned on, power supply present.
SC	OFF 	SIM card OK, no connection.
	ON 	Wrong PIN number / SIM card error
	ON 	Connection established.
Q	OFF 	No reception or mobile wireless disabled Signal strength: < -109 dBm
	Flashing 	Signal strength bad: -89 dBm to -109 dBm
	On 	Signal strength medium: -73 dBm to -89 dBm
	ON 	Signal strength good: > -73 dBm

LED	Status	Meaning
🔒	OFF 	No VPN connection is established.
	ON 	All configured VPN connections are established.
	Flashing 	Only some of the configured VPN connections are established.
P1 P2 P3 P4	OFF 	Ethernet connection to local computer or LAN not established.
	ON 	Ethernet connection to local computer or LAN established.
	ON 	Device receiving/sending data.
DI	OFF 	Digital input inactive.
	ON 	Digital input active.
DO	OFF 	Digital output inactive.
	ON 	Digital output active.

3.7 SET button

Position

The SET button is on the front of the device beside the LED display.



Function

The SET button has the following functions:

- **Restarting the device**
  To restart the device, press the SET button briefly.

  Note

  If you make changes to the configuration and restart immediately afterwards with the SET button, the changes may be lost. If you restart the device using the WBM (menu command "System > Restart") or using the CLI (command "restart" in the Privileged EXEC Modus), the configuration changes are always retained.

- **Loading a firmware file via TFTP**
  If the normal procedure with the "Load & Save" menu of Web Based Management is unsuccessful, the SET button can be used to load new firmware. This situation can occur if there is a power outage during the normal firmware update.
  - Hold down the button until the red fault LED (F) starts to flash after approximately 3 seconds.
  - Now release the button. The bootloader waits in this state for a new firmware file that you can download using TFTP.

  You will find more information in the section "Service and Maintenance" in the SCALANCE M-800 Web Based Management configuration manual.

- **Resetting the device to factory settings**
  If you reset, all the settings you have made will be overwritten by factory defaults. If a PLUG is inserted in the device, the PLUG is also reset to default settings.
  - Hold down the button until the red fault LED (F) stops flashing after approximately 10 seconds and is permanently lit.
  - Now release the button and wait until the fault LED (F) goes off again. The device then starts automatically with the factory settings and can be reached via the IP address 192.168.1.1.

  You will find more information in the section "Service and Maintenance" in the SCALANCE M-800 Web Based Management configuration manual.

NOTICE
Inadvertent reset An inadvertent reset can cause disturbances and failures in a configured network with further consequences.

3.8 PLUG

The PLUG is a removable medium and is used to transfer the configuration of the old device to the new device when a device is replaced.

The following PLUG types are available:

- C-PLUG: The removable data storage medium only saves the configuration data of the device.
- KEY-PLUG: In addition to the configuration data, the removable data storage medium contains a license with which specific functions can be enabled, e.g. SINEMA RC.
- CLP (Configuration License PLUG)
  The SCALANCE CLP is a removable data storage medium for the storage and securing of configuration data that can be used in all SCALANCE devices with CLP slot, e.g. SCALANCE MUM85x. The SCALANCE CLP is used to transfer the configuration of the old device to the new device when a device is replaced. The CLP is a successor to the previously described PLUGs. The CLP is also referred to as PLUG in the description. The PLUG is available in the following variants:
  - PLUG Configuration
  - PLUG License

Position

The PLUG slot is located on the back of the device, see the Device views (Page 24) section in the Operating Instructions of the device.

Function

Devices with a PLUG slot support the following operating modes:

- **Without PLUG**
  The device saves the configuration data in the internal memory. This mode is active when no PLUG is inserted.
- **With PLUG**
  In the startup phase:
  - If an **empty** PLUG (as supplied) is inserted in the device, the device automatically backs up the configuration data on the PLUG during startup. After that, it behaves like a PLUG with data.
  - When a PLUG **with data** is plugged into a device, the device automatically adopts the configuration of the PLUG during the startup phase. The prerequisite for this is that the configuration data was written by a compatible device type.
    One exception to this can be the IP configuration if it is set using DHCP and the DHCP server has not been reconfigured accordingly. Reconfiguration is necessary if you use functions based on MAC addresses.
  - If the PLUG contains a license, additional functions are also enabled.

    Note

    If the device was configured at some time with a KEY-PLUG or PLUG license, the device can no longer be used without this PLUG. To be able to use the device again, reset the device to the factory settings.

  During operation:
  - During operation, changes to the configuration are saved on the PLUG and in the internal memory.
  - The configuration data of the device is stored in a secured memory area of the PLUG. This secured memory area can only be accessed via the authentication of the Siemens device.
  - The device checks whether or not a PLUG is inserted at one second intervals. If the device detects that the PLUG has been removed, it restarts automatically.

NOTICE
Operating risk - Danger of data loss Only pull and plug the PLUG when the device is de-energized.

  - The device signals deviations from normal operation of the PLUG (e.g., incompatible data, incorrect operation or malfunctions) via the existing diagnostic mechanisms (e.g., LEDs or user interfaces). The user then has the choice of either removing the PLUG again or selecting the option to reformat the PLUG.

The procedure for pulling and plugging the PLUG can be found in the section "Replacing the PLUG" in the operating instructions for the device.

See also

Replacing the PLUG (Page 68)

Installation and removal

4

4.1 Safety notices for installation

Safety notices

When installing the device, keep to the safety notices listed below.

NOTICE

Improper mounting

Improper mounting may damage the device or impair its operation.

- Before mounting the device, always ensure that there is no visible damage to the device.
- Mount the device using suitable tools. Observe the information in the respective section about mounting.

WARNING

Improper disassembly

Improper disassembly may result in a risk of explosion in hazardous areas.

For proper disassembly, observe the following:

- Before starting work, ensure that the electricity is switched off.
- Secure remaining connections so that no damage can occur as a result of disassembly if the system is accidentally started up.

WARNING

If a device is operated in an ambient temperature of more than 50 °C, the temperature of the device housing may be higher than 70 °C. The device must therefore be installed so that it is only accessible to service personnel or users that are aware of the reason for restricted access and the required safety measures at an ambient temperature higher than 50 °C.

WARNING

The device is intended for indoor use only.

WARNING

If the device is installed in a cabinet, the inner temperature of the cabinet corresponds to the ambient temperature of the device.

Safety notices on use in hazardous areas

General safety notices relating to protection against explosion

⚠ WARNING

EXPLOSION HAZARD

Replacing components may impair suitability for Class 1, Division 2 or Zone 2.

⚠ WARNING

When used in hazardous environments corresponding to Class I, Division 2 or Class I, Zone 2, the device must be installed in a cabinet or a suitable enclosure.

⚠ WARNING

The device may only be operated in an environment of contamination class 1 or 2 (see EN/IEC 60664-1, GB/T 16935.1).

Notes for use in hazardous locations according to ATEX, IECEx, UKEX and CCC Ex

If you use the device under ATEX, IECEx, UKEX or CCC Ex conditions you must also keep to the following safety instructions in addition to the general safety instructions for protection against explosion:

⚠ WARNING

To comply with EU Directive 2014/34 EU (ATEX 114), UK-Regulation SI 2016/1107 or the conditions of IECEx or CCC-Ex, the housing or cabinet must meet the requirements of at least IP54 (according to EN/IEC 60529, GB/T 4208) in compliance with EN IEC/IEC 60079-7, GB 3836.8.

Safety notices when using according to FM

If you use the device under FM conditions you must also keep to the following safety notices in addition to the general safety notices for protection against explosion:

⚠ WARNING

EXPLOSION HAZARD

The equipment is intended to be installed within an enclosure/control cabinet. The inner service temperature of the enclosure/control cabinet corresponds to the ambient temperature of the module. Use cables with a maximum permitted operating temperature of at least 20 °C higher than the maximum ambient temperature.

WARNING

Wall mounting is only permitted if the requirements for the housing, the installation regulations, the clearance and separating regulations for the control cabinets or housings are adhered to. The control cabinet cover or housing must be secured so that it can only be opened with a tool. An appropriate strain-relief assembly for the cable must be used.

WARNING

Wall mounting outside of the control cabinet or housing does not fulfill the requirements of the FM approval.

Note

You must not install the device on a wall in hazardous areas.

Safety notices when using the device as industrial control equipment according to UL 61010-2-201

If you use the device under UL 61010-2-201 conditions you must also keep to the following safety notices in addition to the general safety notices for protection against explosion:

WARNING

Open equipment

The devices are "open equipment" according to the standard IEC 61010-2-201 or UL 61010-2-201 / CSA C22.2 No. 61010-2-201. To fulfill requirements for safe operation with regard to mechanical stability, flame retardation, stability, and protection against contact, the following alternative types of installation are specified:

- Installation in a suitable cabinet.
- Installation in a suitable enclosure.
- Installation in a suitably equipped, enclosed control room.

WARNING

If the temperature at the cable or housing socket or at the branching points of the cables exceeds 60 °C, special precautions must be taken. If the equipment is operated at ambient temperatures in excess of 40 °C, only use cables with permitted operating temperature of at least 80 °C.

4.2 Securing the housing

Types of installation

For the device, you have the following options:

- Wall mounting (no ceiling mounting)
- Installation on a DIN rail
- Installation on the S7-300 mounting rail
- Installation on the S7-1500 mounting rail
- Installation in a 19" mounting frame
- Installation on a desktop pedestal

Strain relief for the cables

Regardless of the type of installation, make sure that there is suitable strain relief for the connecting cables.

Shielding of cables

If cables are installed permanently, it is advisable to remove the insulation of the shielded cables and to establish contact on the shield/PE conductor bar.

Permitted mounting position

- Vertical mounting position (ventilation openings at the top and bottom)
- Horizontal mounting position (ventilation openings to the right and left)

You can find information about the ambient temperature under Permitted ambient conditions. (Page 75)

Keep to the minimum clearances to other components or to walls of a housing so that the convection ventilation of the device is not blocked.

- Below at least 10 cm
- Above at least 10 cm
- M876-3
  - At an ambient temperature up to 60° C, a clearance of 5 cm must be maintained between the sides and adjacent devices.
- M876-4
  - At an ambient temperature up to 60° C, a clearance of 5 cm must be maintained between the sides and adjacent devices.
  - Only permitted in the "LTE only" mode:
    At an ambient temperature OF 60 °C to 70 °C, a convection with an air speed of 0.5 m/s must be must pass through the device.

4.3 Wall mounting

Note

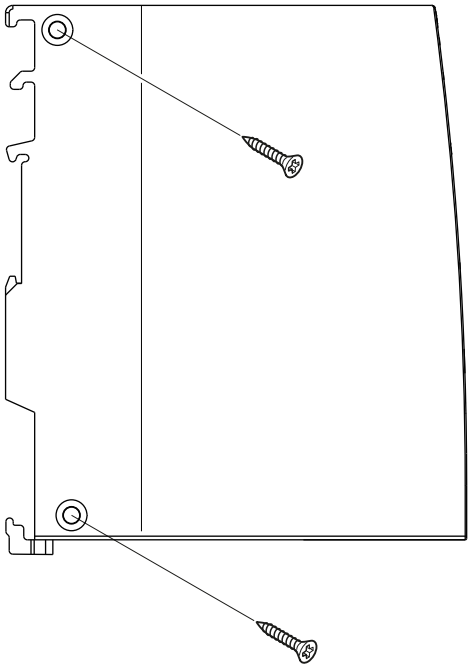
The wall mounting must be capable of supporting four times the weight of the device, but at least 50 N. For information on the weight, refer to the section "Technical specifications (Page 75)".

Requirement

There is a mini SIM card for the device.

Installation

1. Insert the SIM card, refer to the section "SIM card (Page 67)".
2. Prepare the drill holes for wall mounting. For the precise dimensions, refer to the section "Dimension drawings (Page 101)".
3. Secure the device to the wall with two screws. When mounting on a wall, use mounting fittings suitable for the type of wall.



1. Connect the power supply, refer to the section "Power supply (Page 59)".
2. Fit the connectors for the digital input and digital output, refer to the section "Digital input/ output (Page 61)".
3. Connect the antenna, refer to the section "Antennas (Page 63)".

4. Connect the device to the local network, refer to the section "Ethernet port (Page 66)".
5. Connect the terminal with as short a cable as possible ≤ 150 mm and a large cross-sectional area ≥ 1.5 mm² to the functional ground of the system, refer to the section "Grounding (Page 60)" and section "Terminals (Page 30)".

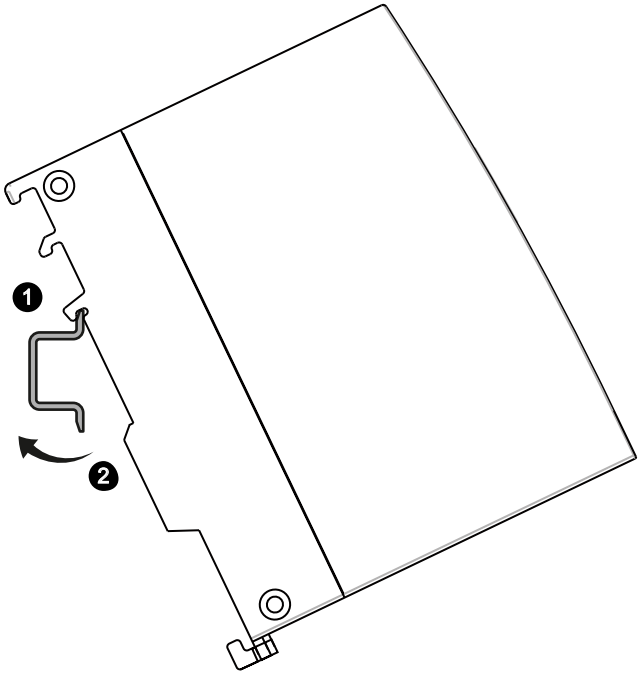
4.4 Installation on the DIN rail

Requirement

There is a mini SIM card for the device.

Installation

1. Insert the SIM card, refer to the section "SIM card (Page 67)".
2. Place the third housing guide of the device on the top edge of the DIN rail ①.



3. Press the device down against the DIN rail until the spring catch locks into place ②.
4. Connect the power supply, refer to the section "Power supply (Page 59)".
5. Fit the connectors for the digital input and digital output, refer to the section "Digital input/ output (Page 61)".
6. Connect the antenna, refer to the section "Antennas (Page 63)".
7. Connect the device to the local network, refer to the section "Ethernet port (Page 66)".
8. Connect the terminal with as short a cable as possible ≤ 150 mm and a large cross-sectional area ≥ 1.5 mm² to the functional ground of the system, refer to the section "Grounding (Page 60)" and section "Terminals (Page 30)".

Uninstalling

1. Disconnect all connected cables.
2. Using a screwdriver, pull down the catch on the rear of the device.
3. Pull lower part of the device away from the DIN rail.

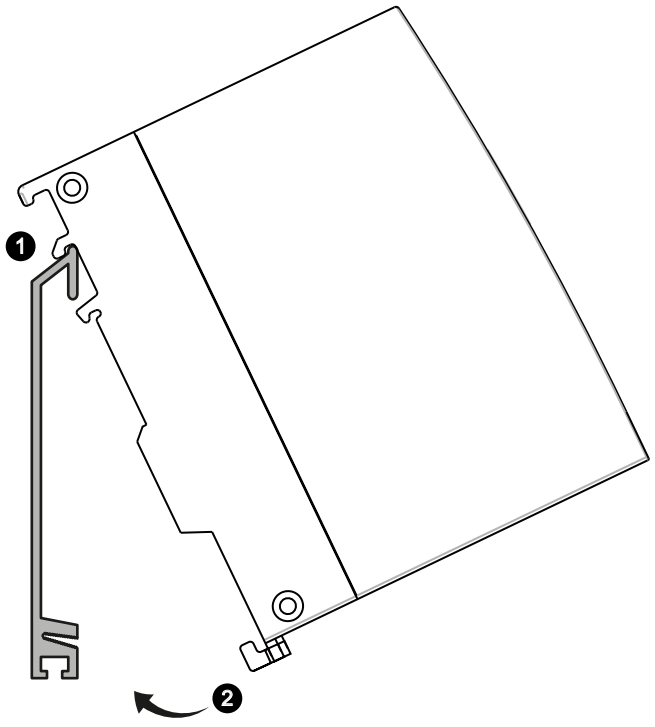
4.5 Installing on the S7-300 standard rail

Requirement

There is a mini SIM card for the device.

Installation

1. Insert the SIM card, refer to the section "SIM card (Page 67)".
2. Place the second housing guide of the device on the top edge of the mounting rail ①.



3. Press the device down against the mounting rail until the spring catch locks into place ②.
4. Connect the power supply, refer to the section "Power supply (Page 59)".
5. Fit the connectors for the digital input and digital output, refer to the section "Digital input/output (Page 61)".
6. Connect the antenna, refer to the section "Antennas (Page 63)".

7. Connect the device to the local network, refer to the section "Ethernet port (Page 66)".
8. Connect the terminal with as short a cable as possible ≤ 150 mm and a large cross-sectional area ≥ 1.5 mm² to the functional ground of the system, refer to the section "Grounding (Page 60)" and section "Terminals (Page 30)".

Uninstalling

1. Disconnect all connected cables.
2. Using a screwdriver, pull down the catch on the rear of the device.
3. Remove the device from the mounting rail.

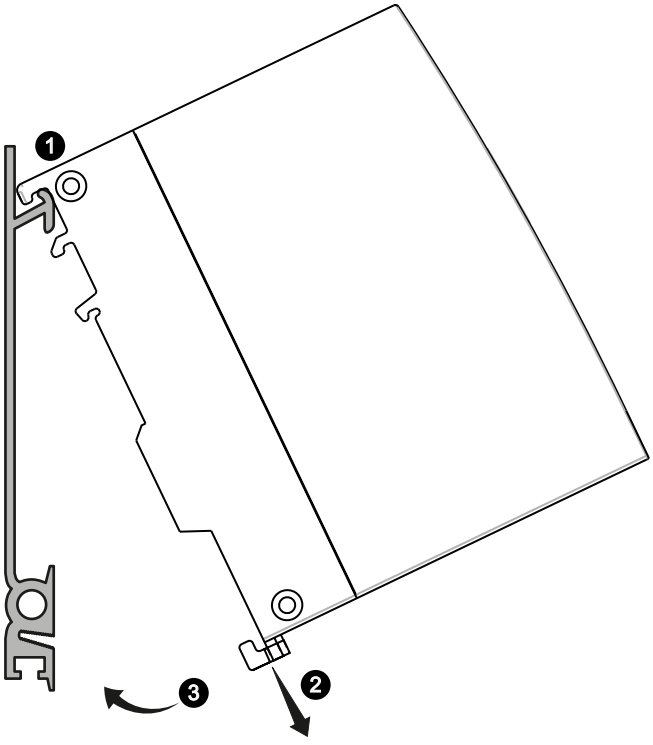
4.6 Installing on the S7-1500 standard rail

Requirement

There is a mini SIM card for the device.

Installation

1. Insert the SIM card, refer to the section "SIM card (Page 67)".
2. Place the first housing guide of the device on the top edge of the mounting rail ①.



3. Using a screwdriver, pull down the catch ② on the rear of the device.

4. Swing the device down while pulling down the catch ③. After it is released, the spring catch locks in place.
5. Connect the power supply, refer to the section "Power supply (Page 59)".
6. Fit the connectors for the digital input and digital output, refer to the section "Digital input/ output (Page 61)".
7. Connect the antenna, refer to the section "Antennas (Page 63)".
8. Connect the device to the local network, refer to the section "Ethernet port (Page 66)".
9. Connect the terminal with as short a cable as possible ≤ 150 mm and a large cross-sectional area ≥ 1.5 mm^2 to the functional ground of the system, refer to the section "Grounding (Page 60)" and section "Terminals (Page 30)".

Uninstalling

1. Disconnect all connected cables.
2. Using a screwdriver, pull down the catch on the rear of the device.
3. Remove the device from the mounting rail.

4.7 Installation in a 19" mounting frame

The 19" mounting frame is for installation of 2 SCALANCE M devices in a 19" rack.

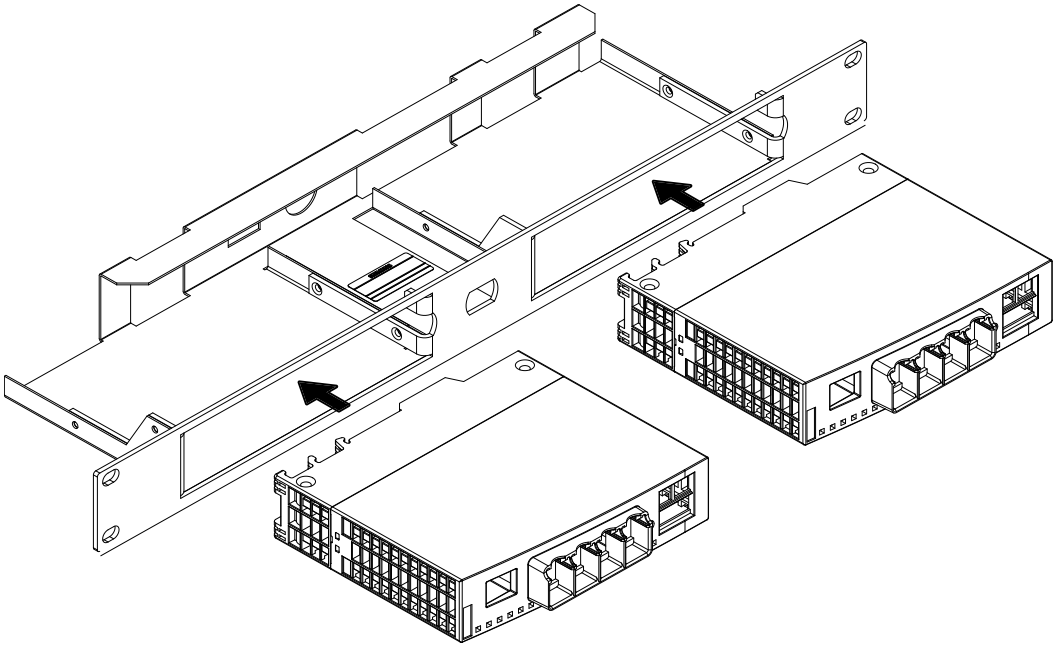
NOTICE
Approvals Installation in a 19" mounting frame does not meet the requirements of the approvals: ATEX, IECEx, FM, UL and UL HazLoc. **Operating temperature** Due to the horizontal installation, the maximum permitted operating temperature of the device is reduced to 50° C.

Requirement

Mini SIM cards for the devices are present.

Installation

1. Insert the SIM card, refer to the section "SIM card (Page 67)".
2. Push the devices into the mounting frame.



3. Press the devices with slight pressure onto the back wall until the spring catch locks in place.
4. Screw the mounting frame in the 19" rack. For the precise dimensions, refer to the section "Dimension drawings (Page 106)".
5. Connect the power supplies, refer to the section "Power supply (Page 59)".
6. Fit the connectors for the digital input and digital output, refer to the section "Digital input/ output (Page 61)".
7. Connect the antenna, refer to the section "Antennas (Page 63)".
8. Connect the device to the local network, refer to the section "Ethernet port (Page 66)".
9. Connect the terminal with as short a cable as possible ≤ 150 mm and a large cross-sectional area of 1.5 mm^2 to the functional ground of the system, refer to section "Grounding (Page 60)" and section "Terminals (Page 30)".

Uninstalling

1. Disconnect all connected cables.
2. Loosen the attachment of the mounting frame.
3. Using a screwdriver, pull down the catch on the rear of the device.
4. Push the device out of the mounting frame.

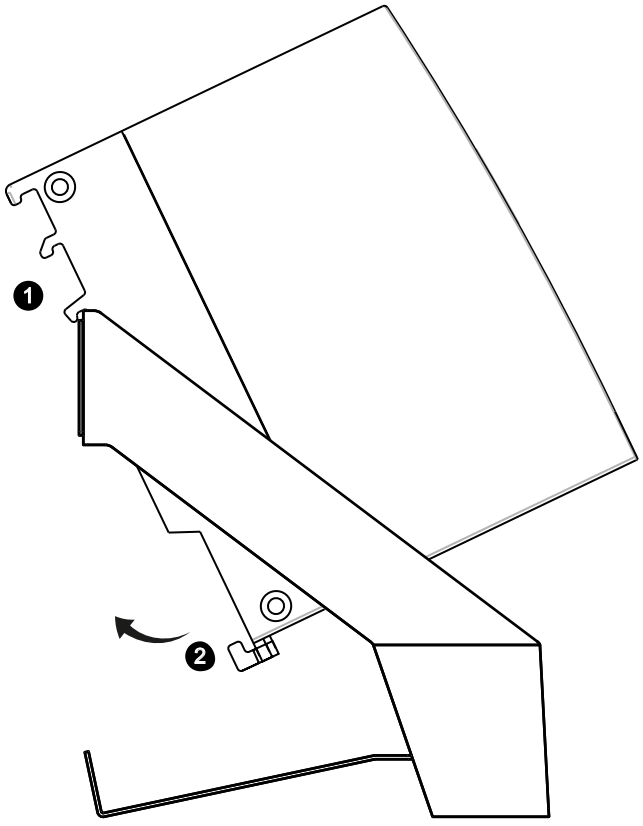
4.8 Installation on a desktop pedestal

Requirement

There is a mini SIM card for the device.

Installation

1. Insert the SIM card, refer to the section "SIM card (Page 67)".
2. Place the third housing guide of the device on the top edge of the pedestal ①.



3. Press the device down against the pedestal until the spring catch locks in place ②.
4. Connect the power supply, refer to the section "Power supply (Page 59)".
5. Fit the connectors for the digital input and digital output, refer to the section "Digital input/output (Page 61)".
6. Connect the antenna, refer to the section "Antennas (Page 63)".
7. Connect the device to the local network, refer to the section "Ethernet port (Page 66)".
8. Connect the terminal with as short a cable as possible ≤ 150 mm and a large cross-sectional area ≥ 1.5 mm^2 to the functional ground of the system, refer to the section "Terminals (Page 30)" and section "Grounding (Page 60)".

Uninstalling

1. Disconnect all connected cables.
2. Using a screwdriver, pull down the catch on the rear of the device.
3. Remove the device from the pedestal.

Connecting up

5

5.1 Safety when connecting up

Safety notices

When connecting up the device, keep to the safety notices listed below.

Note

Strain relief for the Ethernet cables

In order to avoid mechanical stress on the Ethernet cables and resulting interruption of the contact, fasten the cables at a short distance from the connector using a cable guide or busbar.

Safety notices for operation with a power supply according to NEC Class 2

Operate the device with a power supply according to NEC Class 2. When connecting up the device, keep to the safety notices listed below.

⚠ WARNING

Power supply

The device is designed for operation with Safety Extra-Low Voltage (SELV) that can be connected directly by a Limited Power Source (LPS).

The power supply therefore needs to meet at least one of the following conditions:

- Only safety extra low voltage (SELV) with limited power source (LPS) complying with IEC 62368-1 / EN 62368-1 / VDE 62368-1 can be connected to the power supply terminals.
- The power supply unit for the device must meet NEC Class 2 according to the National Electrical Code (r) (ANSI / NFPA 70).

If the device is connected to a redundant power supply (two separate power supplies), both must meet these requirements.

⚠ WARNING

Insulation of external power supplies

Ext. circuits intended to be connected to this device shall be galv. separated from hazardous live voltage by reinforced or double insulation.

Note

Protective ground

A PELV circuit contains a connection to protective ground. Without a connection to protective ground, or in case there is a fault in the connection to the protective ground, the voltage for the circuit is not stabilized.

Note

Minimum temperature rating of the cable to be connected to the field wiring terminals, 90 °C.

Safety notices for operation with a power supply not complying with NEC Class 2

If you operate the device in a control cabinet, you can use a power supply that does not comply with NEC Class 2. When connecting up the device, keep to the safety notices listed below.

WARNING

Safety extra low voltage

The device is designed for operation with a directly connectable safety extra-low voltage (SELV) according to UL/IEC 61010-1 and UL/IEC 61010-2-201 whose output power corresponds to "Limited Energy" according to UL/IEC 61010-1.

NOTICE

Suitable fuse for the power supply cables (corresponds to "Limited Energy")

The current on the terminal may not exceed 3 A. Use a fuse for the power supply that is suitable for protection of AC/DC power supply circuits *) and protects against currents > 3 A.

- In areas subject to the NEC or CEC, the fuse must meet the following requirements:
  - Suitable for AC/DC *) (min. 60 V / 3 A)
  - Breaking current at least 10 kA
  - Approval according to ANSI/UL 248-14 (suppl. fuses), ANSI/UL 248-4 (Class CC), ANSI/UL 248-8 (J), ANSI/UL 248-15 (T), or CSA C22.2-4 No. 248.14 (suppl. fuses), No. 248-4 (Class CC), No. 248-8 (J), No. 248-15 (T)
- In other areas, the fuse must meet the following requirements:
  - Suitable for AC/DC *) (min. 60 V / 3 A)
  - Breaking current at least 10 kA
  - Approval according to IEC/EN 60947-1/2/3 or IEC/EN 60898-1/2 for circuit breakers
  - Breaking characteristics: B or C
  - Approval according to IEC/EN 60127-1 for fuses
  - Breaking characteristics: max. 120 s at 2 x I_n (corresponds to melting integral $I^2t < 4320$)

If the properties of the supplying current source are known, the following fuse is also possible:

- In areas subject to the NEC or CEC, the fuse must meet the following requirements:
  - Suitable for AC/DC *) (min. 60 V / 3 A)
  - Breaking current > highest possible current of the current source (incl. short circuit current and fault)
  - Approval according to UL 1077 or CSA C22.2 No. 235
- In other areas, the fuse must meet the following requirements:
  - Suitable for AC/DC *) (min. 60 V / 3 A)
  - Breaking current > highest possible current of the current source (incl. short circuit current and fault)
  - Approval according to IEC/EN 60934
  - Breaking characteristics: max. 120s at 2 x I_n

*) AC or DC depending on availability

Safety notices on use in hazardous areas

General safety notices relating to protection against explosion

WARNING

EXPLOSION HAZARD

Do not connect or disconnect cables to or from the device when a flammable or combustible atmosphere is present.

WARNING

EXPLOSION HAZARD

Do not press the SET button if there is a potentially explosive atmosphere.

WARNING

Unsuitable cables or connectors

Risk of explosion in hazardous areas

- Only use connectors that meet the requirements of the relevant type of protection.
- If necessary, tighten the connector screw connections, device fastening screws, grounding screws, etc. according to the specified torques.
- Close unused cable openings for electrical connections.
- Check the cables for a tight fit after installation.

WARNING

Lack of equipotential bonding

If there is no equipotential bonding in hazardous areas, there is a risk of explosion due to equalizing current or ignition sparks.

- Ensure that equipotential bonding is available for the device.

WARNING

Unprotected cable ends

There is a risk of explosion due to unprotected cable ends in hazardous areas.

- Protect unused cable ends according to IEC/EN 60079-14.

WARNING

Improper installation of shielded cables

There is a risk of explosion due to equalizing currents between the hazardous area and the non-hazardous area.

- Ground shielded cables that cross hazardous areas at one end only.
- Lay a potential equalization conductor when grounding at both ends.

WARNING

Insufficient isolation of intrinsically safe and non-intrinsically safe circuits

Risk of explosion in hazardous areas

- When connecting intrinsically safe and non-intrinsically safe circuits, ensure that the galvanic isolation is performed properly in compliance with local regulations (e.g. IEC 60079-14).
- Observe the device approvals applicable for your country.

Notes for use in hazardous locations according to ATEX, IECEx, UKEX and CCC Ex

If you use the device under ATEX, IECEx, UKEX or CCC Ex conditions you must also keep to the following safety instructions in addition to the general safety instructions for protection against explosion:

WARNING

Transient overvoltages

Take measures to prevent transient overvoltages of more than 40% of the rated voltage (or more than 119 V). This is the case if you only operate devices with SELV (safety extra-low voltage).

WARNING

Suitable cables at high ambient temperatures in hazardous area

At an ambient temperature of ≥ 60 °C, use heat-resistant cables designed for an ambient temperature at least 20 °C higher. The cable entries used on the enclosure must comply with the IP degree of protection required by EN IEC / IEC 60079-0, GB 3836.1.

General notes on use in hazardous areas according to UL-HazLoc

If you use the device under UL-HazLoc conditions, you must also adhere to the following safety notices in addition to the general safety notices for protection against explosion:

WARNING

WARNING - EXPLOSION HAZARD -

DO NOT DISCONNECT WHILE CIRCUIT IS LIVE UNLESS AREA IS KNOWN TO BE NON-HAZARDOUS.

WARNING

Restricted area of application

This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D or non-hazardous locations only.

⚠ WARNING

Restricted area of application

This equipment is suitable for use in Class I, Zone 2, Group IIC or non-hazardous locations only.

Further notes

⚠ WARNING

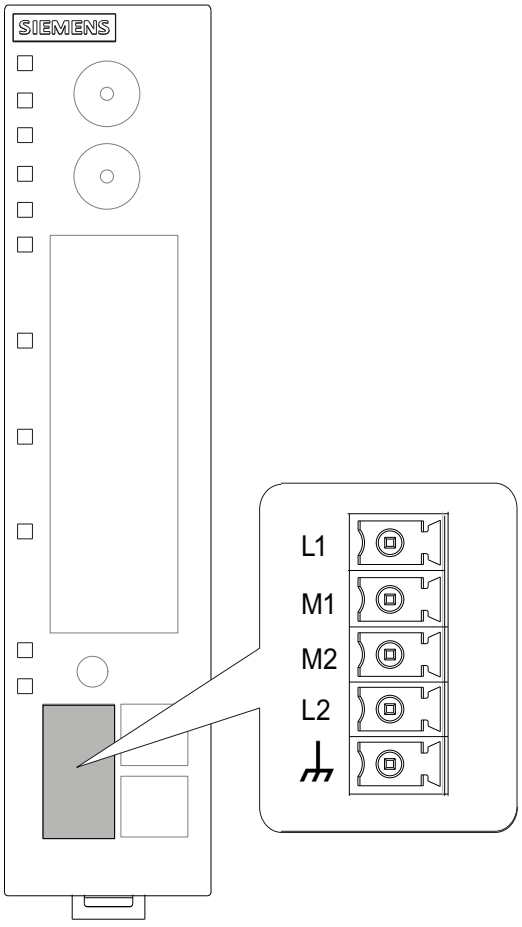
Safety notice for connecting with a LAN ID (Local Area Network)

A LAN or LAN segment with all the interconnected devices should be contained completely in a single low voltage power distribution in a building. The LAN is designed either for “Environment A” according to IEEE802.3 or "Environment 0" according to IEC TR 62102.

Do not connect any electrical connectors directly to the telephone network (telephone network voltage) or a WAN (Wide Area Network).

5.2 Power supply

The power supply is connected using a 5-pin terminal block. The power supply is non-floating.



PIN	Signal	Description
1	L1+	24 VDC
2	M1	Ground
3	M2	Ground
4	L2+	24 VDC
5	⏚	Functional ground, refer to the section "Grounding (Page 60)"

You can find information on wiring in the section "Terminals".

External power supply

Refer to the section Connecting up (Page 53) and the installation instructions and instructions for use of the manufacturer of the power supply, the battery or the accumulator.

Note

The requirements of EN61000-4-5, "Surge Immunity Test" on power supply lines with 24 VDC are met only when a Blitzductor is used:

24 VDC: BVT AVD 24 type no. 918 422

Vendor: DEHN+SÖHNE GmbH+Co.KG, Hans Dehn Str. 1, Postfach 1640, D - 92306 Neumarkt, Germany

Note

External power supply for operation in China

The device may only be used with an external power supply that has a CCC approval.

5.3 Grounding

EMC disturbances are diverted to ground via ground. This increases the immunity of the data transmission.

It is crucial for the correct operation of ground that the connection to the reference potential surface always has low impedance. Such a connection of the functional ground of the device does not go first through the cable channel and then to the mounting plate or DIN rail terminal, but goes directly to the mounting plate or DIN rail terminal.

The device has a terminal for grounding, refer to section "Power supply (Page 59)" or section "Terminals (Page 30)".

The terminal is identified by the following symbol for the grounding.

1. Connect the terminal of the device with as short a cable as possible ≤ 150 mm and a large cross-sectional area ≥ 2.5 mm² to the functional ground of the system. In many cases, the entire metallic construction of the system serves as ground.
2. Also connect the standard rails of a system with ground.

Protective earth/functional ground

The connection of the reference potential surface with the protective earth system is normally in the cabinet close to the power feed-in. This earth conducts fault currents to ground safely and according to DIN/VDE 0100 is a protective earth to protect people, animals and property from too high contact voltages.

Apart from the protective earth, there is functional grounding in the cabinet. According to EN60204-1 (DIN/VDE 0113 T1) electrical circuits must be grounded. The chassis (0 V) is grounded at one defined point. Here, once again the grounding is implemented with the lowest leakage resistance to ground in the vicinity of the power feed-in.

With automation components, functional ground also ensures interference-free operation of a controller. Via the functional ground, interference currents coupled in via the connecting cables are discharged to ground.

In terms of the large-area and low impedance implementation, a functional ground set up for this purpose generally also meets the requirements of protective earth. On the other hand, protective earth does not always meet the requirements of functional ground. In general while the connection for protective earth is always low resistance, it is not necessarily low impedance.

The resistance of a connection for protective earth must always be as small as possible to divert fault currents safely to ground. The length of a protective earth cable can therefore be several meters (m) long, without seriously impairing this effect. For a functional ground for diverting HF disturbances, this cable does however have impedance and is therefore not suitable.

5.4 Digital input/output

The digital input and output are connected using a 2-pin plug-in terminal block in each case. Two terminal blocks ship with the device.

NOTICE
Damage due to voltage being too high or too low The voltage at the digital input/output must not exceed 30 VDC and not fall below -30 VDC, otherwise the digital input/output will be destroyed.

Note

Interference pulse

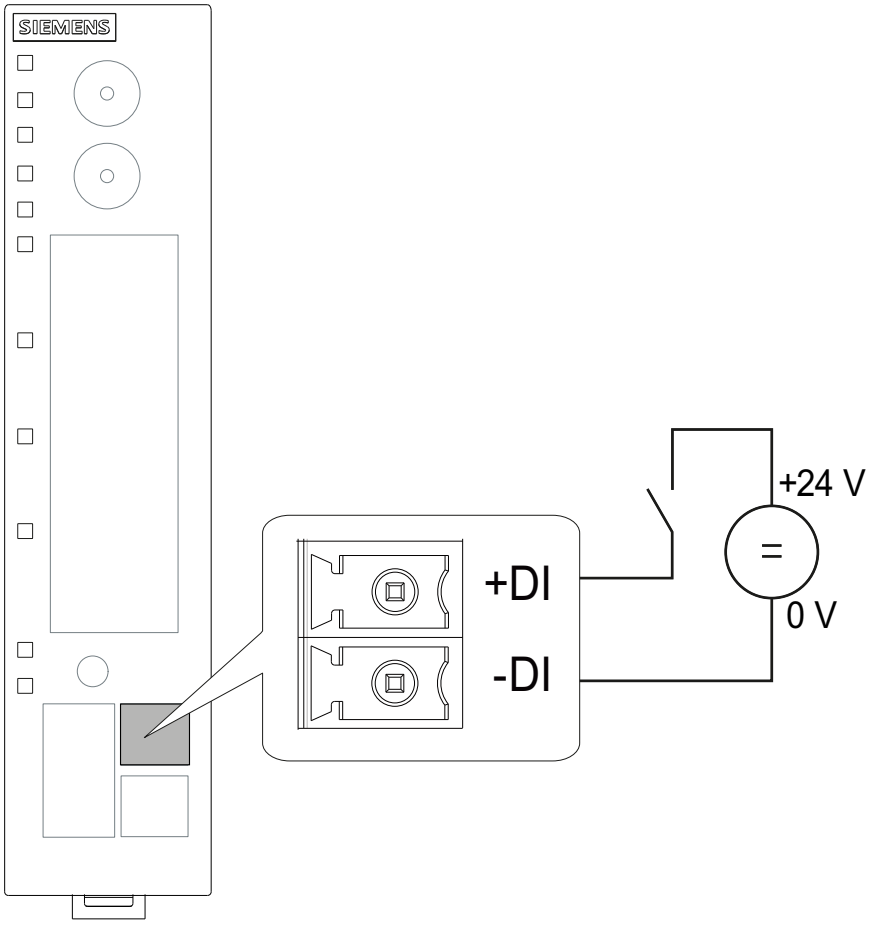
To avoid evaluating an interference pulse, the pulse for the signal 1 (TRUE / HIGH) must be at least 200 ms.

Rules for wiring

- To wire the digital input/output, use a copper cable of category AWG18-16 or a cable with a cross-section of 0.75 to 1.5 mm^2.
- Always wire the digital input/output in pairs.
- The maximum permitted cable length is 30 m.

Digital input

The 2-pin terminal block has the following assignment:



Contact	Assignment
+DI	Input
-DI	Ground

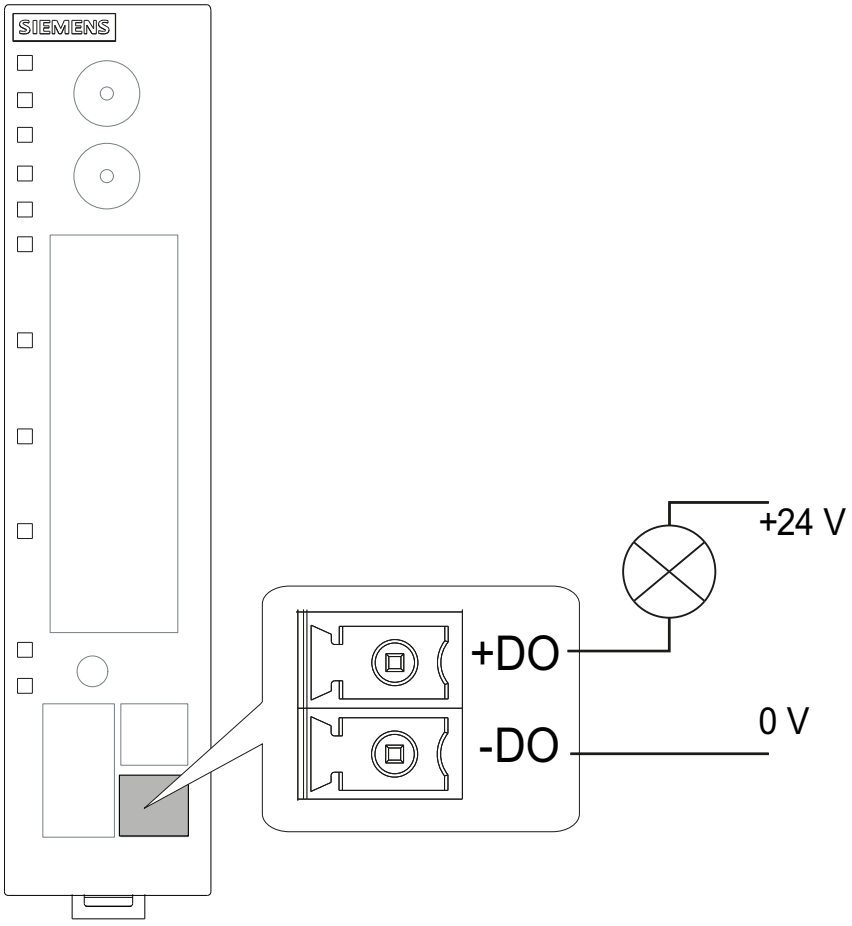
If there is an adequate switching voltage at the digital input, the digital input is active and the "DI" LED is lit.

The voltage applied to the "DI" contact is converted to a digital status by the device as follows:

Voltage	Status
-30 to +3 V DC	0
+13 to +30 V DC	1

Digital output

The 2-pin terminal block has the following assignment:



Contact	Assignment
+DO	Switching signal
-DO	Ground

The output is a switch that switches the signal at +DO to -DO.

5.5 Antennas

Note

Use the antennas from the accessories program for the M87x device. You will find more detailed information in "Accessories (Page 29)". If you use a different antenna, there is no guarantee that the device will function according to the specification.

You can either connect an external antenna directly to the device or connect it with a flexible connecting cable.

The antenna socket for connecting the antenna is of the type SMA. The antenna used should have an impedance of about 50 ohms.

⚠ CAUTION

Minimum clearance to the device

The device may only be operated when the distance between the device (or antenna) and user is at least 20 cm.

Notes on lightning protection

⚠ WARNING

Danger due to lightning strikes

Antennas installed outdoors must be within the area covered by a lightning protection system. Make sure that all conducting systems entering from outdoors are protected by lightning protection electrical bonding.

When implementing your lightning protection concept, make sure you adhere to the requirements of the VDE 0182 or IEC 62305 standards.

Suitable lightning protectors are available in the range of accessories of SIMATIC NET Industrial WLAN:

- Lightning protector LP798-1N (order no. 6GK5798-2LP00-2AA6)
- Lightning protector LP798-2N (order no. 6GK5798-2LP10-2AA6)

  Note

  We recommend that you use the maintenance-free lightning protector LP798-2N. Exception:

  When there is also DC power supplied via the antenna cable. In this case, only the lightning protector LP798-1N can be used.

- Depending on the connector, an adapter cable is required to connect to SMA.

⚠ WARNING

Danger due to lightning strikes

Installing this lightning protector between an antenna and a SCALANCE M87x is not adequate protection against a lightning strike. The LP798-1N lightening protector only works within the framework of a comprehensive lightning protection concept. If you have questions, ask a qualified specialist company.

Procedure

1. Insert the connector on the antenna cable into the SMA socket and tighten the sleeve nut of the plug on the socket (key size SW8, tightening torque 0.6 Nm).

NOTICE
The SMA socket may be damaged When securing an antenna to the device, only the screw cap of the antenna can be rotated. Rotating the entire antenna could damage the SMA connector on the device.

Frequency bands

Depending on the frequency bands used by your mobile wireless provider, antennas must be tuned to the following frequencies:

SCALANCE M876-4 6GK5 876-4AA10-2BA2	LTE bands	B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B26, B28, B66
	LTE TDD:	B38, B40, B41
	UMTS with HSPA+	B1, B2, B3, B4, B5, B6, B8, B19
	GSM	850 MHz, 900 MHz, 1800 MHz, 1900 MHz
SCALANCE M876-4 (NAM) 6GK5876-4AA00-2DA2	LTE	700 MHz, 850 MHz, AWS-1 (1700/2100) MHz, 1900 MHz
	UMTS with HSPA+	850 MHz, AWS-1 (1700/2100) MHz, 1900 MHz
	GSM	850 MHz, 900 MHz, 1800 MHz, 1900 MHz
SCALANCE M876-4 (EU) 6GK5 876-4AA00-2BA2	LTE	800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2600 MHz
	UMTS with HSPA+	900 MHz,1800 MHz, 2100 MHz
	GSM	850 MHz, 1900 MHz
SCALANCE M876-3 6GK5 876-3AA02-2EA2	GSM	850 MHz, 900 MHz, 1800 MHz, 1900 MHz
	UMTS with HSPA+	800 MHz, 850 MHz, 900 MHz, 1800 MHz, 1900 MHz, 2100 MHz
	CDMA	800, 1900 MHz
SCALANCE M876-3 6GK5 876-3AA02-2EA2	GSM	850 MHz, 900 MHz, 1800 MHz, 1900 MHz
	UMTS with HSPA+	800 MHz, 850 MHz, 900 MHz, 1800 MHz, 1900 MHz, 2100 MHz
SCALANCE M874-3 6GK5 874-3AA00-2AA2	GSM	850 MHz, 900 MHz, 1800 MHz, 1900 MHz
	UMTS	800 MHz, 850 MHz, 900 MHz, 1800 MHz, 1900 MHz, 2100 MHz
SCALANCE M874-2 6GK5 874-2AA00-2AA2	GSM	850 MHz, 900 MHz, 1800 MHz, 1900 MHz

Check with your mobile wireless provider for the suitable frequencies.

Signal quality

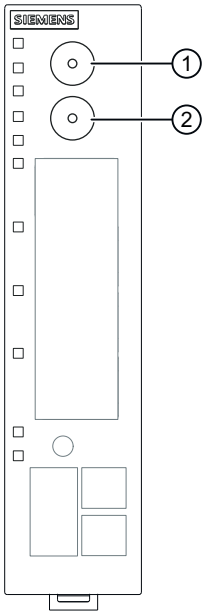
During installation make sure that there is a good signal strength of > -73 dBm.

If the "Q" LED is lit permanently, the signal quality is good. For more detailed information, refer to the section "LED display (Page 31)".

Avoid large metal objects in the immediate vicinity.

Position

The SCALANCE M874 has an SMA antenna connector for a UMTS/GSM antenna and the SCALANCE M876 has two SMA antenna connectors for two LTE/UMTS/GSM antennas for diversification.



① A2 antenna connector, only with SCALANCE M876
② A1 antenna connector

5.6 Ethernet port

Connect the local network with the local applications to the Ethernet port, for example a programmable logic controller, a machine with an Ethernet interface for remote monitoring or a PC.

To set up the device, connect a PC with a Web browser to one of the Ethernet ports.

For the connection, use a path cable with an RJ-45 plug. You will find the properties of the Ethernet interface in the technical specifications.

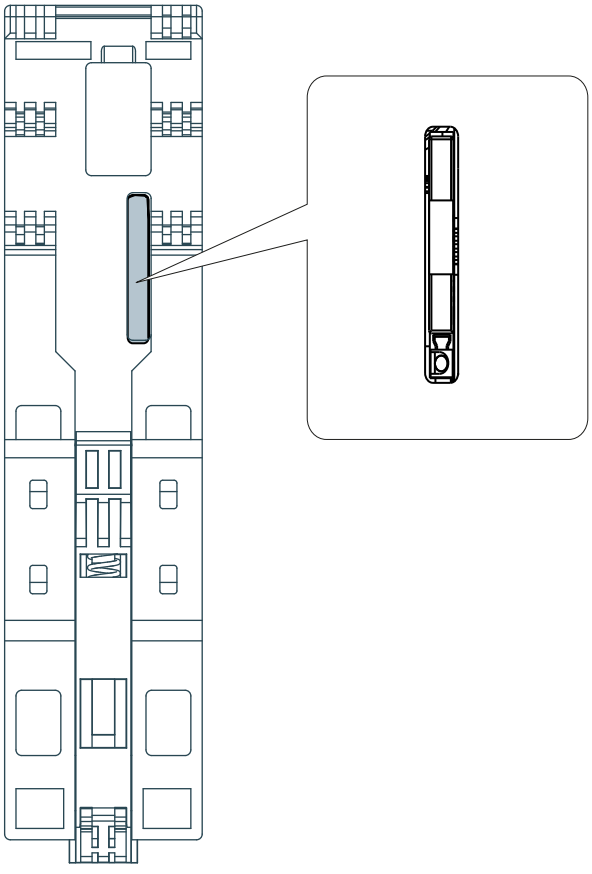
5.7 SIM card

NOTICE
Damage to the SIM card during replacement
Before you insert or remove the SIM card, turn off the power supply of the SCALANCE M-800.
Do not open the SIM card tray during operation. This can damage the SIM card and the device.

The tray for the 2FF mini SIM card is located on the back of the device. There is a small button directly beneath the tray.

Procedure

1. To open the drawer, press the button with a sharp object, for example a pencil.



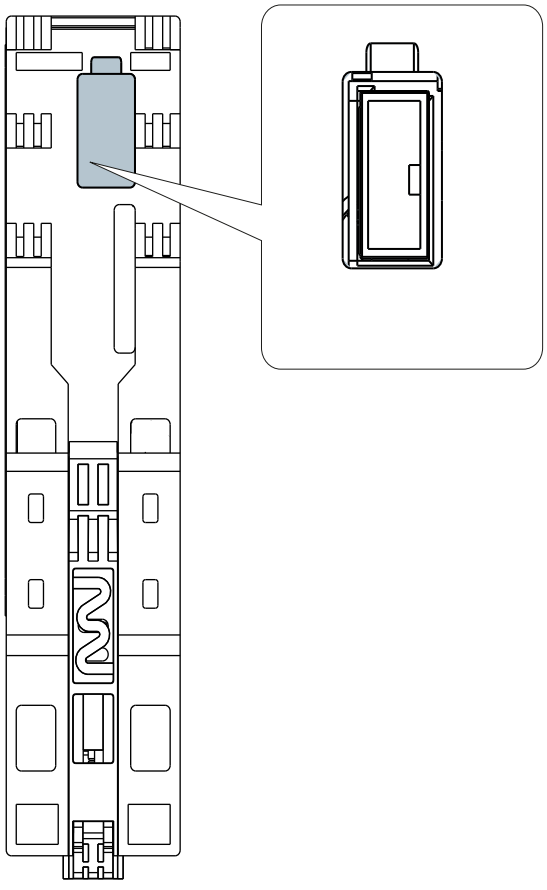
2. Place the SIM card in the tray so that the card audibly locks in place and so that its gold-plated contacts remain visible.
3. Then push the tray with the SIM card completely back into the housing.

5.8 Replacing the PLUG

NOTICE
Do not remove or insert a C-PLUG / KEY-PLUG during operation! A PLUG may only be removed or inserted when the device is turned off. The device checks whether or not a PLUG is present at one second intervals. If it is detected that the PLUG was removed, there is a restart. If a valid KEY-PLUG was inserted in the device, the device changes to a defined error state following the restart. With SCALANCE M, the wireless interface is deactivated in this case.

Inserting the PLUG

1. Turn off the power to the device.
2. The housing of the PLUG has a protruding ridge on the long side. The slot has a groove at this position.
   Insert the PLUG correctly oriented into the slot.



Removing the PLUG

1. Turn off the power to the device.
2. Insert a screwdriver between the front edge of the PLUG and the slot and release the PLUG.
3. Remove the PLUG.

Maintenance and cleaning

6

⚠ WARNING

Unauthorized repair of devices in explosion-proof design

Risk of explosion in hazardous areas

- Repair work may only be performed by personnel authorized by Siemens.

⚠ WARNING

Impermissible accessories and spare parts

Risk of explosion in hazardous areas

- Only use original accessories (Page 29) and original spare parts.
- Observe all relevant installation and safety instructions described in the manuals for the device or supplied with the accessories or spare parts.

⚠ CAUTION

Hot surfaces

Risk of burns during maintenance work on parts with a surface temperature above 70 °C (158 °F).

- Take appropriate protective measures, for example, wear protective gloves.
- Once maintenance work is complete, restore the touch protection measures.

NOTICE

Cleaning the housing

If the device is not in a hazardous area, only clean the outer parts of the housing with a dry cloth.

If the device is in a hazardous area, use a slightly damp cloth for cleaning.

Do not use solvents.

Troubleshooting 7

7.1 Downloading new firmware using TFTP without WBM and CLI

Firmware

The firmware is signed and encrypted. This ensures that only firmware created by Siemens can be downloaded to the device.

Procedure with Microsoft Windows

You can download new firmware to the device using TFTP. To do this, the device does not need to be reachable either using Web Based Management (WBM) or using the Command Line Interface (CLI). This can be the case if there was a power failure during a firmware update.

When pressing the button, make sure you adhere to the instructions in the section "SET button (Page 37)".

To load a new firmware via TFTP, follow these steps:

1. Turn off the power to the device.
2. Press and hold the SET button and reconnect the device to the power supply while holding down the button.
3. Hold down the button until the red fault LED "F" starts to flash after approximately 2 seconds (500ms on/500ms off).
4. Release the button as long as the red error LED is still flashing.
   This time only lasts a few seconds.
   The bootloader waits in this state for a new firmware file that you can download using TFTP.
5. Connect a PC to the device over the Ethernet interface.
6. Assign an IP address to the device using DHCP or the SINEC PNI.
7. In a Windows command prompt, go to the directory where the file with the new firmware is located and use the following command:
   `tftp -i <IP address> put <firmware file>.`

   Note

   You can enable TFTP in Microsoft Windows as follows:

   "Control Panel > Programs and Features > Turn Windows features on or off > TFTP Client".

   Once the firmware has been transferred completely to the device and validated, the device restarts. This process can take several minutes.

7.2 Restoring the factory settings

NOTICE
If you reset, all the settings you have made will be overwritten by factory defaults.

NOTICE
Inadvertent reset An inadvertent reset can cause disturbances and failures in a configured network with further consequences.

With the SET button

When pressing the button, make sure you adhere to the instructions in the section "SET button (Page 37)".

To reset the device to the factory defaults during the startup phase, follow the steps below:

1. Turn off the power to the device.
2. Press the SET button and reconnect the device to the power supply while holding down the button.
3. Hold down the button until the red error LED "F" stops flashing after approximately 10 seconds and is permanently lit.
4. Release the button and wait until the fault LED "F" goes off.
   The device starts automatically with the factory settings.

With SINEC PNI

Follow the steps below to reset the device parameters to the factory settings with the SINEC PNI:

1. Select the device whose parameters you want to reset.
2. Click the "Reset device" button.
3. Select the "Reset to factory settings" option in the following dialog.

Via the configuration

You will find detailed information on resetting the device parameters using the WBM and CLI in the configuration manuals:

- Web Based Management, section "Restart"
- Command Line Interface, section "SET and Defaults"

Technical specifications

8

8.1 SCALANCE M874-2

		M874-2
Article number		6GK5 874-2AA00-2AA2
Ethernet interface		
Connection to Industrial Ethernet	Quantity	2
	Design	RJ-45 jack Characteristics: • 10/100BASE-T • Ethernet IEEE 802.3 • 10/100 Mbps
Wireless interface		
Antenna connector	Quantity	1
	Design	SMA socket (straight)
	Impedance	50 Ω nominal
	Antenna cable	Cable length < 30 m
Frequency band	GSM	850 MHz, 900 MHz, 1800 MHz, 1900 MHz
EGPRS	Properties	Multislot class 12, end device class B • Coding scheme downlink: CS 1 ... 4, MCS 1 ... 9 • Coding scheme uplink: CS 1 ... 4, MCS 1 ... 9
	Transmission speed	• Downlink: up to 237 kbps: • Uplink: up to 237 kbps:
GPRS	Properties	Multislot class 12, end device class B, coding scheme 1 ... 4
	Transmission speed	• Downlink: up to 85.6 kbps. • Uplink: up to 85.6 kbps.
GSM (CSD dial-in)	Properties	Radio Link Protocol (RLP) V.110, non-transparent
	Transmission speed	up to 14.4 kbps
SMS (TX)	Properties	Text mode, SMSoverIP
Electrical data		
Power supply	Quantity	1
	Design	Terminal block, 5-pin
	Properties	Input voltage: • 12 to 24 VDC • min. 10.8 VDC, max. 28.8 VDC Maximum power consumption 8 W Maximum cable length < 3 m

		M874-2
Digital input	Quantity	1
	Design	Terminal block, 2-pin
	Properties	Rated voltage 24 VDC Safety Extra Low Voltage (SELV)
		For state "1": 10 to 30 VDC For state "0": -30 to 3 VDC Maximum input current 8 mA Cables should be routed in pairs Maximum cable length < 30 m Inputs isolated from electronics.
Digital output	Quantity	1
	Design	Terminal block, 2-pin
	Properties	Rated voltage 24 VDC Safety Extra Low Voltage (SELV)
		Relay, internally not current limited Maximum current carrying capacity 1 A Cables should be routed in pairs Maximum cable length < 30 m Output isolated from electronics
Permitted ambient conditions		
Ambient temperature	During operation	Vertical mounting position: • -20 °C ... +60 °C Horizontal mounting position: • -20 °C ... +50 °C
	During storage	-40 °C to +70 °C
	During transportation	-40 °C to +70 °C
Relative humidity	During operation	≤ 95% at 25 °C, no condensation
Design, dimensions and weight		
Module format		Compact module S7-1500
Degree of protection		IP20
Weight		290 g
Dimensions (W x H x D)		34.8 x 150.9 x 134.7 mm
Installation options		• Wall mounting • Mounting on a DIN rail • Installation on S7-300 mounting rail • Installation on S7-1500 mounting rail • Mounting on a pedestal
Mounting position		• Vertical (ventilation openings at the top and bottom) • Horizontal (ventilation openings to the right and left) See **Permitted ambient conditions**

	M874-2
Product functions	
Configuration / management	• Web Based Management (WBM) via HTTP and HTTPS. • Command Line Interface (CLI) via Telnet and SSH
Security	• Router with NAT function – IP masquerading – NAPT – SourceNAT – NETMAP • Password protection • Firewall function – Port forwarding – IP firewall with stateful packet inspection (layer 3 and 4) – Global and user-defined firewall rules VPN functions – To establish a VPN (Virtual Private Network), the following functions are available – Up to 20 connections – IPsec VPN, OpenVPN (as client) • SINEMA RC client • Proxy server • Siemens Remote Service (SRS)

		M874-2
Monitoring / diagnostics / maintenance		• LEDs Display of operating statuses via the LED display. You will find additional information on this in the operating instructions of the device. • Logging Events can be logged for monitoring. • SNMPv1/v2/v3 For monitoring and controlling network components such as routers or switches from a central station.
Other functions		• Time-of-day synchronization – NTP client and NTP server – Secure NTP server – SIMATIC time client – SNTP client • DHCP – DHCP server (local network) • Virtual networks (VLAN) To structure Industrial Ethernet networks with a fast growing number of devices, a physical network can be divided into several virtual subnets • Digital input/digital output • Dynamic DNS client • DNS client and DNS proxy • SMTP client

8.2 SCALANCE M874-3

		M874-3
Article number		6GK5 874-3AA00-2AA2
Ethernet interface		
Connection to Industrial Ethernet	Quantity	2
	Design	RJ-45 jack Characteristics: • 10/100BASE-T • Ethernet IEEE 802.3 • 10/100 Mbps
Wireless interface		

		M874-3
Antenna connector	Quantity	1
	Design	SMA socket (straight)
	Impedance	50 Ω nominal
	Antenna cable	Cable length < 30 m
Frequency bands	UMTS	800 MHz, 850 MHz, 900 MHz, 1800 MHz, 1900 MHz, 2100 MHz
	GSM	850 MHz, 900 MHz, 1800 MHz, 1900 MHz
UMTS with HSPA+	Transmission speed	• HSDPA (downlink): up to 14.4 Mbps • HSUPA (uplink): up to 5.76 Mbps
EGPRS	Properties	Multislot class 12, end device class B • Coding scheme downlink: CS 1 ... 4, MCS 1 ... 9 • Coding scheme uplink: CS 1 ... 4, MCS 1 ... 9
	Transmission speed	• Downlink: up to 237 kbps: • Uplink: up to 237 kbps:
GPRS	Properties	Multislot class 12, end device class B, coding scheme 1 ... 4
	Transmission speed	• Downlink: up to 85.6 kbps. • Uplink: up to 85.6 kbps.
GSM (CSD dial-in)	Properties	Radio Link Protocol (RLP) V.110, non-transparent
	Transmission speed	up to 14.4 kbps
SMS (TX)	Properties	Text mode, SMSoverIP
Electrical data		
Power supply	Quantity	1
	Design	Terminal block, 5-pin
	Properties	Input voltage: • 12 to 24 VDC • min. 10.8 VDC, max. 28.8 VDC Maximum power consumption 8 W Maximum cable length < 3 m
Digital input	Quantity	1
	Design	Terminal block, 2-pin
	Properties	Rated voltage 24 VDC Safety Extra Low Voltage (SELV) For state "1": 10 to 30 VDC For state "0": -30 to 3 VDC Maximum input current 8 mA Cables should be routed in pairs Maximum cable length < 30 m Inputs isolated from electronics.

		M874-3
Digital output	Quantity	1
	Design	Terminal block, 2-pin
	Properties	Rated voltage 24 VDC Safety Extra Low Voltage (SELV)
		Relay, internally not current limited
		Maximum current carrying capacity 1 A
		Cables should be routed in pairs
		Maximum cable length < 30 m
		Output isolated from electronics
Permitted ambient conditions		
Ambient temperature	During operation	Vertical mounting position: • -20 °C ... +60 °C Horizontal mounting position: • -20 °C ... +50 °C
	During storage	-40 °C to +70 °C
	During transportation	-40 °C to +70 °C
Relative humidity	During operation	≤ 95% at 25 °C, no condensation
Design, dimensions and weight		
Module format		Compact module S7-1500
Degree of protection		IP20
Weight		290 g
Dimensions (W x H x D)		34.8 x 150.9 x 134.7 mm
Installation options		• Wall mounting • Mounting on a DIN rail • Installation on S7-300 mounting rail • Installation on S7-1500 mounting rail • Mounting on a pedestal
Mounting position		• Vertical (ventilation openings at the top and bottom) • Horizontal (ventilation openings to the right and left) See Permitted ambient conditions
Product functions		
Configuration / management		• Web Based Management (WBM) via HTTP and HTTPS. • Command Line Interface (CLI) via Telnet and SSH

	M874-3
Security	• Router with NAT function – IP masquerading – NAPT – SourceNAT – NETMAP • Password protection • Firewall function – Port forwarding – IP firewall with stateful packet inspection (layer 3 and 4) – Global and user-defined firewall rules VPN functions – To establish a VPN (Virtual Private Network), the following functions are available – Up to 20 connections – IPsec VPN, OpenVPN (as client) • SINEMA RC client • Proxy server • Siemens Remote Service (SRS)

	M874-3
Monitoring / diagnostics / maintenance	• LEDs Display of operating statuses via the LED display. You will find additional information on this in the operating instructions of the device. • Logging Events can be logged for monitoring. • SNMPv1/v2/v3 For monitoring and controlling network components such as routers or switches from a central station.
Other functions	• Time-of-day synchronization – NTP client and NTP server – Secure NTP server – SIMATIC time client – SNTP client • DHCP – DHCP server (local network) • Virtual networks (VLAN) To structure Industrial Ethernet networks with a fast growing number of devices, a physical network can be divided into several virtual subnets • Digital input/digital output • Dynamic DNS client • DNS client and DNS proxy • SMTP client

8.3 SCALANCE M876-3

		M876-3
Article number		6GK5 876-3AA02-2BA2 6GK5 876-3AA02-2EA2
Ethernet interface		
Connection to Industrial Ethernet	Quantity	4
	Design	RJ-45 jack Characteristics: • 10/100BASE-T • Ethernet IEEE 802.3 • 10/100 Mbps
Wireless interface		

		M876-3
Antenna connector	Quantity	2 A1: Main antenna A2: UMTS: RX diversity
	Design	SMA socket (straight)
	Impedance	50 Ω nominal
	Antenna cable	Cable length < 30 m
Frequency bands	GSM	850 MHz, 900 MHz, 1800 MHz, 1900 MHz
	UMTS with HSPA+	800 MHz, 850 MHz, 900 MHz, 1800 MHz, 1900 MHz, 2100 MHz
	CDMA	800, 1900 MHz
UMTS with HSPA+	Transmission speed	• HSDPA (downlink): up to 14.4 Mbps • HSUPA (uplink): up to 5.76 Mbps
CDMA	Properties	EV-DO Rev.A
	Transmission speed	• Forward link: up to 3.1 Mbps • Reverse link: up to 1.8 Mbps
EGPRS	Properties	Multislot class 12, end device class B • Coding scheme downlink: CS 1 ... 4, MCS 1 ... 9 • Coding scheme uplink: CS 1 ... 4, MCS 1 ... 9
	Transmission speed	• Downlink: up to 237 kbps: • Uplink: up to 237 kbps:
GPRS	Properties	Multislot class 12, end device class B, coding scheme 1 ... 4
	Transmission speed	• Downlink: up to 85.6 kbps. • Uplink: up to 85.6 kbps.
GSM (CSD dial-in)	Properties	Radio Link Protocol (RLP) V.110, non-transparent
	Transmission speed	up to 14.4 kbps
SMS (TX)	Properties	Text mode, SMSoverIP
Electrical data		
Power supply	Quantity	1
	Design	Terminal block, 5-pin
	Properties	Input voltage: • 12 to 24 VDC • min. 10.8 VDC, max. 28.8 VDC Maximum power consumption 8 W Maximum cable length < 3 m

		M876-3
Digital input	Quantity	1
	Design	Terminal block, 2-pin
	Properties	Rated voltage 24 VDC Safety Extra Low Voltage (SELV)
		For state "1": 10 to 30 VDC
		For state "0": -30 to 3 VDC
		Maximum input current 8 mA
		Cables should be routed in pairs
		Maximum cable length < 30 m
		Inputs isolated from electronics.
Digital output	Quantity	1
	Design	Terminal block, 2-pin
	Properties	Rated voltage 24 VDC Safety Extra Low Voltage (SELV)
		Relay, internally not current limited
		Maximum current carrying capacity 1 A
		Cables should be routed in pairs
		Maximum cable length < 30 m
		Output isolated from electronics
Permitted ambient conditions		
Ambient temperature	During operation	Vertical mounting position: Without air flow and with lateral clearance of 5 cm to the neighboring device: • -20 °C ... +60 °C Horizontal mounting position: • -20 °C ... +50 °C
	During storage	-40 °C to +70 °C
	During transportation	-40 °C to +70 °C
Relative humidity	During operation	≤ 95% at 25 °C, no condensation
Design, dimensions and weight		
Module format		Compact module S7-1500
Degree of protection		IP20
Weight		290 g
Dimensions (W x H x D)		34.8 x 147 x 134.7 mm
Installation options		• Wall mounting • Mounting on a DIN rail • Installation on S7-300 mounting rail • Installation on S7-1500 mounting rail • Mounting on a pedestal

	M876-3
Mounting position	• Vertical (ventilation openings at the top and bottom) • Horizontal (ventilation openings to the right and left) See Permitted ambient conditions.
Product functions	
Configuration / management	• Web Based Management (WBM) via HTTP and HTTPS. • Command Line Interface (CLI) via Telnet and SSH
Security	• Router with NAT function – IP masquerading – NAPT – SourceNAT – NETMAP • Password protection • Firewall function – Port forwarding – IP firewall with stateful packet inspection (layer 3 and 4) – Global and user-defined firewall rules VPN functions – To establish a VPN (Virtual Private Network), the following functions are available – Up to 20 connections – IPsec VPN, OpenVPN (as client) • SINEMA RC client • Proxy server • Siemens Remote Service (SRS)

		M876-3
Monitoring / diagnostics / maintenance		• LEDs Display of operating statuses via the LED display. You will find additional information on this in the operating instructions of the device. • Logging Events can be logged for monitoring. • SNMPv1/v2/v3 For monitoring and controlling network components such as routers or switches from a central station.
Other functions		• Time-of-day synchronization – NTP client and NTP server – Secure NTP server – SIMATIC time client – SNTP client • DHCP – DHCP server (local network) • Virtual networks (VLAN) To structure Industrial Ethernet networks with a fast growing number of devices, a physical network can be divided into several virtual subnets • Digital input/digital output • Dynamic DNS client • DNS client and DNS proxy • SMTP client

8.4 SCALANCE M876-4 (EU)

		M876-4
Article number		6GK5 876-4AA00-2BA2
Ethernet interface		
Connection to Industrial Ethernet	Quantity	4
	Design	RJ-45 jack Characteristics: • 10/100BASE-T • Ethernet IEEE 802.3 • 10/100 Mbps
Wireless interface		

		M876-4
Antenna connector	Quantity	2 A1: Main antenna A2: UMTS: RX diversity LTE: RX MIMO
	Design	SMA socket (straight)
	Impedance	50 Ω nominal
	Antenna cable	Cable length < 30 m
Frequency bands	LTE	2100 MHz, 1800 MHz, 2600 MHz, 900 MHz, 800 MHz
	UMTS with HSPA+	900 MHz,1800 MHz, 2100 MHz
	GSM	850 MHz, 1900 MHz
LTE	Transmission speed	• Downlink: up to 100 Mbps • Uplink: up to 50 Mbps
UMTS with HSPA+	Transmission speed	• HSDPA (downlink): up to 14.4 Mbps • HSUPA (uplink): up to 5.76 Mbps
EGPRS	Properties	Multislot class 12, end device class B • Coding scheme downlink: CS 1 ... 4, MCS 1 ... 9 • Coding scheme uplink: CS 1 ... 4, MCS 1 ... 9
	Transmission speed	• Downlink: up to 237 kbps: • Uplink: up to 237 kbps:
GPRS	Properties	Multislot class 12, end device class B, coding scheme 1 ... 4
	Transmission speed	• Downlink: up to 85.6 kbps. • Uplink: up to 85.6 kbps.
GSM (CSD dial-in)	Properties	Radio Link Protocol (RLP) V.110, non-transparent
	Transmission speed	up to 14.4 kbps
SMS (TX)	Properties	Text mode, SMSoverIP
Electrical data		
Power supply	Quantity	1
	Design	Terminal block, 5-pin
	Properties	Input voltage: • 12 to 24 VDC • min. 10.8 VDC, max. 28.8 VDC Maximum power consumption 8 W Maximum cable length < 3 m

		M876-4
Digital input	Quantity	1
	Design	Terminal block, 2-pin
	Properties	Rated voltage 24 VDC Safety Extra Low Voltage (SELV)
		For state "1": 10 to 30 VDC
		For state "0": -30 to 3 VDC
		Maximum input current 8 mA
		Cables should be routed in pairs
		Maximum cable length < 30 m
		Inputs isolated from electronics.
Digital output	Quantity	1
	Design	Terminal block, 2-pin
	Properties	Rated voltage 24 VDC Safety Extra Low Voltage (SELV)
		Relay, internally not current limited
		Maximum current carrying capacity 1 A
		Cables should be routed in pairs
		Maximum cable length < 30 m
		Output isolated from electronics
Permitted ambient conditions		
Ambient temperature	During operation	Vertical mounting position • Without air flow and with lateral clearance of 5 cm to the neighboring device: -20 °C ... +60 °C • Without clearance at the side and an air flow of 0.5 m/s (only with the "LTE only" mode) -20 °C to +70 °C Horizontal mounting position: • -20 °C ... +50 °C
	During storage	-40 °C to +70 °C
	During transportation	-40 °C to +70 °C
Relative humidity	During operation	≤ 95% at 25 °C, no condensation
Design, dimensions and weight		
Module format		Compact module S7-1500
Degree of protection		IP20
Weight		290 g
Dimensions (W x H x D)		34.8 x 147 x 134.7 mm
Installation options		• Mounting on a DIN rail • Installation on S7-300 mounting rail • Installation on S7-1500 mounting rail • Wall mounting • Mounting on a pedestal

	M876-4
Mounting position	• Vertical (ventilation openings at the top and bottom) • Horizontal (ventilation openings to the right and left) See Permitted ambient conditions.
Product functions	
Configuration / management	• Web Based Management (WBM) via HTTP and HTTPS. • Command Line Interface (CLI) via Telnet and SSH
Security	• Router with NAT function – IP masquerading – NAPT – SourceNAT – NETMAP • Password protection • Firewall function – Port forwarding – IP firewall with stateful packet inspection (layer 3 and 4) – Global and user-defined firewall rules VPN functions – To establish a VPN (Virtual Private Network), the following functions are available – Up to 20 connections – IPsec VPN, OpenVPN (as client) • SINEMA RC client • Proxy server • Siemens Remote Service (SRS)

	M876-4
Monitoring / diagnostics / maintenance	• LEDs Display of operating statuses via the LED display. You will find additional information on this in the operating instructions of the device. • Logging Events can be logged for monitoring. • SNMPv1/v2/v3 For monitoring and controlling network components such as routers or switches from a central station.
Other functions	• Time-of-day synchronization – NTP client and NTP server – Secure NTP server – SIMATIC time client – SNTP client • DHCP – DHCP server (local network) Virtual networks (VLAN) To structure Industrial Ethernet networks with a fast growing number of devices, a physical network can be divided into several virtual subnets • Digital input/digital output • Dynamic DNS client • DNS client and DNS proxy • SMTP client

8.5 SCALANCE M876-4 (NAM)

		M876-4 (NAM)
Article number		6GK5876-4AA00-2DA2
Ethernet interface		
Connection to Industrial Ethernet	Quantity	4
	Design	RJ-45 jack Characteristics: • 10/100BASE-T • Ethernet IEEE 802.3 • 10/100 Mbps
Wireless interface		

		M876-4 (NAM)
Antenna connector	Quantity	2 A1: Main antenna A2: UMTS: RX diversity LTE: RX MIMO
	Design	SMA socket (straight)
	Impedance	50 Ω nominal
	Antenna cable	Cable length < 30 m
Frequency bands	LTE	700 MHz, 850 MHz, AWS-1 (1700/2100) MHz, 1900 MHz
	UMTS with HSPA+	850 MHz, AWS-1 (1700/2100) MHz, 1900 MHz
	GSM	850 MHz, 900 MHz, 1800 MHz, 1900 MHz
LTE	Transmission speed	• Downlink: up to 100 Mbps • Uplink: up to 50 Mbps
UMTS with HSPA+	Transmission speed	• HSDPA (downlink): up to 14.4 Mbps • HSUPA (uplink): up to 5.76 Mbps
EGPRS	Properties	Multislot class 12, end device class B • Coding scheme downlink: CS 1 ... 4, MCS 1 ... 9 • Coding scheme uplink: CS 1 ... 4, MCS 1 ... 9
	Transmission speed	• Downlink: up to 237 kbps: • Uplink: up to 237 kbps:
GPRS	Properties	Multislot class 12, end device class B, coding scheme 1 ... 4
	Transmission speed	• Downlink: up to 85.6 kbps. • Uplink: up to 85.6 kbps.
GSM (CSD dial-in)	Properties	Radio Link Protocol (RLP) V.110, non-transparent
	Transmission speed	up to 14.4 kbps
SMS (TX)	Properties	Text mode, SMSoverIP
Electrical data		
Power supply	Quantity	1
	Design	Terminal block, 5-pin
	Properties	Input voltage: • 12 to 24 VDC • min. 10.8 VDC, max. 28.8 VDC Maximum power consumption 8 W Maximum cable length < 3 m

		M876-4 (NAM)
Digital input	Quantity	1
	Design	Terminal block, 2-pin
	Properties	Rated voltage 24 VDC Safety Extra Low Voltage (SELV)
		For state "1": 10 to 30 VDC
		For state "0": -30 to 3 VDC
		Maximum input current 8 mA
		Cables should be routed in pairs
		Maximum cable length < 30 m
		Inputs isolated from electronics.
Digital output	Quantity	1
	Design	Terminal block, 2-pin
	Properties	Rated voltage 24 VDC Safety Extra Low Voltage (SELV)
		Relay, internally not current limited
		Maximum current carrying capacity 1 A
		Cables should be routed in pairs
		Maximum cable length < 30 m
		Output isolated from electronics
Permitted ambient conditions		
Ambient temperature	During operation	Vertical mounting position • Without air flow and with lateral clearance of 5 cm to the neighboring device: -20 °C ... +60 °C • Without clearance at the side and an air flow of 0.5 m/s (only with the "LTE only" mode) -20 °C to +70 °C Horizontal mounting position: • -20 °C ... +50 °C
	During storage	-40 °C to +70 °C
	During transportation	-40 °C to +70 °C
Relative humidity	During operation	≤ 95% at 25 °C, no condensation
Design, dimensions and weight		
Module format		Compact module S7-1500
Degree of protection		IP20
Weight		290 g
Dimensions (W x H x D)		34.8 x 147 x 134.7 mm
Installation options		• Mounting on a DIN rail • Installation on S7-300 mounting rail • Installation on S7-1500 mounting rail • Wall mounting • Mounting on a pedestal

	M876-4 (NAM)
Mounting position	• Vertical (ventilation openings at the top and bottom) • Horizontal (ventilation openings to the right and left) See Permitted ambient conditions
Product functions	
Configuration / management	• Web Based Management (WBM) via HTTP and HTTPS. • Command Line Interface (CLI) via Telnet and SSH
Security	• Router with NAT function – IP masquerading – NAPT – SourceNAT – NETMAP • Password protection • Firewall function – Port forwarding – IP firewall with stateful packet inspection (layer 3 and 4) – Global and user-defined firewall rules VPN functions – To establish a VPN (Virtual Private Network), the following functions are available – Up to 20 connections – IPsec VPN, OpenVPN (as client) • SINEMA RC client • Proxy server • Siemens Remote Service (SRS)

		M876-4 (NAM)
Monitoring / diagnostics / maintenance		• LEDs Display of operating statuses via the LED display. You will find additional information on this in the operating instructions of the device. • Logging Events can be logged for monitoring. • SNMPv1/v2/v3 For monitoring and controlling network components such as routers or switches from a central station.
Other functions		• Time-of-day synchronization – NTP client and NTP server – Secure NTP server – SIMATIC time client – SNTP client • DHCP – DHCP server (local network) • Virtual networks (VLAN) To structure Industrial Ethernet networks with a fast growing number of devices, a physical network can be divided into several virtual subnets • Digital input/digital output • Dynamic DNS client • DNS client and DNS proxy • SMTP client

8.6 SCALANCE M876-4

		M876-4
Article number		6GK5 876-4AA10-2BA2
Ethernet interface		
Connection to Industrial Ethernet	Quantity	4
	Design	RJ-45 jack Characteristics: • 10/100BASE-T • Ethernet IEEE 802.3 • 10/100 Mbps
Wireless interface		

		M876-4
Antenna connector	Quantity	2 A1: Main antenna A2: UMTS: RX diversity LTE: RX MIMO
	Design	SMA socket (straight)
	Impedance	50 Ω nominal
	Antenna cable	Cable length < 30 m
Frequency bands	LTE bands	B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B26, B28, B66
	LTE TDD:	B38, B40, B41
	UMTS with HSPA+	B1, B2, B3, B4, B5, B6, B8, B19
	GSM	850 MHz, 900 MHz, 1800 MHz, 1900 MHz
LTE	Transmission speed	• Downlink: up to 100 Mbps • Uplink: up to 50 Mbps
UMTS with HSPA+	Transmission speed	• HSDPA (downlink): up to 14.4 Mbps • HSUPA (uplink): up to 5.76 Mbps
EGPRS	Properties	Multislot class 12, end device class B • Coding scheme downlink: CS 1 ... 4, MCS 1 ... 9 • Coding scheme uplink: CS 1 ... 4, MCS 1 ... 9
	Transmission speed	• Downlink: up to 237 kbps: • Uplink: up to 237 kbps:
GPRS	Properties	Multislot class 12, end device class B, coding scheme 1 ... 4
	Transmission speed	• Downlink: up to 85.6 kbps. • Uplink: up to 85.6 kbps.
GSM (CSD dial-in)	Properties	Radio Link Protocol (RLP) V.110, non-transparent
	Transmission speed	up to 14.4 kbps
SMS (TX)	Properties	Text mode, SMSoverIP
Electrical data		
Power supply	Quantity	1
	Design	Terminal block, 5-pin
	Properties	Input voltage: • 12 to 24 VDC • min. 10.8 VDC, max. 28.8 VDC Maximum power consumption 8 W Maximum cable length < 3 m

		M876-4
Digital input	Quantity	1
	Design	Terminal block, 2-pin
	Properties	Rated voltage 24 VDC Safety Extra Low Voltage (SELV)
		For state "1": 10 to 30 VDC For state "0": -30 to 3 VDC Maximum input current 8 mA Cables should be routed in pairs Maximum cable length < 30 m Inputs isolated from electronics.
Digital output	Quantity	1
	Design	Terminal block, 2-pin
	Properties	Rated voltage 24 VDC Safety Extra Low Voltage (SELV)
		Relay, internally not current limited Maximum current carrying capacity 1 A Cables should be routed in pairs Maximum cable length < 30 m Output isolated from electronics
Permitted ambient conditions		
Ambient temperature	During operation	Vertical mounting position • Without air flow and with lateral clearance of 5 cm to the neighboring device: -20 °C to +60 °C • Without clearance at the side and an air flow of 0.5 m/s (only with the "LTE only" mode) -20 °C to +70 °C Horizontal mounting position: • -20 °C to +50 °C
	During storage	-40 °C to +70 °C
	During transportation	-40 °C to +70 °C
Relative humidity	During operation	≤ 95% at 25 °C, no condensation
Design, dimensions and weight		
Module format		Compact module S7-1500
Degree of protection		IP20
Weight		290 g
Dimensions (W x H x D)		34.8 x 147 x 134.7 mm
Installation options		• Mounting on a DIN rail • Installation on S7-300 mounting rail • Installation on S7-1500 mounting rail • Wall mounting • Mounting on a pedestal

	M876-4
Mounting position	• Vertical (ventilation openings at the top and bottom) • Horizontal (ventilation openings to the right and left) See Permitted ambient conditions.
Product functions	
Configuration / management	• Web Based Management (WBM) via HTTP and HTTPS. • Command Line Interface (CLI) via Telnet and SSH
Security	• Router with NAT function – IP masquerading – NAPT – SourceNAT – NETMAP • Password protection • Firewall function – Port forwarding – IP firewall with stateful packet inspection (layer 3 and 4) – Global and user-defined firewall rules VPN functions – To establish a VPN (Virtual Private Network), the following functions are available – Up to 20 connections – IPsec VPN, OpenVPN (as client) • SINEMA RC client • Proxy server • Siemens Remote Service (SRS)

	M876-4
Monitoring / diagnostics / maintenance	• LEDs Display of operating statuses via the LED display. You will find additional information on this in the operating instructions of the device. • Logging Events can be logged for monitoring. • SNMPv1/v2/v3 For monitoring and controlling network components such as routers or switches from a central station.
Other functions	• Time-of-day synchronization – NTP client and NTP server – Secure NTP server – SIMATIC time client – SNTP client • DHCP – DHCP server (local network) Virtual networks (VLAN) To structure Industrial Ethernet networks with a fast growing number of devices, a physical network can be divided into several virtual subnets • Digital input/digital output • Dynamic DNS client • DNS client and DNS proxy • SMTP client

8.7 Antenna gain

Antenna gain for M874-2, M87x-3

Users and installers must be provided with antenna installation instructions and transmitter operating conditions that must be followed to avoid exceeding the permitted RF exposure.

	Maximum antenna gain	
	GSM 1800	**GSM 900**
SCALANCE M874-2	10.04 dBi	4.05 dBi
SCALANCE M874-3	9.36 dBi	2.91 dBi
SCALANCE M876-3	9.36 dBi	2.91 dBi

Antenna gain for M876-4

Note

Depending on the selected wireless standard and the wireless frequency used, antennas with different antenna gains can be used. If you change the frequency band during operation, it is possible that the maximum permitted antenna again also changes. Check whether the antenna you are using is approved for the changed frequency range. If necessary, change the antenna so as not to violate the operational requirements. Or use an antenna with a gain less than 3.58 dBi to cover all bands.

Frequency band	Maximum antenna gain in dBi
GSM /GPRS 900	3.58
E-GPRS 900	9.88
GSM /GPRS 1800	9.84
E-GPRS 1800	13.85
UMTS FDD1	13.35
UMTS FDD III	13.45
UMTS VIII	10.27
LTE FDD 3	12.66
LTE FDD 7	13.86
LTE FDD 8	10.58
LTE FDD 20	8.76

Antenna gain for M876-4NAM

R&TTE / RED (Europe)

Frequency band		Maximum antenna gain in dBi
900 MHz	GSM /GPRS 900	2.96
	GSM /GPRS 1800	8.85

FFC (USA)

Frequency band			Maximum antenna gain in dBi
850 MHz	LTE	850 MHz = band 5	3.25
		700 MHz = band 17	3.25
	GSM	850 MHz = GSM 850	3.25
	UMTS with HSPA+	850 MHz = band V	3.25
1700 MHz	LTE	AWS = band 4	5.5
	UMTS with HSPA+	AWS = band IV	5.5
1900 MHz	LTE	1900 MHz = band 2	2.51
	GSM	1900 MHz = GSM 1900	2.51
	UMTS with HSPA+	1900 MHz = band II	2.51

IC (Canada)

Frequency band		Maximum antenna gain in dBi
850 MHz		
LTE	850 MHz = band 5	0.16
	700 MHz = band 13	0.16
	700 MHz = band 17	0.16
GSM	850 MHz = GSM 850	0.16
UMTS with HSPA+	850 MHz = band V	0.16
1700 MHz		
LTE	AWS = band 4	5.5
UMTS with HSPA+	AWS = band IV	5.5
1900 MHz		
LTE	1900 MHz = band 2	2.51
GSM	1900 MHz = GSM 1900	2.51
UMTS with HSPA+	1900 MHz = band II	2.51

Dimension drawings

9

Note

CAx data

You can find the CAx data on the Internet at (https://www.automation.siemens.com/bilddb/index.aspx?lang=en)

1. Click on the "CAx data" link in the "Direct Links" area.
   The Industry Image Database page is loaded.
2. Enter the name or article number of the product in the search filter.
   You can refine your search using the "Motif type" selection list.

9.1 SCALANCE M874

Dimensions are specified in mm.

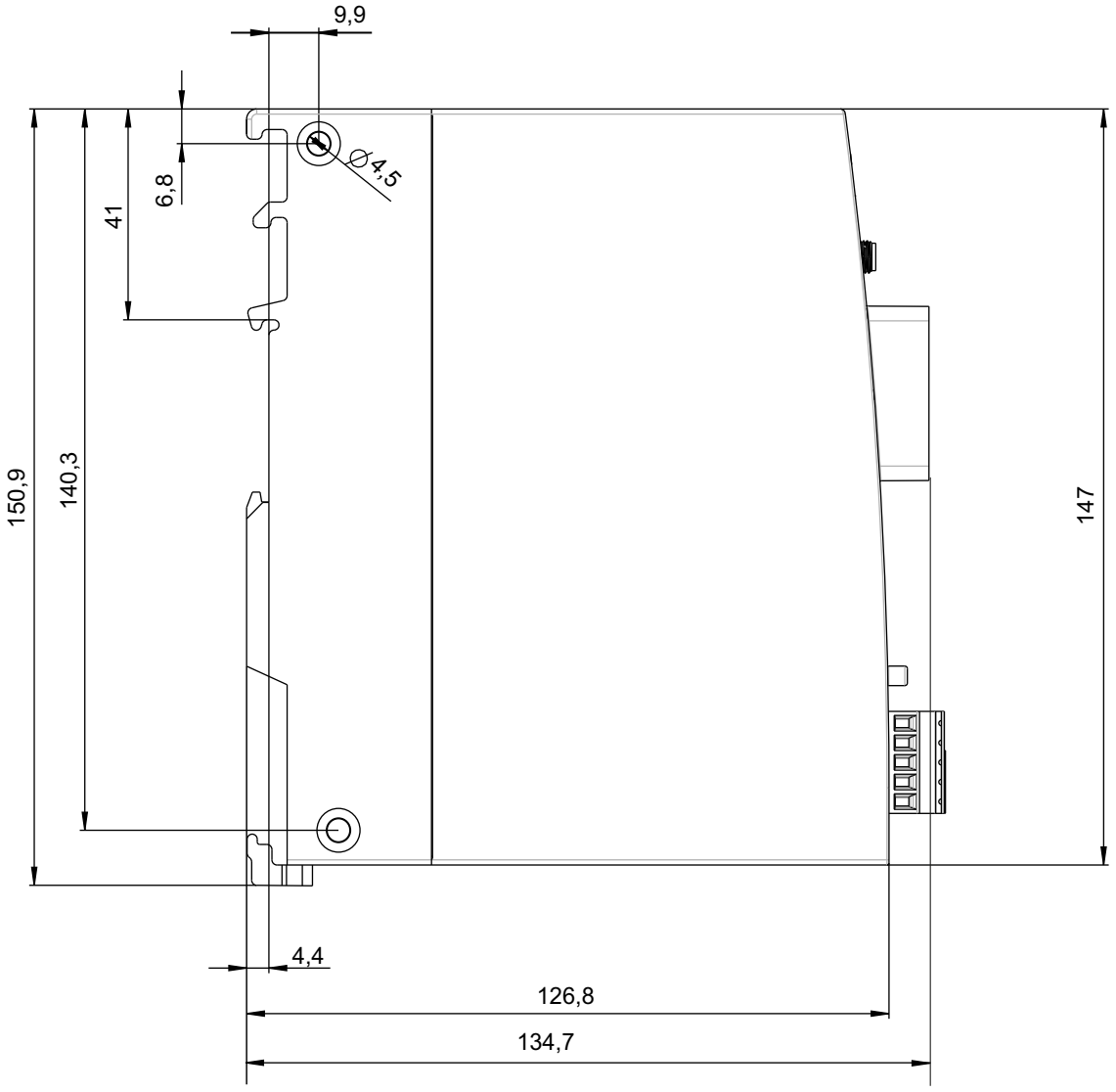


Figure 9-1 Side view M874-2 and M874-3

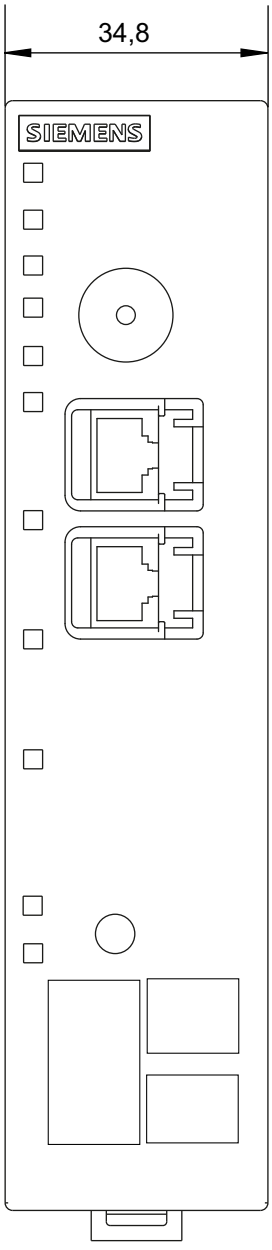


Figure 9-2 Front view M874-2 and M874-3

9.2 SCALANCE M876

Dimensions are specified in mm.

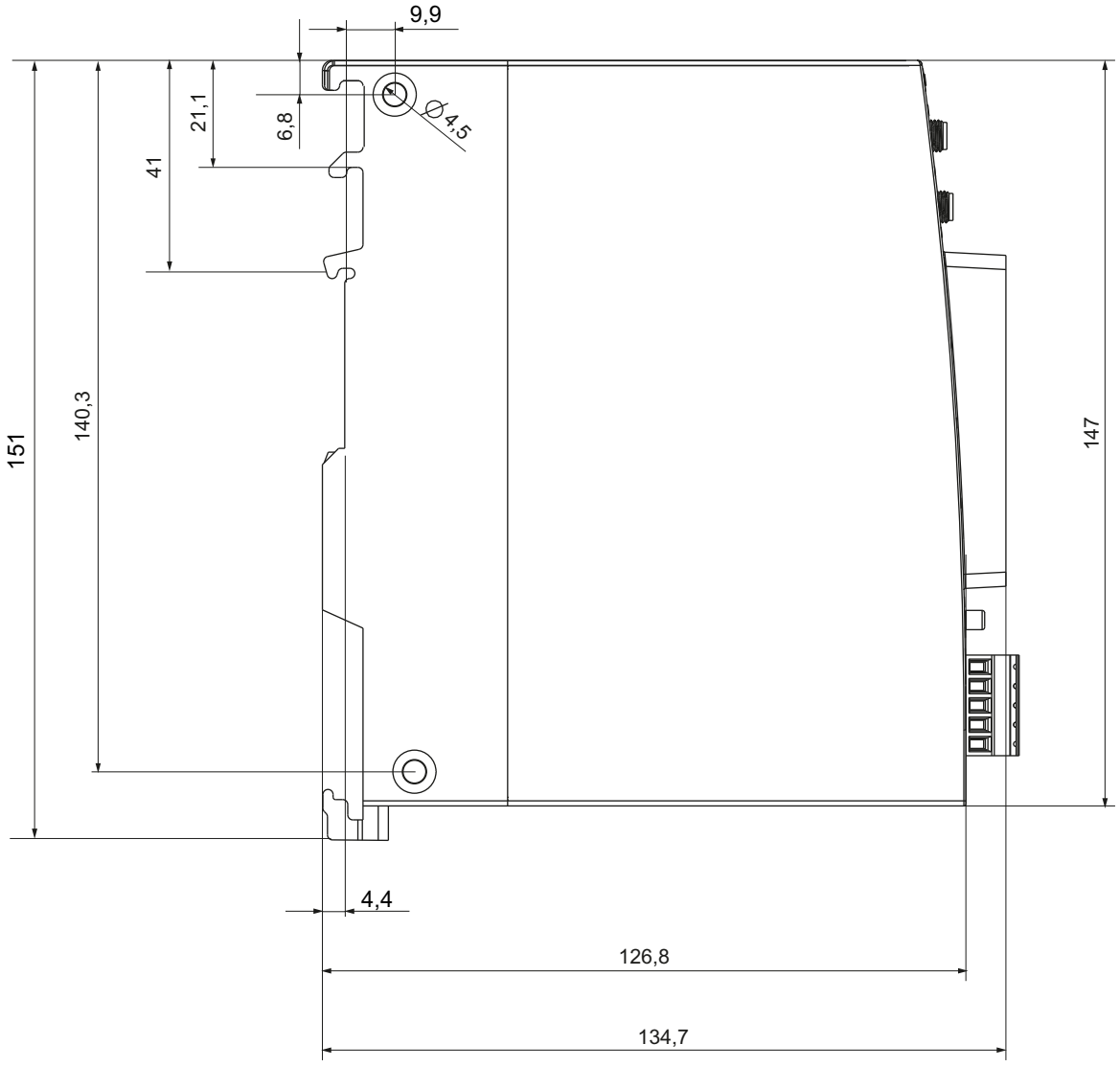


Figure 9-3 M876-3 and M876-4 side view

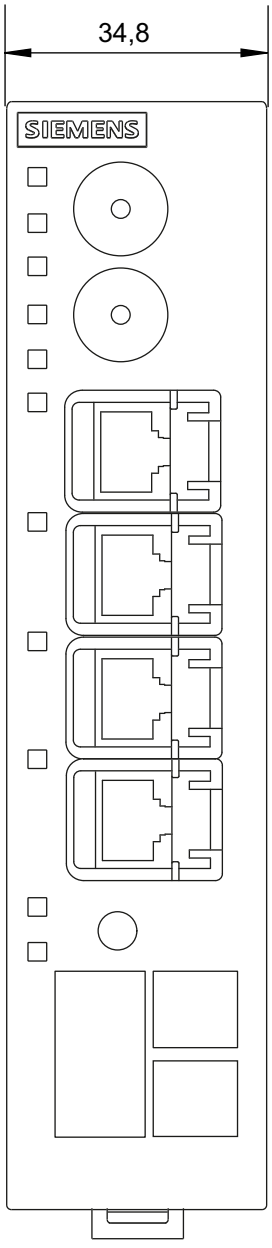


Figure 9-4 M876-3 and M876-4 front view

9.3 19" installation frame

Dimensions are specified in mm.

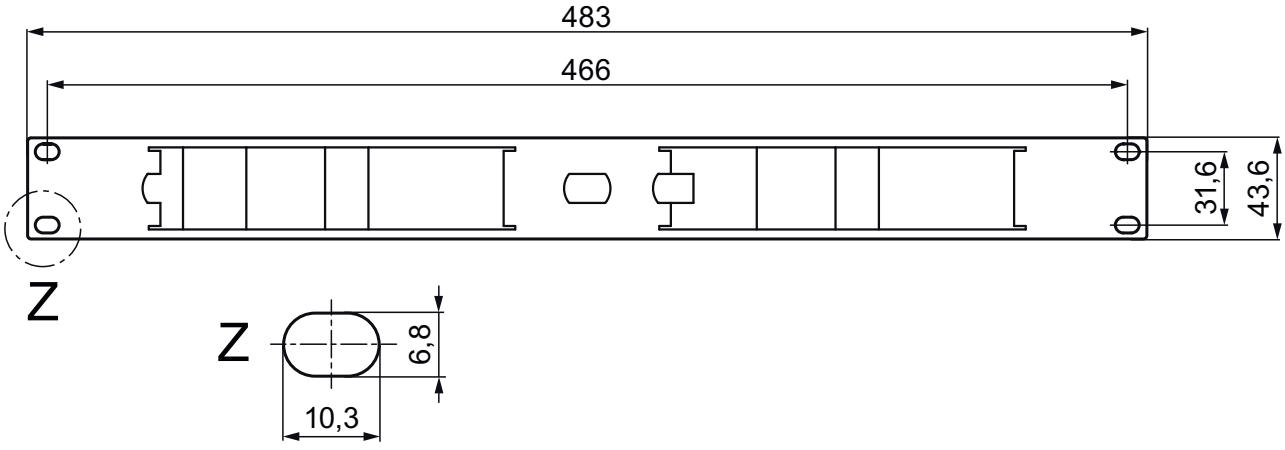


Figure 9-5 Front view

Approvals

10

Approvals issued

Note

Issued approvals on the type plate of the device

The specified approvals apply only when the corresponding mark is printed on the product. You can check which of the following approvals have been granted for your product by the markings on the type plate.

Approvals for shipbuilding are not printed on the device type plate.

National approvals

You can find an overview of the country-specific wireless approvals of SIMATIC NET devices on the Internet pages of Siemens Industry Online Support. You can find the link to the document on the following page

ik-Info (https://www.siemens.com/mobilenetwork-approvals)

Current approvals on the Internet

You will find the current approvals for the product on the Internet pages of Siemens Industry Online Support at the following link: (https://support.industry.siemens.com/cs/ww/en/ps/15987/cert)

Installation guidelines

The devices meet the requirements if you adhere to the installation and safety instructions contained in this documentation and in the following documentation when installing and operating the devices.

- "Industrial Ethernet / PROFINET Industrial Ethernet" System Manual (https://support.industry.siemens.com/cs/ww/en/view/27069465)
- "Industrial Ethernet / PROFINET - Passive Network Components" System Manual (https://support.industry.siemens.com/cs/ww/en/view/84922825)
- "EMC Installation Guidelines" configuration manual (https://support.industry.siemens.com/cs/ww/en/view/60612658)

⚠ WARNING

Personal injury and property damage can occur

The installation of expansions that are not approved for products or their target systems may violate the requirements and regulations for safety and electromagnetic compatibility.

Only use expansions that are approved for the system.

Note

The test was performed with a device and a connected communications partner that also meets the requirements of the standards listed above.

When operating the device with a communications partner that does not comply with these standards, adherence to the corresponding values cannot be guaranteed.

10.1 EC declaration of conformity

CE

The EC Declaration of Conformity is available for all responsible authorities at:

Siemens Aktiengesellschaft
Digital Industries
Process Automation
DE-76187 Karlsruhe
Germany

You can find the current EU declaration of conformity for these products on the Internet pages under Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/ps/15987/cert).

The products described in this document meet the requirements of the following EC directives:

- ATEX directive 2014/34/EU
  Directive of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres; official journal of the EU L96, 29/03/2014, pages 309-356
- RoHS directive 2011/65/EU
  Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 01/07/2011, pages 88-110
- Radio equipment directive 2014/53/EU (RED, Radio Equipment Directive)
  Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the Member States relating to the making available on the market of radio equipment; official journal of the EU L153, 22/05/2014, pages 62-106

10.1.1 ATEX

ATEX directive (correct usage in potentially explosive atmospheres)

The SIMATIC NET products described in these operating instructions meet the requirements of the EU directive 2014/34/EU "Equipment and Protective Devices for Use in Potentially Explosive Atmospheres".

Applied standards:

1. EN / EN IEC 60079-0
   Hazardous areas - Part 0: Equipment - General requirements
2. EN 60079-7
   Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
3. EN / EN IEC 60079-15
   Explosive atmospheres - Part 15: Equipment protection by type of protection "n"

10.1.2 RoHS

RoHS directive (restriction of the use of certain hazardous substances)

The SIMATIC NET products described in these operating instructions meet the requirements of the EC directive 2011/65/EC for the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

4 EN IEC 63000

Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

10.1.3 RED

10.1.3.1 Protection of health and safety

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) protection of health and safety

5 EN 62368-1+A11

Audio/video, information and communication technology equipment - Part 1: Safety requirements

6 EN 62311

Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz)

10.1.3.2 EMC

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Art. 3 (1) b) EMC:

7 ETSI EN 301 489-1

Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements

8 ETSI EN 301 489-7

Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 7: Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)

9 ETSI EN 301 489-24

Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 24: Specific conditions for mobile and portable IMT-2000 CDMA Direct Spread (UTRA) radio and ancillary equipment

10 ETSI EN 301 489-52

Electromagnetic Compatibility (EMC) standard for radio equipment and services; - Part 52: Specific conditions for Cellular Communication Mobile and portable (UE) radio and ancillary equipment; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU (IEC 2016-11)

11 EN 50121-3-2

Railway applications - Electromagnetic compatibility - part 3-2: Rolling stock - Devices

12 EN 50121-4

Railway applications - Electromagnetic compatibility - part 4: Emission and immunity of the signaling and telecommunications apparatus

13 EN 55032 + A11
Electromagnetic compatibility of multimedia equipment – Emission requirements

14 EN 55035 + A11
Electromagnetic compatibility of multimedia equipment - Immunity requirements

15 EN 61000-6-1

Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments

16 EN 61000-6-2

Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

17 EN 61000-6-3 + A1 + AC

Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments

18 EN 61000-6-4

Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

10.1.3.3 Efficient use of the radio spectrum

The products described in this document meet the requirements of the applied standards:

Art. 3 (2) Efficient use of the radio spectrum

19 ETSI EN 301 511

Global System for Mobile communications (GSM); Harmonized EN for mobile stations in the GSM 900 and GSM 1800 bands covering essential requirements under article 3.2 of the R&TTE directive

20 ETSI EN 301 908-1

IMT cellular networks - Harmonized EN covering the essential requirements of article 3.2 of the R&TTE directive - Part 1: Introduction and common requirements

21 ETSI EN 301 908-2

IMT cellular networks - Harmonized EN covering the essential requirements of article 3.2 of the R&TTE directive - Part 2: CDMA Direct Spread (UTRA FDD) User Equipment (UE)

22 ETSI EN 301 908-13

IMT cellular networks - Harmonized EN covering the essential requirements of article 3.2 of the R&TTE directive - Part 13: Evolved Universal Terrestrial Radio Access (E-UTRA) User Equipment (UE)

10.1.4 Other technical standards

23 CISPR 32
Electromagnetic compatibility of multimedia equipment - Emission requirements
24 CISPR 35
Electromagnetic compatibility of multimedia equipment - Immunity requirements

10.1.5 Products

CE conformity

The standards that apply to the product are described in ATEX (Page 109), RoHS (Page 109) and RED (Page 110).

Product	Standards
SCALANCE M874-2	1, 2[1)], 3[1)], 4, 5, 6, 7, 8, 10, 13, 14, 15, 16, 17, 18, 19, 23, 24
SCALANCE M874-3	1, 2[1)], 3[1)], 4, 5, 6, 7, 8, 9, 10, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24
SCALANCE M876-3	1, 2[1)], 3[1)], 4, 5, 6, 7, 8, 9, 10, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24
SCALANCE M876-4	1, 2[1)], 3[1)], 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24

[1)] According to rating plate

10.2 UK Declaration of Conformity

UK CA

The UK declaration of conformity is available to all responsible authorities at:

Siemens Aktiengesellschaft
Digital Industries
Process Automation
DE-76187 Karlsruhe
Germany

Importer UK:
Siemens plc,
Manchester M20 2UR
United Kingdom

You can find the current UK Declaration of Conformity for these products on the Internet pages under Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/ps/15987/cert).

The SIMATIC NET products described in this document meet the requirements of the following directives:

- UK Regulation
  SI 2016/1107 The Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016, and related amendments
- RoHS Regulation
  SI 2012/3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012, and related amendments
- Radio Equipment Regulation
  SI 2017/1206 The Radio Equipment Regulations 2017

10.2.1 The Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016

Correct usage in potentially explosive atmospheres

The SIMATIC NET products described in these operating instructions meet the requirements of "The Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016".

Applied standard:

1 EN / EN IEC 60079-0
  Hazardous areas - Part 0: Equipment - General requirements
2 EN 60079-7
  Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
3 EN / EN IEC 60079-15
  Explosive atmospheres - Part 15: Equipment protection by type of protection "n"

10.2.2 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

Restriction of the use of certain hazardous substances

The SIMATIC NET products described in these operating instructions meet the requirements of "The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012".

Applied standard:

4 EN IEC 63000
  Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

10.2.3 Radio Equipment Regulations 2017

10.2.3.1 Protection of health and safety

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) protection of health and safety

5 EN 62368-1+A11

Audio/video, information and communication technology equipment - Part 1: Safety requirements

6 EN 62311

Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz)

10.2.3.2 EMC

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Art. 3 (1) b) EMC:

7 ETSI EN 301 489-1

Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements

8 ETSI EN 301 489-7

Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 7: Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)

9 ETSI EN 301 489-24

Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 24: Specific conditions for mobile and portable IMT-2000 CDMA Direct Spread (UTRA) radio and ancillary equipment

10 ETSI EN 301 489-52

Electromagnetic Compatibility (EMC) standard for radio equipment and services; - Part 52: Specific conditions for Cellular Communication Mobile and portable (UE) radio and ancillary equipment; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU (IEC 2016-11)

11 EN 50121-3-2

Railway applications - Electromagnetic compatibility - part 3-2: Rolling stock - Devices

12 EN 50121-4

Railway applications - Electromagnetic compatibility - part 4: Emission and immunity of the signaling and telecommunications apparatus

13 EN 55032 + A11
Electromagnetic compatibility of multimedia equipment – Emission requirements

14 EN 55035 + A11
Electromagnetic compatibility of multimedia equipment - Immunity requirements

15 EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments

16 EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

17 EN 61000-6-3 + A1 + AC
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments

18 EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

10.2.3.3 Efficient use of the radio spectrum

The products described in this document meet the requirements of the applied standards:

Art. 3 (2) Efficient use of the radio spectrum

19 ETSI EN 301 511
Global System for Mobile communications (GSM); Harmonized EN for mobile stations in the GSM 900 and GSM 1800 bands covering essential requirements under article 3.2 of the R&TTE directive

20 ETSI EN 301 908-1
IMT cellular networks - Harmonized EN covering the essential requirements of article 3.2 of the R&TTE directive - Part 1: Introduction and common requirements

21 ETSI EN 301 908-2
IMT cellular networks - Harmonized EN covering the essential requirements of article 3.2 of the R&TTE directive - Part 2: CDMA Direct Spread (UTRA FDD) User Equipment (UE)

22 ETSI EN 301 908-13
IMT cellular networks - Harmonized EN covering the essential requirements of article 3.2 of the R&TTE directive - Part 13: Evolved Universal Terrestrial Radio Access (E-UTRA) User Equipment (UE)

10.2.4 Other technical standards

23 CISPR 32
Electromagnetic compatibility of multimedia equipment - Emission requirements

24 CISPR 35
Electromagnetic compatibility of multimedia equipment - Immunity requirements

10.2.5 Products

UK conformity

The standards that apply to the product are described in The Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016 (Page 113), The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (Page 113) and Radio Equipment Regulations 2017 (Page 114).

Product	Standards
SCALANCE M874-2	1, 2[1)], 3[1)], 4, 5, 6, 7, 8, 10, 13, 14, 15, 16, 17, 18, 19, 23, 24
SCALANCE M874-3	1, 2[1)], 3[1)], 4, 5, 6, 7, 8, 9, 10, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24
SCALANCE M876-3	1, 2[1)], 3[1)], 4, 5, 6, 7, 8, 9, 10, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24
SCALANCE M876-4	1, 2[1)], 3[1)], 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24

[1)] According to rating plate

10.3 Supplier's declaration of conformity

The RCM declaration of conformity is available to all responsible authorities at:

Siemens Aktiengesellschaft
Digital Industries
Process Automation
DE-76187 Karlsruhe
Germany

You can find the current Supplier's declaration of conformity for these products on the Internet pages under Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/ps/15987/cert)

As required by the following Notices:

- Radiocommunications (Compliance Labelling - Devices) Notice 2014 made under section 182 of the Radiocommunications Act 1992;
- Radiocommunications Labelling (Electromagnetic Compatibility) Notice 2017 made under section 182 of the Radiocommunications Act 1992
- Radiocommunications (Compliance Labelling – Electromagnetic Radiation) Notice 2014 made under section 182 of the Radiocommunications Act 1992
- Telecommunications (Labelling Notice for Customer Equipment and Customer Cabling) Instrument 2015 made under section 407 of the Telecommunications Act 1997.

Including the standard

- ETSI EN 301 489-1
- ETSI EN 301 489-3

- ETSI EN 301 489-17
- ETSI EN 300 328
- ETSI EN 300 440
- ETSI EN 301 893

10.4 General approvals

ATEX, IECEx, UKEX and CCC Ex certification

⚠ WARNING

Risk of explosion in hazardous areas

When using SIMATIC NET products in hazardous area zone 2, make absolutely sure that the associated conditions in the following document are adhered to:

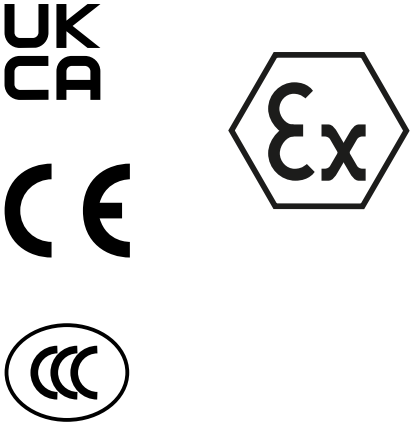
"SIMATIC NET Product Information Use of subassemblies/modules in a Zone 2 Hazardous Area".

You will find this document

- on the data medium that ships with some devices.
- on the Internet pages under Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/view/78381013).

Enter the document identification number C234 as the search term.

The markings of the electrical devices are:



II 3G Ex ec IIC T4 Gc
DEKRA 18ATEX0026 X
DEKRA 21UKEX0002 X
IECEx DEK 18.0018X
Importer UK:
Siemens plc,
Manchester
M20 2UR, UK

(Ex na IIC T4 Gc, not on the nameplate)

The product meets the requirements of the standards:

- EN/IEC 60079-7, GB 3836.8
- EN IEC/IEC 60079-0, GB 3836.1

You will find the current versions of the standards in the currently valid certificates.

FM

The product meets the requirements of the standards:

- Factory Mutual Approval Standard Class Number 3611 / 3600 / 3810 / ANSI ISA-61010-1
- FM Hazardous (Classified) Location Electrical Equipment:
  Non Incendive / Class I / Division 2 / Groups A,B,C,D / T4 and
  Non Incendive / Class I / Zone 2 / Group IIC / T4

cULus Approval for Information Technology Equipment

cULus Listed I. T. E.

Underwriters Laboratories Inc. complying with

- UL 62368-1
- CSA C22.2 No. 62368-1

Report no. E115352

cULus approval for industrial control equipment

cULus Listed I. T. E.

Underwriters Laboratories Inc. complying with

- UL 61010-1
- UL 61010-2-201
- CSA C22.2 NO 61010-1
- CSA C22.2 NO 61010-2-201

Report no. E115352

cULus Approval Hazardous Location

cULus Listed I. T. E. for HAZ. LOC.

Underwriters Laboratories Inc. complying with

- UL 121201 (Non Incendive electrical equipment) approved for use in Class I, Division 2, Groups A, B, C, D, T4.
- UL CSA C22.2 NO 213 (Non Incendive electrical equipment) approved for use in Class I, Zone 2, Group IIC, T4.

RCM (C-Tick) Declaration of conformity for Australia/New Zealand

Australian Communications and Media Authority, for compliance levels 1, 2 and 3 in Australia and levels of conformity 1, 2 and 3 in New Zealand. As required by notices under:

- Section 182 of the Australian Radiocommunications Act 1992;
- Section 407 of the Australian Telecommunications Act 1997; and
- Section 134 of the New Zealand Radiocommunications Act 1989

- Radiocommunications (Compliance Labelling - Devices) Notice 2014 made under section 182 of the Radiocommunications Act 1992
- Radiocommunications Labelling (Electromagnetic Compatibility) Notice 2008 made under section 182 of the Radiocommunications Act 1992
- Radiocommunications (Compliance Labelling – Electromagnetic Radiation) Notice 2014 made under section 182 of the Radiocommunications Act 1992 and
- Telecommunications (Labelling Notice for Customer Equipment and Customer Cabling)Instrument 2015 made under section 407 of the Telecommunications Act 1997

You can find the current declaration of conformity for these products on the Internet pages under Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/ps/15914/cert)

The products described in this document meet the requirements of the standards designated under Product:

1 EN 62368-1 + A11
2 ETSI EN 301 489-1
3 ETSI EN 301 489-7
4 ETSI EN 301 489-24
5 ETSI EN 301 489-52
6 ETSI EN 301 511
7 ETSI EN 301 908-1
8 ETSI EN 301 908-13
9 1999/519/EC
10 EN 62311
11 FCC part 22
12 FCC part 24
13 FCC part 27
14 AS/CA S042.1
15 AS/ACIF S042.3
16 AS/CA S042.4
17 AS/NZS 60950.1 + Amdt

Products

Product	Standards	
	Australia	New Zealand
SCALANCE M874-2	--	--
SCALANCE M874-3	1, 2, 3, 4, 7, 9, 10, 11, 12, 13	--
SCALANCE M876-3	--	--
SCALANCE M876-4	1, 2, 3, 4, 5, 6, 7, 8, 14, 15, 16, 17	1, 2, 3, 4, 5, 6, 7

Conformity with FCC

The FCC approval applies to the following SCALANCE M device:

	FCC ID
SCALANCE M874-3	QIPPHS8-P
SCALANCE M876-3	QIPPHX8
SCALANCE M876-4 (NAM)	QIPPLS8-X

FCC Part 15

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy.

If not installed and used in accordance with the instructions, this may cause harmful interference to wireless communications. There can be no guarantee, however, with certain installations, even when complying with the instructions, that no interference will be caused. If this equipment does cause harmful interference to radio or television reception that can be determined by turning the equipment off and on, the user is recommended to try to combat the interference with the following measures.

- Change the orientation of the receiving antenna or install it at a different location.
- Increase the distance between the SCALANCE M and the radio or television receiver.
- Connect the device to an outlet on a circuit different from that to which the receiver is connected.
- Consult a dealer / installer or an experienced radio / TV technician.

FCC Part 15.19

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

- This device must not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

FCC Part 15.21

Modifications to the device not expressly approved by the manufacturer could void the user's right to operate the equipment.

The SCALANCE M may only be used with an antenna from the range of accessories of the SCALANCE M.

The installation of the SCALANCE M and the antenna as well as servicing must be performed by qualified technical personnel only. When servicing the antenna, or working at distances closer than those listed below, make sure that the device has been turned off.

This device contains GSM, GPRS Class 12, EGPRS Class 10, and UMTS functions in the 900 and 1800 MHz band that must not be used in territories of the USA.

This device can be used for mobile and fixed applications. Internal / external antennas used with this device must be at a distance of at least 20 cm from all persons and must not be located so that they operate in combination with any other antenna or transmitter.

Users and installers must be provided with antenna installation instructions and transmitter operating conditions that must be followed to avoid exceeding the permitted RF exposure.

Antennas for the transmitter module used must not exceed the following antenna gains in operating con igurations for mobile and ixed applications, see Maximum antenna gain (Page 98).

This device is approved as a module for installation in other devices.

RSS-247 of Industry Canada for SCALANCE M876-4 (NAM)

This device complies with Industry Canada licence-exempt RSS standard(s).

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This radio transmitter (IC: 267AA-MPCIE1V1) has been approved by Industry Canada to operate with the antenna types listed in section 5.4 with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

That the device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems.

Users should also be cautioned to take note that high power radars are allocated as primary users (meaning they have priority) of 5250-5350 MHz and 5650-5850 MHz and these radars could cause interference and/or damage to LE-LAN devices.

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1)

l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

See also

Antenna gain (Page 98)

Marking for the customs union

EAC (Eurasian Conformity)

Eurasian Economic Union of Russia, Belarus, Armenia, Kazakhstan and Kyrgyzstan

Declaration of conformity according to the technical regulations of the customs union (TR ZU)

Taiwan: NCC "WARNINGS"

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

Mexico

La operación de este equipo está sujeta a las siguientes dos condiciones.

1. Es posible que este equipo o dispositivo no cause interferencia perjudicial y
2. Este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

Este equipo ha sido diseñado para operar con las antenas que enseguida se enlistan "Antenas (Page 28)" y para una ganancia máxima de antena de 6 dBi.

El uso con este equipo de antenas no incluidas en esta lista o que tengan una ganancia mayor que 6 dBi quedan prohibidas. La impedancia requerida de la antena es de 50 ohms

Brazil

Para maiores informações, consulte o site da ANATEL – www.anatel.gov.br

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