

SIEMENS

SIMATIC NET

Industrial Wireless LAN SCALANCE W774-1/W734-1




Operating Instructions

<u>Information on the Internet</u>	1
<u>Introduction</u>	2
<u>Description</u>	3
<u>Mounting</u>	4
<u>Connection</u>	5
<u>Technical data</u>	6
<u>Dimension drawings</u>	7
<u>Approvals</u>	8

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.

Contents

1	Information on the Internet	5
2	Introduction	7
2.1	Information on the Operating Instructions	7
2.2	Structure of the type designation	8
2.3	Security information	8
3	Description	9
3.1	Components of the product	9
3.2	LED display	9
3.3	Reset button	11
4	Mounting	13
4.1	Wall mounting	14
4.2	Installing on an S7-300 standard rail	16
4.3	Installing on an S7-1500 standard rail	17
4.4	Installing on a DIN rail / removing	18
5	Connection	21
5.1	Lightning protection, power supply and grounding	21
5.2	Power supply	25
5.3	Ethernet	28
5.4	Suitable cables for power supply and Ethernet	30
5.5	Antenna connectors	31
5.6	Suitable antenna cables and antennas	32
5.7	Replacing the PLUG (C-PLUG or KEY-PLUG)	35
6	Technical data	39
6.1	Technical specifications W774/W734 RJ-45	39
6.2	Technical specifications W774 M12	42
7	Dimension drawings	45
8	Approvals	47
	Index	49

Information on the Internet

Bitte beachten Sie die Warnhinweise und zusätzlichen Informationen in der Kompaktbetriebsanleitung in Ihrer Sprache im Internet:

<http://support.automation.siemens.com/ww/view/at/10806097>

<http://support.automation.siemens.com/ww/view/ch/10806097>

<http://support.automation.siemens.com/ww/view/de/10806097>

<http://support.automation.siemens.com/ww/view/li/10806097>

<http://support.automation.siemens.com/ww/view/lu/10806097>

Please observe the warnings and additional information in the compact operating instructions in your language in the Internet:

<http://support.automation.siemens.com/ww/view/au/10806097>

<http://support.automation.siemens.com/ww/view/ca/10806097>

<http://support.automation.siemens.com/ww/view/gb/10806097>

<http://support.automation.siemens.com/ww/view/ie/10806097>

<http://support.automation.siemens.com/ww/view/us/10806097>

<http://support.automation.siemens.com/ww/view/za/10806097>

Veillez tenir compte des avertissements et informations supplémentaires de la notice de service dans votre langue sur Internet:

<http://support.automation.siemens.com/ww/view/be/10806097>

<http://support.automation.siemens.com/ww/view/ch/10806097>

<http://support.automation.siemens.com/ww/view/fr/10806097>

<http://support.automation.siemens.com/ww/view/lu/10806097>

Si prega di tenere conto delle avvertenze e ulteriori informazioni nell'istruzione operativa compatta nella relativa lingua in Internet:

<http://support.automation.siemens.com/ww/view/it/10806097>

Se ruego tener en cuenta las advertencias y las informaciones complementarias contenidas en las instrucciones de servicio (resumen) en español en Internet:

<http://support.automation.siemens.com/ww/view/cl/10806097>

<http://support.automation.siemens.com/ww/view/es/10806097>

Dbejte prosím na výstražné pokyny a doplňkové informace v kompaktním návodu k obsluze ve vašem jazyce na internetu:

<http://support.automation.siemens.com/ww/view/cz/10806097>

Vær venligst opmærksom på de advarselsanvisninger og ekstra informationer der findes på dit sprog i kompaktdriftsvejledningen på internettet:

<http://support.automation.siemens.com/ww/view/dk/10806097>

Noudata lyhyen käyttöoppaan sisältämiä varoituksia ja huomio sen muutkin tiedot. Oman kielisesi käyttöoppaan löydät internetistä osoitteesta:

<http://support.automation.siemens.com/ww/view/fi/10806097>

Λάβετε υπόψη τις υποδείξεις προειδοποίησης και τις πρόσθετες πληροφορίες των συνοπτικών οδηγιών χρήσης που παρέχονται στη γλώσσα σας στο Διαδίκτυο:

<http://support.automation.siemens.com/ww/view/gr/10806097>

请注意互联网上精编版操作说明相应语言版本中的警告提示和附加信息：

<http://support.automation.siemens.com/ww/view/cn/10806097>

<http://support.automation.siemens.com/ww/view/hk/10806097>

<http://support.automation.siemens.com/ww/view/sg/10806097>

Kérjük, vegye figyelembe az interneten található, az Ön anyanyelvén íródott kompakt használati útmutatóban található figyelmeztetéseket és további információkat:

<http://support.automation.siemens.com/ww/view/hu/10806097>

Skoðið vel viðvaranir og aðrar upplýsingar í notkunarleiðbeiningunum á ykkar tungumáli á internetinu:

<http://support.automation.siemens.com/ww/view/is/10806097>

インターネットサイトにある各言語の注意事項および追加情報を参照してください:

<http://support.automation.siemens.com/ww/view/jp/10806097>

사이트에 있는 귀하의 언어로 된 콤팩트 사용 설명서에 명시된 경고 지침 및 추가 정보를 준수하십시오:

<http://support.automation.siemens.com/ww/view/kr/10806097>

يجب التنبيه إلى

ارشادات التحذير و المعلومات الإضافية المذكورة في دليل التشغيل الملخص بلغتكم و الموجود على شبكة الانترنت

<http://support.automation.siemens.com/ww/view/kw/10806097>

Neem goed nota van de waarschuwingen en extra informatie in de compacte gebruiksaanwijzing in uw taal op internet:

<http://support.automation.siemens.com/ww/view/be/10806097>

<http://support.automation.siemens.com/ww/view/nl/10806097>

Vennligst følg advarslene og annen informasjon i den kompakte bruksanvisningen, som du finner på ditt språk på internett:

<http://support.automation.siemens.com/ww/view/no/10806097>

Proszę zwrócić uwagę na ostrzeżenia oraz dodatkowe informacje w kompaktowej instrukcji obsługi, dostępnej w odpowiednim języku w internecie:

<http://support.automation.siemens.com/ww/view/po/10806097>

Observera varningshänvisningarna och extrainformationerna i kompaktbruksanvisningen som finns på ditt språk på internet:

<http://support.automation.siemens.com/ww/view/se/10806097>

İnternette kendi dilinizdeki kompakt işletim kılavuzunda yer alan uyarı notlarına ve ek bilgilere lütfen dikkat edin:

<http://support.automation.siemens.com/ww/view/tr/10806097>

Introduction

2.1 Information on the Operating Instructions

Validity of the Operating Instructions

These operating instructions cover the following products:

	Article no. of the RoW version	Article no. of the US version
Access points		
SCALANCE W774-1 RJ-45	6GK5774-1FX00-0AA0	6GK5774-1FX00-0AB0
SCALANCE W774-1 M12 EEC	6GK5774-1FY00-0TA0	6GK5774-1FY00-0TB0
Ethernet client module		
SCALANCE W734-1 RJ-45	6GK5734-1FX00-0AA0	6GK5734-1FX00-0AB0

These operating instructions apply to the following software version:

- SCALANCE W774/W734 with firmware as of version 5.2

Purpose of the Operating Instructions

Based on the operating instructions, you will be able to install and connect up the SCALANCE W774/W734 correctly. The configuration and the integration of the device in a WLAN are not described in these instructions.

Documentation on the accompanying CD

You will find detailed information about configuration in the SCALANCE W700 configuration manuals on the accompanying SIMATIC NET IWLAN CD under the file name:

PH_SCALANCE-W770-W730-WBM_76.pdf and PH_SCALANCE-W770-W730-CLI_76.pdf

Note

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

License conditions

Note

Open source software

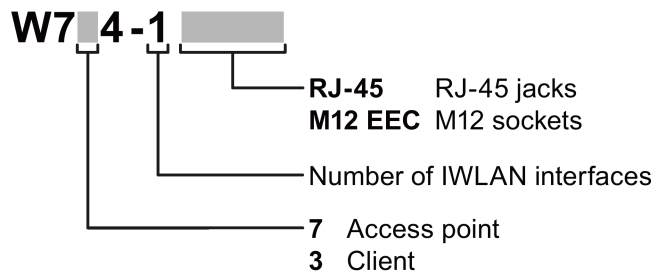
Read the license conditions for open source software carefully before using the product.

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

- DOC_License_74.pdf
- DOC_LicenseScalanceW_76.htm

2.2 Structure of the type designation

The type designation of the device is made up of several parts that have the following meaning:



2.3 Security information

Siemens provides automation and drive products with industrial security functions that support the secure operation of plants or machines. They are an important component in a holistic industrial security concept. With this in mind, our products undergo continuous development. We therefore recommend that you keep yourself informed with respect to our product updates. Please find further information and newsletters on this subject at: <http://support.automation.siemens.com>.

To ensure the secure operation of a plant or machine it is also necessary to take suitable preventive action (e.g. cell protection concept) and to integrate the automation and drive components into a state-of-the-art holistic industrial security concept for the entire plant or machine. Any third-party products that may be in use must also be taken into account. Please find further information at: <http://www.siemens.com/industrialsecurity>

Description

3.1 Components of the product

The following components are supplied with the product:

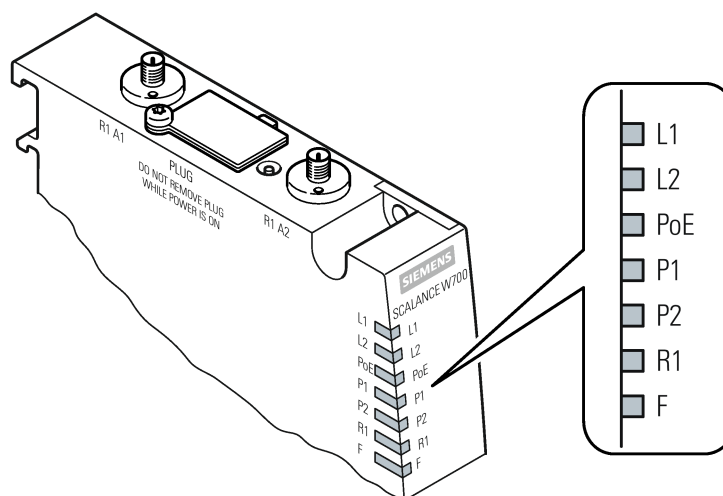
- SCALANCE W774 or SCALANCE W734
- 2 protective caps for the antenna sockets
- 1 connector for the supply voltage (only with device variant RJ-45)
- 3 protective caps for the M12 sockets (only with device variant M12)
- 1 screw for mounting on an S7-300 standard rail or S7-1500 standard rail
- SIMATIC NET Industrial Wireless LAN CD

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

3.2 LED display

Information on operating status and data transfer

On the front of the housing, several LEDs provide information on the operating status of the device:



LED	Color	Meaning
L1	Green	Power supply L1.
L2	Green	Power supply L2.
PoE	Green	Power supply using Power over Ethernet.
P1	Green	There is a connection via the first Ethernet interface (Link).
	Green and yellow flashing alternately	Data transfer via the first Ethernet interface.
P2	Green	There is a connection via the second Ethernet interface (Link).
	Green and yellow flashing alternately	Data transfer via the second Ethernet interface.
R1	Green	<i>SCALANCE W774 in access point mode:</i> The WLAN interface is initialized and ready for operation. <i>SCALANCE W774 in client mode or SCALANCE W734:</i> There is a connection via the WLAN interface.
	Green and yellow flashing alternately	Data transfer over the WLAN interface.
	Green flashing briefly	<i>SCALANCE W774 in access point mode:</i> With 802.11h, the channel is scanned for one minute for primary users before the channel can be used for data traffic. <i>SCALANCE W774 in client mode or SCALANCE W734:</i> The client waits for the MAC address due to the setting "Automatic" for the "MAC mode" parameter and is connected to no access point.
	Green flashing 3 x short, 1 x long	<i>SCALANCE W774 in client mode or SCALANCE W734:</i> The client waits for the MAC address due to the setting "Automatic" for the "MAC mode" parameter and is connected to an access point.
F	Red	An error occurred during operation with the device.
	Red R1 flashing yellow at the same time	A primary user was found on all enabled channels.
P1 R1	Flashing yellow	"Flashing" enabled using SIMATIC NET Primary Setup Tool (PST).

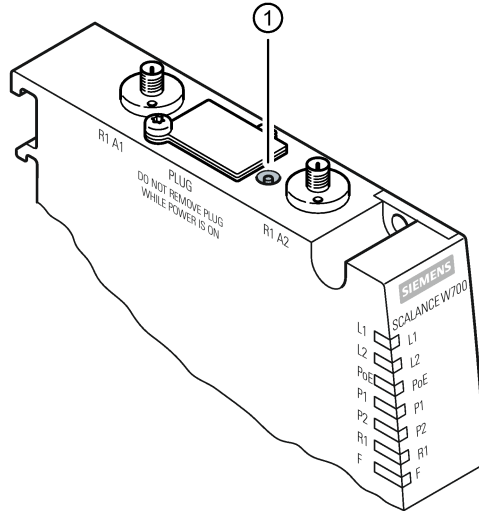
Note**Primary user (radar) on all enabled channels**

If the device detects a primary user (for example radar signals) on all enabled channels of the WLAN interface, the LED **F** is lit and **R1** flashes. No data traffic is then possible for the next 30 minutes. After this time, the device runs the scan again and checks whether a primary user still exists. If no primary user is detected, data traffic is possible again.

The wait time of 30 minutes is necessary due to legal requirements and cannot be shortened even by restarting the device.

3.3 Reset button

The reset button (position ①) is on the top of the housing:



Functions of the reset button

The reset button has the following functions:

- **Restart of the device**

To restart the device, press the Reset button briefly.

Note

If you make changes to the configuration and restart immediately afterwards with the reset 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 new firmware**

If the normal procedure with the "Load & Save" menu of Web Based Management is unsuccessful, the reset button can be used to load new firmware. This situation can occur if there is a power outage during the normal firmware update. You will find more detailed information in the configuration manual SCALANCE W770/W730 WBM.

- **Restoring the default parameters (factory defaults)**

You will find more detailed information in the configuration manual SCALANCE W770/W730 WBM.

Description

3.3 Reset button

Mounting

4

 **CAUTION**

Minimum distance to antennas

Fit the device so that there is a minimum clearance of 20 cm between antennas and persons.

 **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**

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.

General notes on use according to ATEX and IECEx

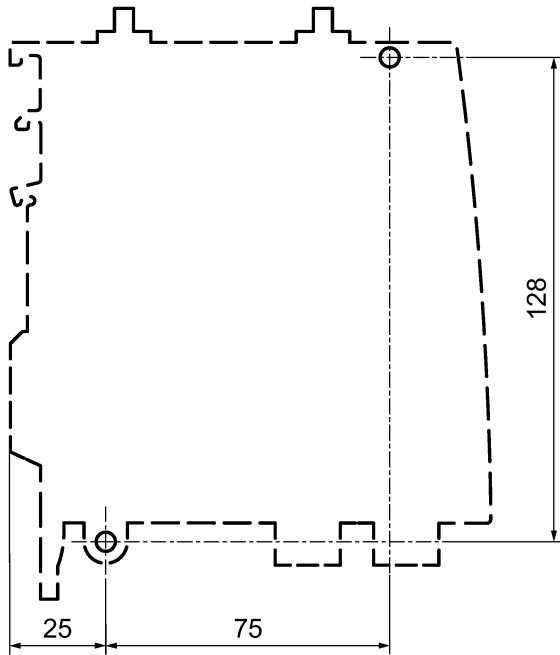
 **WARNING**

To comply with EC Directive 94/9 (ATEX95) or the conditions of IECEx, this enclosure or cabinet must meet the requirements of at least IP54 in compliance with EN 60529.

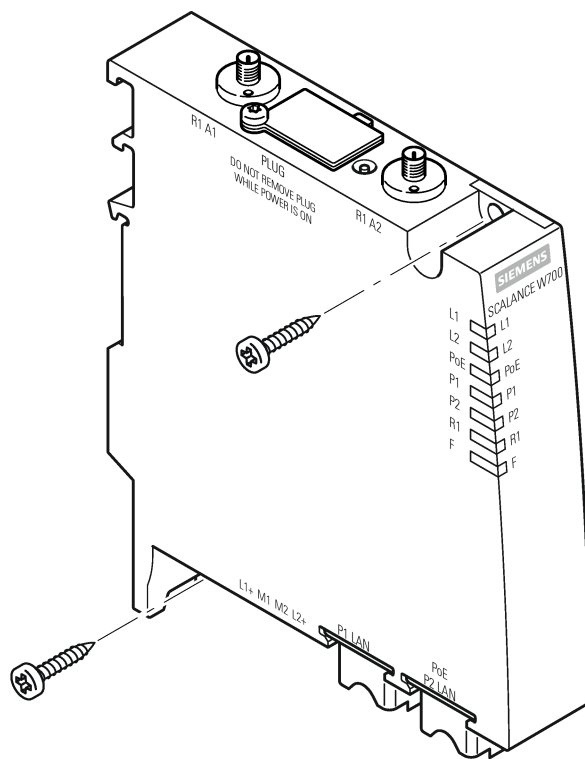
4.1 Wall mounting

Drilling template

The location of the holes for mounting the SCALANCE W774/W734 on a wall is shown in the following figure:



Procedure



Secure the device to the wall with two screws. The screws are not supplied with the device. The type and length of the screws depend on the type of wall.

4.2 Installing on an S7-300 standard rail

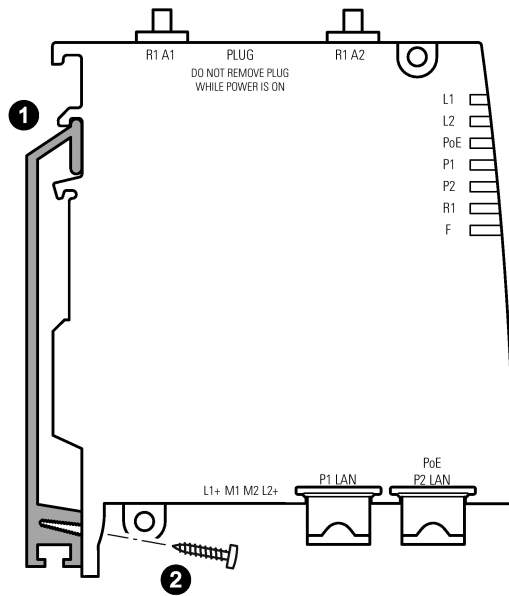
Procedure

⚠ WARNING

Danger of injury by falling objects

When used in an area with heavy load, the device is not adequately supported on an S7-300 standard rail. Under such conditions, the device can come out of the mounting.

If you use the device in a heavy load area, mount it on an S7-1500 mounting rail or on the wall.

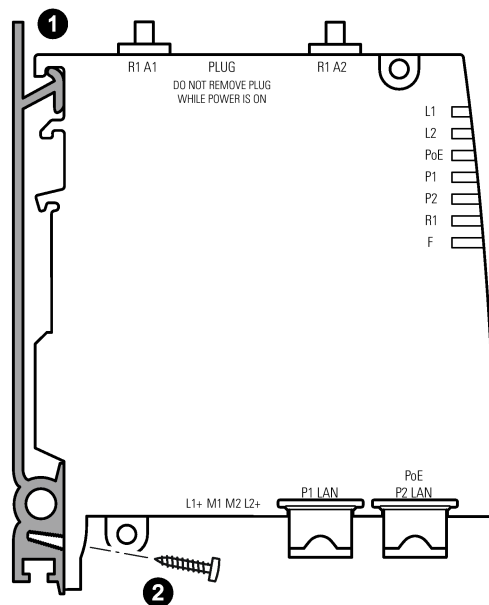


Follow the steps below to fit the SCALANCE W774/W734 to an S7-300 standard rail:

1. Place the device on the upper edge of the S7-300 standard rail as shown in the figure.
2. Screw the housing to the S7-300 standard rail. The required screw ships with the SCALANCE W774/W734.

4.3 Installing on an S7-1500 standard rail

Procedure

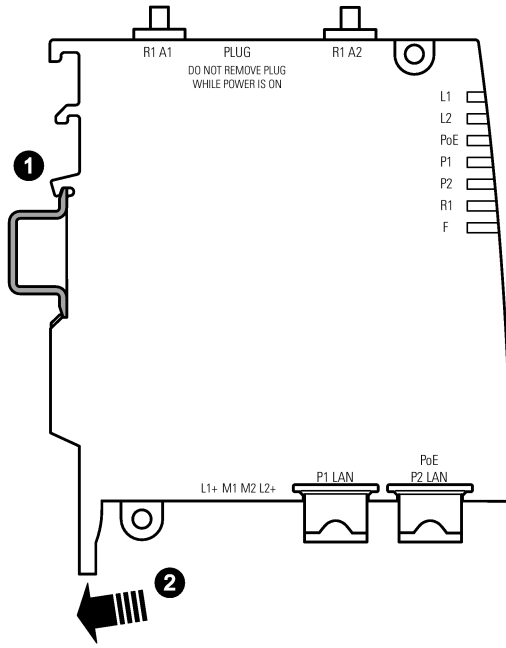


Follow the steps below to fit the SCALANCE W774/W734 to an S7-1500 standard rail:

1. Place the device on the upper edge of the S7-1500 standard rail as shown in the figure.
2. Screw the housing to the S7-1500 standard rail. The required screw ships with the device.

4.4 Installing on a DIN rail / removing

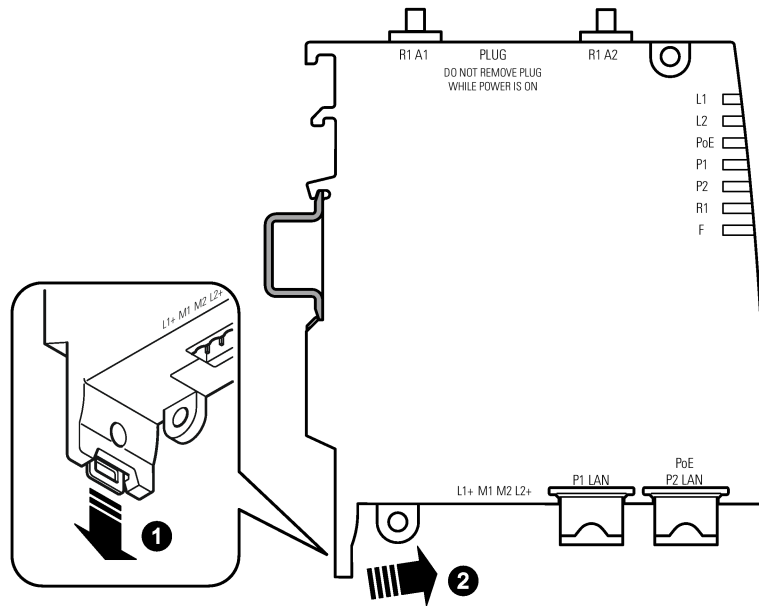
Procedure for installation



Follow the steps below to fit the SCALANCE W774/W734 to a DIN rail:

1. Place the device on the upper edge of the DIN rail as shown in the figure.
2. Press the device against the DIN rail until the DIN rail slider catch locks in place.

Procedure when removing



Follow the steps below to remove the SCALANCE W774/W734 from a DIN rail:

1. Pull the DIN rail slider down with a screwdriver.
2. Tilt the SCALANCE W774/W734 forward and remove the device from the DIN rail.

Connection

5.1 Lightning protection, power supply and grounding

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 can be protected by a lightning protection potential equalization system.

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

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.



⚠ WARNING

Danger due to lightning strikes

Installing this lightning protector between an antenna and a SCALANCE W700 is not adequate protection against a lightning strike. The LP798-1N lightning protector only works within the framework of a comprehensive lightning protection concept. If you have questions, ask a qualified specialist company.

Note

The requirements of EN61000-4-5, surge immunity tests on power supply lines, are met only when a Blitzductor is used with 24 VDC:

BVT AVD 24

type no. 918 422

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

Supply voltage

⚠ WARNING

Safety extra low voltage

The equipment is designed for operation with Safety Extra-Low Voltage (SELV) by a Limited Power Source (LPS).

This means that only SELV / LPS (Limited Power Source) complying with IEC 60950-1 / EN 60950-1 / VDE 0805-1 must be connected to the power supply terminals or the power supply unit for the equipment power supply must comply with NEC Class 2, as described by the National Electrical Code (r) (ANSI / NFPA 70).

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

⚠ WARNING

Transient overvoltages

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

Grounding



⚠ WARNING
Danger to life from overvoltage, fire hazard
When using outdoor antennas, the shared or even grounded pin of the circuit must be connected to the shield of the coaxial cable and with all touchable conductive parts and circuits. Otherwise, in the event of a fault there may be illegally high voltages on touchable parts.

NOTICE
Damage to the device due to potential differences
To fully eliminate the influence of electromagnetic interference, the device must be grounded. There must be no potential difference between the following parts, otherwise the device or other connected device could be severely damaged:
<ul style="list-style-type: none"> • Housing of the SCALANCE W700 and the ground potential of the antenna. • Housing of the SCALANCE W700 and the ground potential of a device connected over Ethernet. • Housing of the SCALANCE W700 and the shield contact of the connected Ethernet cable.
Connect both grounds to the same foundation earth or use an equipotential bonding cable.


⚠ WARNING
EXPLOSION HAZARD
SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2 OR ZONE 2.

⚠ WARNING
EXPLOSION HAZARD
DO NOT OPEN WHEN ENERGIZED.

General notes on use according to ATEX and IECEx

⚠ WARNING
EXPLOSION HAZARD
DO NOT CONNECT OR DISCONNECT EQUIPMENT WHEN A FLAMMABLE OR COMBUSTIBLE ATMOSPHERE IS PRESENT.

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

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

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

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

5.2 Power supply

Note

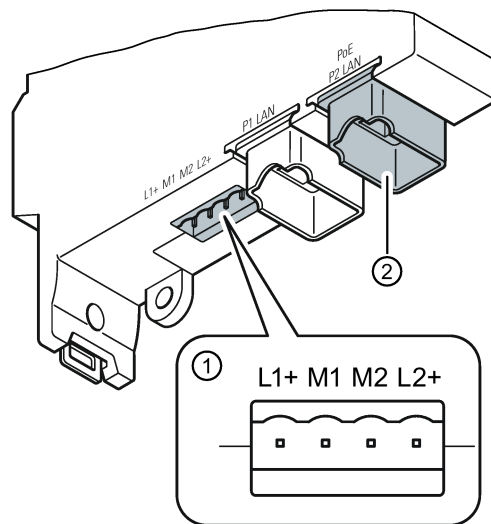
Galvanic isolation of the power supply unit

To ensure dielectric strength according to IEEE 802.3, the supplying 24 V power supply unit must be galvanically isolated with a dielectric strength of 1500 VAC. The galvanic isolation must also not be bridged by other devices connected to the same power supply unit.

SCALANCE W774/W734 RJ-45

For the power supply, there are two options with the SCALANCE W774/W734:

- Direct feed in via the four-pin socket (position ①)
- Power over Ethernet via the RJ-45 Ethernet interface P2 (position ②). The other Ethernet interface P1 is not capable of PoE.



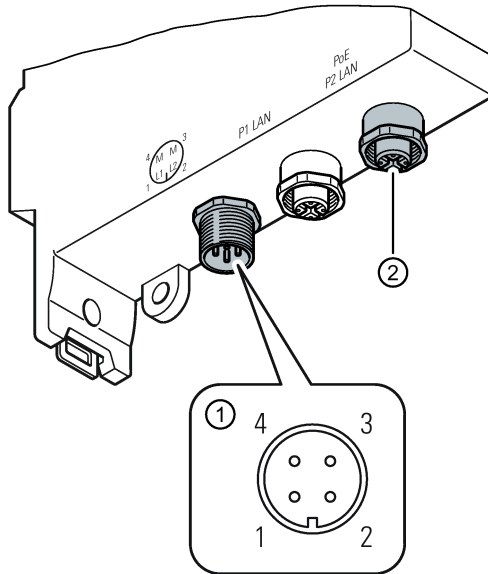
The four-pin connecting socket has the following pin assignment:

Pin	Assignment
L1+	24 VDC
M1	Ground
M2	Ground
L2+	24 VDC

SCALANCE W774 M12 EEC

For the power supply, there are two options with the SCALANCE W774 M12 EEC:

- Direct feed in via the four-pin M12 socket (position ①)
- Power over Ethernet via the M12 Ethernet interface P2 (position ②). The other Ethernet interface P1 is not capable of PoE.



The four-pin M12 socket has the following pin assignment:

Pin	Signal	Assignment
1	L1+	24 VDC
2	L2+	24 VDC
3	M	Ground
4	M	Ground

Power over Ethernet

The two following variants are available for power supply via an Ethernet cable:

- **IEEE 802.3at type 1 (IEEE 802.3af)**
On an 8-wire Fast Ethernet cable, the power is supplied via the free data wires 4, 5, 7 and 8. This corresponds to alternative B according to IEEE 802.3af.
- **IEEE 802.3 at type 2**
The power supply is known as phantom power via the wire pairs carrying signals (1/2 and 3/6).

The SCALANCE W774/W734 RJ-45 devices support the standards IEEE 802.3at type 1 (IEEE 802.3af) and IEEE 802.3.at type 2.

Note

Disabling the PoE power supply

Before you pull a plug via which the device is supplied with power using PoE, disable the relevant PoE power supply.

Note

"Phantom power" only with SCALANCE W774 M12 EEC

The SCALANCE W774 M12 EEC device only supports the standard IEEE 802.3 at type 2. With this device, the attachment to Ethernet is only possible using four-wire cables. For this reason, no PSE (Power Sourcing Equipment) can be used that only supplies the power via the free wire pairs.

Ethernet cables with M12 connectors for the SCALANCE W788-x M12 (Gigabit Ethernet, eight-wire) cannot be used for the SCALANCE W774 M12 EEC.

Note

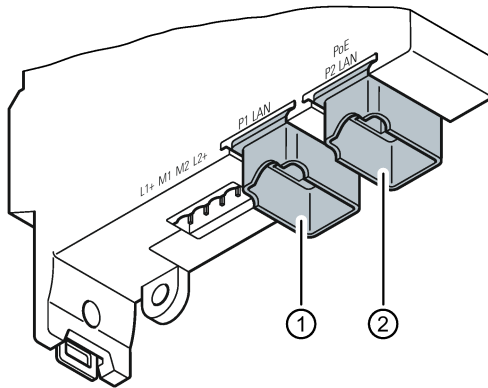
No power sourcing equipment (PSE)

The SCALANCE W774/W734 devices cannot be used as a PoE power supply for other devices.

5.3 Ethernet

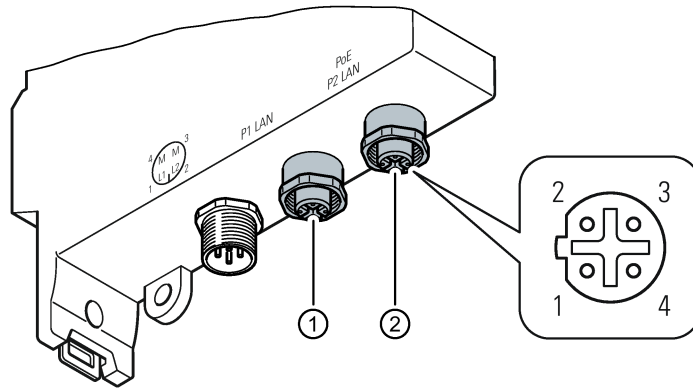
The SCALANCE W774/W734 devices have two Ethernet interfaces located on the underside of the device. Depending on the version, either RJ-45 or M12 sockets are available.

SCALANCE W774/W734 RJ-45



- ① Ethernet interface P1
- ② Ethernet interface P2
The power can also be supplied via this interface (Power over Ethernet).

SCALANCE W774/W734 M12 EEC



- ① Ethernet interface P1
- ② Ethernet interface P2
The power can also be supplied via this interface (Power over Ethernet).

The four-pin connecting socket has the following pin assignment:

Pin	Assignment
1	TX
2	RX
3	TX
4	RX

5.4 Suitable cables for power supply and Ethernet

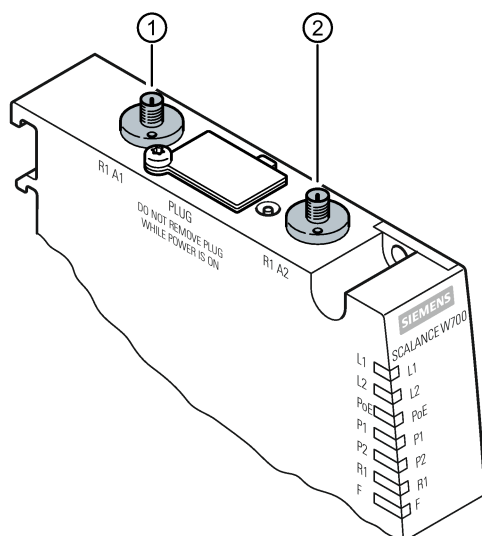
Cable specification

The following table lists the requirements for a cable depending on the application.

Application	Specification
Direct 24 VDC supply	<ul style="list-style-type: none">• Round cable cross-section with 6 to 8 mm diameter. Two-wire cable with 0.5 to 1.5 mm² cross-section per wire.• Permitted tensile load at least 100 N.• UL listing: Type PLTC or ITC
Ethernet	<ol style="list-style-type: none">1. IE FC TP standard cable GP 2 x 2 (type A) Order no.: 6XV1 840-2AH102. IE TP torsion cable 2 x 2 (type C) Order no.: 6XV1 870-2F3. IE FC TP trailing cable 2 x 2 (type C) Order no.: 6XV1 840 3AH10 UL listing: Type PLTC or ITC (the three named types have this approval)

5.5 Antenna connectors

The SCALANCE W774/W734 has two antenna connectors of the type R-SMA located on the top of the device.



- ① Antenna connector R1 A1
- ② Antenna connector R1 A2

Procedure

Follow the steps below to connect a cable for an external antenna to a SCALANCE W774/W734:

1. Insert the connector on the antenna cable into the R-SMA socket and tighten the sleeve nut on the socket (key size SW8, tightening torque 0.6 Nm). If you only use one antenna, you need to connect this to the device via antenna connector R1 A1 (position ①).
2. Screw a terminating resistor to the unused antenna socket R1 R2 (position ②) if you are only using one antenna.

NOTICE

UL approval only for use in buildings

Within the area of authority of the NEC and CEC, the SCALANCE W770/W730 devices and the antennas connected to them may only be used in a closed building. For this reason, do not lead antennas into the outdoor area if you need to meet UL requirements.

Note

Cabinet installation

When installing the SCALANCE W770/W730 in a cabinet, you need to use detached antennas. Suitable connecting cable for a connection between SCALANCE W770/W730 and a detached antenna are available from SIMATIC NET. You will find detailed information in the following section.

5.6 Suitable antenna cables and antennas

N-Connect/R-SMA connecting cable

To connect an antenna with an N-Connector, the following cables are suitable:

Length	Order number
0.3 m	6XV1875-5CE30
1 m	6XV1875-5CH10
2 m	6XV1875-5CH20
5 m	6XV1875-5CH50
10 m	6XV1875-5CN10

Suitable antennas

Note

When you select an antenna, keep in mind the national approvals for your device.

Type	Properties	Order number
ANT792-6MN	Omni antenna, mast/wall mounting, 6 dBi 2.4 GHz, N-Connect female	6GK5 792-6MN00-0AA6
ANT793-6MN	Omni antenna, mast/wall mounting, 5 dBi 5 GHz, N-Connect female	6GK5 793-6MN00-0AA6
ANT793-8DJ	Directional antenna, mast/wall mounting, 18 dBi 5 GHz, 2 x N-Connect female	6GK5 793-8DJ00-0AA0
ANT793-8DK	Directional antenna, mast/wall mounting, 23 dBi 5 GHz, 2 x N-Connect female	6GK5 793-8DK00-0AA0
ANT793-8DP	Directional antenna, mast/wall mounting, 13 / 13.5 dBi 4.9 GHz and 5 GHz, N-Connect female	6GK5793-8DP00-0AA0
ANT795-6DC	Wide angle antenna, mast/ wall mounting, 9 dBi 2.4 GHz and 5 GHz, N-Connect female	6GK5 795-6DC00-0AA0

5.6 Suitable antenna cables and antennas

ANT793-6DG	Wide angle antenna, mast/ wall mounting, 9 dBi 5 GHz, 2 x N-Connect female	6GK5 793-6DG00-0AA0
ANT795-6MN	Omni antenna, mounted on roof/vehicle, 6/8 dBi 2.4 GHz and 5 GHz, N-Connect female	6GK5 795-6MN10-0AA6
ANT795-4MC	Omnidirectional antenna, 3/5 dBi, 2.4 GHz and 5 GHz, IP65, N-Connect male for direct installation on the device, straight connector.	6GK5 795-4MC00-0AA3
ANT795-4MD	Omnidirectional antenna, 3/5 dBi, 2.4 GHz and 5 GHz, IP65, N-Connect male for direct installation on the device, 90° con- nector.	6GK5 795-4MD00-0AA3
ANT795-4MA	Omni antenna, directly on the device, 3/5 dBi 2.4 GHz and 5 GHz, IP30, R-SMA con- nector male for direct mounting on the device, connector angle adjustable 0° to 180°.	6GK5 795-4MA00-0AA3
ANT792-4DN	RCoax helical antenna, circular polariza- tion, 4 dBi, 2.4 GHz, N-connect female.	6GK5 792-4DN00-0AA6
ANT793-4MN	RCoax $\lambda/8$ antenna with vertical polariza- tion, 6 dBi, 5 GHz, N-connect female.	6GK5 793-4MN00-0AA6
ANT795-4MX	Omni Antenna, 2/2,5 dBi, 2,4 GHz and 5GHz, IP69K, N-Connect male	6GK5795-4MX00-0AA0
ANT795-6MP	Omni Antenna 5/7 dBi, 2,4 GHz and 5GHz, IP67, N-Connect female	6GK5795-6MP00-0AA0
ANT896-6MM	Omni Antenna for Mobile Wireless, WLAN and GPS, WLAN: 6/7 dBi, 2,4 GHz and 5GHz, IP68, IP69 K, QMA-Connect female, Port 2	6GK5896-6MM00-0AA0
ANT793-8DL	Directional Antenna, 5 GHz, 14dBi, IP66, 2xN-Connect female	6GK5793-8DL00-0AA0
IWLAN RCoax cable 2.4 GHz PE 1/2"	Omni antenna, 0 dBi 2.400 - 2.485 GHz, N-Connect female.	6XV1875-2A
IWLAN RCoax cable 5 GHz PE 1/2"	Omni antenna, 0 dBi 5.150 - 5.875 GHz, N-Connect female.	6XV1875-2D

NOTICE

ANT795-4MA

The ANT795-4MA antenna has degree of protection IP30 and is therefore suitable for dry environments.

5.6 Suitable antenna cables and antennas

Note

ANT793-8DJ

The antenna ANT793-8DJ may only be used with the antenna cable 6XV1875-5CH50 (5 m length) or 6XV1875-5CN10 (10 m length). Other antenna cables are not permitted.

Notice for USA/Canada

Only one antenna per device can be used (connected to R1A1, R1A2 or R2A1, R2A2).

Note

ANT793-8DK

The antenna ANT793-8DK may only be used with the antenna cable 6XV1875-5CN10 (10 m length). Other antenna cables are not permitted.

Notice for USA/Canada

Only one antenna per device can be used (connected to R1A1, R1A2 or R2A1, R2A2).

5.7 Replacing the PLUG (C-PLUG or KEY-PLUG)

How it works

If a new C-PLUG or KEY-PLUG with a valid license is inserted in a SCALANCE W786, the configuration stored locally on the device is saved on the PLUG.

If an incorrect PLUG, for example from another product or a damaged plug is inserted, the device signals an error with the red LED. The user then has the choice of either removing the PLUG again or selecting the option to reformat the PLUG.

In terms of the PLUG, the WLAN devices work in two modes:

- Without PLUG

The device stores the configuration in internal memory. This mode is active when no PLUG is inserted.

- With PLUG

The configuration stored on the PLUG is displayed over the user interfaces. If changes are made to the configuration, the device stores the configuration directly on the PLUG and in the internal memory. This mode is active as soon as a PLUG is inserted. As soon as the device is started with a PLUG inserted, the SCALANCE W700 starts up with the configuration data on 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 inserted at one second intervals. If it is detected that the PLUG was removed, there is a restart.

If a KEY-PLUG was inserted in the device, the device changes to a defined error state following the restart. With SCALANCE W, the available wireless interfaces are deactivated in this case.

Removing the PLUG

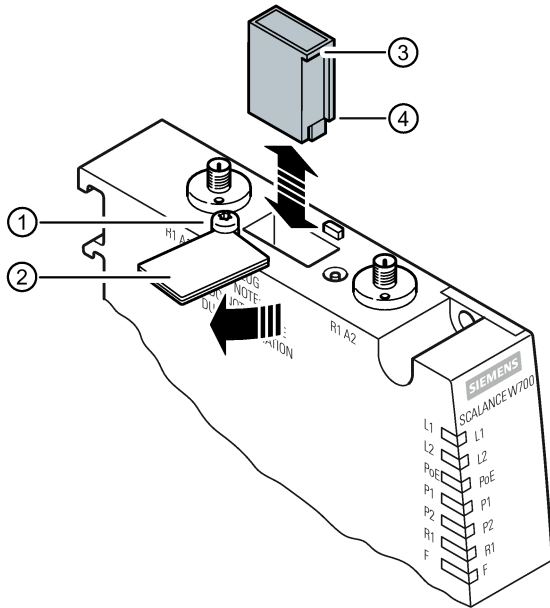


Figure 5-1 Position of the slot for PLUG on the top of the SCALANCE W774/734

Follow the steps below to remove a PLUG from the device:

1. Turn off the power to the device.
2. Release the screw slot cover (position ①) and swing the slot cover to the side (position ②).
3. Insert a screwdriver between the front edge of the PLUG (Position ③) and the slot and release the PLUG.
4. Remove the PLUG from the slot.
5. Screw the cover back onto the device.

Inserting the PLUG

Follow the steps below to insert a PLUG in the device:

1. Turn off the power to the device.
2. Release the screw slot cover (position ①) and swing the slot cover to the side (position ②).
3. The housing of the PLUG has a protruding ridge on the long side (position ④). The slot has a groove at this position. Insert the PLUG correctly oriented into the slot. The PLUG is correctly inserted when it is completely inside the device and does not jut out of the slot.
4. Close the slot cover (position ②).
5. Tighten the screw at position ① to secure the slot cover.

Licenses on the KEY-PLUG

A C-PLUG only stores information about the configuration of a device. In addition to the configuration, a KEY-PLUG also contains a license with which you can enable special functions, for example iFeatures:

Type	Order number
KEY-PLUG W780 iFeatures AP	6GK5907-8PA00
KEY-PLUG W740 iFeatures Client	6GK5907-4PA00
KEY-PLUG W700 Security	6GK5907-0PA00

Technical data

6.1 Technical specifications W774/W734 RJ-45

The following technical specifications apply to the following devices:

- SCALANCE W774-1 RJ-45
- SCALANCE W734-1 RJ-45

Note

You will find detailed information on the transmit power and receiver sensitivity in the document "Performance data 802.11 abgn SCALANCE W770/W730" on the supplied data medium (REF_W770-RadioInterface.pdf).

Technical specifications		
Data transfer		
Ethernet transfer rate		10 / 100 Mbps
Wireless transmission rate		1 ... 300 Mbps
Wireless standards supported		IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n
Power supply standards supported	Type	IEEE 802.3at type 1 (802.3af) 802.3at type 2 (Power over Ethernet)
	Class	Class 2 *)
Attachment to Industrial Ethernet		
Quantity		2
Design		RJ-45 jack
Properties		Half duplex/full duplex, autocrossover, autonegotiation, autosensing, PoE, floating
Permitted cable lengths (Ethernet)	(Alternative combinations per length range)	
0 ... 55 m	<ul style="list-style-type: none"> • Max. 55 m IE TP Torsion Cable with IE FC RJ45 Plug 180 • Max. 45 m IE TP Torsion Cable with IE FC RJ45 + 10 m TP Cord via IE FC RJ45 Outlet 	
0 ... 85 m	<ul style="list-style-type: none"> • Max. 85 m IE FC TP Marine/Trailing/Flexible/FRNC/Festoon/Food Cable with IE FC RJ45 Plug 180 • Max. 75 m IE FC TP Marine/Trailing/Flexible/FRNC/Festoon/Food Cable + 10 m TP Cord via IE FC RJ45 Outlet 	
0 ... 100 m	<ul style="list-style-type: none"> • Max. 100 m IE FC TP Standard Cable with IE FC RJ45 Plug 180 • Max. 90 m IE FC TP Standard Cable + 10 m TP Cord via IE FC RJ45 Outlet 	

Technical data

6.1 Technical specifications W774/W734 RJ-45

Technical specifications

Wireless interface

Antenna connector	Quantity	2
	Design	R-SMA female
	Impedance	50 Ω nominal
Frequency range		2412 ... 2480 MHz
		4920 ... 5875 MHz

Electrical data

Power supply	Supply voltage from terminal block/socket	24 VDC Safe Extra Low Voltage (SELV)
	Permitted range	19.2 to 28.8 VDC
	Design	Terminal block, 4 terminals
	Properties	Electrically isolated, redundant design PoE to 24 VDC non-redundant design
	Supply voltage from PoE	48 VDC
	Permitted range	36 to 57 VDC
Fusing		2 A / 24 VDC
		1 A / 48 V PoE
Current consumption	At 24 VDC / typical	250 mA
	With PoE / typical	125 mA
Power loss at 24 VDC	At 24 VDC / typical	6 W
	With PoE / typical	6 W

Permitted ambient conditions

Ambient temperature	During operation with the rack installed horizontally	-20 °C to +60 °C
	During operation with the rack installed vertically	-20 °C to +60 °C
	During storage	-40 °C to +85 °C
	During transportation	-40 °C to +85 °C
Relative humidity	During operation	\leq 95% at 25 °C, no condensation
Operating altitude	During operation	\leq 2,000 m above sea level at max. 60 °C ambient temperature
Contaminant concentration	According to IEC 60721	

Design, dimensions and weight

Degree of protection	IP30
Weight	520 g
Dimensions (W x H x D)	26 x 156 x 127 mm (height without antenna connector 147 mm)
Installation options	<ul style="list-style-type: none">• Wall mounting• Installation on a DIN rail• Installation on an S7-300 standard rail• Installation on an S7-1500 standard rail

Technical specifications

Mean time between failure (MTBF)

at 40 °C ambient temperature

61.85 years

*) The PoE class depends on the hardware version of the device. Devices with a hardware version ≥ 3 have PoE class 2. Devices with a lower hardware version have PoE class 3.

6.2 Technical specifications W774 M12

The following technical specifications apply to the following devices:

- SCALANCE W774-1 M12 EEC

Note

You will find detailed information on the transmit power and receiver sensitivity in the document "Performance data 802.11 abgn SCALANCE W770/W730" on the supplied data medium (REF_W770-RadioInterface.pdf).

Technical specifications

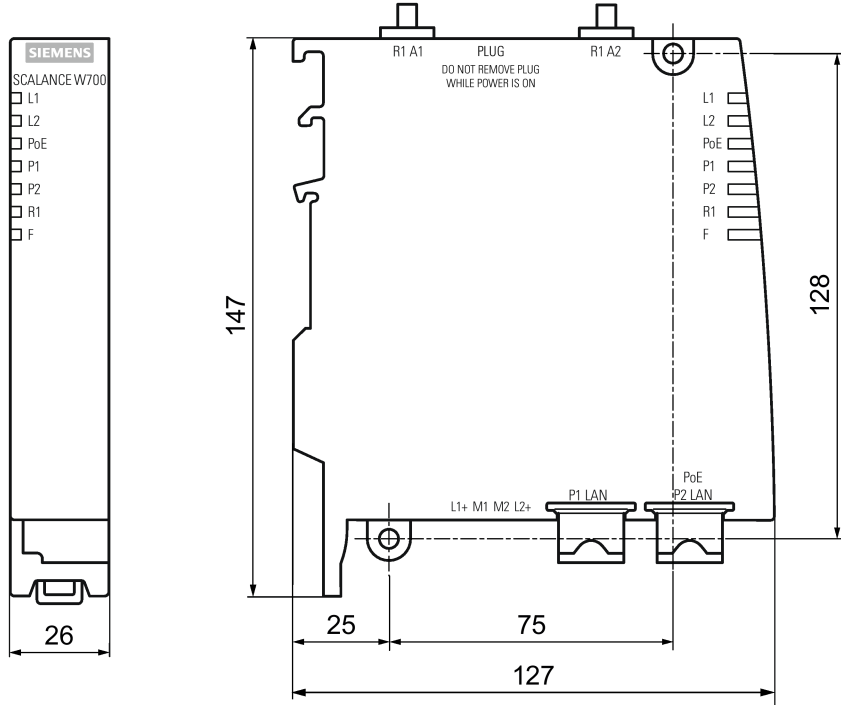
Data transfer		
Ethernet transfer rate		10 / 100 Mbps
Wireless transmission rate		1 ... 300 Mbps
Wireless standards supported		IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n
Power supply standards supported	Type	IEEE 802.3at type 1 (802.3af) 802.3at type 2 (Power over Ethernet)
	Class	Class 2 *)
Attachment to Industrial Ethernet		
Quantity		2
Design		M12 socket
Properties		Half duplex/full duplex, autocrossover, autonegotiation, autosensing, PoE, floating
Permitted cable lengths (Ethernet)	(Alternative combinations per length range)	
0 ... 55 m	<ul style="list-style-type: none"> • Max. 55 m IE TP Torsion Cable with IE FC RJ45 Plug 180 • Max. 45 m IE TP Torsion Cable with IE FC RJ45 + 10 m TP Cord via IE FC RJ45 Outlet 	
0 ... 85 m	<ul style="list-style-type: none"> • Max. 85 m IE FC TP Marine/Trailing/Flexible/FRNC/Festoon/Food Cable with IE FC RJ45 Plug 180 • Max. 75 m IE FC TP Marine/Trailing/Flexible/FRNC/Festoon/Food Cable + 10 m TP Cord via IE FC RJ45 Outlet 	
0 ... 100 m	<ul style="list-style-type: none"> • Max. 100 m IE FC TP Standard Cable with IE FC RJ45 Plug 180 • Max. 90 m IE FC TP Standard Cable + 10 m TP Cord via IE FC RJ45 Outlet 	
Wireless interface		
Antenna connector	Quantity	2
	Design	R-SMA female
	Impedance	50 Ω nominal
Frequency range		2412 ... 2480 MHz
		4920 ... 5875 MHz

Electrical data		
Power supply	Supply voltage from terminal block/socket	24 VDC Safe Extra Low Voltage (SELV)
	Permitted range	<ul style="list-style-type: none"> • 19.2 to 28.8 VDC • 16.8... 31.2 VDC (UL approvals only valid for 19.2 ... 28.8 VDC)
	Design	M12 socket
	Properties	Electrically isolated, redundant design PoE to 24 VDC non-redundant design
	Supply voltage from PoE	48 VDC
	Permitted range	36 to 57 VDC
Fusing		2 A / 24 VDC
		1 A / 48 V PoE
Current consumption	At 24 VDC / typical	250 mA
	With PoE / typical	125 mA
Power loss at 24 VDC	At 24 VDC / typical	6 W
	With PoE / typical	6 W
Permitted ambient conditions		
Ambient temperature	During operation with the rack installed horizontally	-20 °C to +60 °C
	During operation with the rack installed vertically	-20 °C to +60 °C
	During storage	-40 °C to +85 °C
	During transportation	-40 °C to +85 °C
Relative humidity	During operation	≤ 95% at 25 °C, no condensation
Operating altitude	During operation	≤ 2,000 m above sea level at max. 60 °C ambient temperature
Contaminant concentration	According to IEC 60721	
Design, dimensions and weight		
Degree of protection	IP30	
Weight	520 g	
Dimensions (W x H x D)	26 x 156 x 127 mm (height without antenna connector 147 mm)	
Installation options	<ul style="list-style-type: none"> • Wall mounting • Installation on a DIN rail • Installation on an S7-300 standard rail • Installation on an S7-1500 standard rail 	
Mean time between failure (MTBF)		
	at 40 °C ambient temperature	61.85 years

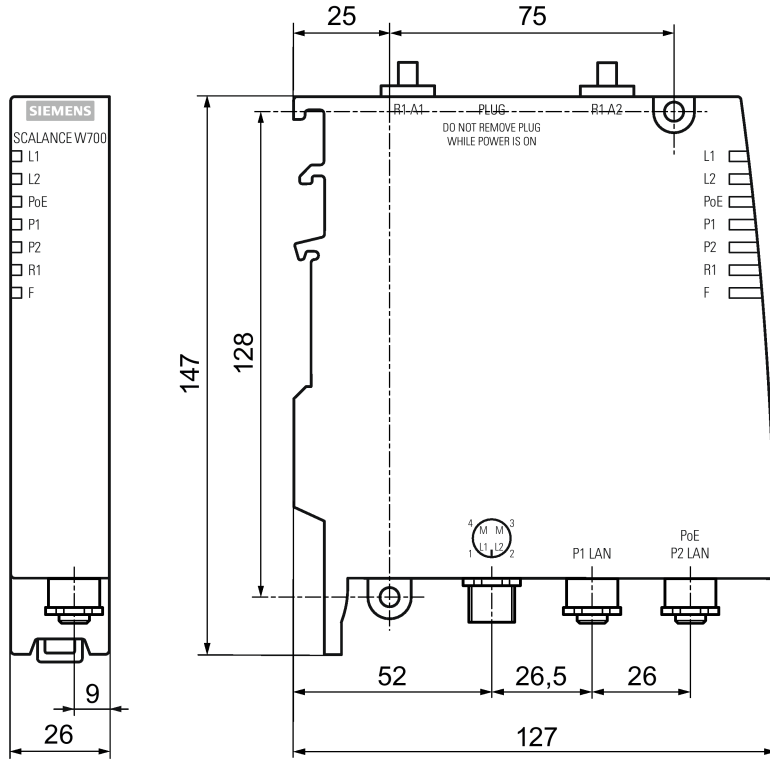
*) The PoE class depends on the hardware version of the device. Devices with a hardware version ≥ 2 have PoE class 2. Devices with a lower hardware version have PoE class 3.

Dimension drawings

SCALANCE W774/734 RJ-45



SCALANCE W774 M12 EEC



Approvals

You will find the approvals of the products in the reference work "Approvals SCALANCE W700 802.11n" on the Internet pages of Siemens Industry Online Support:

- Using the search function:
support.automation.siemens.com (<http://support.automation.siemens.com/WW/view/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":
Industrial communication
(<http://support.automation.siemens.com/WW/view/en/10805878/133300>)
Go to the required product group and make the following settings:
"Entry list" tab, Entry type "Manuals / Operating Instructions"

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

- Product CD / product DVD
- SIMATIC NET Manual Collection
- SIMATIC NET IWLAN CD

Index

A

- Antennas
 - Connectors, 31
 - Specification, 32
- Article numbers, 7
- Assembly
 - DIN rail, 18
 - S7-1500 standard rail, 17
 - S7-300 standard rail, 16
 - Wall mounting, 14

C

- Cables
 - Permitted lengths, 39, 42
 - Specification, 30
- Connectors, 9
- C-PLUG, 35

D

- Dimension drawing, 45
- Documentation on the CD, 7

E

- Ethernet
 - Connectors, 28
 - PoE, 25

G

- Grounding, 23

I

- Interfaces, 39, 42

K

- KEY-PLUG, 35

L

- LED display, 9
- Lightning protection, 21
- Loading firmware, 11

P

- Power over Ethernet, 25
- Power supply, 25
- Primary user (radar), 9
- Protective caps, 9

R

- Reset button, 11
- Resetting the device, 11
- Restart of the device, 11

S

- Safety extra low voltage, 21, 22
- Scope of delivery, 9
- SELV, 21
- Supply voltage, 22

T

- Technical specifications, 39, 42
- Type designations, 8

