

SIEMENS

SIMATIC NET

Industrial Wireless LAN SCALANCE W760/W720




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>Approvals</u>	7

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	Access restriction due to high housing temperature	13
4.2	Installing on a DIN rail / removing	14
5	Connection	17
5.1	Lightning protection, power supply and grounding	17
5.2	Power supply	21
5.3	Ethernet	22
5.4	Suitable cables for power supply and Ethernet	23
5.5	Antenna connectors	24
5.6	Suitable antenna cables and antennas	25
6	Technical data	27
6.1	Technical specifications	27
6.2	Dimensional drawing	29
7	Approvals	31
7.1	National approvals	37

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 التنبه 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:

	Order no.	Order no. of the US version:
Access point		
SCALANCE W761-1 RJ-45	6GK5761-1FC00-0AA0	6GK5761-1FC00-0AB0
Ethernet client modules		
SCALANCE W722-1 RJ-45 (iFeatures)	6GK5722-1FC00-0AA0	6GK5722-1FC00-0AB0
SCALANCE W721-1 RJ-45	6GK5721-1FC00-0AA0	6GK5721-1FC00-0AB0

These operating instructions apply to the following software version:

- SCALANCE W760/W720 firmware as of Version 3.0

Purpose of the Operating Instructions

Using the Operating Instructions, you will be able to install and connect the SCALANCE W760/W720 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:

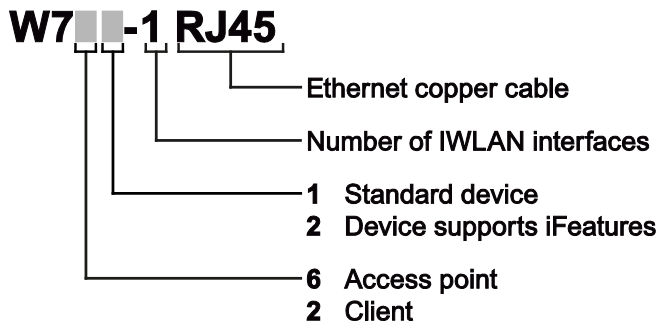
PH_SCALANCE-W760-W720-WBM_76.pdf and PH_SCALANCE-W760-W720-CLI_76.pdf

Note

Make sure that you read the explanations and instructions in the README.txt file

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:

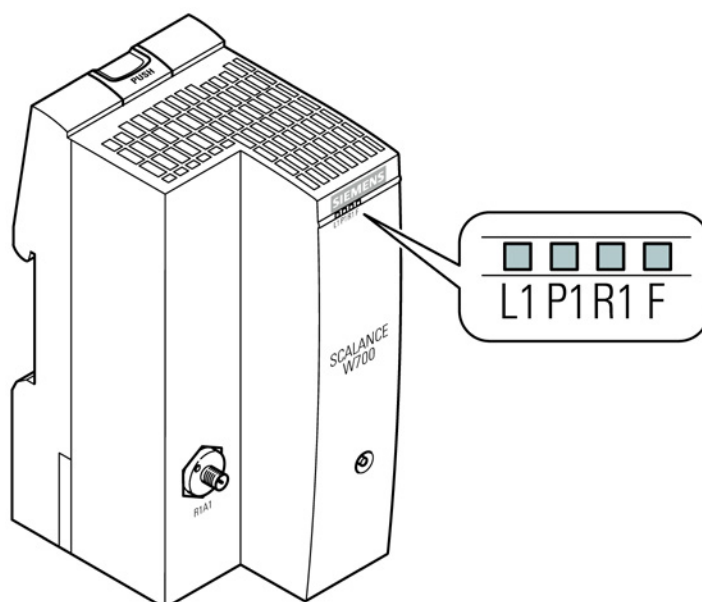
- SCALANCE W761 or SCALANCE W722 or SCALANCE W721
- 1 protective cap for the antenna socket
- 1 connector for the power supply
- SIMATIC NET Industrial Wireless LAN CD

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.
P1	Flashing yellow	Data transfer via the Ethernet interface.
	Green	There is a connection via the Ethernet interface (Link).
R1	Flashing yellow	Data transfer over the WLAN interface.
	Green	SCALANCE W760 in access point mode: The WLAN interface is initialized and ready for operation. SCALANCE W760 in client mode or SCALANCE W720: There is a connection via the WLAN interface.
	Flashing green	SCALANCE W760 in client mode or SCALANCE W720: The client is searching for a connection to an access point.
	Green flashing briefly	SCALANCE W760 in access point mode: With 802.11h, the channel is scanned for one minute for primary users before the channel can be used for data traffic. SCALANCE W760 in client mode or SCALANCE W720: 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	SCALANCE W760 in client mode or SCALANCE W720: 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 green at the same time	A primary user was detected on all enabled channels. (only when DFS is enabled or according to IEEE 802.11h)
P1 R1	Flashing yellow and green simultaneously.	"Flashing" enabled using SIMATIC NET Primary Setup Tool (PST).

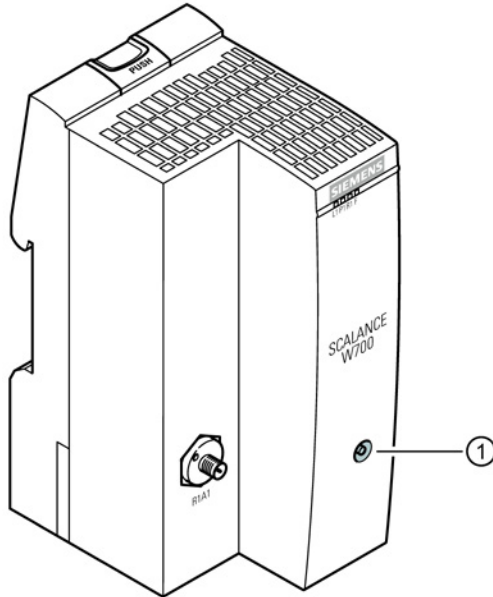
Note
Primary user (radar) on all enabled channels (only when DFS is enabled)

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 front of the housing:



Functions of the reset button

The reset button has the following functions:

- Restart of the device
- Loading new firmware
- Restoring the default parameters (factory defaults)


You will find more detailed information in the configuration manual SCALANCE W760/W720 WBM.


Description

3.3 Reset button


Mounting

4.1 Access restriction due to high housing temperature

 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.

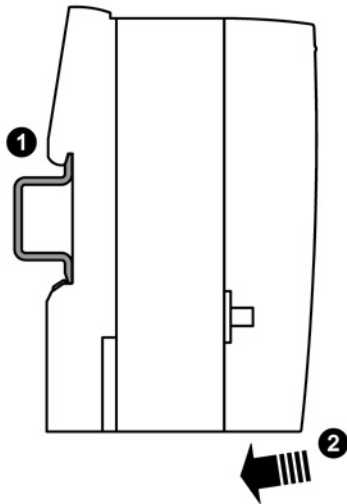
 WARNING
When used in hazardous environments corresponding to Class I, Division 2 or Class I, Zone 2, the device must be installed in a cabinet or a suitable enclosure.

General notes on use according to ATEX

 WARNING
To comply with EU Directive 94/9 (ATEX95), this enclosure must meet the requirements of at least IP54 in compliance with EN 60529.

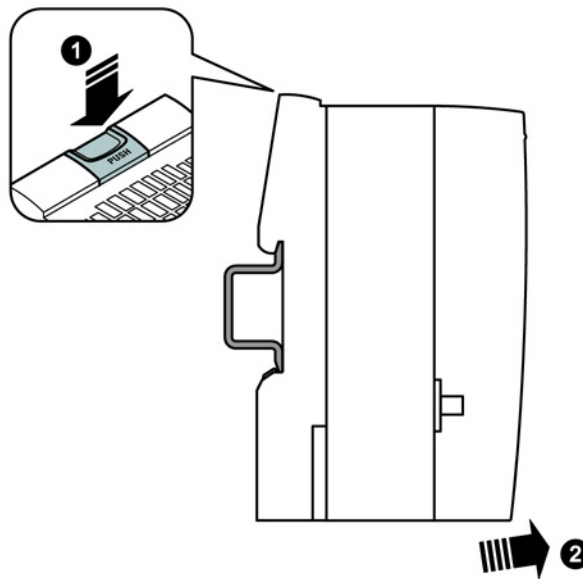
4.2 Installing on a DIN rail / removing

Procedure for installation



Follow the steps below to fit the SCALANCE W760/W720 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 W760/W720 from a DIN rail:

1. Press the release button on the top of the device to release the DIN rail catch.
2. Tilt the SCALANCE W760/W720 forward and remove the device from the DIN rail.

5.1 Lightning protection, power supply and grounding

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 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 is 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 12 to 24 VDC:

12 to 24 VDC: VT AD 24V type no. 918 402

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

Safety extra low voltage



▲ WARNING

Danger to life from overvoltage, fire hazard

SCALANCE W700 devices are designed for operation with a directly connectable safety extra-low voltage or with the power supply adapters available as accessories (available only for the SCALANCE W786 device). Therefore only safety extra-low voltage (SELV) with limited power source (LPS) complying with IEC950/EN60950/VDE0805 may be connected to the power supply terminals (exception: Power supply adapter for 100 - 240 VAC for the SCALANCE W786).

Take measures to prevent transient overvoltage of more than 40% of the rated voltage. This criterion is fulfilled, if devices are operated solely with SELV (Safety Extra-Low Voltage).


The power supply unit to supply the SCALANCE W700 must comply with NEC Class 2 (requirements of class 2 for power supply units of the "National Electrical Code, table 11 (b)") or SELV with LPS (Limited Power Source) EN 60950-1. If the power supply is designed redundantly (two separate power supplies), both power supplies must meet these requirements.


Exception:

Power supply with PELV (according to VDE 0100-410 or IEC 60364-4-41) is also possible if the generated rated voltage does not exceed the voltage limits 25 VAC or 60 VDC.


Grounding

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. If it is used outdoors, the device must always be connected to protective earth.


 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

 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

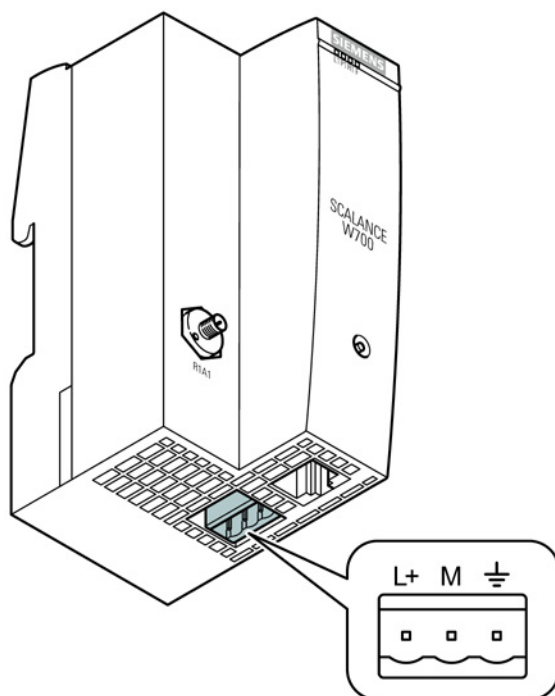
 WARNING
EXPLOSION HAZARD DO NOT DISCONNECT WHILE CIRCUIT IS LIVE UNLESS AREA IS KNOWN TO BE NON-HAZARDOUS.

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

The power is supplied to the SCALANCE W760/W720 via the three-pin socket.



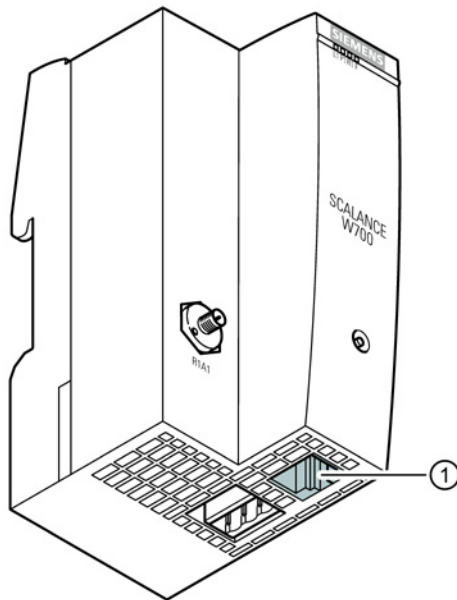
Socket

The three-pin socket has the following pin assignment:

Pin	Assignment
L+	+24 VDC
M	Ground
\perp	Grounding

5.3 Ethernet

The SCALANCE W760/W720 has two Ethernet interfaces located on the underside of the device (position ①).




5.4 Suitable cables for power supply and Ethernet

Cable specification

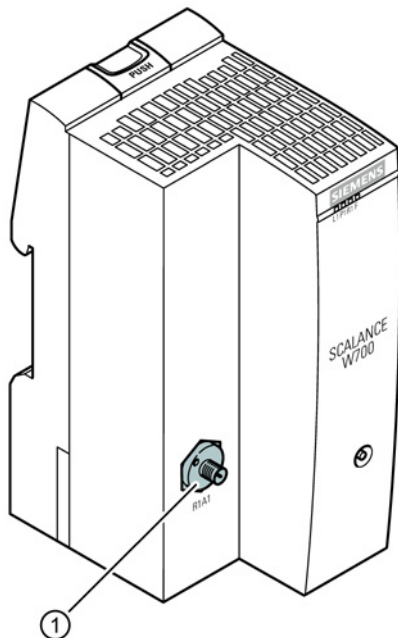
The following table lists the requirements for a cable depending on the application.

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 840-2AH10 2. IE TP torsion cable 2 x 2 (type C) Order no.: 6XV1 870-2F 3. IE FC TP trailing cable 2 x 2 (type C) Order no.: 6XV1 840 3AH10 <p>UL listing: Type PLTC or ITC (the three named types have this approval)</p>

 WARNING
<p>Only use cables suitable for high temperatures!</p> <p>If temperatures in excess of 70 °C occur on the cable or at the housing socket, or the temperature at the branching points of the cables exceeds 80 °C, special measures need to be taken.</p> <p>If the equipment is operated in an air ambient at 45 - 60 °C, only use cables with admitted maximum operating temperature of at least 90 °C.</p>

5.5 Antenna connectors

The SCALANCE W760/W720 has an antenna connector R1 A1 of the type R-SMA located on the front of the device (position ①).



Procedure

Follow the steps below to connect a cable for an external antenna to a SCALANCE W760/W720:

1. Insert the connector on the antenna cable into the R-SMA socket R1 A1 (position ①) and tighten the retainer nut on the socket (key size SW8, tightening torque 0.6 Nm).

Note

Cabinet installation

When installing the SCALANCE W760/W720 in a cabinet, you need to use a detached antenna. Suitable connecting cables for a connection between SCALANCE W760/W720 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
ANT792-8DN	Directional antenna, mast/wall mounting, 14 dBi 2.4 GHz, N-Connect female	6GK5 792-8DN00-0AA6
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 dBi 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
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
ANT795-4MA	Omni antenna, 3/5 dBi 2.4 GHz and 5 GHz, IP30, R-SMA connector male for direct mounting on the device, connector angle adjustable 0° to 180°.	6GK5 795-4MA00-0AA3
ANT792-4DN	RCoax helical antenna, circular polarization, 4 dBi, 2.4 GHz, N-connect female.	6GK5 792-4DN00-0AA6
ANT793-4MN	RCoax λ5/8 antenna with vertical polarization, 6 dBi, 5 GHz, N-connect female.	6GK5 793-4MN00-0AA6
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

Technical data

6.1 Technical specifications

SCALANCE W761/W722/W721		
Attachment to Industrial Ethernet		
Quantity	1	
Design	RJ-45 jack	
Properties	10/100BASE-T, IEEE 802, half duplex/full duplex, autocrossover, autonegotiation, autosensing, floating	
Transmission speed	10 / 100 Mbps	
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/Fe stoon/Food Cable with IE FC RJ45 Plug 180 • Max. 75 m IE FC TP Marine/Trailing/Flexible/FRNC/Fe stoon/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	1
	Design	R-SMA female
	Impedance	50 Ω nominal
Frequency range	2412 ... 2500 MHz 4920 ... 5875 MHz	

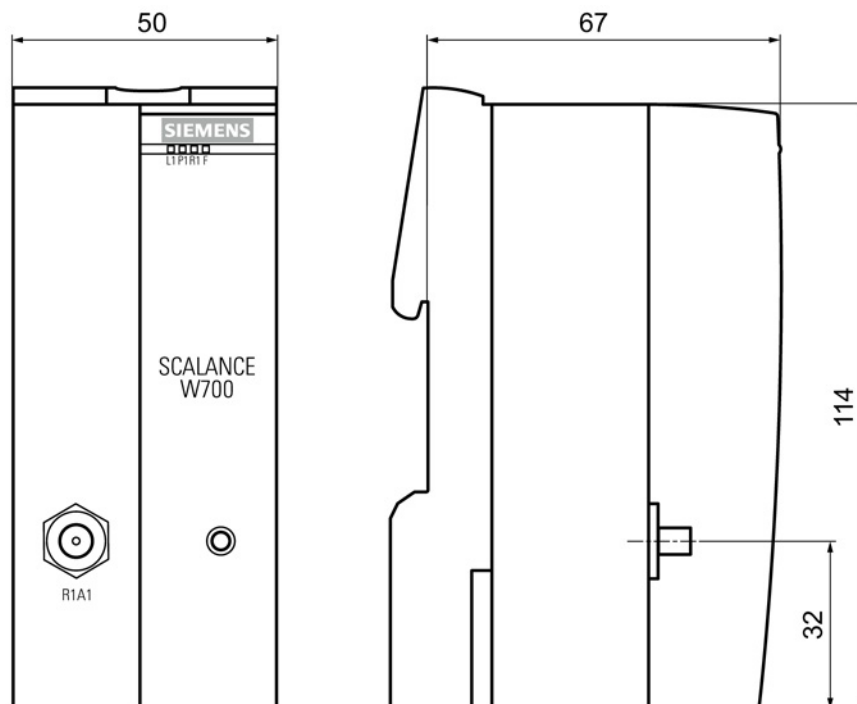
Technical data

6.1 Technical specifications

SCALANCE W761/W722/W721

Electrical data		
Power supply	Supply voltage	24 VDC Safe Extra Low Voltage (SELV)
	Permitted range	19.2 to 28.8 VDC
	Design	Terminal block, 3 terminals
	Properties	Electrically isolated, non-redundant design
Fusing		2.5 A / 24 VDC
Current consumption	Typical	150 mA
	Maximum	150 mA
Power loss at 24 VDC	Typical	3.6 W
	Maximum	3.6 W
Permitted ambient conditions		
Ambient temperature	During operation with the rack installed horizontally	0 °C to +55 °C
	During operation with the rack installed vertically	0 °C to +55 °C
	During operation	-40 °C to +70 °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
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	IP20	
Weight	125 g	
Dimensions (W x H x D)	72 x 133 x 50 mm	
Installation options	Installation on a DIN rail	
Other properties		
MTBF		

6.2 Dimensional drawing



Dimensions are given in [mm].

Approvals

CE conformity

The products

SIMATIC NET SCALANCE W761-1 RJ-45

SIMATIC NET SCALANCE W722-1 RJ-45

SIMATIC NET SCALANCE W721-1 RJ-45

in the version put into circulation by Siemens AG conform to the regulations of the following European directive:

- 99/5/EC
Directive of the European Parliament and of the Council on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity. Conformity with the basic requirement of the directive is attested by adherence to the following standards:
- EN 60950-1
Information technology equipment - Safety - Part 1: General requirements
- EN 301489-1 V1.9.2
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1 : Common technical requirements (V1.8.1).
- EN 301489-17 V2.2.1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17: Specific conditions for 2.4 GHz broadband transmission systems and 5 GHz high performance RLAN equipment
- EN 300328 V1.7.1
Electromagnetic Compatibility and Radio Spectrum Matters (ERM); — Broadband transmission systems — Data transmission equipment operating in the 2.4 GHz ISM band and using spread spectrum modulation techniques — Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive
- EN 301893 V1.7.1
Broadband Radio Access Networks (BRAN) - 5 GHz high performance RLAN - Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions for electro-magnetic fields (0 Hz – 300 GHz)
- 1999/519/EC
Council recommendation on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)

Devices connected to the system must meet the relevant safety regulations.

The EC Declaration of Conformity is available for the responsible authorities according to the above-mentioned EC Directive at the following address:

Siemens Aktiengesellschaft
Industry Sector
Postfach 4848
D-90026 Nürnberg

This declaration certifies compliance with the directives named above, but does not guarantee any specific properties.

Note


The specified approvals apply only when the corresponding mark is printed on the product.

Certification ID

The following table shows the product names and the corresponding certification ID:

Type	Certification ID
	Order number
	Order number US variant
W761-1 RJ-45	ELN-W1-RJ-E1 6GK5761-1FC00-0AA0 6GK5761-1FC00-0AB0
W722-1 RJ-45	ELN-W1-RJ-E1 6GK5722-1FC00-0AA0 6GK5722-1FC00-0AB0
W721-1 RJ-45	ELN-W1-RJ-E1 6GK5721-1FC00-0AA0 6GK5721-1FC00-0AB0

ATEX (explosion protection directive)

 WARNING
When using SIMATIC NET products in hazardous area zone 2, make absolutely sure that the associated conditions in the following document are adhered to: "Use of subassemblies/modules in a Zone 2 Hazardous Area". This document can be found on the CD that ships with the device or on the Internet at the following URL: http://support.automation.siemens.com/WW/ > Product Support > Industrial Communication Enter the document identification number <code>A5E00352937</code> as the search term.

SIMATIC NET products meet the requirements of the EC directive:94/9/EC "Equipment and Protective Devices for Use in Potentially Explosive Atmospheres".

ATEX classification:

II 3 G Ex nA IIC T4 Gc

KEMA 07ATEX0145 X

The products meet the requirements of the following standards:

- EN 60079-15: 2010 (electrical apparatus for potentially explosive atmospheres; Type of protection "n")
- EN 60079-0: 2009 (Explosive atmospheres - Part 0: Equipment - General requirements)

FM

The product meets the requirements of the standards:

- Factory Mutual Approval Standard Class Number 3611
- 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 Hazardous Location

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

Underwriters Laboratories Inc. complying with

- UL 60950-1 (Information Technology Equipment)
- ANSI/ISA 12.12.01-2007
- CSA C22.2 No. 213-M1987

Approved for use in

Cl. 1, Div. 2, GP A, B, C, D T4

Cl. 1, Zone 2, GP IIC T4

Report no. E240480

FCC approval

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Notice

Changes or modifications made to this equipment not expressly approved by SIEMENS may void the FCC authorization to operate this equipment.

IEEE 802.11b or g operation of this product in the USA is firmware-limited to channels 1 through 11.

This equipment has been tested and found to comply with the limits for a Class B 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 and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Notice

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

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. Professional Installation Notice:

To comply with FCC part 15 rules in the United States, the system must be professionally installed to ensure compliance with the Part 15 certification. It is the responsibility of the operator and professional installer to ensure that only certified systems are deployed in the United States. The use of the system in any other combination (such as co-located antennas transmitting the same information) is expressly forbidden.

CSA Information Technology Equipment

CSA Certification Mark

Canadian Standard Association CSA C22.2 No. 60950-1-03

RSS-210 of Industry Canada

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-ELN1V1) has been approved by Industry Canada to operate with the antenna types listed in section 5.6 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.

C-TICK

The product meets the requirements of the AS/NZS 2064 standard (Class A).

7.1 National approvals

National approvals

The following table lists the countries in which the SCALANCE W700 product is approved. The diamond symbol (◆) identifies all countries for which there was no approval at the time these operating instructions were written.

The current status of the approvals can be found on the Internet at the following address:


<http://www.siemens.com/funkzulassungen>

Column	Meaning
Country	Country
Mode	IEEE 802.11 standard and the TPC and / or DFS functionality, where required
CH	Channel
MHz	Frequency
PWR (EIRP)	Maximum permitted effective isotropic radiated power
Use	Permitted use indoors and / or outdoors

Approvals



7.1 National approvals

Country	Mode	CH	MHz	PWR (EIRP)	Use		
Belgium	11g 11n	1	2412	100 mW	Indoor + outdoor		
Bulgaria		-	-				
Denmark		13	2472				
Germany	11a 11n TPC	36	5180	200 mW	Indoor only		
Estonia		-	-				
Finland		48	5240				
France	11h 11n DFS + TPC	52	5260	200 mW	Indoor only		
Greece		-	-				
Great Britain		64	5320				
Ireland		100	5500			1000 mW	Indoor + outdoor
Iceland							
Italy							
Croatia		116	5580			1000 mW	Indoor + outdoor
Latvia		132	5660				
Liechtenstein		-	-				
Lithuania		140	5700				
Luxembourg							
Malta							
Macedonia							
Netherlands							
Norway							
Austria							
Poland							
Portugal							
Romania							
Sweden							
Switzerland							
Serbia							
Slovakia							
Slovenia							
Spain							
Czech Republic							
Turkey							
Hungary							
Cyprus							
							

Country	Mode	CH	MHz	PWR (EIRP)	Use
Australia 	11g 11n	1	2412	100 mW	Indoor + outdoor
		-	-		
		13	2472		
	11a 11n TPC	36	5180	200 mW	Indoor only
		-	-		
		48	5240		
	11h 11n DFS + TPC	52	5260	200 mW	Indoor only
		-	-		
		64	5320		
	11a 11n TPC	149	5745	400 mW	Indoor + outdoor
		-	-		
		165	5825		
Brazil	11g 11n	1	2412	4000 mW	Indoor + outdoor
		-	-		
		13	2472		
	11a 11n TPC	36	5180	200 mW	Indoor only
		-	-		
		64	5320		
	11a 11n TPC	100	5500	1000 mW	Indoor + outdoor
		-	-		
		140	5700	4000 mW	Indoor + outdoor
		149	5745		
		-	-		
	165	5825			
China	11g 11n	1	2412	100 mW	Indoor + outdoor
		-	-		
		13	2472		
	11a 11n TPC	149	5745	2000 mW	Indoor + outdoor
		-	-		
		165	5825		

Approvals

7.1 National approvals

Country	Mode	CH	MHz	PWR (EIRP)	Use
Japan 	11g 11n	1	2412	200 mW	Indoor + outdoor
		-	-		
		13	2472		
	11a TPC	8	5040	200 mW	Indoor + outdoor
		12	5060		
		16	5080		
	11a 11n	36	5180	200 mW	Indoor only
		-	-		
	48	5240			
	11h 11n DFS + TPC	52	5260	200 mW	Indoor only
		-	-		
64		5320	200 mW	Indoor + outdoor	
100		5500			
-	-				
140	5799				
11a TPC	184	4920	200 mW	Indoor + outdoor	
	-	-			
	196	4980			
Canada Peru Puerto Rico USA 	11g 11n	1	2412	100 mW	Indoor + outdoor
		2	2417	200 mW	Indoor + outdoor
		-	-		
		10	2457		
	11a 11n TPC	11	2462	100 mW	Indoor + outdoor
		36	5180	200 mW	Indoor only
		-	-		
		48	5240	400 mW	Indoor + outdoor
149	5745				
-	-				
165	5825				

