SIEMENS

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SIMATIC NET

Industrial Wireless LAN
Passive network components
IWLAN

System Manual

07/2018
C79000-G8976-C282-06

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Siemens AG
Division Process Industries and Drives
Postfach 48 48
90026 NÜRNBERG
GERMANY

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Preface

1

Purpose of the system manual

This manual explains the entire IWLAN cabling that you require for your IWLAN application. For a flexible combination and installation of the individual IWLAN components both indoors and outdoors, a wide ranging selection of compatible coaxial accessories is available. The manual also covers connecting cables as well as a variety of plug-in connectors, lightning protectors, a power splitter and an attenuator.

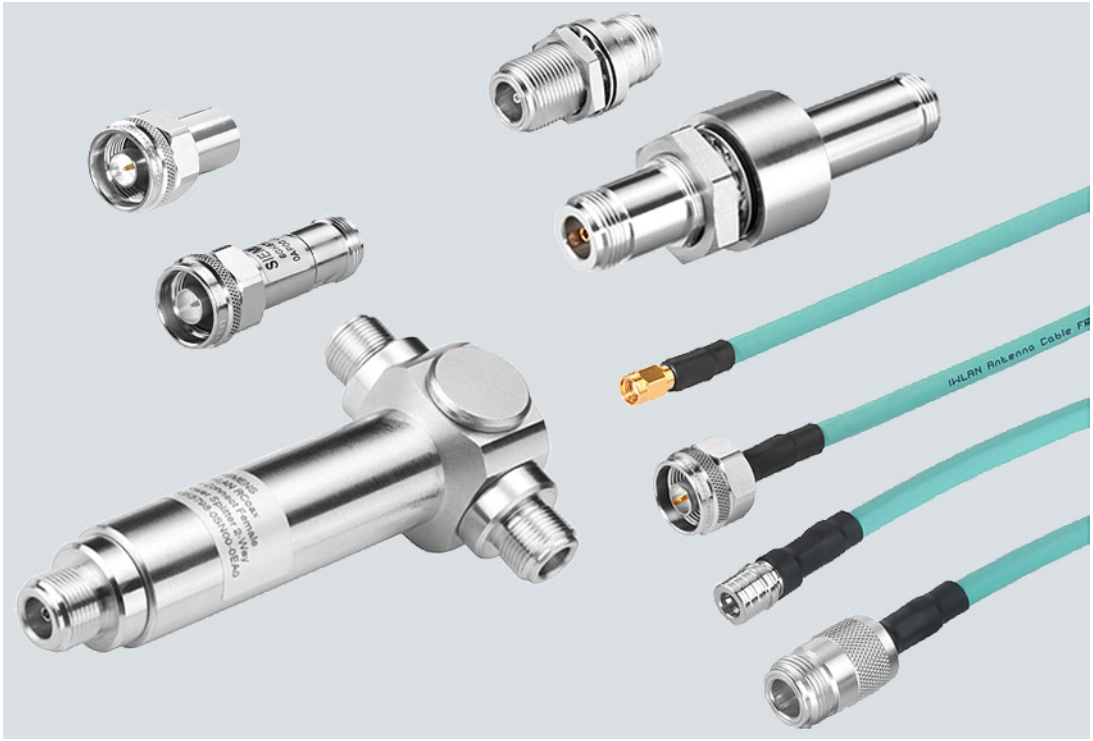


Figure 1-1 IWLAN product overview

Certification

The products and systems listed in this document are manufactured and marketed using a quality management system complying with DIN ISO 9001 (Certificate Register no. 2613) and certified by DQS. The DQS certificate is recognized in all IQNet countries (reg. no.: 2613).

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SIMATIC NET glossary

Explanations of many of the specialist terms used in this documentation can be found in the SIMATIC NET glossary.

You will find the SIMATIC NET glossary on the Internet at the following address:

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

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SIMATIC NET, SCALANCE, C-PLUG, RCoax

Product overview

2

2.1 Introduction

This section introduces you to the IWLAN products. You will find technical specifications in the section "Technical data (Page 19)".

2.2 Cabling technique

2.2.1 Overview

The following passive IWLAN components are available:

Flexible connecting cables

SIEMENS IWLAN RCoax N-Connect/N-Connect male/male Flexible connecting cable for linking two RCoax cables or an antenna to a SCALANCE W access point with N connectors. Preassembled with two N male connectors: • 6XV1875-5AH10 (length 1 m) • 6XV1875-5AH20 (length 2 m) • 6XV1875-5AH50 (length 5 m) • 6XV1875-5AN10 (length 10 m)	
SIEMENS IWLAN QMA/N-Connect male/female Adapter cable for connecting a MIMO antenna with QMA connectors with the flexible connecting cables. Preassembled with two connectors QMA male and N-Connect female: • 6XV1875-5JH10 (length 1 m)	

SIEMENS SIMATIC NET IWLAN RCoax/Antenna Connection Cable R-SMA/SMA male/male Flexible connecting cable for connecting a SCALANCE W7xx or IWLAN/PB Link PN IO to components with R-SMA and SMA connectors, for example cabinet feedthrough. Preassembled with two R-SMA male to SMA N male connectors: • 6XV1875-5DE30 (length 0.3 m) • 6XV1875-5DH20 (length 2 m)	
SIEMENS SIMATIC NET IWLAN RCoax/Antenna Connection Cable N-Connect/RSMA male/male Flexible connecting cable for connecting an RCoax cable or an antenna to a SCALANCE W7xx. Preassembled with two connectors N male and R-SMA male: • 6XV1875-5CE30 (length 0.3m) • 6XV1875-5CH10 (length 1 m) • 6XV1875-5CH20 (length 2 m) • 6XV1875-5CH50 (length 5 m) • 6XV1875-5CN10 (length 10 m)	

Terminating resistors

SIEMENS SIMATIC NET IWLAN RCoax N-Connect Male Termination Impedance 50 Ω TI795-1N Terminating impedance for RCoax cables and open wireless interfaces on SCALANCE W devices with N-Connects, impedance 50 ohms, • 6GK5795-1TN00-1AA0	
SIEMENS SIMATIC NET IWLAN Termination Impedance TI795-1R R-SMA terminator for fitting to the unused antenna socket of a SCALANCE W7xx when using one antenna only. Impedance 50 Ω, R-SMA male connector. • 6GK5795-1TR10-0AA6	

Lightning protectors

SIEMENS SIMATIC NET IWLAN Lightning Protector with N/N female/female connector LP 798-2N Lightning protector with maintenance-free quarter-wave technology for frequencies in the range 2 to 6 GHz. • 6GK5798-2LP10-2AA6	
SIEMENS SIMATIC NET IWLAN Lightning Protector with N/N female/female connector LP 798-1N Lightning protector with gas discharge capsule, also suitable for DC current on the flexible connecting cable 0 to 6 GHz. • 6GK5798-2LP00-2AA6	

Panel feedthroughs

SIEMENS SIMATIC NET IWLAN Antenna N-Connect/N-Connect female/female Panel Feedthrough Panel feedthrough/adapter N-N for wall thicknesses up to a maximum of 4.5 mm, N-Connect/N-Connect connectors • 6GK5 798-2PP00-2AA6	
SIEMENS SIMATIC NET IWLAN RCoax N-Connect/SMA female/female Panel Feedthrough Panel feedthrough with securing flange for wall thicknesses up to a maximum of 5.5 mm, SMA female and N-Connect female connectors • 6GK5 798-0PT00-2AA0	

Attenuator

Power splitter

SIEMENS SIMATIC NET IWLAN RCoax N-Connect Male/Female Attenuator 10 dB Attenuator with N-Connect male / N-Connect female connectors • 6GK5 798-0AP00-4CA0	

SIEMENS SIMATIC NET IWLAN RCoax N-Connect Female Power Splitter 2-Way Two-way power splitter, Y element for splitting the RCoax cable or for the use of two antennas on one wireless interface. • 6GK5 798-0SN00-0EA0	

HF coupler

RCoax N-Connect male/male Coupler HF coupler, among other things for connecting two RCoax cables; two N-Connect male connectors. • 6GK5 798-0CP00-1AA0	

HF angle adapter

HF angle adapter 90° angle adapter with R-SMA male /R-SMA female connectors • 6GK5798-1CS00-4AA0	

2.2.2 Area of application

Flexible connecting cables

- The flexible IWLAN RCoax/antenna connecting cables are required for connecting RCoax segments or antennas to active devices.
- The cables provide low attenuation so that the quality of the wireless signal is only minimally impaired.
- The antenna cables are flame retardant, chemical resistant and silicone-free.

Terminating resistors

- To avoid impairing wireless quality, terminating resistors are required to close unused antenna connectors on the access points and clients.
- RCoax segments must be terminated at the end with a terminating resistor.

Lightning protectors

When using separate antennas outdoors, there is a risk of lightning strikes. To protect the equipment, a lightning protector can be used.

Panel feedthroughs

The panel feedthroughs along with the antenna connecting cables allow simple connection of separately installed antennas and the active components installed in cabinets or cubicles.

Attenuator

The 10 dB attenuator is always used when the transmitted power both in the send and receive direction needs to be reduced. Typical areas of application are short RCoax segments or directional wireless links that need to be restricted in terms of spread.

Power splitter

With the aid of the power splitter, the transmit power of an access point is distributed over two RCoax or antenna segments. This allows wireless coverage in two different areas with only one access point.

Product variants

Flexible connecting cables

- Preassembled cable lengths (0.3 m to 10 m)
- Different connector types and combinations:
  - N-Connect
  - R-SMA
  - SMA
  - QMA

Terminating resistors

- TI795-1R: Terminating resistor for R-SMA antenna sockets
- TI795-1N: Terminating resistor for N-Connect antenna sockets or RCoax segments

Lightning protectors

- LP798-2N

  Maintenance-free lightning protector for N-Connect connectors:
  - Quarter wave technology (lambda quarter) for the frequency range 2 to 6 GHz
  - forms a short circuit for direct voltages so that all kinds of overvoltages can be diverted reliably
  - not suitable for DC supply via antenna cable

- LP798-1N

  Lightning protector for N-Connect connectors:

  – with gas discharge protector for the frequency range 0 to 6 GHz for N-Connect connectors

  – suitable for DC supply via antenna cable

Panel feedthroughs

- N-Connect female/SMA female with securing flange for wall thicknesses up to a maximum of 5.5 mm
- N-Connect female/N-Connect female without flange for wall thicknesses up to a maximum of 4.5 mm. This can also be used as a link between two antenna connecting cables.

2.3 Further passive components

2.3.1 Antennas

Product connections

The products described up to now are used to connect the following passive components to access points and clients:

Component	Description	Article number
IWLAN RCoax N Connect Female Antenna ANT792-4DN	RCoax helical antenna with circular polarization for RCoax systems, 2.4 GHz	6GK5792-4DN00-0AA6
ANT792-6MN	Omnidirectional antenna with N-Connector female 2.4 GHz	6GK5792-6MN00-0AA6
ANT792-8DN	Directional antenna with N-Connector female 2.4 GHz	6GK5792-8DN00-0AA6
ANT795-4MA	Omnidirectional antenna with R-SMA connector, 2.4 GHz / 5 GHz Radial rotation with additional joint	6GK5793-4MA00-0AF3
ANT795-4MC	Omnidirectional antenna with N-Connector male 2.4 GHz / 5 GHz	6GK5793-4MC00-0AF3
ANT795-4MD	Omnidirectional antenna with N-Connector male 2.4 GHz / 5 GHz	6GK5793-4MD00-0AF3
IWLAN RCoax N Connect Female Antenna ANT793-4MN	RCoax λ5/8 antenna with vertical polarization for RCoax systems, 5 GHz	6GK5793-4MN00-0AA6
ANT795-6DC	Dual-band directional antenna with linear polarization 2.4 GHz / 5 GHz	6GK5793-6DC00-0AA0
ANT793-6DG	Dual directional antenna with linear polarization and polarization levels at ±45°, 5 GHz.	6GK5793-6DG00-0AA0

Component	Description	Article number
ANT793-6DT	MIMO antenna with three QMA connectors and three polarization levels (vertical and ±45°), 5 GHz.	6GK5793-6DT00-0AA0
ANT793-6MN	Omnidirectional antenna with N-Connector female 5 GHz	6GK5793-6MN00-0AA6
ANT795-6MT	MIMO antenna with three QMA connectors 2.4 GHz / 5 GHz	6GK5793-6MT00-0AA0
ANT793-8DJ	Directional antenna with dual horizontal/vertical polarization 5 GHz	6GK5793-8DJ00-0AA0
ANT793-8DK	Directional antenna with dual horizontal/vertical polarization 5 GHz	6GK5793-8DK00-0AA0
ANT793-8DN	Directional antenna with N-Connector female 5 GHz	6GK5793-8DN00-0AA6
ANT793-8DP	Directional antenna with N-Connector female 5 GHz This antenna is not available in Korea.	6GK5793-8DP00-0AA0
ANT793-8DQ	Right circular polarized antenna with N-Connector female, 5.8 GHz	6GK5793-8DQ00-0AA0
ANT795-4MR	Omnidirectional antenna with R-SMA connector for direct mounting on a SCALANCE W700, 2.4 GHz / 5 GHz	6GK5795-4MR00-0AA6
ANT795-4MS	Omnidirectional antenna with R-SMA connector for direct mounting on a SCALANCE W700, 2.4 GHz / 5 GHz Radial rotation with additional joint.	6GK5795-4MS00-0AA6
ANT795-6DN	Directional antenna with N-Connector female 2.4 GHz / 5 GHz	6GK5795-6DN00-0AA6
ANT795-6MN	Omnidirectional antenna for roof mounting or mounting on vehicles 2.4 GHz / 5 GHz	6GK5795-6MN00-0AA6
ANT795-4MX	Omnidirectional antenna, 2/2,5 dBi, 2.4 GHz and 5 GHz, IP69K, N-Connect male	6GK5795-4MX00-0AA0
ANT795-6MP	Omnidirectional antenna, 5/7 dBi, 2.4 GHz and 5 GHz, IP65/67, N-Connect female	6GK5795-6MP00-0AA0
ANT896-6MM	Omnidirectional antenna for mobile wireless, WLAN and GPS, WLAN: 6/7 dBi, 2.4 GHz and 5 GHz, IP68, IP69 K, QMA-Connect female, port 2	6GK5896-6MM00-0AA0
ANT793-8DL	Directional antenna vertical-horizontal polarized, 5 GHz, 14dBi, IP66, 2 x N-Connect female	GK5793-8DL00-0AA0

Note

You will find further information in the compact operating instructions of the individual components.

2.3.2 RCoax cables

Component	Description	Article number	
IWLAN RCoax cable	Leaky feeder for areas with difficult wireless conditions as a special antenna for SCALANCE W access points. For the expanded temperature range (-40 °C to +85 °C). Sold by the meter, minimum order 20 meters.	2.4 GHz	6XV1875-2A
		5 GHz	6XV1875-2D

Note

Further information

You will find further information in the system manual for RCoax.

2.4 Active components

2.4.1 Access points

2.4.1.1 IEEE 802.11n

SCALANCE W700

The SCALANCE W700 access points with one or more wireless interfaces are suitable for setting up Industrial Wireless LANs. Both infrastructure networks and point-to-point links can be implemented. The most important characteristics of the various product variants are shown in the table below. You will find detailed information in the documentation of the relevant device.

Type	Connectors for external antennas		Number of connectable devices (3)	iPCF mode (1)	IEEE 802.11 a/b/g/h	IEEE 802.11n	Article number
	R-SMA	N-Connect					
W761-1 RJ45	1		4		•	1 x 1	6GK5761-1FC00-0AA0 6GK5761-1FC00-0AB0 (4)
W774-1 RJ45	2		8	• (2)	•	2 x 2	6GK5774-1FX00-0AA0 6GK5774-1FX00-0AB0 (4) 6GK5774-1FX00-0AC0 (5)
W774-1 M12	2		8	• (2)	•	3 x 3	6GK5774-1FY00-0TA0 6GK5774-1FY00-0TB0 (4)
W774-1 M12 EEC	2		8	• (2)	•	3 x 3	6GK5774-1FY00-0TA0 6GK5774-1FY00-0TB0 (4)
W778-1 M12	2		8	• (2)	•	3 x 3	6GK5774-1FY00-0TA0 6GK5774-1FY00-0TB0 (4)

Type	Connectors for external antennas		Number of connectable devices (3)	iPCF mode (1)	IEEE 802.11 a/b/g/h	IEEE 802.11n	Article number
	R-SMA	N-Connect					
W778-1 M12 EEC	2		8	• (2)	•	3 x 3	6GK5774-1FY00-0TA0 6GK5774-1FY00-0TB0 (4)
W788-1 M12		3	8	• (2)	•	3 x 3	6GK5788-1GD00-0AA0 6GK5788-1GD00-0AB0 (4)
W788-2 M12		6	8	• (2)	•	3 x 3	6GK5788-2GD00-0AA0 6GK5788-2GD00-0AB0 (4)
W788-2 M12 EEC		6	8	• (2)	•	3 x 3	6GK5788-2GD00-0TA0 6GK5788-2GD00-0TB0 (4) 6GK5 788-2GD00-0TC0 (5)
W788-1 RJ-45	3		8	• (2)	•	3 x 3	6GK5788-1FC00-0AA0 6GK5788-1FC00-0AB0 (4)
W788-2 RJ-45	6		8	• (2)	•	3 x 3	6GK5788-2FC00-0AA0 6GK5788-2FC00-0AB0 (4) 6GK5788-2FC00-0AC0 (5)
W786-1 RJ-45	3		8	• (2)	•	3 x 3	6GK5786-1FC00-0AA0 6GK5786-1FC00-0AB0 (4) 6GK5786-2FC00-0AC0 (5)
W786-2 RJ-45	6		8	• (2)	•	3 x 3	6GK5786-2FC00-0AA0 6GK5786-2FC00-0AB0 (4)
W786-2IA RJ-45			8	• (2)	•	3 x 3	6GK5786-2HC00-0AA0 6GK5786-2HC00-0AB0 (4)
W786-2 SFP	6		8	• (2)	•	3 x 3	6GK5786-1FE00-0AA0
W788C-2 RJ-45	6		8		•	3 x 3	6GK5788-2FC00-0AA0
W788C-2 M12		6	8		•	3 x 3	6GK5788-2GD00-0AA0
W788C-2 M12 EEC		6	8		•	3 x 3	6GK5788-2GD00-1TA0
W786C-2 RJ-45	6		8		•	3 x 3	6GK5786-2FC00-0AA0
W786C-2IA RJ-45			8		•	3 x 3	6GK5786-2HC00-0AA0

• suitable

(1) The iPCF mode provides an optimized data throughput and minimum handover times.

(2) With KEY-PLUG inserted

(3) In client mode

(4) US variant

(5) IL variant

2.4.1.2 IEEE 802.11ac

The SCALANCE W1700 access points with two Ethernet and up to two WLAN interfaces are highly suitable for setting up Industrial Wireless LANs. Both infrastructure networks and point-to-point links can be implemented.

SCALANCE W1700 features multiuser MIMO and can transmit data to up to four WLAN clients simultaneously.

SCALANCE W1700 devices feature an integrated switch and can be networked in a variety of ways over their two managed Ethernet Gigabit ports.

SCALANCE W1700 is compatible with the IEEE 802.11n WLAN standards.

SCALANCE W1700 devices supports IP65 degree of protection, which means they are dust-proof and fully protected against contact and water jets (nozzle) from any direction. The SCALANCE W1788 M12 EEC is suitable for use in harsh environments.

The most important characteristics of the various product variants are shown in the table below. You can find detailed information in the documentation of SCALANCE W1700 devices.

Type	Antennas		Spatial streams (data streams)	Max. data rate (gross in Mbps)	Ethernet interfaces	Article number
	Quantity	Connec-tions				
SCALANCE W1788-1 M12	4	N-Connect	1 to 4 (max. 4 per client)	1733	2 x M12 for 1000 Mbps, 1 x PoE	6GK5788-1GY01-0AA0 6GK5788-1GY01-0AB0 (USA)
SCALANCE W1788-2 M12	8	N-Connect	1 to 8 (max. 4 per client)	1733	2 x M12 for 1000 Mbps, 1 x PoE	6GK5788-2GY01-0AA0 6GK5788-2GY01-0AB0 (USA)
SCALANCE W1788-2 M12 EEC	8	N-Connect	1 to 8 (max. 4 per client)	1733	2 x M12 for 1000 Mbps, 1 x PoE	6GK5788-2GY01-0TA0 6GK5788-2GY01-0TB0 (USA)
SCALANCE W1788-2IA M12	8	Internal	1 to 8 (max. 4 per client)	1733	2 x M12 for 1000 Mbps, 1 x PoE	6GK5788-2HY01-0AA0 6GK5788-2HY01-0AB0 (USA)

2.4.2 Client modules

SCALANCE W700

The SCALANCE W700 client modules establish a connection between wired Ethernet and Industrial Wireless LAN. The most important characteristics of the various product variants are shown in the table below. You will find detailed information in the documentation of the relevant device.

Type	Connectors for external antennas		Number of connectable devices (3)	iPCF mode (1)	IEEE 802.11 a/b/g/h	IEEE 802.11n	Article number
	R-SMA	N-Connect					
W721-1 RJ45	1		4		•	1 x 1	6GK5721-1FC00-0AA0 6GK5721-1FC00-0AB0 (4)
W722-1 RJ45	1		4	• (2)	•	1 x 1	6GK5722-1FC00-0AA0 6GK5722-1FC00-0AB0 (4)
W734-1 RJ45	2		8	• (2)	•	2 x 2	6GK5734-1FX00-0AA0 6GK5734-1FX00-0AB0 (4)
W738-1 M12		2	8	• (2)	•	2 x 2	6GK5738-1GY00-0AA0 6GK5738-1GY00-0AB0 (4)
W748-1 M12		3	8		•	3 x 3	6GK5748-1GD00-0AA0 6GK5748-1GD00-0AB0 (4)
W748-1 RJ-45	3		8		•	3 x 3	6GK5748-1FC00-0AA0 6GK5748-1FC00-0AB0 (4)

• suitable

(1) The iPCF mode provides an optimized data throughput and minimum handover times.

(2) With KEY-PLUG inserted

(3) In client mode

(4) US variant

Mobile Panel 277 IWLAN

The Mobile Panel is a mobile HMI device for tasks of medium complexity for use in PROFIBUS DP networks or in PROFINET environments. Apart from the standard HMI functionality, the range of applications can be expanded by the WinCC flexible options Smart Access, Smart Service and Audit.

ET 200pro IWLAN

The SIMATIC ET 200pro is an I/O system that can be mounted directly on the machine. To achieve this, various interface modules are available for connection to PROFINET or PROFIBUS both in standard and fail-safe versions. For communication between the ET 200pro and higher-level controllers via Industrial Wireless LAN (IWLAN) networks, you require an interface module.

Type	Connectors for external antennas		iPCF mode (1)	IEEE 802.11 a/b/g/h	IEEE 802.11n	Article number
	R-SMA	N-Connect				
Mobile Panel 277 (F) IWLAN	2		•	•		Mobile Panel 277 IWLAN • 6AV6645-0Dxxx-xxx1 • 6AV6645-0Fxxx-xxx1 (2) Mobile Panel 277F IWLAN • 6AV6645-0Exxx-xxx1 • 6AV6645-0Gxxx-xxx1 (2)
Interface module IM 154-6 PN HF IWLAN		2	•	•		6ES7154-6AB00-0AB0 6ES7154-6AB50-0AB0 (2)

• suitable

(1) The iPCF mode provides an optimized data throughput and minimum handover times.

(2) US variant

Technical data

3

Note

The following tightening torques apply to the connectors:

- with N-Connect connectors: 1.7 Nm
- with SMA/R-SMA connectors: 1 Nm

Note

Installation outdoors

Protect the connectors from environmental influences (e.g. with self vulcanizing adhesive tape or a shrink-on hose).

3.1 Flexible connecting cables

3.1.1 Introduction

Note

The flexible connecting cable is intended for connection of fixed and mobile users where the permitted bend radiuses are only seldom reached.
(Examples:

- Connection of a client on a vehicle, where the cable vibrates but is not permanently bent.
- Connection of an antenna to an access point when the antenna is occasionally aligned so that the cable position is changed.

The flexible connecting cable is not designed for continuous bending or twisting.

3.1.2 IWLAN N-Connect/R-SMA male/male

Flexible connecting cable for connecting an RCoax cable or an antenna to a SCALANCE W700 access point with R-SMA connectors. Preassembled with two connectors N-Connect male and R-SMA male.

Technical specifications			
Article numbers	0.3 m		6XV1875-5CE30
	1 m		6XV1875-5CH10
	2 m		6XV1875-5CH20
	5 m		6XV1875-5CH50
	10 m		6XV1875-5CN10
Electrical data			
Impedance			50 Ω
Ratio of propagation speed			82%
Capacitance			82 pF/m
Return loss			≥ 23 dB
Frequency			≤ 6 GHz
Attenuation (1)		at 2.4 GHz	0.53 dB/m
		at 5.1 GHz	0.83 dB/m
		at 5.7 GHz	0.88 dB/m
Resistance to fire			
Flame retardant			UL 1685 (vertical tray) and UL 1581, Sec. 1090 (H)
Dimensions, materials and weight			
Number of plug-in connections			2
Outer diameter			6.3 mm
Materials	Inner conductor		• Silver-coated copper • Diameter: 1.4 mm
	Dielectric		• Polyethylene foam • Diameter: 3.8 mm
	Inner metal screen		• Tin plated copper wires with a wire diameter of 0.13 mm • Area coverage 95% • Diameter: 4.3 mm
	Outer metal shield		• Tin plated copper wires with a wire diameter of 0.13 mm • Area coverage 95% • Diameter: 4.8 mm
	Cable jacket		• Thermoplastic copolymer,pastel turquoise • Diameter: 6.3 mm • Jacket thickness: 0.76 mm
Degree of protection			IP67

Technical specifications		
Silicone-free		yes
Halogen-free		yes
UV resistant		resistant
Weight		0.075 kg/m
Permitted ambient conditions		
Ambient temperature		-40 °C ... +80 °C
Mechanical data		
Smallest bend radius	when bending once	3.2 cm
	when bending more than once	4.5 cm
Tensile strength		30 ... 80 N

(1) The specified attenuation values relate only to the cable without connectors. For the assembled cable, approximately 0.1dB at 2.4 GHz and approximately 0.3 dB at 5 GHz must be added per plug-in connector.

Dimension drawing

All dimensions except thread diameters are in millimeters. The thread diameter is specified in inches.

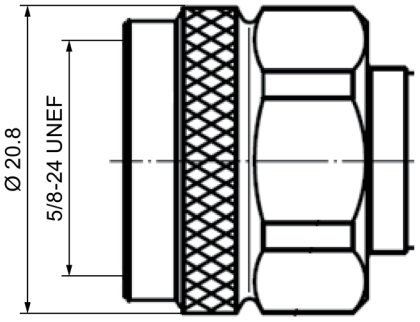


Figure 3-1 N-Connect male

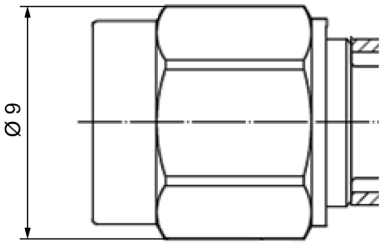


Figure 3-2 R-SMA male

3.1.3 IWLAN N-Connect male/male

Flexible connecting cable for connecting an RCoax cable or an antenna to a SCALANCE W access point with N connectors.

Technical specifications			
Article numbers		1 m	6XV1875-5AH10
		2 m	6XV1875-5AH20
		5 m	6XV1875-5AH50
		10 m	6XV1875-5AN10
Electrical data			
Impedance			50 Ω
Ratio of propagation speed			82%
Capacitance			82 pF/m
Return loss			≥ 23 dB
Frequency			≤ 6 GHz
Attenuation (1)		at 2.4 GHz	0.53 dB/m
		at 5.1 GHz	0.83 dB/m
		at 5.7 GHz	0.88 dB/m
Resistance to fire			
Flame retardant			UL 1685 (vertical tray) and UL 1581, Sec. 1090 (H)
Dimensions, materials and weight			
Number of plug-in connections			2
Outer diameter			6.3 mm
Materials	Inner conductor		• Silver-coated copper • Diameter: 1.4 mm
	Dielectric		• Polyethylene foam • Diameter: 3.8 mm
	Inner metal screen		• Tin plated copper wires with a wire diameter of 0.13 mm • Area coverage 95% • Diameter: 4.3 mm
	Outer metal shield		• Tin plated copper wires with a wire diameter of 0.13 mm • Area coverage 95% • Diameter: 4.8 mm
	Cable jacket		• Thermoplastic copolymer,pastel turquoise • Diameter: 6.3 mm • Jacket thickness: 0.76 mm
Degree of protection			IP67
Silicone-free			yes
Halogen-free			yes
UV resistant			resistant

Technical specifications		
Weight		0.075 kg/m
Permitted ambient conditions		
Ambient temperature		-40 °C ... +80 °C
Mechanical data		
Smallest bend radius	when bending once	3.2 cm
	when bending more than once	4.5 cm
Tensile strength		30 ... 80 N

(1) The specified attenuation values relate only to the cable without connectors. For the assembled cable, approximately 0.1dB at 2.4 GHz and approximately 0.3 dB at 5 GHz must be added per plug-in connector.

Dimension drawing

All dimensions except thread diameters are in millimeters. The thread diameter is specified in inches.

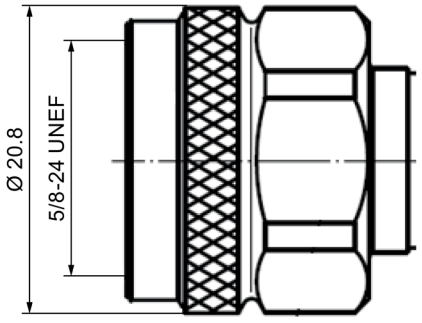


Figure 3-3 N-Connect male

3.1.4 IWLAN QMA/N-Connect male/female

Flexible adapter cable for connecting a MIMO antenna with QMA connectors.

Technical specifications			
Article number	1 m (pack of 3)	6XV1875-5JH10	
Electrical data			
Impedance			50 Ω
Ratio of propagation speed			82%
Capacitance			82 pF/m
Return loss			≥ 23 dB
Frequency			≤ 6 GHz

Technical specifications			
Attenuation (1)		at 2.4 GHz	0.53 dB/m
		at 5.1 GHz	0.83 dB/m
		at 5.7 GHz	0.88 dB/m
Resistance to fire			
Flame retardant		UL 1685 (vertical tray) and UL 1581, Sec. 1090 (H)	
Dimensions, materials and weight			
Number of plug-in connections		2	
Outer diameter		6.3 mm	
Materials	Inner conductor	• Silver-coated copper • Diameter: 1.4 mm	
	Dielectric	• Polyethylene foam • Diameter: 3.8 mm	
	Inner metal screen	• Tin plated copper wires with a wire diameter of 0.13 mm • Area coverage 95% • Diameter: 4.3 mm	
	Outer metal shield	• Tin plated copper wires with a wire diameter of 0.13 mm • Area coverage 95% • Diameter: 4.8 mm	
	Cable jacket	• Thermoplastic copolymer,pastel turquoise • Diameter: 6.3 mm • Jacket thickness: 0.76 mm	
Degree of protection		IP67	
Silicone-free		yes	
Halogen-free		yes	
UV resistant		resistant	
Weight		0.075 kg/m	
Permitted ambient conditions			
Ambient temperature		-40 °C ... +80 °C	
Mechanical data			
Smallest bend radius	when bending once	3.2 cm	
	when bending more than once	4.5 cm	
Tensile strength		30 ... 80 N	

(1) The specified attenuation values relate only to the cable without connectors. For the assembled cable, approximately 0.1dB at 2.4 GHz and approximately 0.3 dB at 5 GHz must be added per plug-in connector.

Dimension drawing

All dimensions except thread diameters are in millimeters. The thread diameter is specified in inches.

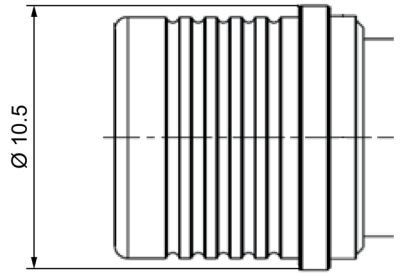


Figure 3-4 QMA male

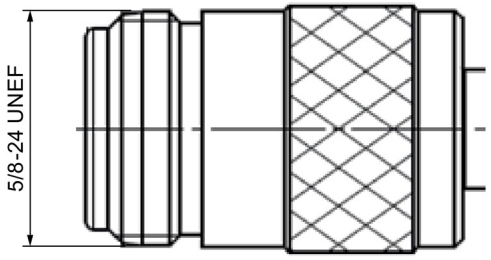


Figure 3-5 N-Connect female

3.1.5 IWLAN R-SMA/SMA male/male

Flexible connecting cable for connecting an active device to components with R-SMA and SMA connectors, for example panel feedthrough. Preassembled with two R-SMA male to SMA male connectors:

Technical specifications		
Article numbers	0.3 m	6XV1875-5DE30
	2 m	6XV1875-5DH20
Electrical data		
Impedance		50 Ω
Ratio of propagation speed		82%
Capacitance		82 pF/m
Return loss		≥ 23 dB
Frequency		≤ 6 GHz
Attenuation (1)	at 2.4 GHz	0.53 dB/m

Technical specifications		
	at 5.1 GHz	0.83 dB/m
	at 5.7 GHz	0.88 dB/m
Resistance to fire		
Flame retardant		UL 1685 (vertical tray) and UL 1581, Sec. 1090 (H)
Dimensions, materials and weight		
Number of plug-in connections		2
Outer diameter		6.3 mm
Materials	Inner conductor	• Silver-coated copper • Diameter: 1.4 mm
	Dielectric	• Polyethylene foam • Diameter: 3.8 mm
	Inner metal screen	• Tin plated copper wires with a wire diameter of 0.13 mm • Area coverage 95% • Diameter: 4.3 mm
	Outer metal shield	• Tin plated copper wires with a wire diameter of 0.13 mm • Area coverage 95% • Diameter: 4.8 mm
	Cable jacket	• Thermoplastic copolymer,pastel turquoise • Diameter: 6.3 mm • Jacket thickness: 0.76 mm
Degree of protection		IP67
Silicone-free		yes
Halogen-free		yes
UV resistant		resistant
Weight		0.075 kg/m
Permitted ambient conditions		
Ambient temperature		-40 °C ... +80 °C
Mechanical data		
Smallest bend radius	when bending once	3.2 cm
	when bending more than once	4.5 cm
Tensile strength		30 ... 80 N

(1) The specified attenuation values relate only to the cable without connectors. For the assembled cable, approximately 0.1dB at 2.4 GHz and approximately 0.3 dB at 5 GHz must be added per plug-in connector.

Dimension drawing

The dimensions are specified in mm.

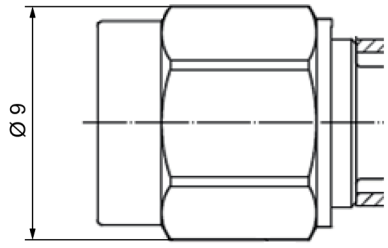


Figure 3-6 R-SMA/SMA male

3.2 Terminating resistors

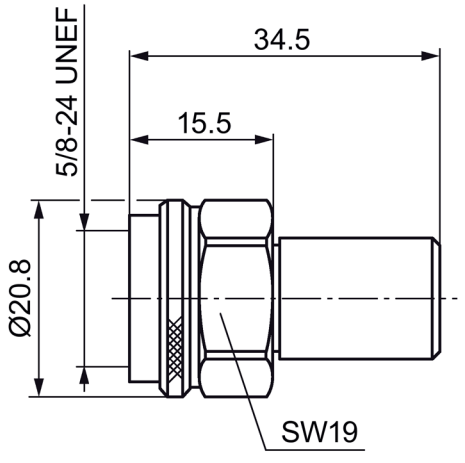
3.2.1 N terminating resistance 50 Ω – male

Technical specifications					
Article number		6GK5795-1TN00-0AA6			
Electrical data					
Standing wave ratio (VSWR)	f [GHz]	2.0	2.4	4.0	6.0
	Return flow attenuation [dB]	> 35	> 30	> 30	> 35
	VSWR	< 1.036	< 1.064	< 1.064	< 1.118
Frequency range		≤ 6 GHz			
Impedance		50 Ω			
Return loss		< 25 dB/6 GHz			
Power range		< 1 W			
Dimensions, materials and weight					
Number of plug-in connections		1			
Dimensions (length x diameter)		34.5 x 21 mm			

Technical specifications		
Materials	Inner conductor	• Core material: CuZn39Pb3 • Coating: Cu2Ag5
	Outer conductor	• Core material: CuZn39Pb3 • Coating: CuSnZn3
	Other metal parts	• Core material: CuZn39Pb3 • Coating: CuSnZn3
	Insulation	• PTFE • Silicone-free
	Seal	• WBR • Silicone-free
Weight		45 g
Degree of protection		IP65
Permitted ambient conditions		
Ambient temperature	During operation	-40 °C ... +70 °C
	During storage	-40 °C ... +70 °C
	During transportation	-40 °C ... +70 °C

Dimension drawing

All dimensions except thread diameters are in millimeters. The thread diameter is specified in inches.

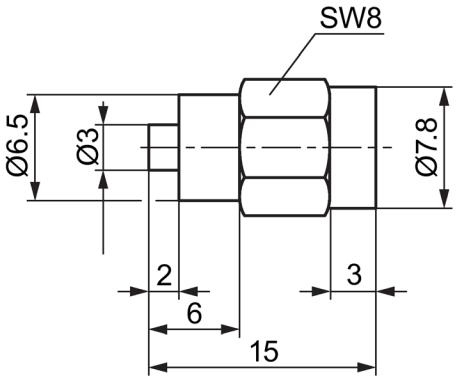


3.2.2 R-SMA terminating resistor 50 Ω – male

Technical specifications		
Article number		6GK5795-1TR10-0AA6
Electrical data		
Frequency range		≤ 6 GHz
Impedance		50 Ω
Return loss		< 25 dB/6 GHz
Power range		< 1 W
Dimensions, materials and weight		
Number of plug-in connections		1
Dimensions (length x diameter)		15 x 9 mm
Materials	Inner conductor	• Core material: CuBe2 • Coating: Cu1Ni2Au1.27
	Outer conductor	• Core material: CuZn39Pb3 • Coating: Cu1Ni2Au1.27
	Other metal parts	• Core material: CuZn39Pb3 • Coating: Cu2Ni5Au0.8
	Insulation	• PTFE • Silicone-free
	Seal	• WBR • Silicone-free
Weight		5 g
Degree of protection		IP65
Permitted ambient conditions		
Ambient temperature	During operation	-40 °C ... +70 °C
	During storage	-40 °C ... +70 °C
	During transportation	-40 °C ... +70 °C

Dimension drawing

The dimensions are specified in mm.



3.3 Lightning protectors

3.3.1 Lightning protector LP798-1N

Note

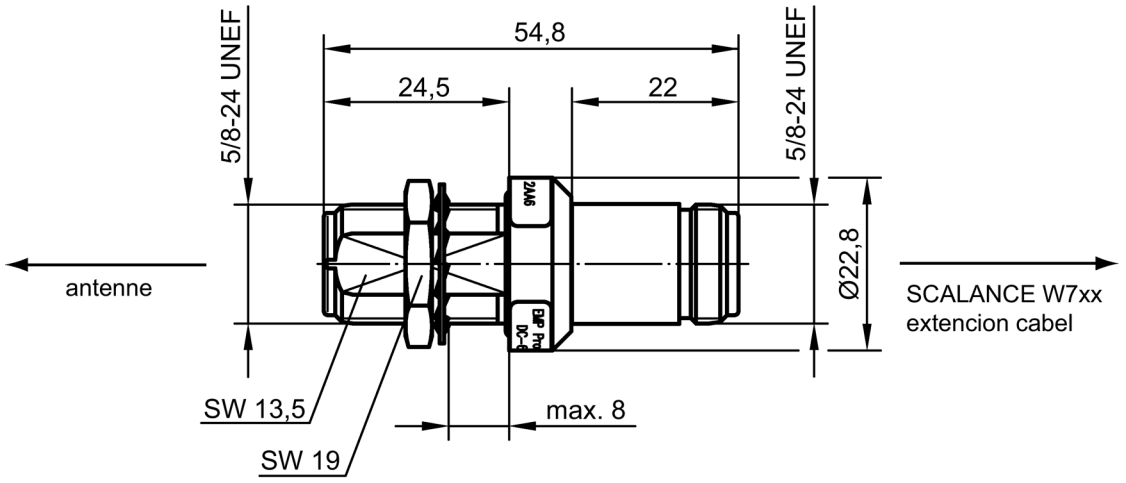
We recommend that you use the maintenance-free lightning protector LP798-2N with low residual voltage.

Exception: When there is also DC power is supplied via the antenna cable. In this case, only use the lightning protector LP798-1N.

Technical specifications	
Article number	6GK5798-2LP00-2AA6
Electrical data	
Frequency range	0 to 6 GHz
Impedance	50 Ω
Operating voltage	< 36 V
Design, dimensions and weight	
Number of plug-in connections	2
Design of the plug-in connector	N-Connector female / female
Dimensions (length x diameter)	54.8 x ∅22.8 mm
Materials	Silicone-free
Degree of protection	IP67
Weight	50 g
Permitted ambient conditions	
Ambient temperature	-40 °C... + 85 °C

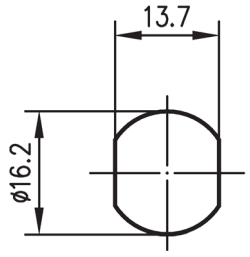
Dimension drawing

All dimensions except thread diameters are in millimeters. The thread diameters are specified in inches.



Dimension drawing through hole

The dimensions are specified in mm.

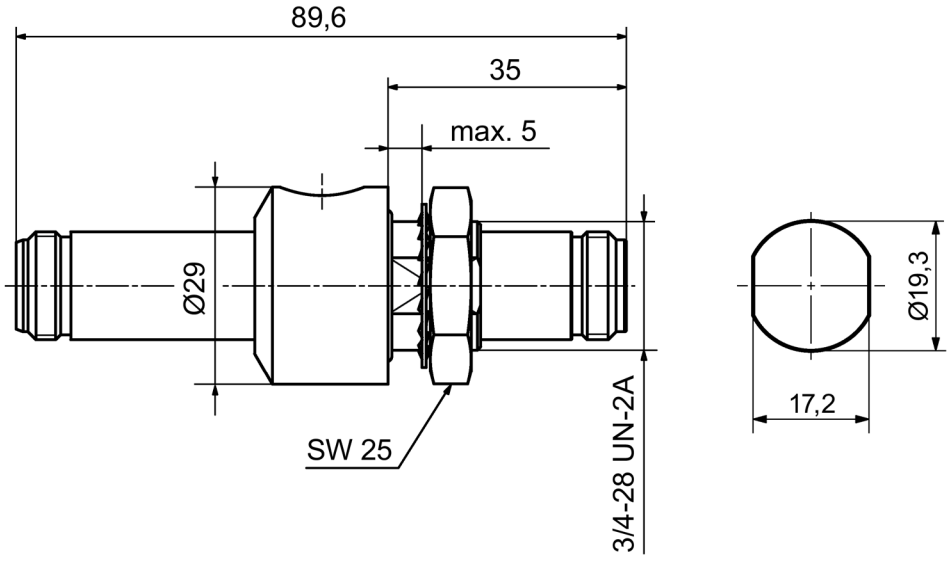


3.3.2 Lightning protector LP798-2N

Technical specifications		
Article number		6GK5798-2LP10-2AA6
Electrical data		
Frequency range		2 to 6 GHz
Impedance		50 Ω
Return loss		≥ 20 dB
Insertion loss		≤ 0.2 dB
RF CW power		≤ 300 W
Peak current capacity test pulse 8/20 µs		50 kA
Residual pulse energy (test pulse 4 kV 1.2/50 µs or 2 kA 8/20 µs)		0.2 µJ
Starting voltage		150 to 250 VDC (100V/s)
Dimensions, materials and weight		
Number of plug-in connections		2
Design of the plug-in connector		N-Connector female / female
Dimensions (length x diameter)		89.6 x ∅29 mm
Materials	Housing material	Aluminum
	Contacts	Copper beryllium alloy with gold coating
	Silicone-free	
Meets 2002/95/EC (RoHS)		
Degree of protection		IP68
Weight		80 g
Permitted ambient conditions		
Ambient temperature		-40 °C ... + 85 °C
Mechanical data		
Ports		N/N female/female
Maximum possible number of assembly procedures		100

Dimension drawing LP798-2N and through hole

All dimensions except thread diameters are in millimeters. The thread diameter is specified in inches.



3.4 Panel feedthroughs

3.4.1 Panel feedthrough N-Connect female/female

Panel feedthrough for wall thicknesses up to a maximum of 4.5 mm, two N-Connect female connectors.

Technical specifications					
Article number		6GK5798-2PP00-2AA6			
Electrical data					
Frequency range		≤ 11 GHz			
Characteristic impedance		50 Ω			
Contact resistance	Inner conductor	≤ 2 mΩ			
	Outer conductor	≤ 0.5 mΩ			
Standing wave ratio (VSWR)	f [GHz]	1	2	4	10
	VSWR	1.018	1.020	1.036	1.094
Recommended coupling torque		4 ... 6 Nm			
Service life (insertions)		≥ 500			

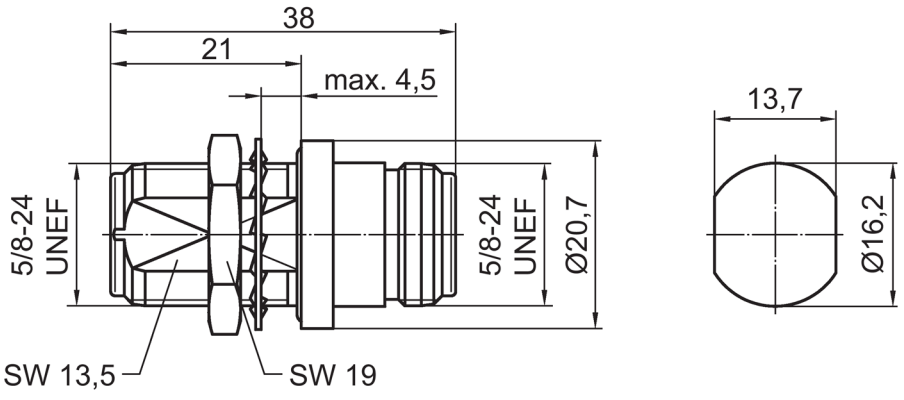
Technical specifications		
Dimensions and materials		
Dimensions (length x diameter)		38 x ø20.7
Materials	Inner conductor	Cu2Ag5
	Outer conductor	• Core material: CuZn39Pb3 • Coating: – CuSnZn3 (Telealloy) – Ag2CuSnZn0.5 (Optargen)
	Metallic parts	• Core material: • Coating:
	Insulation	PTFE
	Seal	Silicone-free
	Spring contacts	CuBe2, CuPb1.15Ni1 (C97)
	Other metal parts	• Core material: CuZn39Pb3 • Coating: – CuSnZn3 (Telealloy) – Cu2Ni5
Meets 2002/95/EC (RoHS)		
Degree of protection		IP68
Permitted ambient conditions		
Ambient temperature		-30°C... +100 °C

Note

The N-N adapter also be used as a coupler between two IWLAN RCoax / antenna connecting cables.

Dimension drawing of the feedthrough and through hole

All dimensions except thread diameters are in millimeters. The thread diameters are specified in inches.



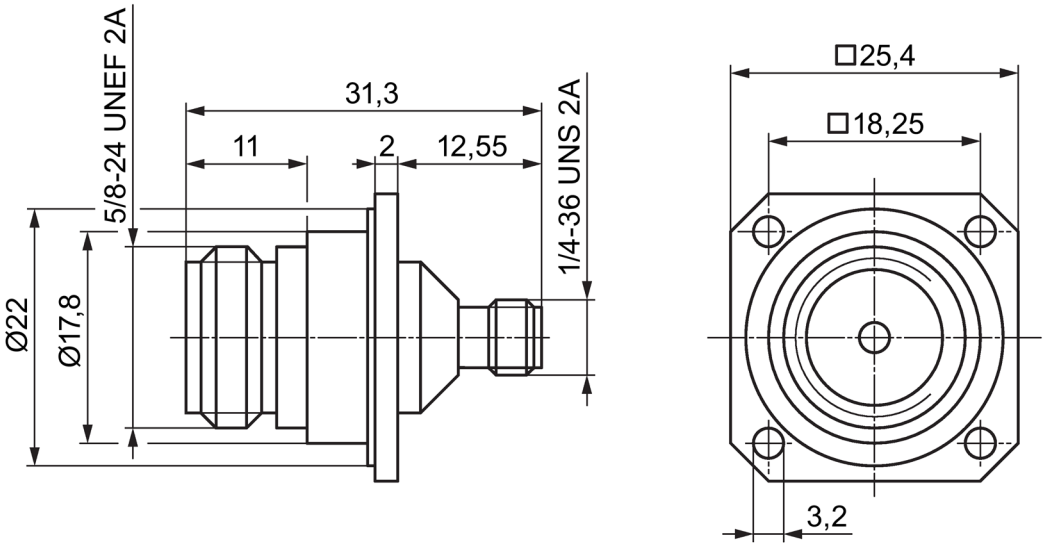
3.4.2 Panel feedthrough N/SMA female/female

Panel feedthrough for wall thicknesses up to a maximum of 5.5 mm, two N-Connect/SMA female connectors.

Technical specifications				
Article number		6GK5798-0PT00-2AA6		
Electrical data				
Standing wave ratio (VSWR)	f [GHz]	1.0	2.0	2.4
	VSWR	1.012	1.088	< 1.171
Dimensions and materials				
Dimensions (length x width x height)		31.3 x 25.4 x 25.4 mm		
Materials	Inner conductor	• Core material: CuBe2 • Coating: Ni2Au1.27		
	Outer conductor N end	• Core material: CuZn39Pb3 • Coating: CuSnZn3		
	Outer conductor SMA end	• Core material: CuZn39Pb3 • Coating: Ni2Au0.8		
	Insulation	• PTFE • Silicone-free		
	Inner seal	Silicone-free		
	Outer seal	• NBR • Silicone-free		
Permitted ambient conditions				
Ambient temperature		-40°C ... +70 °C		

Dimension drawing

All dimensions except thread diameters are in millimeters. The thread diameters are specified in inches.

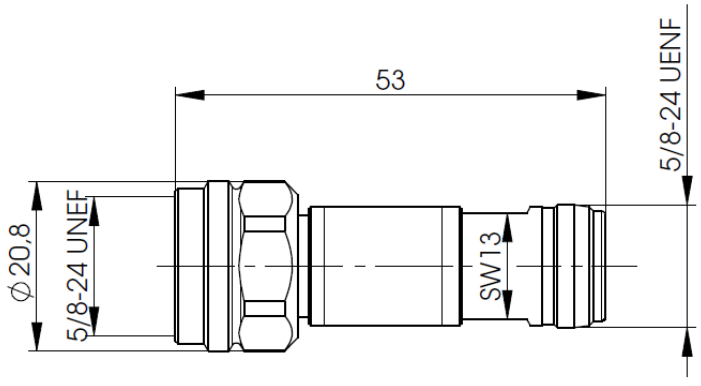


3.5 Attenuator N-Connect male/female

Technical specifications		
Article number		6GK5798-0AP00-4CA0
Electrical data		
Frequency range		≤ 6 GHz
Impedance		50 Ω
Insert attenuation		10 dB
Power range		1 W
Dimensions, materials and weight		
Number of plug-in connections		2
Dimensions (length x diameter)		45.7 x 21 mm
Materials	Inner conductor	• Core material: CuBe2 • Coating: Cu1Ni2Au0.8
	Metallic parts	• Core material: CuZn39Pb3 • Coating: CuSnZn3
	Insulation	PTFE
	Seal	Silicone-free
Weight		-
Degree of protection		-
Permitted ambient conditions		
Ambient temperature	During operation	-40 °C ... +70 °C
	During storage	-40 °C ... +70 °C
	During transportation	-40 °C ... +70 °C

Dimension drawing

All dimensions except thread diameters are in millimeters. The thread diameter is specified in inches.



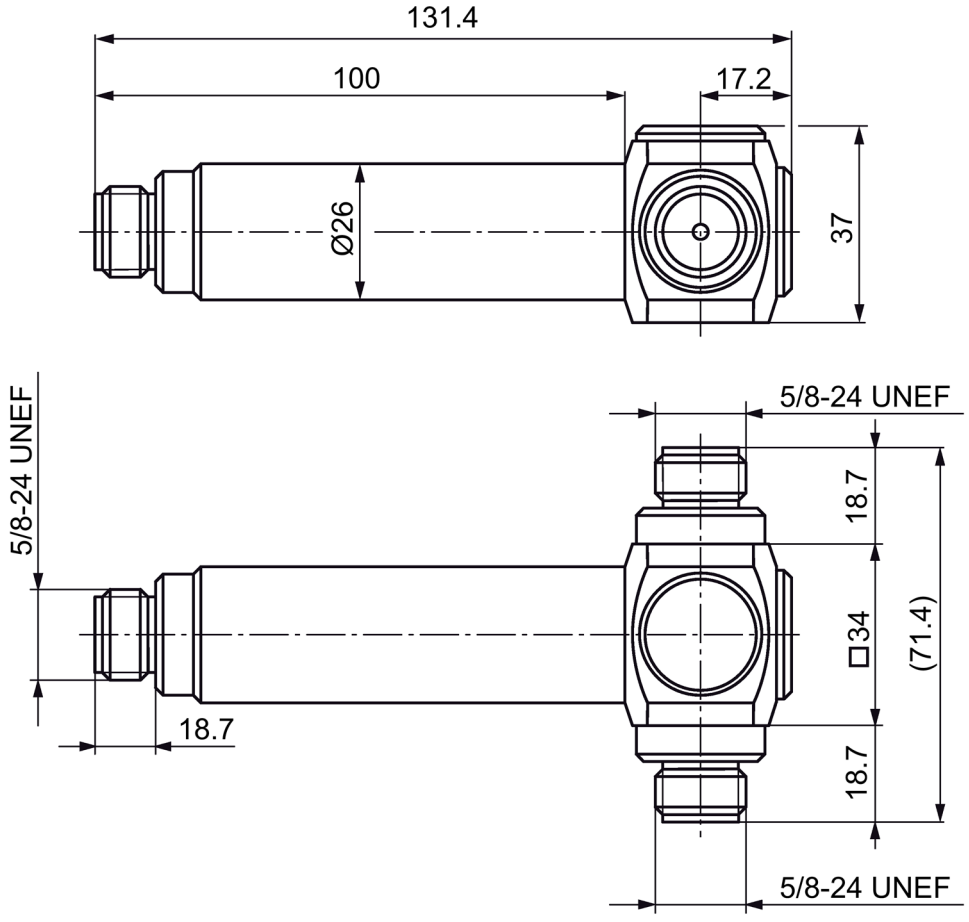
3.6 Power splitter N-Connect female

Double power splitter, Y element for splitting RCoax cables.

Technical specifications		
Article number		6GK5798-0SN00-0EA0
Electrical data		
Frequency range		2.4 to 6 GHz
Impedance		50 Ω
Return loss		≥ 24 dB
Insert attenuation		≤ 3.05 dB
Power range		250 W
Dimensions, materials and weight		
Number of plug-in connections		3
Dimensions (length x width x depth)		131.4 x 71.4 x 34 mm
Materials	Inner conductor	• Core material: Beryllium copper • Coating: Silver
	Outer conductor	• Core material: Brass • Coating: Optargen
	Housing	Brass
	Dielectric	PTFE
	Seal	NBR
Weight		937 g
Degree of protection		IP66/67, IP 68 (0.5 bar, 1h)
Permitted ambient conditions		
Ambient temperature	Temperature range	-40 °C... +110 °C
	During operation	-25 °C … +110 °C
	During storage	-25 °C … +110 °C
	During transportation	-25 °C … +110 °C
Salt spray test	IEC 60068-2-52	Severity 3

Dimension drawing

All dimensions except thread diameters are in millimeters. The thread diameters are specified in inches.

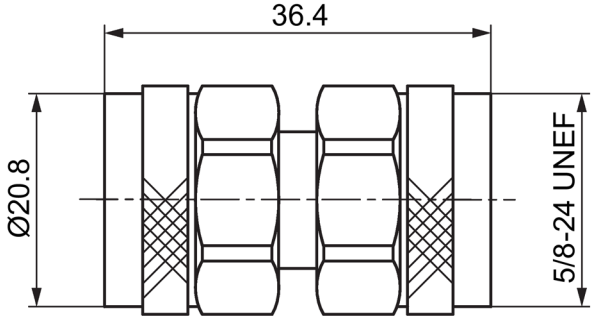


3.7 HF coupler N-Connect male/male

Technical specifications			
Article number		6GK5798-0CP00-1AA0	
Electrical data			
Frequency range		6 GHz	
Power range		1 W	
Return loss		≥ 0.1 dB	
Standing wave ratio (VSWR)	f [GHz]	1.0	2.4
	VSWR	1.012	< 1.048
Construction and dimensions			
Dimensions (length x diameter)		36.4 x ∅20.8 mm	
Materials	Inner conductor	• Core material: CuZn39Pb3 • Coating: Ag5	
	Outer conductor	• Core material: CuZn39Pb3 • Coating: CuSnZn3	
	Metallic parts	• Core material: CuZn39Pb3 • Coating: CuSnZn3	
	Insulation	PTFE	
	Seal	• MVQ • Silicone-free	
Permitted ambient conditions			
Ambient temperature		-40 ... +70 °C	

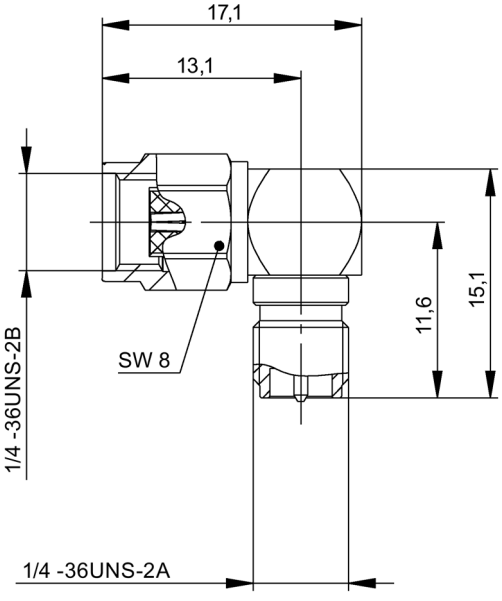
Dimension drawing

All dimensions except thread diameters are in millimeters. The thread diameter is specified in inches.



3.8 R-SMA angle adapter

Technical specifications		
Article number		6GK5798-1CS00-4AA0
Mechanical data		
Plug-in cycles		> 500
Coupling torque		79 .. 113 Ncm
Electrical data		
Frequency range		≤ 18 GHz
Impedance		50 Ω
Return loss		typ.: 6 GHz -17.5 dB
Operating voltage		≤ 335 V_{eff} / 50 Hz
Test voltage		1 kV_{eff} / 50 Hz
Dimensions, materials and weight		
Number of plug-in connections		2
Dimensions (length x width)		17.1 x 15.1 mm
Material	Inner contact, pin	• Core material: Brass • Coating: Au 0.75
	Inner contact, socket	• Core material: CuBe • Coating: Au 0.75
	Outer contact	• Core material: Brass • Coating: Au 0.125
	Metallic parts	• Core material: Brass • Coating: Au 0.125
Weight		
Degree of protection		0529)
RoHS compliant		
Permitted ambient c		
Ambient temperature		0 °C
		0 °C
		0 °C



Dimension drawir

e in millimeters. The thread diameters are

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