



IWLAN access point, SCALANCE W778-1 M12, 1 radio, 2 N-CON antenna port, iFeatures support via key plug, IEEE 802.11a/b/g/h/n, 2.4/5 GHz, gross data rate 300 Mbit/s, 2x M12 max. 100 Mbit/s, PoE integrated 2-port switch, redundant 24 V DC, M12 A-coded IP65, - 20... 60 °C, plug slot WPA2/802.11i/e, observe national approvals! CERT ID: MSN65-W1-M12-E2 Scope of delivery: Manuals on CD-ROM, English/German; M12 sealing caps, for operation outside of USA/Israel

Transfer rate	
Transfer rate	
<ul style="list-style-type: none"> <li>with WLAN / maximum</li> <li>for Industrial Ethernet</li> </ul>	<p>300 Mbit/s</p> <p>10, 100 Mbit/s</p>
Transfer rate / for Industrial Ethernet	
<ul style="list-style-type: none"> <li>minimum</li> <li>maximum</li> </ul>	<p>10 Mbit/s</p> <p>100 Mbit/s</p>
Interfaces	
Number of electrical connections	
<ul style="list-style-type: none"> <li>for network components or terminal equipment</li> <li>for power supply</li> <li>for redundant voltage supply</li> </ul>	<p>2</p> <p>1</p> <p>1</p>
Type of electrical connection	
<ul style="list-style-type: none"> <li>for network components or terminal equipment</li> <li>for power supply</li> </ul>	<p>M12 interface (4-pole, D-coded), PoE</p> <p>M12 interface (4-pole, A-coded)</p>
design of the removable storage	
<ul style="list-style-type: none"> <li>C-PLUG</li> <li>KEY-PLUG</li> </ul>	<p>Yes</p> <p>Yes</p>

Interfaces / wireless	
Number of radio cards / permanently installed	1
Transmission mode / for multiple input multiple output (MIMO)	2x2
Number of spatial streams	2
Number of electrical connections / for external antenna(s)	2
Type of electrical connection / for external antenna(s)	N-Connect (socket)
Product feature / external antenna can be mounted directly on device	Yes

Supply voltage, current consumption, power loss	
Type of voltage / of the supply voltage	DC
Supply voltage / 1 <ul style="list-style-type: none"> <li>• from M12 Power Connector (A-coded) for redundant power supply</li> </ul>	16.8 V
Supply voltage / 2 <ul style="list-style-type: none"> <li>• from M12 Power Connector (A-coded) for redundant power supply</li> </ul>	31.2 V
Supply voltage <ul style="list-style-type: none"> <li>• from Power-over-Ethernet acc. to IEEE802.3at for type 1 and IEEE802.3af</li> </ul>	48 V
Consumed current <ul style="list-style-type: none"> <li>• at DC / at 24 V / typical</li> <li>• with Power-over-Ethernet according to IEEE802.3at for type 1 and IEEE802.3af / typical</li> </ul>	0.25 A 0.125 A
Power loss [W] <ul style="list-style-type: none"> <li>• at DC / at 24 V / typical</li> <li>• with Power-over-Ethernet according to IEEE802.3at for type 1 and IEEE802.3af / typical</li> </ul>	6 W 6 W

Ambient conditions	
Ambient temperature <ul style="list-style-type: none"> <li>• during operation</li> <li>• during storage</li> <li>• during transport</li> </ul>	-20 ... +60 °C -40 ... +85 °C -40 ... +85 °C
Relative humidity / at 25 °C / without condensation / during operation / maximum	95 %
Ambient condition / for operation	When used under hazardous conditions (Zone 2), the SCALANCE W778-1 M12 or W738-1 M12 product must be installed in an housing with at least IP54 degree of protection according to EN 60529 within the scope of EN 50021.
Protection class IP	IP65

Design, dimensions and weights	
Width	140 mm

Height	160 mm
Depth	45 mm
Width / of the enclosure / without antenna	140 mm
Height / of the enclosure / without antenna	149 mm
Depth / of the enclosure / without antenna	45 mm
Net weight	0.95 kg
Mounting type	35 mm DIN rail mounting only per accessories
<ul style="list-style-type: none"> <li>• S7-300 rail mounting</li> <li>• S7-1500 rail mounting</li> <li>• 35 mm DIN rail mounting</li> <li>• wall mounting</li> </ul>	<p>No</p> <p>No</p> <p>Yes</p> <p>Yes</p>

#### Radio frequencies

Operating frequency	
<ul style="list-style-type: none"> <li>• for WLAN in 2.4 GHz frequency band</li> <li>• for WLAN in 5 GHz frequency band</li> </ul>	<p>2.41 ... 2.48 GHz; depending on the country approvals</p> <p>4.9 ... 5.8 GHz; depending on the country approvals</p>

#### Product features, product functions, product components / general

Product function / Access Point Mode	Yes
Product function / Client Mode	Yes
Number of SSIDs	4
Product function	
<ul style="list-style-type: none"> <li>• iPCF Access Point</li> <li>• iPCF client</li> </ul>	<p>Yes; Only in combination with the 'KEY-PLUG W780 iFeatures'</p> <p>Yes; Only in combination with the 'KEY-PLUG W780 iFeatures' or 'KEY-PLUG W740 iFeatures'</p>
<ul style="list-style-type: none"> <li>• iPCF-MC Access Point</li> <li>• iPCF-MC client</li> </ul>	<p>No</p> <p>Yes; Only in combination with 'KEY-PLUG W780 iFeatures' or 'KEY-PLUG W740 iFeatures'</p>
Number of iPCF-capable radio modules	1
Product function / iREF	Yes; Only in combination with the 'KEY-PLUG W780 iFeatures' or 'KEY-PLUG W740 iFeatures'
Number of iREF-capable radio modules	1
Product function / iPRP	Yes; In combination with the 'KEY-PLUG W780 iFeatures' only

#### Product functions / management, configuration, engineering

Number of manageable IP addresses / in client	8
Product function	
<ul style="list-style-type: none"> <li>• CLI</li> <li>• web-based management</li> <li>• MIB support</li> <li>• TRAPs via email</li> <li>• Configuration with STEP 7</li> <li>• configuration with STEP 7 in the TIA Portal</li> <li>• operation with IWLAN controller</li> <li>• operation with Enterasys WLAN controller</li> </ul>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>No</p> <p>No</p>

<ul style="list-style-type: none"> <li>• forced roaming on IP down with IWLAN</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• forced roaming on link down with IWLAN</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• WDS</li> </ul>	Yes
Protocol / is supported	
<ul style="list-style-type: none"> <li>• Address Resolution Protocol (ARP)</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• ICMP</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Telnet</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• HTTP</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• HTTPS</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• TFTP</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• DCP</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• LLDP</li> </ul>	Yes
Identification & maintenance function	
<ul style="list-style-type: none"> <li>• I&amp;M0 - device-specific information</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• I&amp;M1 – higher-level designation/location designation</li> </ul>	Yes

### Product functions / Diagnostics

Product function	
<ul style="list-style-type: none"> <li>• PROFINET IO diagnosis</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Link Check</li> </ul>	No
<ul style="list-style-type: none"> <li>• connection monitoring IP-Alive</li> </ul>	No
<ul style="list-style-type: none"> <li>• localization via Aeroscout</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• SysLog</li> </ul>	Yes
Protocol / is supported	
<ul style="list-style-type: none"> <li>• SNMP v1</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• SNMP v2</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• SNMP v3</li> </ul>	Yes

### Product functions / VLAN

Product function	
<ul style="list-style-type: none"> <li>• function VLAN with IWLAN</li> </ul>	Yes

### Product functions / DHCP

Product function	
<ul style="list-style-type: none"> <li>• DHCP client</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• DHCP server</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• DHCP Option 82</li> </ul>	Yes

### Product functions / redundancy

Protocol / is supported	
<ul style="list-style-type: none"> <li>• STP/RSTP</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• MSTP</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• RSTP</li> </ul>	Yes

## Product functions / Security

Product function	
<ul style="list-style-type: none"> <li>• ACL - MAC-based</li> <li>• Management security, ACL-IP based</li> <li>• IEEE 802.1x (radius)</li> <li>• NAT/NAPT</li> <li>• access protection according to IEEE802.11i</li> <li>• WPA/WPA2</li> <li>• TKIP/AES</li> </ul>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>
Protocol / is supported	
<ul style="list-style-type: none"> <li>• SSH</li> <li>• RADIUS</li> </ul>	<p>Yes</p> <p>Yes</p>

## Product functions / time

Protocol / is supported	
<ul style="list-style-type: none"> <li>• NTP</li> <li>• SNTP</li> <li>• SIMATIC time synchronization (SIMATIC Time)</li> </ul>	<p>Yes</p> <p>Yes</p> <p>Yes</p>

## Standards, specifications, approvals

Standard	
<ul style="list-style-type: none"> <li>• for FM</li> <li>• for hazardous zone</li> <li>• for safety / from CSA and UL</li> <li>• for hazardous zone / from CSA and UL</li> </ul>	<p>FM 3611: Class I, Division 2, Groups A,B,C,D, T4 / Class 1, Zone 2, Group IIC, T4</p> <p>EN 60079-15:2005, EN 60079-0:2006, II 3 G Ex nA II T4 KEMA 07 ATEX 0145X</p> <p>UL 60950-1, CSA C22.2 No. 60950-1</p> <p>ANSI/ISA 12.12.01-2013, CAN/CSA C22.2 No.213-M1987, CL. 1, Div. 2, GP. A,B,C,D, T4 / CL. 1, Zone 2, GP IIC</p>
Certificate of suitability	
<ul style="list-style-type: none"> <li>• EC declaration of conformity</li> <li>• CE marking</li> <li>• C-Tick</li> <li>• E1 approval</li> <li>• Railway application in accordance with EN 50155</li> <li>• Railway application in accordance with EN 50121-4</li> <li>• NEMA TS2</li> <li>• IEC 61375</li> <li>• IEC 61850-3</li> <li>• NEMA4X</li> <li>• Power-over-Ethernet according IEEE802.3at for type 1 and IEEE802.3af</li> </ul>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>Yes</p>

<ul style="list-style-type: none"> <li>• Power-over-Ethernet according to IEEE802.3at for type 2</li> </ul>	Yes
<b>Standard for wireless communication</b> <ul style="list-style-type: none"> <li>• IEEE 802.11a</li> <li>• IEEE 802.11b</li> <li>• IEEE 802.11e</li> <li>• IEEE 802.11g</li> <li>• IEEE 802.11h</li> <li>• IEEE 802.11i</li> <li>• IEEE 802.11n</li> </ul>	Yes Yes Yes Yes Yes Yes Yes
<b>Wireless approval</b>	You will find the current list of countries at: <a href="http://www.siemens.de/funkzulassungen">www.siemens.de/funkzulassungen</a>
<b>Marine classification association</b> <ul style="list-style-type: none"> <li>• American Bureau of Shipping Europe Ltd. (ABS)</li> <li>• Bureau Veritas (BV)</li> <li>• DNV GL</li> <li>• Korean Register of Shipping (KRS)</li> <li>• Lloyds Register of Shipping (LRS)</li> <li>• Nippon Kaiji Kyokai (NK)</li> <li>• Polski Rejestr Statkow (PRS)</li> <li>• Royal Institution of Naval Architects (RINA)</li> </ul>	Yes Yes Yes Yes Yes Yes Yes

### Further information / Internet-Links

<b>Internet-Link</b> <ul style="list-style-type: none"> <li>• to website: TIA Selection Tool</li> <li>• to the website: IWLAN</li> <li>• to website: Industry Mall</li> <li>• to website: Information and Download Center</li> <li>• to website: Image database</li> <li>• to website: CAx Download Manager</li> <li>• to website: Industry Online Support</li> </ul>	<a href="http://www.siemens.com/tia-selection-tool">http://www.siemens.com/tia-selection-tool</a> <a href="http://www.siemens.com/iwlan">http://www.siemens.com/iwlan</a> <a href="https://mall.industry.siemens.com">https://mall.industry.siemens.com</a> <a href="http://www.siemens.com/industry/infocenter">http://www.siemens.com/industry/infocenter</a> <a href="http://automation.siemens.com/bilddb">http://automation.siemens.com/bilddb</a> <a href="http://www.siemens.com/cax">http://www.siemens.com/cax</a> <a href="https://support.industry.siemens.com">https://support.industry.siemens.com</a>
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### Security information

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Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, solutions, machines, equipment and/or networks. They are important components in a holistic industrial security concept. With this in mind, Siemens' products and solutions undergo continuous development. Siemens recommends strongly that you regularly check for product updates. For the secure operation of Siemens products and solutions, it is necessary to take suitable preventive action (e.g. cell protection concept) and integrate each component into a holistic, state-of-the-art industrial security concept. Third-party products that may be in use should also be considered. For more information about industrial security, visit <http://www.siemens.com/industrialsecurity>. To stay informed about product updates as they occur, sign up for a product-specific newsletter. For more information, visit <http://support.automation.siemens.com>. (V3.4)

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