

### product type designation



### W778-1 M12 EEC (USA)

IWLAN Access Point, SCALANCE W778-1 M12 EEC, 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 Mbps, 2x M12 max. 100 Mbps, PoE integrated 2-port switch, redundant 24 V DC, M12 A-coded IP65, -40...+75 °C, plug slot WPA2/802.11i/e, conformal coating EN 50155, EN45545, observe national approvals! CERT ID: MSN65-W1-M12-E2 scope of delivery: manuals on CD-ROM, German/English; M12 sealing caps, for operation in the USA

### transfer rate

|  |                              |
|--|------------------------------|
| transfer rate  |                              |
| <ul style="list-style-type: none"> <li>with WLAN / maximum</li> <li>for Industrial Ethernet</li> </ul> | 300 Mbit/s<br>10, 100 Mbit/s |
| transfer rate / for Industrial Ethernet  |                              |
| <ul style="list-style-type: none"> <li>minimum</li> <li>maximum</li> </ul>                             | 10 Mbit/s<br>100 Mbit/s      |

### 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> | 2<br>1<br>1   |
| type of electrical connection  |   |
| <ul style="list-style-type: none"> <li>for network components or terminal equipment</li> <li>for power supply</li> </ul>                                       | M12 interface (4-pole, D-coded), PoE<br>M12 interface (4-pole, A-coded) |
| design of the removable storage  |   |
| <ul style="list-style-type: none"> <li>C-PLUG</li> <li>KEY-PLUG</li> </ul>   | Yes<br>Yes  |

### memory

|  |            |
|--|------------|
| design of the removable storage  |            |
| <ul style="list-style-type: none"> <li>C-PLUG</li> <li>KEY-PLUG</li> </ul> | Yes<br>Yes |

### 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   |                   |
| <ul style="list-style-type: none"> <li>from Power-over-Ethernet according 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</li> </ul> | 0.25 A<br>0.125 A |

|  |  |
|--|--|
| for type 1 and IEEE802.3af / typical   |  |
| power loss [W]   |  |
| <ul style="list-style-type: none"> <li>at DC / at 24 V / typical</li> </ul>  | 6 W  |
| <ul style="list-style-type: none"> <li>with Power-over-Ethernet according to IEEE802.3at for type 1 and IEEE802.3af / typical</li> </ul> | 6 W  |
| <b>supply voltage / 1</b>  |  |
| <ul style="list-style-type: none"> <li>from M12 Power Connector (A-coded) for redundant power supply</li> </ul>                          | 16.8 V   |
| <b>supply voltage / 2</b>  |  |
| <ul style="list-style-type: none"> <li>from M12 Power Connector (A-coded) for redundant power supply</li> </ul>                          | 31.2 V   |
| <b>ambient conditions</b>  |  |
| ambient temperature  |  |
| <ul style="list-style-type: none"> <li>during operation</li> </ul>   | -30 ... +75 °C   |
| <ul style="list-style-type: none"> <li>during storage</li> </ul>   | -40 ... +85 °C   |
| <ul style="list-style-type: none"> <li>during transport</li> </ul>   | -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   |
| <b>design, dimensions and weights</b>  |  |
| 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  |
| product feature / conformal coating  | Yes  |
| fastening method   | 35 mm DIN rail mounting only per accessories   |
| <ul style="list-style-type: none"> <li>S7-300 rail mounting</li> </ul>   | No   |
| <ul style="list-style-type: none"> <li>S7-1500 rail mounting</li> </ul>  | No   |
| <ul style="list-style-type: none"> <li>35 mm top hat DIN rail mounting</li> </ul>  | Yes  |
| <ul style="list-style-type: none"> <li>wall mounting</li> </ul>  | Yes  |
| <b>radio frequencies</b>   |  |
| operating frequency  |  |
| <ul style="list-style-type: none"> <li>for WLAN in 2.4 GHz frequency band</li> </ul>   | 2.41 ... 2.48 GHz; depending on the country approvals  |
| <ul style="list-style-type: none"> <li>for WLAN in 5 GHz frequency band</li> </ul>   | 4.9 ... 5.8 GHz; depending on the country approvals  |
| <b>product features, product functions, product components / general</b>   |  |
| 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> </ul>  | Yes; Only in combination with the 'KEY-PLUG W780 iFeatures'  |
| <ul style="list-style-type: none"> <li>iPCF client</li> </ul>  | Yes; Only in combination with the 'KEY-PLUG W780 iFeatures' or 'KEY-PLUG W740 iFeatures'   |
| <ul style="list-style-type: none"> <li>iPCF-MC Access Point</li> </ul>   | No   |
| <ul style="list-style-type: none"> <li>iPCF-MC client</li> </ul>   | Yes; Only in combination with 'KEY-PLUG W780 iFeatures' or 'KEY-PLUG W740 iFeatures'   |
| 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  |
| <b>product functions / management, configuration, engineering</b>  |  |
| number of manageable IP addresses / in client  | 8  |
| product function   |  |
| <ul style="list-style-type: none"> <li>CLI</li> </ul>  | Yes  |
| <ul style="list-style-type: none"> <li>web-based management</li> </ul>   | Yes  |

|  |     |
|--|-----|
| <ul style="list-style-type: none"> <li>• MIB support</li> </ul>  | Yes |
| <ul style="list-style-type: none"> <li>• TRAPs via email</li> </ul>  | Yes |
| <ul style="list-style-type: none"> <li>• configuration with STEP 7</li> </ul>                                | Yes |
| <ul style="list-style-type: none"> <li>• configuration with STEP 7 in the TIA Portal</li> </ul>              | Yes |
| <ul style="list-style-type: none"> <li>• operation with IWLAN controller</li> </ul>                          | No  |
| <ul style="list-style-type: none"> <li>• operation with Enterasys WLAN controller</li> </ul>                 | No  |
| <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 |
| <b>product functions / diagnostics</b>   |     |
| 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 |
| <b>product functions / VLAN</b>  |     |
| product function   |     |
| <ul style="list-style-type: none"> <li>• function VLAN with IWLAN</li> </ul>                                 | Yes |
| <b>product functions / DHCP</b>  |     |
| 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 |
| <b>product functions / redundancy</b>  |     |
| 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 |
| <b>product functions / security</b>  |     |
| product function   |     |
| <ul style="list-style-type: none"> <li>• ACL - MAC-based</li> </ul>  | Yes |
| <ul style="list-style-type: none"> <li>• management security, ACL-IP based</li> </ul>                        | Yes |
| <ul style="list-style-type: none"> <li>• IEEE 802.1x (radius)</li> </ul>                                     | Yes |
| <ul style="list-style-type: none"> <li>• NAT/NAPT</li> </ul>   | Yes |
| <ul style="list-style-type: none"> <li>• access protection according to IEEE802.11i</li> </ul>               | Yes |
| <ul style="list-style-type: none"> <li>• WPA/WPA2</li> </ul>   | Yes |
| <ul style="list-style-type: none"> <li>• TKIP/AES</li> </ul>   | Yes |
| protocol / is supported  |     |
| <ul style="list-style-type: none"> <li>• SSH</li> </ul>  | Yes |
| <ul style="list-style-type: none"> <li>• RADIUS</li> </ul>   | Yes |
| <b>product functions / time</b>  |     |
| 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>  |
| <b>standards, specifications, approvals</b>   |   |
| <p>standard</p> <ul style="list-style-type: none"> <li>• for FM</li> <li>• for safety / 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>UL 60950-1, CSA C22.2 No. 60950-1</p>   |
| <p>certificate of suitability</p> <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>• fire protection in accordance with EN 45545-2</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> <li>• Power-over-Ethernet according to IEEE802.3at for type 2</li> </ul> | <p>Yes</p> <p>Yes</p> <p>Yes</p> <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>Yes</p> <p>Yes</p>  |
| <p>standard for wireless communication</p> <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>   | <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>  |
| <p>wireless approval</p>  | <p>You will find the current list of countries at:<br/>www.siemens.de/funkzulassungen</p>   |
| <b>standards, specifications, approvals / marine classification</b>   |   |
| <p>Marine classification association</p> <ul style="list-style-type: none"> <li>• American Bureau of Shipping Europe Ltd. (ABS)</li> <li>• French marine classification society (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>   | <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>   |
| <b>standards, specifications, approvals / hazardous environments</b>  |   |
| <p>standard / for hazardous zone</p> <ul style="list-style-type: none"> <li>• from CSA and UL</li> </ul>  | <p>EN 60079-15:2005, EN 60079-0:2006, II 3 G Ex nA II T4 KEMA 07 ATEX 0145X</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>   |
| <p>certificate of suitability / CCC / for hazardous zone according to GB standard</p>   | <p>Yes</p>  |
| <b>further information / internet-Links</b>   |   |
| <p>Internet-Link</p> <ul style="list-style-type: none"> <li>• to website: TIA Selection Tool</li> <li>• to web page: selection aid 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>  | <p><a href="http://www.siemens.com/tia-selection-tool">http://www.siemens.com/tia-selection-tool</a></p> <p><a href="http://www.siemens.com/tia-selection-tool">http://www.siemens.com/tia-selection-tool</a></p> <p><a href="http://www.siemens.com/iwlan">http://www.siemens.com/iwlan</a></p> <p><a href="https://mall.industry.siemens.com">https://mall.industry.siemens.com</a></p> <p><a href="http://www.siemens.com/industry/infocenter">http://www.siemens.com/industry/infocenter</a></p> <p><a href="http://automation.siemens.com/bilddb">http://automation.siemens.com/bilddb</a></p> <p><a href="http://www.siemens.com/cax">http://www.siemens.com/cax</a></p> <p><a href="https://support.industry.siemens.com">https://support.industry.siemens.com</a></p> |

## security information

security information

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last modified:

7/1/2021 