

Supplementary information for EU Devices in the LoRaWAN® Showcase catalogue. Version 1.0

Version of Questionnaire form from the Customer/ Device Manufacturer

Version	Date	Author	Update
1.0			Initial release from manufacture

Supplementary Information on certified device

1 Supplementary information	
1.1 Manufacturer or Brand name	Milesight
1.2 Website	www.milesight-iot.com
1.3 Sales / Marketing contact person, email:	ivete@milesight.com
1.4 Technical contact person, email:	near_lxj@milesight.com
1.5 Commercial Product name	Magnetic Contact Switch
1.6 Product code used when ordering / article number	
1.7 Product Version : Hardware version: Firmware version:	V1 V1.1 V1.09
1.8 In what countries is the product available	worldwide
1.9 What date was / is the market introduction for this device / product?	2022/5
1.10 Is the device already working on a public LoRaWAN network. If yes specify at which public operator, country and number of deployed devices on that network:	<input checked="" type="checkbox"/> Yes: <input type="checkbox"/> No
1.11 What functionality does the device provide and which sensor(s) does it contain?	<p>Use case: WS301 simply enables you to know when someone enters the office/building through a door /window or something has been moved. The minimal magnet is placed inside the portable part, while the sensor is inside the fixed part that can be attached to door/window or other objects. W S301 can be easily mounted on the doors, panes, or cabinets, greatly providing real applications for smart homes, smart offices or smart factories.</p> <p>Short behavior description: Sensor data are transmitted in real-time using the standard LoRaWAN protocol. LoRaWAN enables encrypted radio transmissions over long distances while consuming very little power. The user can get alarm through Milesight IoT Cloud or through the user's own Application Server.</p>

<p>1.12 Accuracy & resolution for every sensor or measurement made by the device</p> <p>Name: sensor accuracy (incl. unit): +/- resolution (incl. unit): measurement parameter: measurement range</p>	
<p>1.13 Uplinks are:</p> <p>Periodic: Period: Explanation: Keep alive message period: Event triggered how:</p>	<p><input checked="" type="checkbox"/> 1080 min 30 triggers per day</p>
<p>1.14 Parameter configuration of device (e.g. transmission or measurement interval, threshold levels, etc.)</p>	<p><input checked="" type="checkbox"/> Remotely: <input checked="" type="checkbox"/> Over-the-air with LoRaWAN data downlinks <input type="checkbox"/> Specify if other:</p> <p><input type="checkbox"/> Locally: <input type="checkbox"/> Via CLI: specify type of connector:</p> <p><input checked="" type="checkbox"/> Via NFC: <input type="checkbox"/> Specify if other:</p>
<p>1.15 Does the application server send downlinks to the devices?</p>	<p><input checked="" type="checkbox"/> Yes: (why/how often/typical size) <input type="checkbox"/> No</p>
<p>1.16 Operating temperature of device - x °C to + x °C</p>	<p>Minimum -20 °C Maximum +60 °C</p>
<p>1.17 Is the payload structure available for decoding?</p>	<p><input type="checkbox"/> Yes: <input checked="" type="checkbox"/> No Please attach the payload structure (+example of decoded payload)</p>
<p>1.18 Is there a decode-API available</p>	<p><input type="checkbox"/> Yes: <input checked="" type="checkbox"/> No Please attach the API documentation</p>
<p>1.19 Is the firmware upgradeable and how?</p>	<p><input checked="" type="checkbox"/> Yes: (how)</p>
<p>1.20 How can the device be reset to factory default settings?</p>	<p>Reset via PC Software;Reset via Button</p>
<p>1.21 How can the device be forced to re-initiate the join procedure?</p>	<p>via Smartphone APP;via PC Software;via Button</p>
<p>1.22 Product certifications (IP rating, ATEX, ...)</p>	<p>1. IP rating: IP20 2. ATEX compliance: Other:</p>
<p>1.23 Which regulatory certifications are available (RED, CE, EMC)?</p>	<p><input checked="" type="checkbox"/> RED <input checked="" type="checkbox"/> CE <input checked="" type="checkbox"/> EMC Attach proof of certification to the mail in which this</p>

	document is sent to a public operator
1.24 Power Supply	<input type="checkbox"/> External power supply: connection: voltage: amperage: <input checked="" type="checkbox"/> Internal battery: battery type: 1200 mAh Li-SoCl2 battery chemical composition: Li-SoCl2 Battery self-discharge (%/year): Battery shelf life: >5year capacity: 1200 mAh weight: rechargeable: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/> No
1.25 Powering device on and off How is the device turned ON ? How is the device turned OFF ?	Turn ON via Smartphone APP; Turn ON via PC Software; Turn ON via Button Turn OFF via Smartphone APP; Turn OFF via PC Software; Turn OFF via Button
1.26 Dimensions of device (Length x width x height)	Sensor: 5.05 × 3.1 × 1.85 cm Magnet: 3.0 × 1.35 × 1.0cm
1.27 Weight of full device	g
1.28 Mounting of device 1. How to mount? 2. How to mount for best antenna propagation	On the flat surfaces with screws or 3M tapes 3M Tapes Fix: Tear the 3M tapes of both parts, then make sure the magnet part is placed inside the door (portable part) and sensor is inside the door frame (fixed part). For double doors, put every part on each door. Screw Fix: Remove the cover of both parts, screw the covers on the mounting positions, then install back the devices. Note: 1. The notch side of magnet should face the notch side of sensor, otherwise it may affect the sensitivity of on/off detection. 2. The plane distance between sensor and magnet should not be more than 15mm, and the height difference should be less than 7.5 mm.

2 LoRaWAN Device Information

2.1 DevEUI Range (IEEE Compliance)	From :24E1240000000000 To : 24E124FFFFFFFFFFFF
2.2 LoRaWAN Class	<input checked="" type="checkbox"/> Class A <input type="checkbox"/> Class B <input type="checkbox"/> Class C
2.3 For Class C Device: Device Under Test restores previous RF settings at boot?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2.4 In what LoRaWAN region/frequency ranges is the product available	<input checked="" type="checkbox"/> EU863-870 <input type="checkbox"/> US902-928 <input type="checkbox"/> AS923 <input type="checkbox"/> IN865-867 <input type="checkbox"/> KR920-923 <input type="checkbox"/> Other
2.5 Is the LoRaWAN test mode supported?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, why not
2.6 Tested and certified against which LoRaWAN Specification(s)	<input type="checkbox"/> V1.0 <input type="checkbox"/> V1.0.1 <input checked="" type="checkbox"/> V1.0.2 revB <input type="checkbox"/> V1.0.3 <input type="checkbox"/> V1.1.x <input type="checkbox"/> Other :
2.7 Link to document on the LoRa Alliance website	Link:
<p>2.8 Which TX power is used in production devices by default?</p> <p>- if LW 1.0.2 rev A or older is used:</p> <p>- if LW 1.0.2 rev B or newer is used</p>	<p><input type="checkbox"/> TXPower 0 (20dBm) <input type="checkbox"/> TXPower 1 (14dBm) <input type="checkbox"/> TXPower 2 (11dBm) <input type="checkbox"/> TXPower 3 (8dBm) <input type="checkbox"/> TXPower 4 (5dBm) <input type="checkbox"/> TXPower 5 (2dBm) <input type="checkbox"/> other TXPower (dBm)</p> <p><input checked="" type="checkbox"/> TXPower 0 (MaxEIRP) <input type="checkbox"/> TXPower 1 (MaxEIRP-2dB) <input type="checkbox"/> TXPower 2 (MaxEIRP-4dB) <input type="checkbox"/> TXPower 3 (MaxEIRP-6dB) <input type="checkbox"/> TXPower 4 (MaxEIRP-8dB) <input type="checkbox"/> TXPower 5 (MaxEIRP-10dB) <input type="checkbox"/> TXPower 6 (MaxEIRP-12dB) <input type="checkbox"/> TXPower 7 (MaxEIRP-14dB)</p> <p><input type="checkbox"/> other TXPower (Max EIRP : dB)</p>

<p>2.9 Which TX powers are supported by the device in production</p> <p>- if LW 1.0.2 rev A or older is used:</p> <p>- if LW 1.0.2 rev B or newer is used</p>	<ul style="list-style-type: none"> <input type="checkbox"/> TXPower 0 (20dBm) <input type="checkbox"/> TXPower 1 (14dBm) <input type="checkbox"/> TXPower 2 (11dBm) <input type="checkbox"/> TXPower 3 (8dBm) <input type="checkbox"/> TXPower 4 (5dBm) <input type="checkbox"/> TXPower 5 (2dBm) <p><input type="checkbox"/> other TXPower (dBm)</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> TXPower 0 (MaxEIRP) <input checked="" type="checkbox"/> TXPower 1 (MaxEIRP-2dB) <input checked="" type="checkbox"/> TXPower 2 (MaxEIRP-4dB) <input checked="" type="checkbox"/> TXPower 3 (MaxEIRP-6dB) <input checked="" type="checkbox"/> TXPower 4 (MaxEIRP-8dB) <input checked="" type="checkbox"/> TXPower 5 (MaxEIRP-10dB) <input checked="" type="checkbox"/> TXPower 6 (MaxEIRP-12dB) <input checked="" type="checkbox"/> TXPower 7 (MaxEIRP-14dB) <p>(Max EIRP : dB)</p>
<p>2.9 Which LoRaWAN Specification is currently supported on the production devices?</p>	<ul style="list-style-type: none"> <input type="checkbox"/> V1.0 <input type="checkbox"/> V1.0.1 <input type="checkbox"/> V1.0.2 revA <input checked="" type="checkbox"/> V1.0.2 revB <input type="checkbox"/> V1.0.4 <input type="checkbox"/> V1.1.x <input type="checkbox"/> Other:
<p>2.10 Will you re-certify your device when a new major LoRaWAN specification version is released</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Yes. <input checked="" type="checkbox"/> No, why :
<p>2.11 Has Interoperability prequalification testing been done?</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes. <input type="checkbox"/> No, why : <p>Which Network Servers</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Actility <input checked="" type="checkbox"/> Loriot <input checked="" type="checkbox"/> TTI <input type="checkbox"/> Other: Specify: <p>Please attach all the test reports.</p>
<p>2.12 Is Activation Type OTAA the default</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes. <input type="checkbox"/> No, why :
<p>2.13 For OTAA, is AppKey unique for each device?</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Yes. <input checked="" type="checkbox"/> No.

<p>2.14 Is ADR implemented? Recommendation: ADR should always be activated. Exceptions can be made for moving devices but will need to be explained.</p>	<p><input checked="" type="checkbox"/> Activated <input type="checkbox"/> Deactivated, why : <input type="checkbox"/> Configurable by user (recommendation: Activated by default) <input type="checkbox"/> Mixed, explain:</p>
<p>2.15 What values did you implement for: - ADR_ACK_LIMIT: - ADR_ACK_DELAY:</p>	<p>64recommended value: 64 32recommended value: 32</p>
<p>2.16 Do you use unconfirmed and/or confirmed uplinks and what is the data rate, timing and power back off algorithm? Upon reception of a confirmed downlink message, is the next uplink sent immediately after the downlink ?Answers (radio buttons)</p>	<p><input type="checkbox"/> unconfirmed <input type="checkbox"/> confirmed, when and why: <input checked="" type="checkbox"/> Both, which is used when and why: When confirmed mode is enabled Data rate, timing and power back-off algorithm (only if you use confirmed uplinks): <input type="checkbox"/> Yes. <input checked="" type="checkbox"/> No, why :</p>
<p>2.17 Is the device doing a periodical rejoin? (only for OTAA)</p>	<p><input type="checkbox"/> Yes (frequency): <input checked="" type="checkbox"/> No. Why? How to trigger a rejoin? Use the restart button</p>
<p>2.18 Is the first join request sent on SF12?</p>	<p><input type="checkbox"/> Yes. <input checked="" type="checkbox"/> No, why: Because of the duty cycle Explain the JoinRequest sequence if no JoinAccept is received - data rate, timing and power back-off algorithm.</p>
<p>2.19 On what SF and power setting is the first uplink (after join procedure) done?</p>	<p>SF: SF10 TXPower: TXPower0</p>
<p>2.20 Are you doing periodically reset of Uplink frame counter?</p>	<p><input type="checkbox"/> Yes (frequency/why): <input checked="" type="checkbox"/> No.</p>
<p>2.21 If LoRaWAN 1.0.x, DevNonce behaviour :</p>	<p><input checked="" type="checkbox"/> Based on a random value <input type="checkbox"/> Monotonically increasing never-wrapping counter</p>
<p>2.22 Uplink DataRate (0-7 supported)</p>	<p>Min: 0 Max: 5</p>
<p>2.23 RX1 Data Rate Offset</p>	<p><input checked="" type="checkbox"/> Default LoRaWAN in regards of ISM band <input type="checkbox"/> Other:</p>
<p>2.24 RX1 Delay</p>	<p><input checked="" type="checkbox"/> Default LoRaWAN in regards of ISM band <input type="checkbox"/> Other:</p>
<p>2.25 RX2 Data Rate</p>	<p><input checked="" type="checkbox"/> Default LoRaWAN in regards of ISM band <input type="checkbox"/> Other:</p>

2.26 RX2 Frequency	<input checked="" type="checkbox"/> Default LoRaWAN in regards of ISM band <input type="checkbox"/> Other:
2.27 RX1 Delay on JoinRequest (OTAA devices only)	<input checked="" type="checkbox"/> Default LoRaWAN in regards of ISM band <input type="checkbox"/> Other:
2.28 Mobility Profile (how your device moves)	<input checked="" type="checkbox"/> Near static <input type="checkbox"/> Walking speed <input type="checkbox"/> Vehicle speed <input type="checkbox"/> Random
2.29 Frame Counters Up To 32-bits	<input checked="" type="checkbox"/> Frame counter-up <input type="checkbox"/> Frame counter-down
2.30 Which MAC commands does the device support	<input checked="" type="checkbox"/> LinkCheckReq / LinkCheckAns <input checked="" type="checkbox"/> TXParamSetupReq / TXParamSetupAns <input checked="" type="checkbox"/> LinkADRReq / LinkADRAns <input checked="" type="checkbox"/> DutyCycleReq / DutyCycleAns <input checked="" type="checkbox"/> RXParamSetupReq / RXParamSetupAns <input checked="" type="checkbox"/> DevStatusReq / DevStatusAns <input checked="" type="checkbox"/> NewChannelReq / NewChannelAns <input checked="" type="checkbox"/> TXTimingSetupReq / TXTimingSetupAns
2.31 LoRaWAN Stack Type (optional)	<input checked="" type="checkbox"/> Semtech/Stackforce <input type="checkbox"/> Semtech/Stackforce with modifications <input type="checkbox"/> IBM <input type="checkbox"/> IBM with modifications <input type="checkbox"/> Proprietary- Other, name it:
2.32 LoRaWAN Stack Version (optional)	V1.0.2
2.33 LoRa Radio Hardware (optional)	<input checked="" type="checkbox"/> Proprietary: SX chip used: <input type="checkbox"/> LoRaWAN Modem/Module: Manufacturer: Part Number: Firmware revision:
2.34 Multicast support (optional)	<input type="checkbox"/> Yes: Multicast DevAddr: Multicast AppSKey: Multicast NwkSKey: Payload: Port: <input checked="" type="checkbox"/> No.

3 Radio Frequency Information

<p>3.1 Type of Antenna</p>	<p><input type="checkbox"/> Wire <input type="checkbox"/> PCB <input type="checkbox"/> External <input checked="" type="checkbox"/> Other: (which type) Spring antenna</p>
<p>3.2 Antenna gain [dBi or dBd]</p>	<p>1dBi or dBd</p>
<p>3.3 Did you measure and take into account the loss between the modem and the antenna?</p>	<p><input type="checkbox"/> Yes, dB loss <input checked="" type="checkbox"/> No, why: We have match the impedance between the modem and the antenna.</p>
<p>3.4 For LW 1.0.2 rev A or older devices: which TXPower setting should be used on the network for your device*:</p>	<p><input type="checkbox"/> TXPower 0 (20dBm) <input type="checkbox"/> TXPower 1 (14dBm) <input type="checkbox"/> TXPower 2 (11dBm) <input type="checkbox"/> TXPower 3 (8dBm) <input type="checkbox"/> TXPower 4 (5dBm) <input type="checkbox"/> TXPower 5 (2dBm) <input checked="" type="checkbox"/> other txpower 0 (16 dBm)</p>
<p>3.5 Did you calibrate your device with the antenna gain and measured loss in between the chipset and antenna? This so that your device emits with maximal power when using TXPower 1 for LW 1.0.2 rev A or older devices (= 14dBm) and TXPower 0 for LW 1.0.2 rev B or newer devices (= MaxEIRP or 16.15dBm EIRP)*.</p>	<p><input checked="" type="checkbox"/> Yes, 1 dB loss <input type="checkbox"/> No, why:</p>

4 Battery and TX Power Information

Please indicate if you do not want Section 4 displayed on the LoRa Alliance Website Yes
 If yes please supply contact details for the operators to request the information for Section 4

<p>4.1 Battery consumption of the device (including modem, sensors and all other electronics)</p>	<p>TX current: 103mA RX current: 6.5 mA Idle time current: 0.025mA</p>																																			
<p>4.2 Estimated battery life in years based on the number of transmissions (including sensor readings) at SF7, SF10 & SF12 with your battery self-discharge and aging over time taken into account.</p> <p>Assumptions:</p> <ul style="list-style-type: none"> - Product shelf life before use: Maximum 1 year. - At an environment temperature of 20°C. - LoRaWAN specification used for battery life calculation: - TX power setting (txpower) used for battery life calculation: - Payload size used for battery life calculation (should be average payload size of production device): - Additional assumptions or comments on battery life (Typical usage 	<table border="1"> <thead> <tr> <th rowspan="2">Transmission Periodicity (transmissions/day)</th> <th colspan="3">Battery life in years</th> </tr> <tr> <th>SF7</th> <th>SF10</th> <th>SF12</th> </tr> </thead> <tbody> <tr> <td>144</td> <td>3.76</td> <td>1.21</td> <td>0.36</td> </tr> <tr> <td>96</td> <td>4.43</td> <td>1.59</td> <td>0.49</td> </tr> <tr> <td>48</td> <td>5.39</td> <td>2.32</td> <td>0.78</td> </tr> <tr> <td>24</td> <td>6.05</td> <td>3.01</td> <td>1.11</td> </tr> <tr> <td>12</td> <td>6.44</td> <td>3.52</td> <td>1.40</td> </tr> <tr> <td>4</td> <td>6.73</td> <td>3.98</td> <td>1.70</td> </tr> <tr> <td>1</td> <td>6.85</td> <td>4.19</td> <td>1.85</td> </tr> </tbody> </table> <p><input type="checkbox"/> LW1.0.1 <input type="checkbox"/> LW1.0.2 revA <input checked="" type="checkbox"/> LW1.0.2 revB <input type="checkbox"/> Other :</p> <p><input type="checkbox"/> LW1.0.1 <input type="checkbox"/> LW1.0.2 revA <input checked="" type="checkbox"/> LW1.0.2 revB <input type="checkbox"/> Other :</p> <p>bytes</p>	Transmission Periodicity (transmissions/day)	Battery life in years			SF7	SF10	SF12	144	3.76	1.21	0.36	96	4.43	1.59	0.49	48	5.39	2.32	0.78	24	6.05	3.01	1.11	12	6.44	3.52	1.40	4	6.73	3.98	1.70	1	6.85	4.19	1.85
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<p>4.3 Which TX power setting (TXPower) was used in the RF test?</p> <p>- If LW 1.0.2 rev A or older device:</p> <p>- If LW 1.0.2 rev B or newer device:</p>	<p><input type="checkbox"/> TXPower 0 (20dBm)</p> <p><input type="checkbox"/> TXPower 1 (14dBm)</p> <p><input type="checkbox"/> TXPower 2 (11dBm)</p> <p><input type="checkbox"/> TXPower 3 (8dBm)</p> <p><input type="checkbox"/> TXPower 4 (5dBm)</p> <p><input type="checkbox"/> TXPower 5 (2dBm)</p> <p><input type="checkbox"/> other TXPower (dBm)</p> <p><input type="checkbox"/> TXPower 0 (MaxEIRP)</p> <p><input type="checkbox"/> TXPower 1 (MaxEIRP-2dB)</p> <p><input type="checkbox"/> TXPower 2 (MaxEIRP-4dB)</p> <p><input type="checkbox"/> TXPower 3 (MaxEIRP-6dB)</p> <p><input type="checkbox"/> TXPower 4 (MaxEIRP-8dB)</p> <p><input type="checkbox"/> TXPower 5 (MaxEIRP-10dB)</p> <p><input type="checkbox"/> TXPower 6 (MaxEIRP-12dB)</p> <p><input type="checkbox"/> TXPower 7 (MaxEIRP-14dB)</p> <p><input checked="" type="checkbox"/> other TXPower 0 (MaxEIRP- dBdBm)</p>
<p>4.4 Is this the same TX power setting (TXPower) used by default in production devices (before network ADR)?</p>	<p><input checked="" type="checkbox"/> Yes, Txpower0</p> <p><input type="checkbox"/> No, why:</p>
<p>4.5 Maximum ERP measured: (ERP = EIRP - 2.15 dB; LoRaWAN allows 14 dBm ERP)</p>	<p>16 dBm</p>
<p>4.6 TRP measured: (TRP is based on EIRP) This gives an idea about the directivity of the antenna.</p>	<p>16 dBm</p>
<p>3.10 TIS measured on RX1:</p>	<p>For RX1-SF12BW125 on 868.3MHz -137 dBm</p>
<p>3.11 TIS measured on RX2</p>	<p>For RX2-SF12BW125 on 869.525 MHz: -137 dBm</p>