BML Solutions

【BMF IoT-10111208】

Instructions for use/Handling precautions

BML Solutions., Co., Ltd. 2024.6.15 Ver 1.0

BML Solutions

Table of contents

1. Safety precautions for this unit
1-1. What you should observe
2. Other information about this unit
2-1. Precautions for proper use of the product
2-2. Radio wave-related matters
2-3. Disposal and collection of the product
3. Disclaimer
3-1. Warranty regarding installation
3-2. Other
4. Product overview
4-1. Product configuration
4-2. Connection mode and communication distance of this product
4-3. Product overview
4-4. Name and function of each part of the main unit
4-5. Illumination and charging performance required for operation
5. Product specifications
5-1. BMF IoT-10111208 product specifications
6. Reliability test
7. Troubleshooting
8. Inquiries about this product

1． Safety precautions for this unit

1-1. Please observe the following:

1. Do not use near flammable gases, gasoline, benzene, thinner, etc. Doing so may cause explosions, fires, or burns.
2. Do not use in places where use is restricted or prohibited, such as inside an airplane. Doing so may cause accidents.
3. Do not use, store, or leave the unit in high-temperature locations, such as near fire, in direct sunlight, or in a car under the hot sun. The unit may explode, causing fires or injuries.
4. Do not place the unit in a microwave oven or high-pressure container.
5. Do not spray volatile chemicals such as benzene or thinner, or insecticides, on the unit.
6. If any abnormality such as an unusual odor, smoke, or overheating occurs, immediately stop using the unit. Contact your dealer or our customer service.
7. If a foreign object (metal, water, liquid, etc.) gets inside the sensor, immediately turn off the switch.
8. Do not install or store this product or its accessories within reach of infants or children.
9. Do not disassemble, repair, or modify this unit. The sensor is equipped with a small lithium-ion battery.
10. If the liquid leaking from the small lithium-ion battery inside the sensor comes into contact with your skin, it may cause burns. If you do come into contact with the liquid, immediately wash it off with water. (Do not use soap.) Then,
11. Contact our customer service.
12. Do not continue to use the machine if it is broken or defective.
13. Do not do the following to this product, as they may cause it to break down: subject it to strong impacts, use or store it in an unreasonable condition, use it within the temperature range of the guaranteed operating environment, and when storing the unit, avoid low and high temperatures.

2． Other information about this unit

2-1. Precautions for proper use of the product

●This product is water resistant (IPX5) and can withstand falls from up to 1m.
●If the light receiving surface of the solar cell becomes dirty, the power generation will decrease. If any foreign matter adheres to it, wipe it off immediately.
●Do not rub the light receiving surface of the solar cell too hard. When removing dirt, rub lightly.
●Do not press, bend, twist, etc. on the surface of the solar cell as this may cause damage, so do not apply any load to it.
●Do not use in acidic or alkaline environments.
●When not in use, store in a dark place at room temperature (in a drawer or cardboard box, etc.).
●This sensor contains a small lithium-ion battery as a secondary battery, but do not remove or replace it yourself.

2-2. Matters related to radio

This section explains precautions regarding radio waves.

■Radio interference precautions

If installed next to other electronic devices, they may adversely affect each other. In particular, if there is a television or radio nearby, noise may occur. In that case, please do the following:

- Place the device as far away as possible from the television or radio
- Change the direction of the antennas for the television or radio
- Use a separate outlet

2-3. Product disposal and collection

Please contact our customer service center regarding disposal or recycling of this unit.

3． Disclaimer

3-1. Installation Warranty

- Please note that we cannot be held responsible for any damage to the environmental sensor caused by installation by the customer.

3-2. Others

・Do not disassemble or modify the product, including removing parts. We will not provide any warranty if such modifications are made.
・We shall not be held responsible for any damages incurred by customers due to the use or inability to use this product.
・Do not use this product near implanted cardiac pacemakers or medical electrical equipment, on airplanes or in hospitals, or in other places where radio waves may affect surrounding equipment or where the use of wireless devices is prohibited. Radio waves may affect such equipment.
・Do not use this product as a data acquisition tool for equipment that requires special quality and reliability and whose failure or malfunction may threaten human life or cause harm to the human body (aerospace equipment, nuclear control systems, traffic equipment, transportation equipment, combustion equipment, various safety devices, life support systems, etc.).
・If any of the products and technical information described in this document that fall under the Foreign Exchange and Foreign Trade Control Act are exported or taken out of the country, an export license from the Japanese government is required under the same law.
・This product cannot be used in applied products whose manufacture and sale are prohibited by domestic laws, regulations, and orders.
- Please keep the safety documents attached to the product in a safe place so that you can refer to them at any time.
- If you are considering using the product in a way that anticipates strong vibrations or impacts, please consult our customer support desk.
- If you are considering using the product outdoors, please consult our customer support desk.

4． About the product overview

4-1. Product Configuration

This product is for ： BMF IoT-10111208

4-2. Estimated communication distance of this product

The estimated communication distance is about 500m in an environment without obstacles such as walls, ceilings, or floors.
*The communication distance may be affected by the surrounding environment, such as obstacles.
*If the installation distance is extended and the communication conditions deteriorate, data loss may occur.

4-3. Product Overview

BMF IoT-10111208 has the function of sending location calculation information (WiFi, GNSS), acceleration, temperature, humidity, radio wave conditions (RSSI, SNR), and voltage information of the built-in storage battery to the gateway using LoRa® communication, and is powered by the on-board solar cell and a built-in small lithium-ion battery. It is a sensor terminal that does not use disposable primary batteries and does not require AC power.

4-4. Names of each part of the main unit

4-5. Illumination required for operation

The required illuminance for the operating conditions can be obtained using these evaluation tools (introduced separately).
Even after operation has started, the operating conditions can be changed from the cloud side.
We recommend that you consider appropriate operating conditions according to your environment at the time of POC or when starting operation.
In addition, please install and position the solar panel so that light can easily reach it.

5． About product specifications

5-1. BMF IoT-10111208 Product Specifications

items	Specification
Wireless specifications	Compliant with domestic laws such as the Radio Law (TELEC), FCC and CE Worldwide ISM frequency bands support in the range 150~960MHz for LoRa 802.11b/g/n WiFi ultra-low-power passive scanning
GNSS	GPS/BeiDou low-power scanning
Accelerometer	Measurement Range: ±2g, ±4g, ±8g, ±16g Digital resolution: 14bit Offset: ±80mg TCO: ±1mg/K
Temperature and humidity sensor (not covered by warranty)*1	Humidity range: 0% to 100% RH Humidity accuracy: ±1.5% RH, typical Temperature accuracy: ±0.2°C, typical Digital resolution: 12bit
Waterproof	IPX5(Life waterproofing)
Operating temperature limit	－20℃～65℃（In normal living space）*2
Size	90mm×60mm×6mm
Weight	42g
Product warranty period	1 year after shipment

*1) The temperature and humidity sensor values are for reference only.

*2) If you are considering using the product in an environment where the temperature is constantly high, please contact our customer support desk.

6. Reliability testing

BMF wireless Tracker Test plan

OSM GROUP

Test Item	EVT Test Result	Report#	Sample QTY	Standard Test Leadtime(Day)	Test Time（H）	Test Description	Acceptance criteria
Chemical test	Pass	QA23-0711102	6	1	3	Test Procedure/Requirement: Sweep the surface chemical flannel at 9.8N pressure. Rate of rubbing: approx.72 times/minute. Rubbing Cycles:10 Type of chemicals: 1- Lipstick 2-Hand cream 3- Suntan lotion 4- Essence 5- Cooking oil 6-Mosquito water leave it for 24hrs at room temperature. After 24hrs, sweep the surface with cotton fabric for 30second, complete the test from step1 to step4. • dry cotton • tap water • dishwashing liquid • alcohol 98%	1.After test, visual inspect the surface. No changes in colour, gloss, and surface roughness, blistering or cracking allowed. There shall be no colour transfer to the wiping cloth and no removal of paint or printed text or exposed base substrate material within 10 cycles of rubbing.
Dry Abrasion Test & alcohol abrasion Test	Pass	QA23-0711100 QA23-0711101		1	2	Use the Abrasion Tester; abrade the surface of the unit with a R75 eraser, applied at an angle of 90°and with a force of 500 g. Set rubbing stroke to a straight line of about 5 cm travel (distance depend on test surface area). Set the testing parameter to: Test speed at : 20 cycles/min Rubbing cycles : At least 20 times Grade of Eraser : Grade CS-10 or equivalent (mild) - for Plastic surface Grade CS-17 or equivalent (harsh) - for Metal surfaces	There shall be no peeling of paint or text printing. There shall be no exposed base substrate material.
UV Accelerated Aging Test	Pass	QA23-0704104		4	2	Test condition and sample: Test to be completed in the environmental chamber area at ambient temperature 25°C 50%RH. At least one sample per color per material (leather/textile/plastic/metal part with coating) Procedure: Use black tape attach that half surface of test sample.	After 96hrUV test, assessing change in color with GREY SCALE. Spec: ≥4 Grade
High Temperature Storage Test	Pass	QA23-0707105	3	7	3	1.The sample was placed at 60°C for 168 hours 2.There are no damages in all components of headset after test	Functionality and appearance require a Pass
High temp and humidity test	Pass	QA23-0707103		1	3	Procedure: Temperature and Humidity Temperature:60°C,Humidity:80%RH,test time:24hours.	Specification requireent: After the test check the samples after 2 hours recovery time.The sample is not deformed, damaged, discolored.
Low Temperature Storage Test	Pass	QA23-0707104	3	7	3	1.The sample was placed at -20°C for 168 hours 3.There are no damages in all components of headset after test	Functionality and appearance require a Pass
Drop Test	Pass	QA23-0710101		1	3	1. The test consists of a drop from a height of 100 cm(TBD,) onto a smooth wooden surface 2. The sample will be dropped in 6 directions and 2 times for each surface (top/bottom, left/right, front/back).Acceptance criteria	The samples must show no cracks or breakages and retain full functionality to the product specification.
Salt Spray	Pass	QA23-0707106	3	2	2	Test the headset's ability to resist corrosion / oxidation. Place units under test into a Slat Spray Booth for 48 hours.	Units must pass Functional Test 1.0 after completion of test. Internal PCBA, Mic, and Speaker components must be free of corrosion or oxidation.
IPX5 Test	Pass	QA23-0703200	3	1	3	Any direction of the jet of water, flushed on the product,. - Reference IPX5 Test Standard.	After testing, product function needs to pass.

7. Troubleshooting

If you experience any problems or issues while using this product, please contact our customer support center.

8. Inquiries about this product

For inquiries about this product, please send an email to the address below.

Inquiries: shiro.kamohara.uh@bmlsol.com

Contact: BML Solutions Co., Ltd.

FCC ID: 2BG3S-10111208

Model: BFM-IoT10111208 / Serial No. :

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.

NOTE: 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.

CAUTION:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF exposure compliance

1) To comply with FCC/IC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

2) This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

BMF IoT-10111208 Instruction Manual

Publication date: June 2024 Rev.1.0
Published by: BML Solutions Co., Ltd.