



## Installation Instructions

### 2x2 MiMo Omni-Directional Antenna

BS[G]M-6-60

SW3-963 - v1

## 1. Introduction

The BS[G]M-6-60 is a range of omni-directional tube antennas for 4G/5G applications requiring support for 2x2 MiMo with optional GPS/GNSS. Ideal for fixed site, marine or failover applications the antenna is suitable for external or internal mounting. The antenna is supplied with a wall mount bracket, with brackets for mast or rail mounting and a sealing gasket for panel / deck mounting.



#### Electrical Safety Note

Variants of this product contain an active GPS/GNSS antenna. Rated voltage: 3-5VDC Rated current: 20mA maximum.  
**The supply to this device must be provided with overcurrent protection of 1A maximum.**

## 2. Planning and Installation

To minimize the effects of surrounding objects, the antenna should be located as far away from other structures as possible. If fitted with GPS/GNSS the antenna should have a clear view of the sky. The orientation of the antenna should be vertical with the cable exiting downwards.

A bracket is supplied, allowing fitment to a wall, rail or mast (18-50mm (3/4-2") diameter) using the u-bolts / clamps provided. The antenna bracket has 4x 8mm (5/16") clearance holes which also allow screw mounting. When mounting the antenna to a metal housing, device enclosure or mast care should be taken to ensure that the antenna housing is elevated above the metal surface to which it is mounted. Ensure that the selected location will enable the coaxial cable to be easily connected and routed to the equipment. If mounting the antenna using screws it is important to check for adequate under panel clearance.

The antenna can also be mounted to flat, level panels of up to 3mm (0.1") thickness using the supplied M6x1 screws and gasket. For thicker panels it may be necessary to source longer M6x1 screws. The mounting panel can be conductive or non-conductive. Select a mounting location taking care to ensure that there is at least 300mm (12") of clearance from proximate metal objects. Ensure that there is adequate clearance under the mounting panel and measure to check for central positioning if necessary.

## 3. Safety Notes

- If the antenna will be fitted to an existing mast, please ensure that it will not overload it.
- Ensure that the installation location can be safely accessed with the equipment that you have available.
- If mounting to a wall in a position which is accessible care should be taken to ensure that no one comes within 0.3m (1') of the antenna during use.



*Parts of the antenna are an electrical conductor. Contact with power lines can result in death, or serious injury. Do not install the antenna where there is any possibility of contact with (or high voltage arc-over from) power cables. The antenna and supporting mast must not be close to any power lines during installation, removal or in the event that part of the system should accidentally fail.*



*If the antenna is installed above the roof line or in an exposed location, it is advisable to fit lightning surge arrestors in the coaxial cable feed lines. Suitable units should be sourced and installed as per the manufacturer instructions. The installer is responsible for determining if this is a requirement for the antenna installation.*

## 4. Mounting Using the Wall / Mast / Rail Bracket

Check that you have the required mounting hardware and equipment available. The antenna can be bracket mounted via the supplied fixing holes (suitable for machine screws or self-tapping screws) or rail / mast mounted using the supplied u-bolts / clamps.

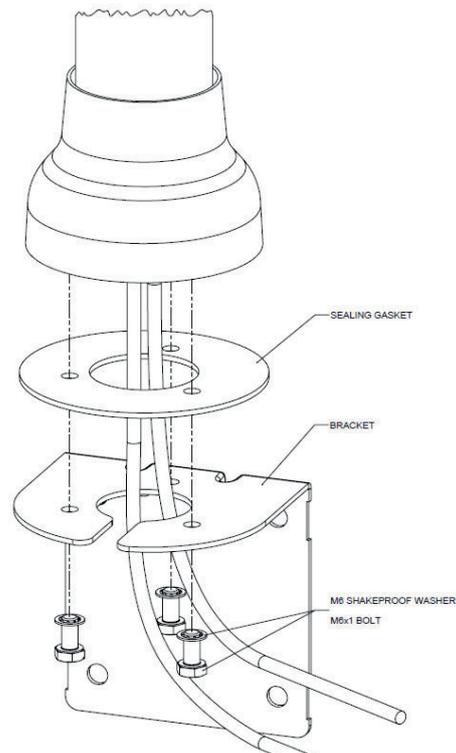
If drilling holes to mount the antenna the bracket can be used as a drilling template. Consider whether, given the installation location, it is better to mount the antenna to the bracket before mounting the complete assembly or whether it is better to mount the bracket first.

When ready mount the antenna securely to the bracket using the supplied screws and washers. It is advisable but not essential to use the supplied gasket.

If utilising the gasket feed the the gasket over the cables up to the base of the antenna. Pass the cables into the slot in the bracket aligning the holes in the gasket with the holes in the antenna and bracket. Assemble the bolts and washer from under the bracket and hand tighten fully performing a final tighten with a spanner.

**Caution:** Do not overtighten the bolts as this may damage the antenna.

**Safety Check:** Ensure that the bracket is securely fixed to wall / mast / rail before finalising the installation.

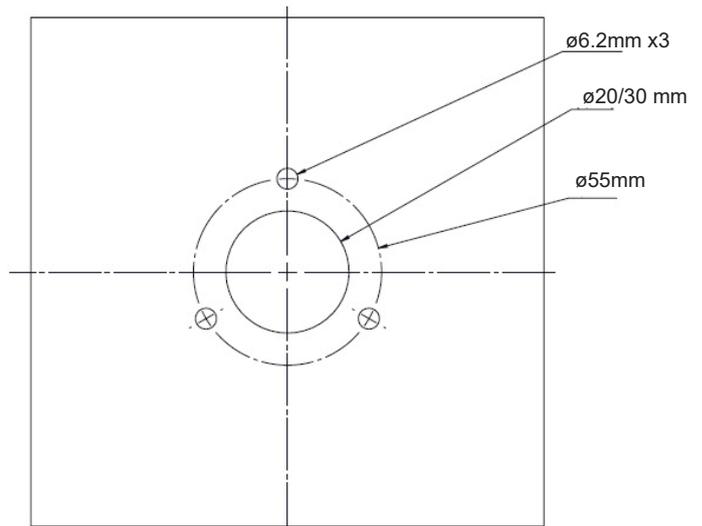
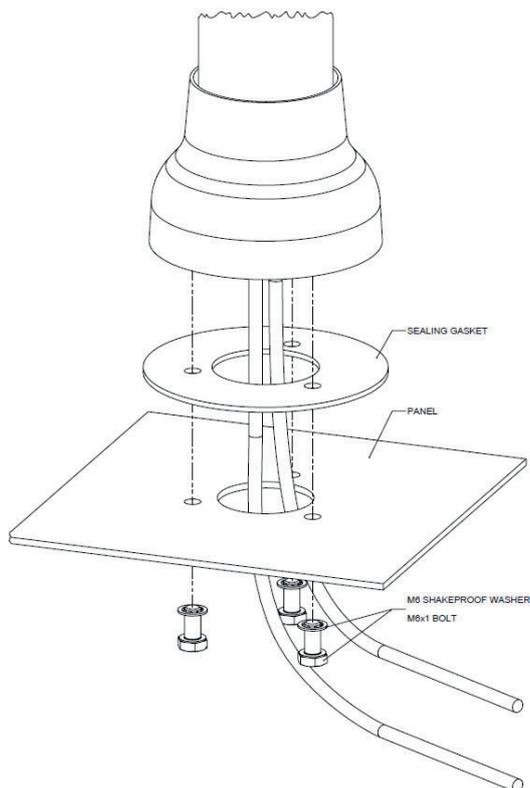


## 5. Panel Mounting

Mask the panel area around the hole position to protect the surface / paintwork if required. Drill pilot holes in the configuration shown below, then increase the hole sizes to the diameters indicated, ensuring that the drill / cutter bit does not hit any objects under the panel. Note that a central hole diameter of 30mm (1.2") inches is required for versions of the product fitted with N-type connectors whereas a hole of 20mm (0.8") will be sufficient for versions fitted with SMA or Fakra type connectors. The supplied rubber gasket can be used as a drilling template if required.

Clean the area around the holes carefully removing all debris or swarf. Feed the the gasket over the cables up to the base of the antenna. Locate the antenna gasket over the mounting holes aligning the holes in the gasket with the holes in the panel. Feed the coaxial cables through the panel. Position the antenna and gasket over the mounting hole and align the mounting bosses with the holes in the gasket and panel - you may need to fixture the antenna in place. Assemble the bolts and washer from under the panel and hand tighten fully performing a final tighten with a spanner. Consider whether additional silicone should be applied to seal the installation

**Caution:** Do not overtighten the bolts as this may damage the antenna or distort the mounting panel.



## 6. Route Cables

Route the coaxial cables to the radio equipment being careful not to foul any moving components. Respect a bend radius of 25mm (1") for the cables if possible. Connect the antenna to the radio equipment.

## 7. Commission and Test

Check GPS/GNSS cable (where applicable):

- Check the GPS cable with DC to measure high resistance.
- Connect the GPS cable to the GPS receiver and check for satellite acquisition.

Check comms cable(s)

- Carry out VSWR check, should measure as specified in the antenna data sheet.

## 8. Notices



### RF Safety Note

*This antenna should be mounted in such a way that no person is within 0.3m (1') of the antenna during use.*



### DO NOT

- operate the transmitter when someone is within 0.3m (1') of the antenna.
- operate the equipment in an explosive atmosphere.
- attempt to install the antennas without the proper safe equipment to access the install location.
- install the antenna near power lines.
- chew parts or put them in mouth, keep away from unsupervised children.
- install the antenna in such a way that it may fall and cause injury.



### European Waste Electronic Equipment Directive 2002/96/EC

Waste electrical products should not be disposed of with household waste. All electronic products with the WEEE logo must be collected and sent to approved operators for safe disposal or recycling. Please recycle where facilities exist. Many electrical/electronic equipment retailers facilitate "Distributor Take-Back scheme" for household WEEE. Check with your Local Authority or electronic retailers for designated collection facilities where WEEE can be disposed of for free.



### Directive 2011/65/EU (RoHS 2)

RoHS 2 compliance is declared per Directive 2011/65/EU and its subsequent amendments with exemption 6.c applied.

REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals, EC 1907/2006)

This product contains Lead (CAS No. 7439-92-1) which is classified as an SVHC (Substance of Very High Concern) as being toxic to reproduction under Article 57c. of REACH. Do not chew parts or put them in mouth, keep away from unsupervised children. Dispose of parts as WEEE waste do not send to landfill.

This declaration is issued under the sole responsibility of the manufacturer

The object of the declaration described above is in conformity with the relevant Union Harmonization Legislation below:

Directive 2014/53/EU Radio Equipment Directive (RED)

Harmonised Standards and References:

EN 301 489-1 (V2.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements".

Referencing EN 61000-4-2:2009 – Electrostatic Discharge Immunity and EN 61000-4-3:2006 +A1:2008 +A2:2010 – Radiated RF Immunity

EN 300 440-1 V1.6.1 (2010-08) – Electromagnetic compatibility and radio spectrum matters (ERM); short range devices; radio equipment to be used in the 1GHz to 40GHz frequency range; Part 1: Technical characteristics and Test methods in accordance with EN 300 440-2 V1.4.1 (2010-8) - Electromagnetic compatibility and radio spectrum matters (ERM); short range devices; radio equipment to be used in the 1GHz to 40GHz frequency range

Low Voltage Directive: Directive 2014/35/EU (Electrical Equipment designed for use within certain voltage limits) of 26th February 2014.

EN62368-1: 2014 Audio/video, information and communication technology equipment. Safety requirements

**Waiver:** This document represents information compiled to the best of our present knowledge. It is not intended to be a representation or warranty of fitness of the products described for any particular purpose. This document details guidelines for general information purposes only. Always seek specialist advice when planning installations and ensure that antennas are always installed by a properly qualified installer in compliance with local laws and regulations.