M routers overview

TECHNICAL SPECIFICATIONS

All M routers have the following features:

Meant for installation with an existing antenna set up, do not include antennas.

Overview:

- 5G modem(s) with 2 push-pull SIM slots (Nano, 4FF); 4x SMA(f) connectors per modem
- WiFi 6 bridge and access-point mode; 2x RP-SMA(f) connectors; MU-MiMo
- Dual-LEO (e.g. Starlink Maritime) connectivity
- Mounting: wall, ceiling or DIN rail
- Power: 120W peak load. DC 8..35V (24V recommended) - terminal block
- Network: 3x RJ45 2.5Gbps (100/1000Mbps compatible), thereof 2x PoE+ 30W

M1-R (rugged):

- Meant for installations above deck like inside existing domes at the base etc
- One 5G modem
- Operating temperature: -40° to +85°C

M1-NR (non-rugged):

- Meant for installation inside a 19" rack or alike in an air conditioned environment
- One 5G modem
- Operating temperature: 10°-40°C, non condensing

M2-R:

- same as M1-R (rugged) but with 2 modems

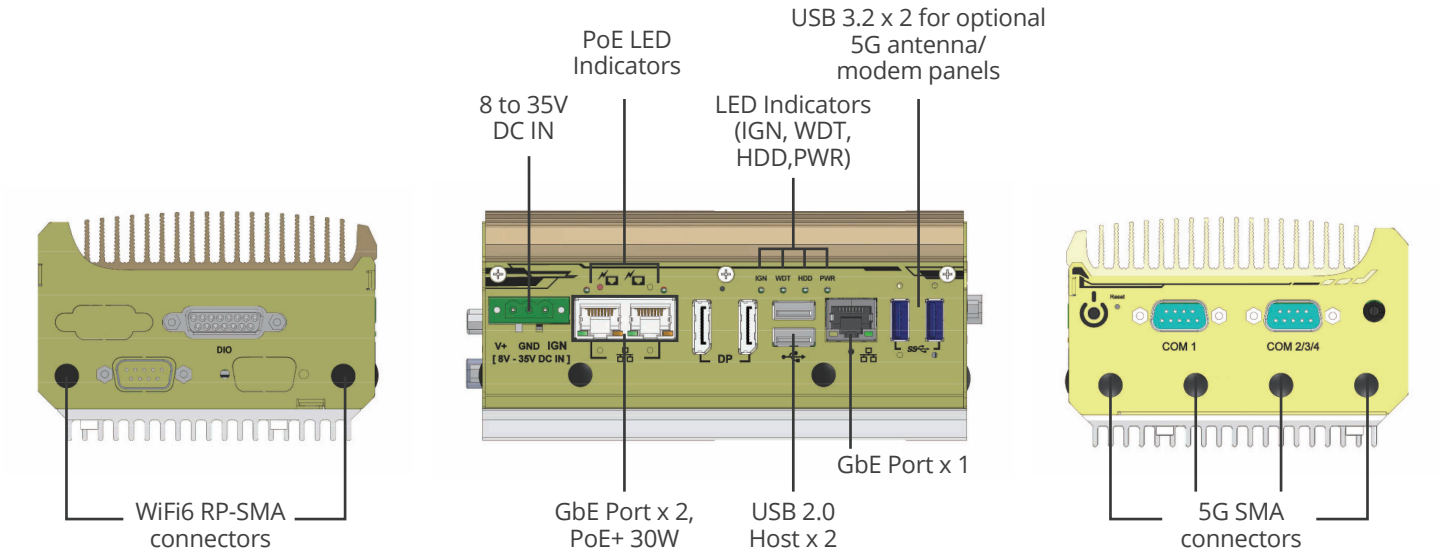
M2-NR:

- same as M1-NR non-rugged but with 2 modems

M1-R (rugged)

TECHNICAL SPECIFICATIONS

- 5G modem with 2 push-pull SIM slots (Nano, 4FF); 4x SMA(f) connectors
- WiFi 6 bridge and access-point mode; 2x RP-SMA(f) connectors; MU-MiMo
- Connection bonding or load balancing modes
- Can be used to connect multiple LEO dishes/panels (e.g. Starlink Maritime) and bond with 5G
- Dual-LEO (e.g. Starlink Maritime) connectivity



- **Dimensions:** 153mm (width), 108mm (depth), 72mm (height)
- **Weight:** 2kg
- **Mounting:** wall, ceiling or DIN rail
- **Operating temperature:** -40° to +85°C
- **Power:** 120W peak load. DC 8..35V (24V recommended) - terminal block
- **Network:** 3x RJ45 2.5Gbps (100/1000Mbps compatible), thereof 2x PoE+ 30W

Upgrade options

For cases when a more affordable version is needed you can opt for an M router and later upgrade it with a panel or two, when the budget allows. You can also do an initial installation of an M router with one or two panels included so you can take advantage of both - the existing antenna set up and the unique features of the Meridian panels. Panels are $3000 each.

Rugged versions of our M routers are usually installed above deck. Such installations can be upgraded with a panel (up to 2 panels possible), typically installed inside an existing VSAT or TVRO dome.

The following criteria has to be met for the upgrade to be possible:

- **Distance:** a panel has to be installed within 2 meter distance from the M router
- **Panel Mounting:** panels can be mounted either vertically or horizontally, but not flat
- **Mounting bracket:** will be provided (spec on page 5)
- **Cabling required:** cable to connect the panel is a USB 3.2 cable with USB-C connector
- **Operating temperature:** -40° to +75°C
- **Optional:** SIM extender can be added

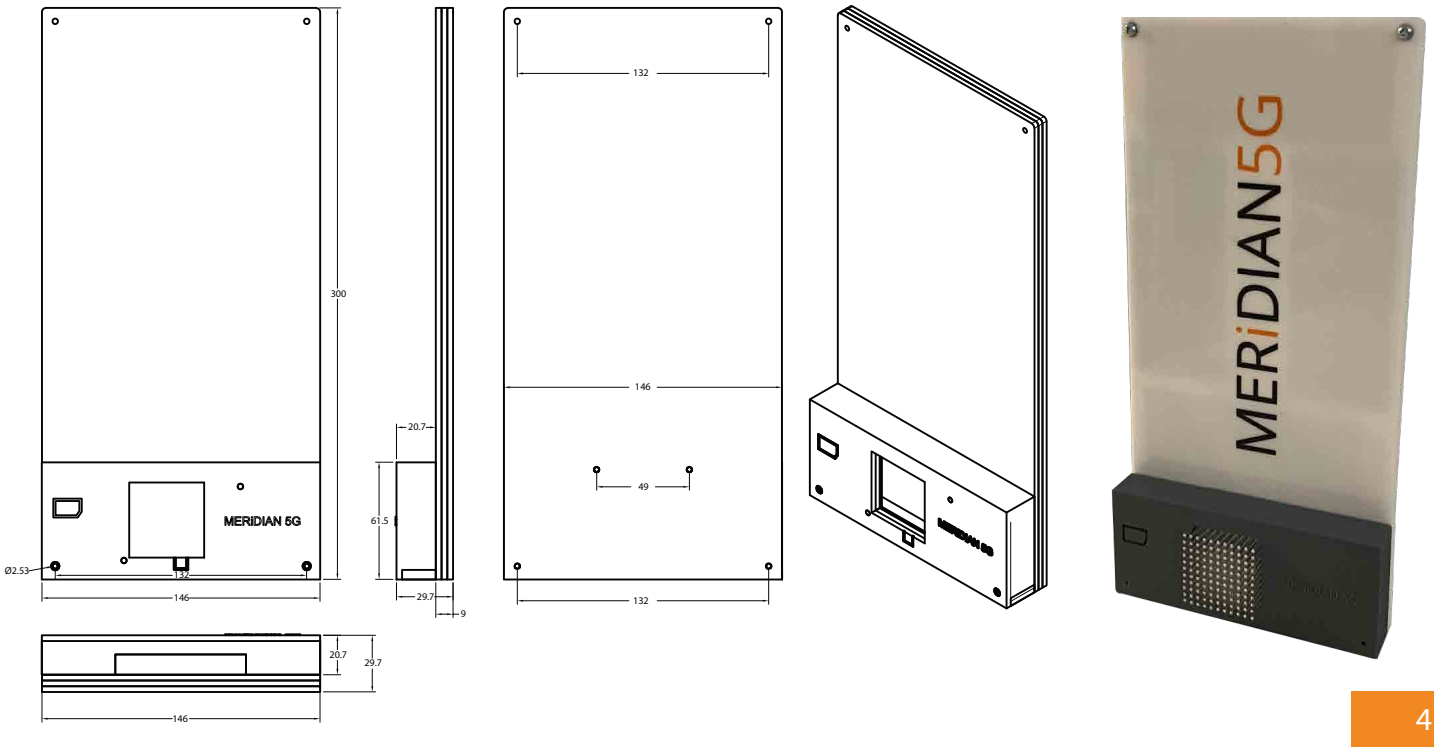
Remarks: 360° non-blocked horizontal line of sight recommended

Panel

Panel is a part, not a complete system. A control router is required to operate the panels.

Panels are the main parts in the DOME systems. A panel can also be used to upgrade either a DOME system to include more modems/antennas, or to upgrade M1 or M2 rugged (more on that on page 3).

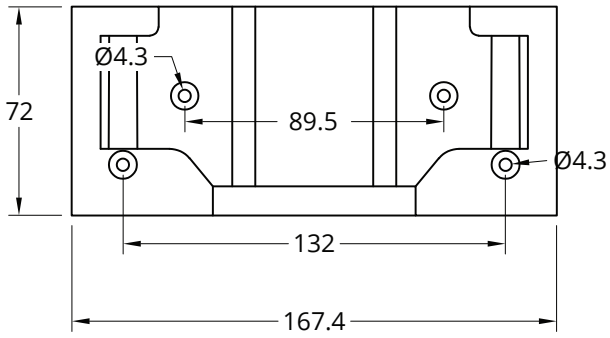
- **Modem:** One 5G modem with 1 push-pull SIM slot (Nano, 4FF)
- **Antennas:** 4 omnidirectional wide band antenna modules (600MHz-6Ghz, peak gain 5dBi), arranged orthogonally in pairs to achieve 4x4 MiMo
- **Antenna layout:** Slim design on the antenna section to fit tight VSAT domes as well, e.g. Intellian V60
- **Dimensions in mm:** 300 x 146 x 29.7
- **Weight:** 800g
- **Material:** Polyester resin and ABS plastic
- **Operating temperature:** Heatsink to allow for up to 75°C operations
- **Connectors:** USB-C connector for USB-3.2 data bus and auxiliary power
- **Power:** DC 5V/3A (provided over USB-C from the control router)
- **Mounting:** vertical or horizontal, but not flat

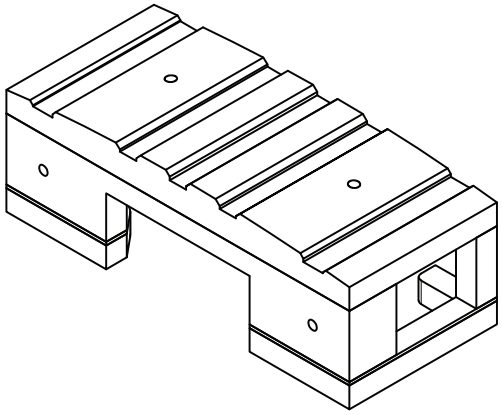


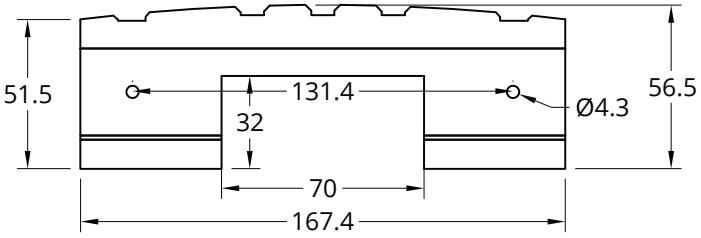
Panel bracket

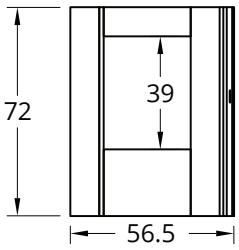
The bracket is used for the installations of the panels inside existing domes (for example, “Panel versions” of our DOME system or Panel upgrades). The bracket is 3D printed to match the diameter of the dome where the panel will be installed. It is then glued to the inner wall of such dome at the base. The panel can then be easily inserted (and if needed easily changed).

- **Weight:** 200g
- **Material:** Polyester resin
- Curve matching the dome’s diameter (the one on the rear facing the dome cover)









Modem specifications

MERiDIAN5G

Model: Qualcomm Snapdragon (SD) x55 modem, Cat. 20
Coverage: Worldwide 5G coverage with 3G/4G fallback
Power Class 2, max. TX power 400mW

MAXIMUM SPEED per modem:

Download: 2.0 Gbit/s per modem, 7xCA, max. Modulation 256QAM
Upload: 211 Mbit/s per modem, 2xCA, max. Modulation 256QAM

SUPPORTED RF BANDS (Worldwide Coverage)

Technology	Bands	Diversity Connection
3G	B1, B2, B4, B5, B6, B8, B9, B19	YES
4G LTE-A-PRO	B1-B5, B7, B8, B12-B14, B17-B20, B25, B26, B28-B30, B32, B34, B38-B43, B46, B48, B66, B71	YES (4x4 MIMO)
5G	n1, n2, n3, n5, n7, n8, n12, n20, n25, n28, n38, n40, n41, n48, n66, n71, n77, n78, n79	YES (4x4 MIMO)

DASHBOARD:

Modem Status	System Status	System Control
• SIM card inserted • Connection status • Aggregation status • Temperature • Error indication	• Aggregator status • Current network load (down/up) • Temperature • Error indication	• Power down • Reset

FURTHER CONTROL:

Modem Status	System Status	System Control
• Reset • Set offline • Roaming on/off • Modem Status information (IMEI, Signal level..)	• PIN/PUK • C/E Description • Roaming on/off • Contract or pay as you go data package	• Limit for signal Level • Limit for network technology • Limit for BER (bit error rate) • Limit for latency