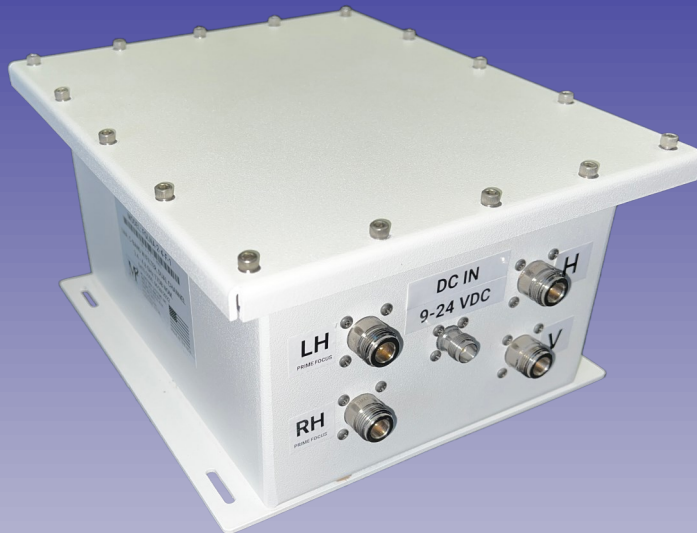




M2 Antenna Systems, Inc.

Model No: FGLNA-2-4-F-1

Beam Forming Dual channel Low Noise Amplifier



SPECIFICATIONS:

ModelFGLNA-2-4-F-1
 Gain23 dB nom. (19 dB min)
 PolarityLinear V/H, Circular R/L
 Pass-Band.....3.4-4.8 GHz, Filtered
 Inputs.....Linear V/Linear H
 PowerDC Input, 9 to 24 VDC

Outputs: Linear V/H, Circular R/L
 Mount Style 4-hole panel mount
 Body Material..... Aluminum
 Hardware Stainless
 Connector N, Female, SS
 Finish White, Powder Coat
 Power Input..... TNC-Female

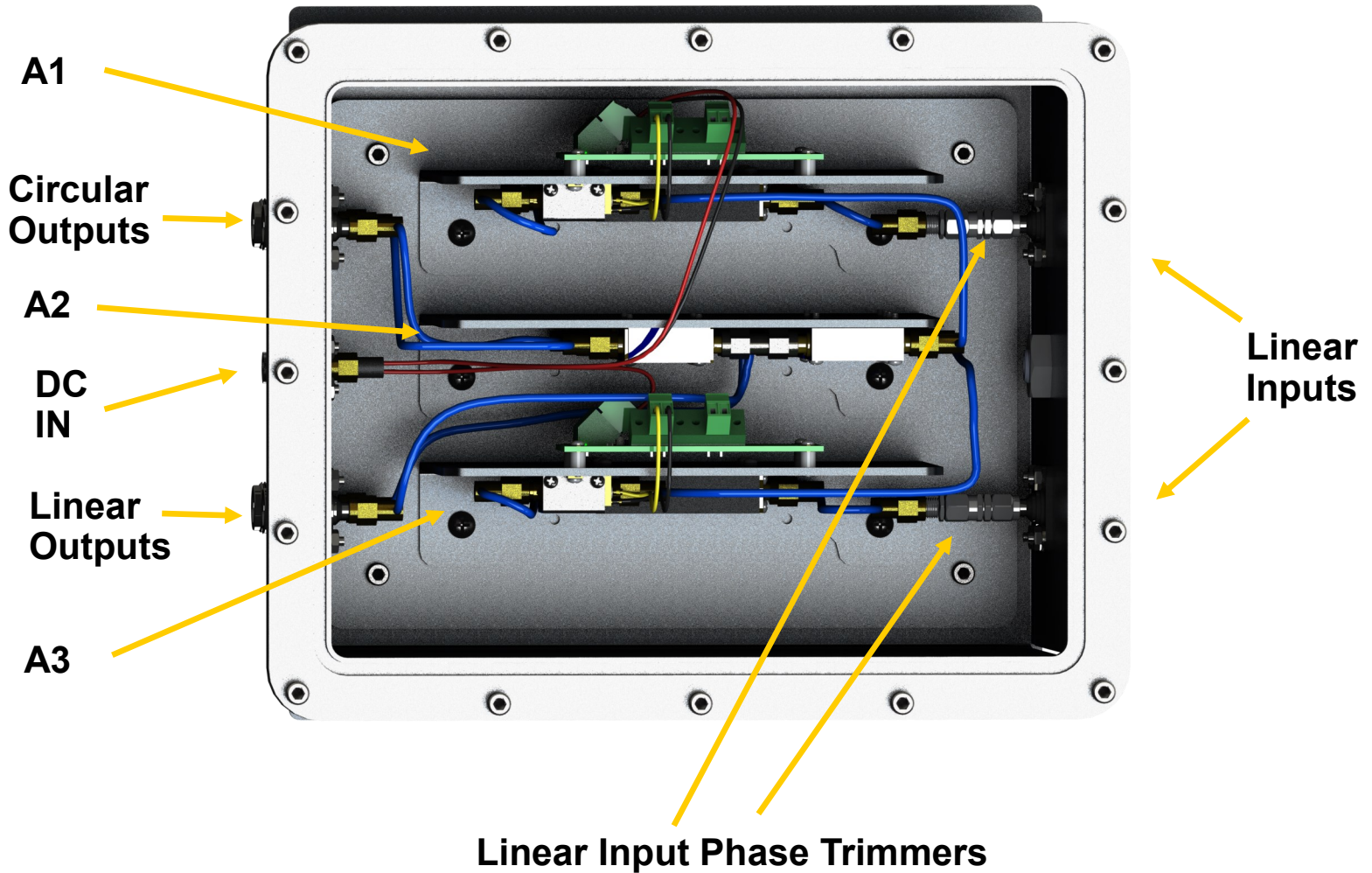
Features:

M2 continues to improve and add to its line of beam-forming Low Noise Amplifier and Filter electronics. Our latest addition is the new LNA-2-4-F-1. This robust dual channel low-noise amplifier provides for user selectable filtering. When bypassed, the LNA operates across the full band from 3.40 - 4.80 GHz. Built for C Band operation, when coupled with the M2 Quad-probe linear feed, this amplifier and beam-forming network delivers both Linear (Vertical and Horizontal) and Circular (Left and Right hand) signals, for complete operational flexibility. The precision machined aluminum housing is fully sealed to combat brutal weather conditions. The LNA / Filter system contains field replaceable modules allowing for rapid return to mission. For complex microwave solutions, look no further than M2 Antenna Systems. Call us for your RF and microwave needs.

Internal Module Layout

Note:

All internal SMA connections should be torqued to 8 +/-2 inch pounds.



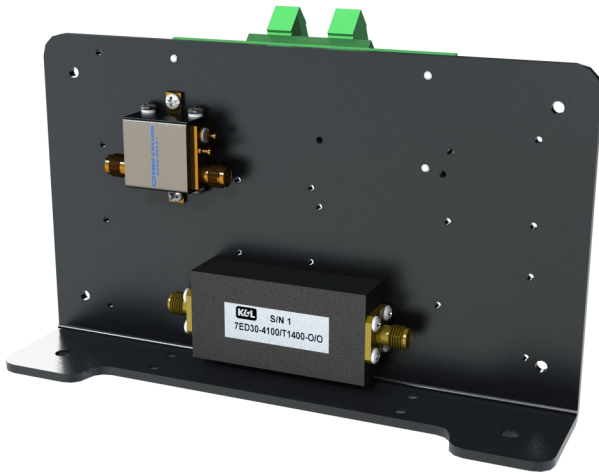
Note:

Input Phase Trimmers can be used to compensate for poorly matched input cables, using appropriate test equipment (Network analyzer, Vector Signal Analyzer, etc.)

Amplifier and Filter Module (A1 and A3)

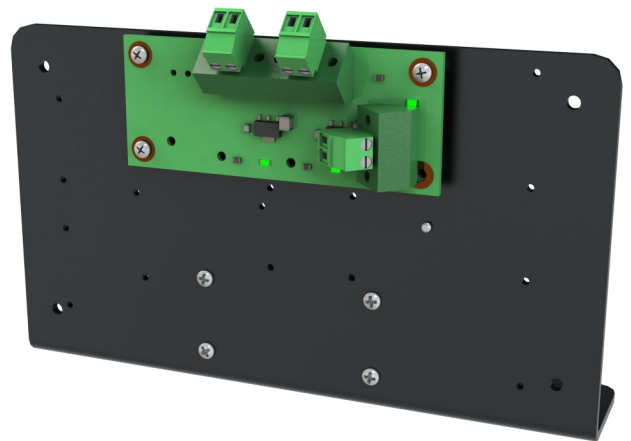
LOW NOISE AMPLIFIER AND FILTER

Front

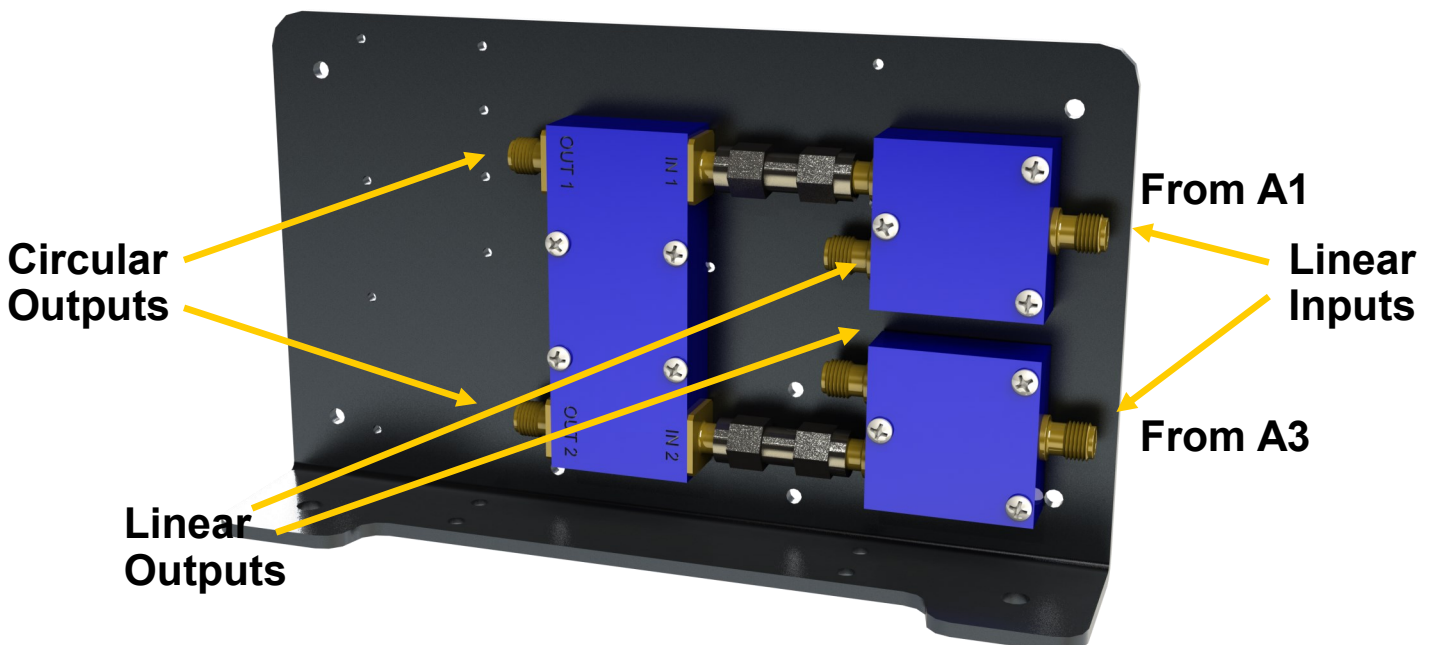


VOLTAGE REGULATOR
9-24 VDC IN 1X5VDC OUT

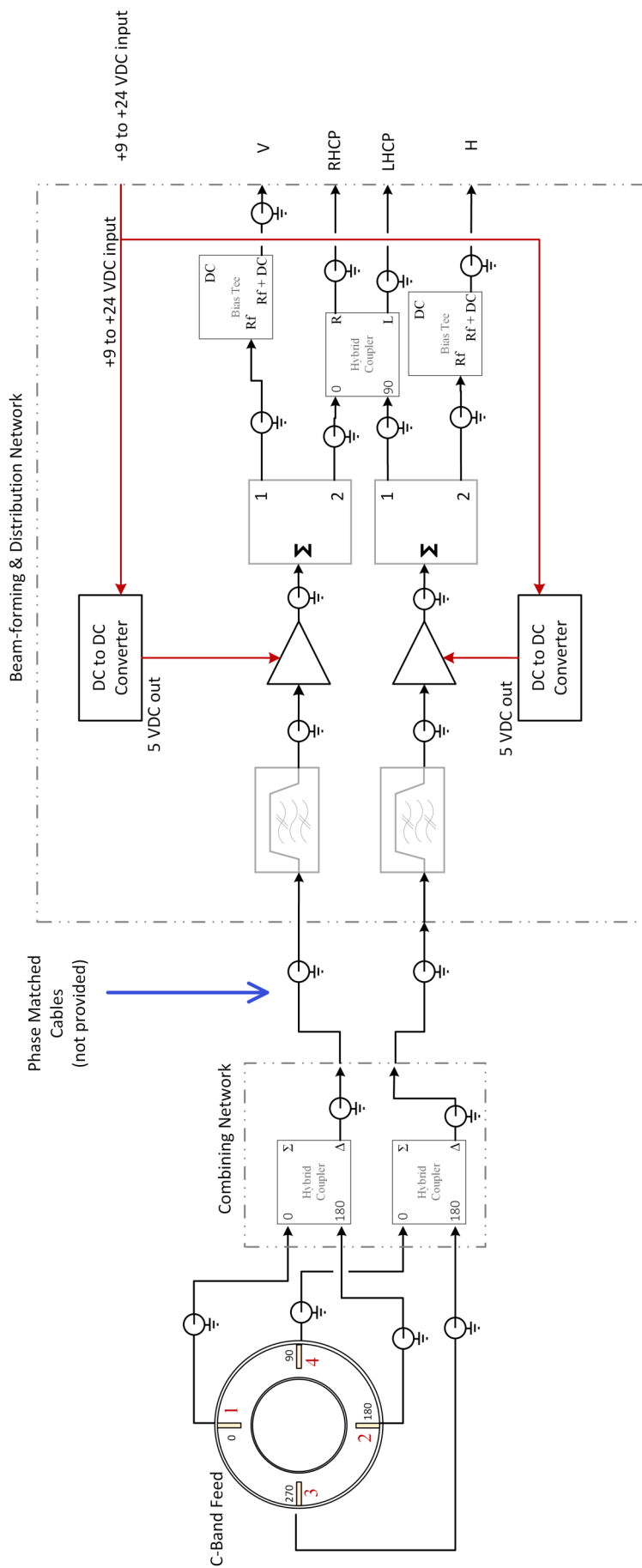
Rear



Distribution and Beam Former Module (A2)



FEED / LNA / BEAM-FORMER SCHEMATIC



FEED / BEAM-FORMER SCHEMATIC

Theory Of Operation

- Amplitude and Phase Matched linear inputs are applied at the V (Vertical) and H (Horizontal) inputs to the electronics enclosure.
- DC input is via the TNC-F connector, applying 9 to 24 VDC on the center conductor. DC voltage is regulated on the A1-A1 and A3-A1 DC Regulator circuit boards, with the 5 Volt output of each board connecting to the associated amplifier.
- Each RF input is first filtered via a 3.4 to 4.8 GHz bandpass filter. The filter output is connected To the Low Noise Amplifier RF input.
- The RF output from each amplifier is connected to a dedicated phase-matched 3 dB divider. Each channel provides 22 dB nominal gain.

**note: the amplifiers can be easily replaced, or output attenuation added based on specific application requirements for each installation.*

** The phase trimmers can be used to match any induced phase imbalance by measuring the difference between the RH/LH ports for both Linear V and Linear H inputs.*

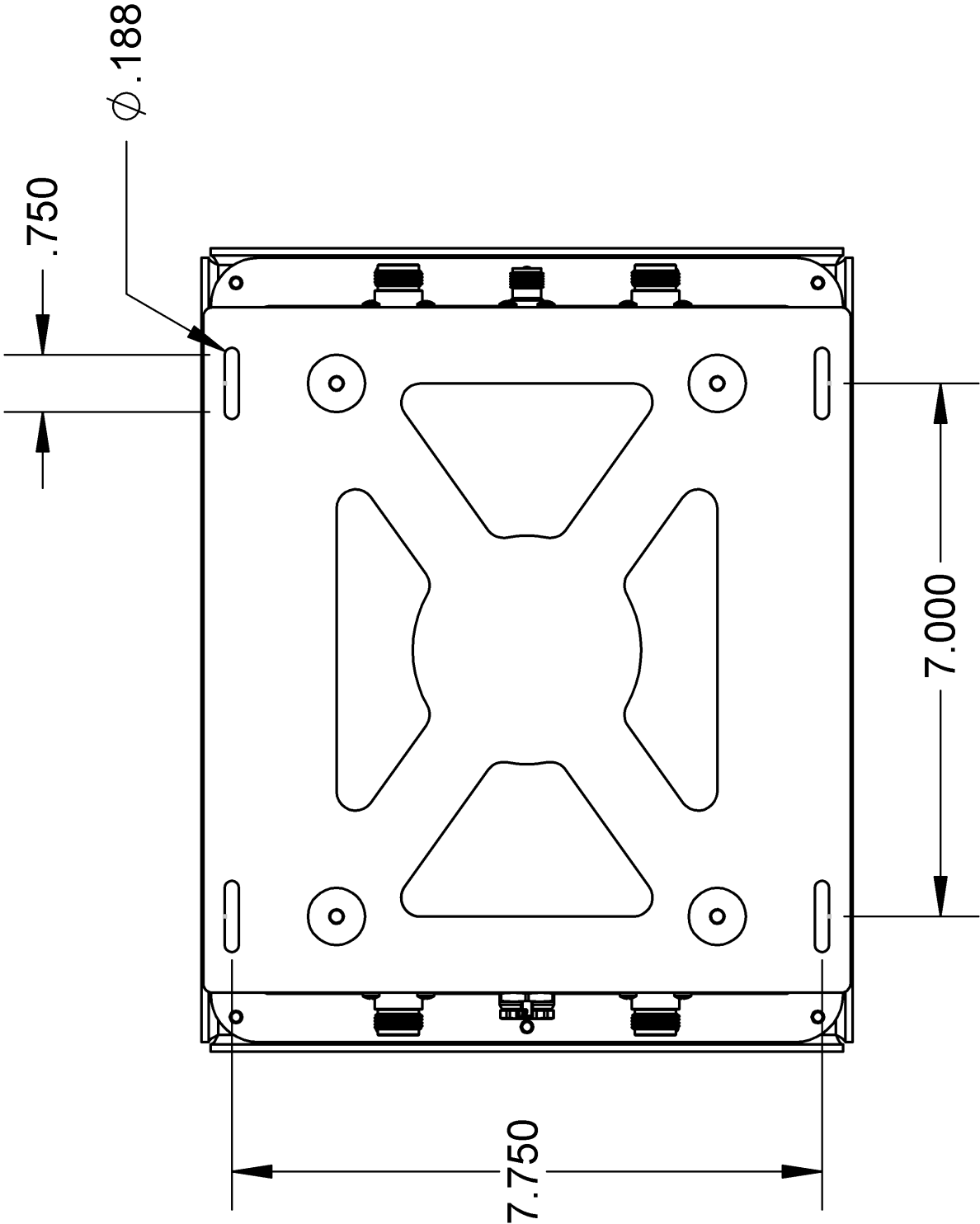
** This can also be accomplished by matching the phase of the Linear outputs only. This method does not compensate for possible internal cable delay mismatch.*

** Alternatively, a circularly polarized signal can be transmitted into the feed, and the phase trimmers adjusted for best cross-pol isolation on the opposite circular output port.*

- One output of each power divider is directly connected to the linear output port associated with that channels input polarity. (V in to V out, H in to H out) .
- The second output of each 0 degree power divider are connected to the 0 and -90 degree inputs of the 90 degree hybrid combiner. The two output ports of the combiner are connected to the LHCP and RHCP outputs of the electronics enclosure.

**note: The circular outputs of the LNA and Beam-forming enclosure are marked for prime focus operation.*

Electronics Enclosure Mount Dimensions



12 Month Limited Warranty Information

This warranty gives you specific legal rights. You may also have other rights which will vary from state to state or province to province.

M2 warrants the **FGLNA-2-4-F-1** Beam Forming Low Noise Dual Channel Amplifier unit against defects in material and workmanship for a **period of 12 months** from date of purchase. During the warranty period, **M2** will, at its option, either repair or replace products or components which prove to be defective. The warranty shall not apply to defects or damage resulting from:

- Improper or inadequate maintenance by user
- Improperly prepared installation site
- Unauthorized modifications or misuse
- Accident, abuse, or misapplication
- Electrostatic Discharge
- Normal wear

M2 specifically does not warrant this product for any direct, indirect, consequential, or incidental damages arising from the use or inability to use the product. Some states or provinces do not allow the exclusion or limitation of liability for consequential or incidental damages so the above limitation may not apply.

In the event repair or replacement are necessary, purchaser shall contact M2 for return authorization. In many cases this contact can simplify and expedite the repair / replacement process and help reduce costs and downtime.

The purchaser shall be responsible for packing the product properly for return and for charges to ship the product to **M2**. Always include with the shipment, a statement detailing the problem / failure and any other pertinent observations. Insuring the product for shipment is recommended. Use the original packing materials whenever possible. **M2** is responsible for charges (**in the United States**) to return the repaired / replacement product only where warranty service is involved.

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