INSTALLATION INSTRUCTIONS
EM-MG51002 SERIES
3-in-1 COMBINATION ANTENNA
3/4" HOLE MOUNT

Congratulations on your selection of another quality antenna product from E/M Wave.
E/M Wave is committed to continually provide the greatest antenna VALUE for your wireless applications.

Parts: Verify all parts are included as shown in Figure 1.

A. Antenna Base Mount with:
- Rubber Gasket
- Multi-tooth Lock Washer-Nut (24 mm Hex)
- RG-174/U GNSS Cable (16.5 ft. / 5m), QMA or SMA

B. RG-58/U Jumper Cable (16 ft. / 4.9m)
Model (-QP): FME to QMA | Model (-SPSR): FME to FME

C. LL195 Jumper Cable (16 ft. / 4.9m)
Model (-QP): SMA to QMA | Model (-SPSR): SMA to SMA-RP

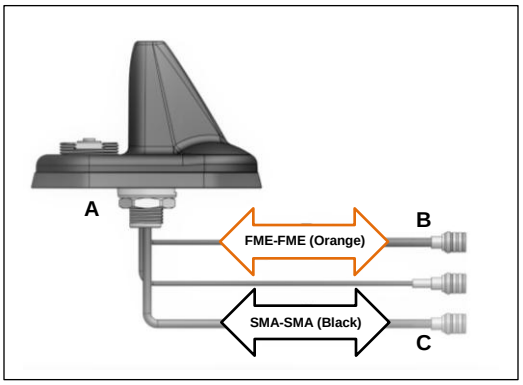

Figure 1: Parts (Model "–QP" Shown)

Tools Required:
- Drill and Hole Punch, ¾" (19.05 mm) Diameter
- 24 mm Socket Wrench or Open/Adjustable Wrench
- Torque Wrench with 15 to 20 ft-lb capacity (Recommended)

Pre-Installation:
- Antenna Base Mount will install on any panel with thickness up to ¼" (6.35 mm) maximum.
- Choose mounting surface with minimal curvature to optimize the rubber gasket sealing against rain and weather.
- NMO Mount will accommodate all NMO antennas. **NMO Antenna: Sold separately**. Refer to manufacturer's antenna instructions to verify proper installation and tuning requirements.
- For best GPS/GNSS Antenna performance, verify installation area has clear view of sky in all directions.
- Mounting locations that contain obstructions within low view angles (near horizon) may be permissible, however, to ensure performance is acceptable, the antenna may be tested in the desired mounting location by setting the base mount upright on the mounting surface and connecting the GPS/GNSS receiver to determine performance.

Installation:
1. Drill or punch a ¾" (19.05 mm) hole through the mounting surface.
2. Clean surface area near mounting hole, removing grit, moisture and oil residue to ensure proper gasket seal.
3. Remove Lock Washer-Nut from the threaded stanchion.
4. Feed antenna cables through the top of the ¾" hole.
5. Verify gasket is properly aligned and seated to antenna mount base and perimeter. **Note:** Gasket is not symmetrical.
6. Insert threaded stanchion through the hole.
7. Before attaching Lock Washer-Nut, verify gasket is seated firmly against the antenna mount base.
8. Apply firm downward pressure to mount base, ensuring gasket is fully seated against mounting surface.
9. Gently pull cables downward, then horizontally into the cable relief slot as shown in **FIGURE 2**. **NOTE:** It may help to temporarily tape the cables to the bottom side of the mounting surface in order to hold them in the slot location until the nut is completely fastened with proper torque.

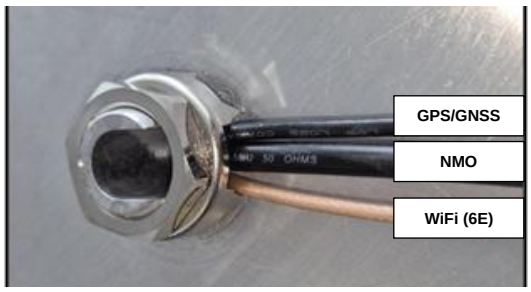

Figure 2. Bottom View Installation, Low Profile Cable Exit

Antenna	Color Code	Jumper Cable	Radio Port
NMO	Orange	"B" RG-58/U	VHF/UHF/7-800
GPS/GNSS	Blue	None, Direct Attachment	GPS/GNSS
WiFi (6E)	Black	"C" LL195	WiFi (6E)

Table 1. Radio/Antenna Cable Color Code Configuration

10. Attach and thread the Lock Washer-Nut to the threaded stanchion using hand torque only until toothed lock washer stops against the bottom side of the mounting surface. **See FIGURE 2**.
11. Determine the final rotational position of the base mount and begin to apply light torque with wrench.
12. Verify final position of base mount. Firmly secure the assembly by using a torque wrench. Torque the Lock Washer-Nut to a minimum of 15 ft-lbs./maximum 20 ft-lbs.
13. Attach jumper cables to their respective color coded Antenna Feed Cables. Secure the couplings with light torque.
14. Route all cables to radio/receiver locations. **NOTE:** Jumper Cable configurations terminated with FME connector requires FME Coaxial adapter (sold separately), or simply remove the FME termination by cutting, and install required connector.