

RXA-52

MULTI-FREQUENCY, MULTI-CONSTELLATION, GNSS ANTENNA

Thank you for choosing TeeJet Technologies' RXA-52 as your GNSS antenna solution. This document provides instructions for mounting and operation of the RXA-52. Contact a local dealer for more information or visit www.teejet.com.

The RXA-52 is an active antenna designed to receive signals from GPS, GLONASS, BeiDou and Galileo satellites as well as L-Band signals.

The RXA-52 antenna is designed to operate in GPS L1/L2, GLONASS L1/L2 and L-Band frequencies. The RXA-52 also supports the Galileo E1 and E5b frequencies as well as BeiDou B1 and B2 frequencies.

It can be used with any console with an internal GNSS receiver or any device with an antenna input port that both receives the RF signal and provides 3.3 - 18.0 VDC to the antenna.



RXA-52 Kit Includes

- RXA-52 Antenna
- Coaxial Cable, SMA male to TNC male, 20'6 m (part number 45-05619) or 30'9 m (part number 45-05620)
- Mounting Plate (part number 65-05243)

INSTALLATION

Site Selection Guidelines

Before installing the antenna, select a site that as closely as possible meets the following conditions for optimal performance:

- An unobstructed line-of-sight from horizon to horizon and at all bearings and elevation angles
- As far as possible from reflective objects, especially those that are above the antenna and any water bodies, which can be a strong source of multipath reflections
- If obstructions and reflective surfaces are within 100 feet / 30 meters, ensure the site is as high as possible. Otherwise, mount the antenna as close as possible to a reference ground plane, i.e., rooftop, earth, etc., if one exists.
- When mounting the RXA-52 Antenna, a space of at least 5.9 inch / 15 cm between the antenna and any bend in the cable is required. Any length shorter than 5.9 inch / 15 cm puts undue stress on the cable and the enclosure for the RXA-52.
- The antenna should not be mounted where water can pool around it. The antenna housing is designed to withstand rain and splashing, but not submersion in liquids for sustained periods of time.
- Mount the antenna above all other metal objects to avoid multipath. Satellite signals received by the GNSS antenna by a reflection from an object can decrease positioning accuracy. For example, roof racks, large headlight enclosures, etc., can cause multipath that may result in a jump in GNSS position.

Warning! To avoid potential adverse effects, do not locate antennas near any high sources of heat.

Installing the Antenna

After a site has been selected, install the antenna as follows:

1. Mount the antenna on a secure, stable structure using the provided magnetic mounts. A surface mounting plate (Part Number 65-05243) is also available for mounting on non-magnetic surfaces. See Mounting Plate Instructions for details.
2. Attach the TNC connector of the coaxial cable to the antenna's TNC connector. Attach the other end of the coaxial cable to the antenna input port of the receiving device, which must provide power as detailed in the "Specifications" section of this guide. All TeeJet Technologies GNSS receivers provide the necessary power through their antenna RF connectors.

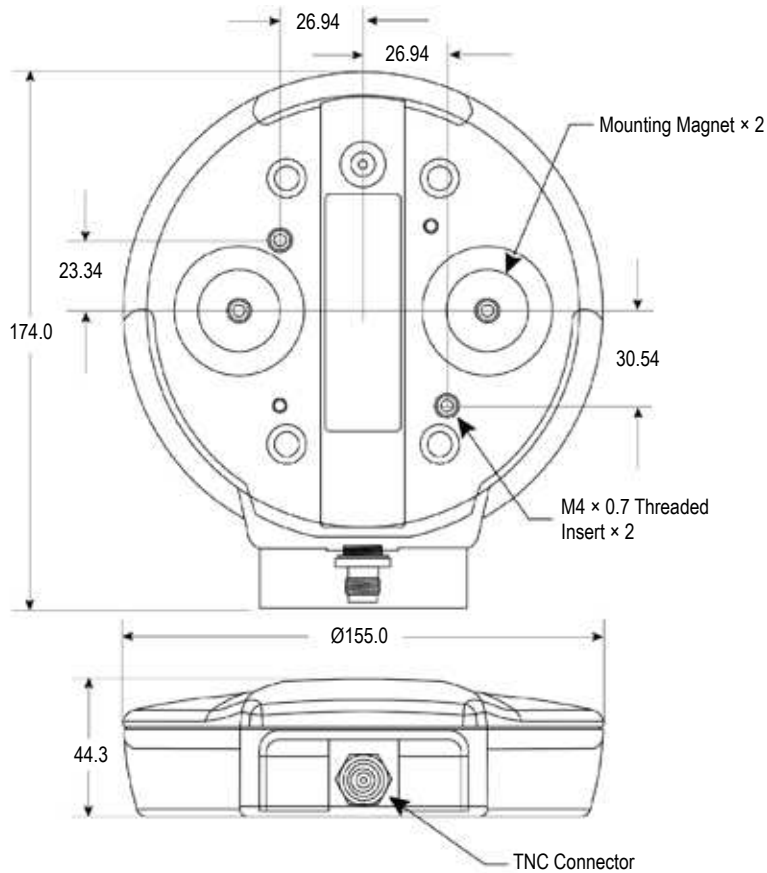
Figure 1: Orientation Example

Orient antenna towards the front of the vehicle.

Route cable toward the back of vehicle.



Figure 2: RXA-52 Dimensions in Millimeters



Mounting Instructions

The RXA-52 is equipped with two (2) built-in magnets for attaching to the included mounting bracket. If a permanent mount for the RXA-52 is required, please contact TeeJet Technologies Technical Support for more information.

Intermediate Mounting Plate Template

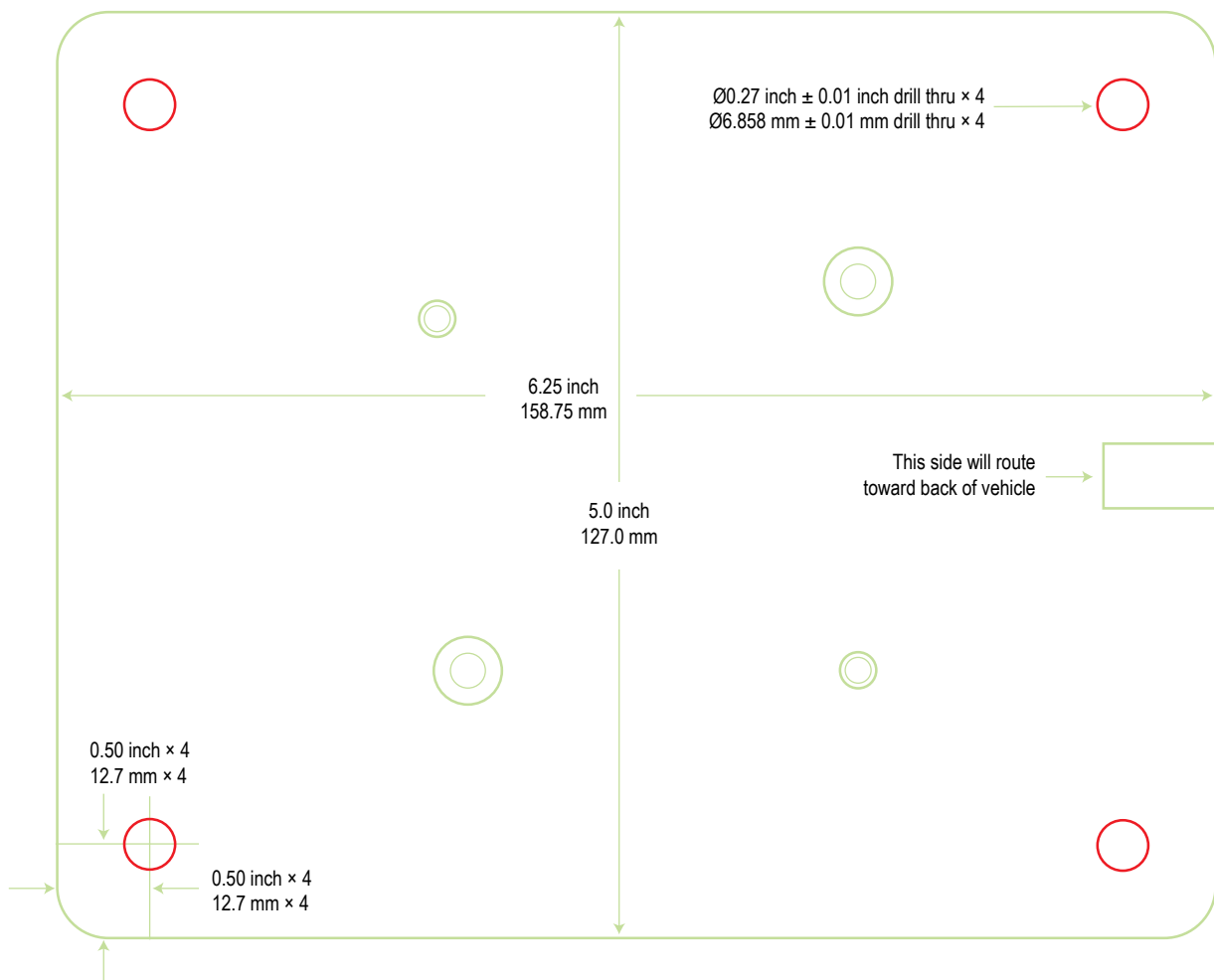
A template for the intermediate mounting plate has been provided below.

- Red circles indicate holes where attachment will occur.
- Green lines indicate the outline of the mount and other holes for attaching the release plate.

WARNING! The optimal screw penetration into the mounting holes is 0.25 inch / 6 mm ($\pm 1/32$ inch / 1 mm) deep. When selecting screws for mounting, ensure the screw penetration does not exceed this specification. Using excessively long screws can damage the antenna enclosure.

Antenna Care

- The RXA-52 is designed to withstand the elements, including rain, snow, and dust.
- However, to ensure your antenna performs optimally, keep the radome (the top surface of the antenna) clean and brush off any ice and snow.



SPECIFICATIONS

Performance

Signal Received

GPS	L1, L2
GLONASS	L1, L2
Galileo	E1, E5b
BeiDou	B1, B2
L-Band	

Pass Band (typical)

Upper passband	1588.0 ± 23.0 MHz
Lower passband	1220.0 ± 31.0 MHz
L-Band	1555.0 ± 10.0 MHz

Out-of-Band Rejection

Band edges ± 50 MHz	15 dB (typical)
Band edges ± 100 MHz	25 dB (typical)

LNA Gain (typical)

L1	34 dB
L2	38 dB

Gain at Zenith (90°)

L1/B1/E1/G1	+4.0 dBic minimum
L2/B2/E5b/G2	+4.0 dBic minimum
L-Band	+4.0 dBic minimum

Gain Roll-Off (from Zenith to Horizon)

L1/B1/E1/G1	12 dB
L2/B2/E5b/G2	12 dB
L-Band	12 dB

Phase Center Stability

.....	<5.0 mm
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Polarization

.....	Right-hand circular
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Noise Figure

.....	2.5 dB (typical)
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VSWR

.....	≤2.0 : 1
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L1-L2 Differential Propagation Delay

.....	7 ns (maximum)
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Group Delay Ripple

.....	<15 ns
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Nominal Impedance

.....	50 Ω
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Physical and Electrical

Dimensions

.....	6.1 in W × 1.77 in H × 6.85 in L
.....	155 mm W × 45 mm H × 174 mm L

Weight

.....	15.88 oz / 450 g
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Mounting

.....	2 × magnetic mounts
.....	2 × M4 screw inserts

Power

Input voltage	+3.3 to +18.0 VDC
Current	20 mA (typical)

Environmental

Temperature

Operating	-40°F to +185°F / -40°C to +85°C
Storage	-67°F to +185°F / -55°C to +85°C

Humidity

.....	95% non-condensing
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Salt Fog

.....	MIL-STD-810G (CH1), 509.6
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Water/Dust Resistance

.....	IP67, IP69K
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Vibration (operating)

Random	MIL-STD-810G (CH1), 514.7 (15 g) Annex E
.....	Procedure 1, Category 24

Shock

.....	MIL-STD-810G (CH1), 516.7 (40 g) Procedure 1
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Bump

.....	IEC 60068-2-27 Ea (25 g)
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Compliance

.....	FCC, CE, ISED
RoHS	EU Directive 2011/65/EU

Warranty

1 year from Date of Purchase