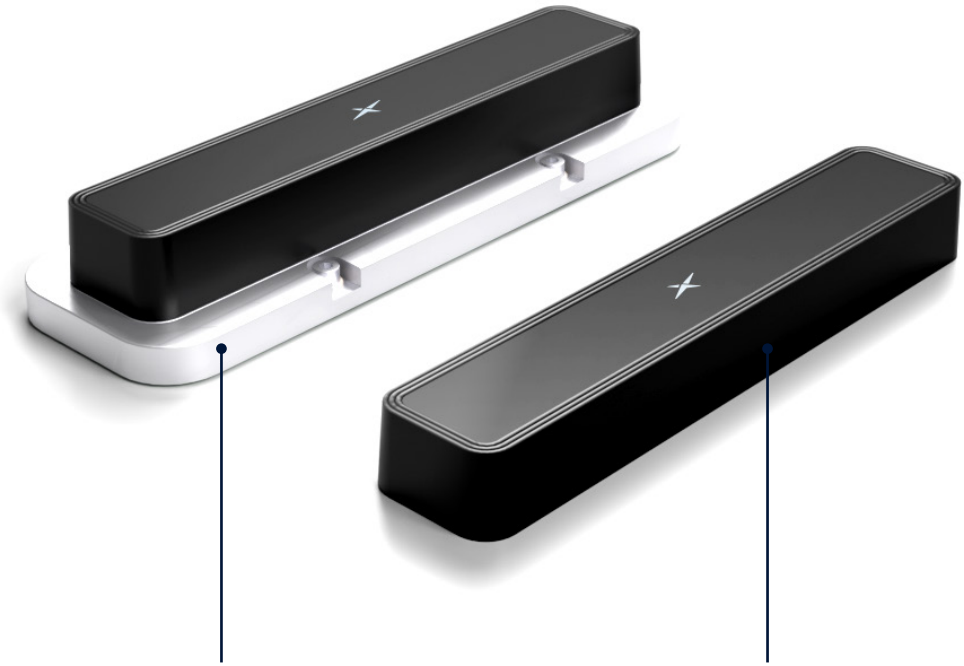
Antenna Installation Instructions

Raptor X MA8020 Rail Series



With Mounting Plate
Pages 2-5

Without Mounting Plate
Pages 6-8

Installation Instructions

Raptor X MA8020 Rail Antenna Series

Mounting Instructions - With Mounting Plate

A Introduction

The Taoglas MA8020 represents a new generation of railway-certified multi-function antennas, built on the proven Raptor X platform. Re-engineered specifically for rail applications, it delivers reliable, high-speed connectivity for train-to-ground communication, passenger services, and real-time operational systems.

Optimised for demanding rail environments, the MA8020 is engineered to meet stringent EN50155 railway standards for mechanical and RF performance and adheres to EN45545 fire safety requirements, ensuring long-term reliability, safety, and compliance in rolling stock installations.



Electrical Safety

The Raptor X contains an active GPS/GNSS antenna. Rated voltage: 3-5V DC Rated current: 20mA maximum

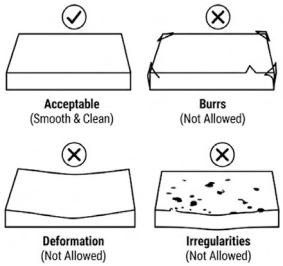
The supply to this device must be provided with overcurrent protection of 1A maximum.

Power consumption @3.3V - 16.8 mA | Input Voltage (V) - +1.8 to 5.5

B Mounting Surface Requirements

The mounting surface shall be flat and rigid, with a flatness tolerance not exceeding 0.5 mm. The surface finish shall comply with roughness grade N8 in accordance with ISO surface texture standards.

The mounting base material shall have a minimum thickness of 6 mm. The surface shall be free from burrs, deformation, and irregularities that could affect proper installation or load distribution.



C Surface Preparation

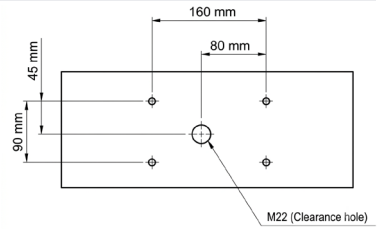
The mounting area shall be cleaned to bare metal prior to installation. All coatings and contaminants—including paint, corrosion products, anodized layers, dust, machining chips, burrs, oil, and grease—shall be completely removed. The surface shall be dry, smooth, and free of residues that could impair mechanical contact bonding.



D Mounting

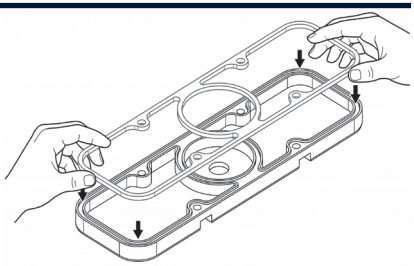
Drill a central hole of M22 Clearance Hole at the specified location on the mounting plate. Ensure the hole is perpendicular to the surface and free from burrs after drilling.

Verify all hole positions and dimensions before installation to ensure proper alignment of the assembly.



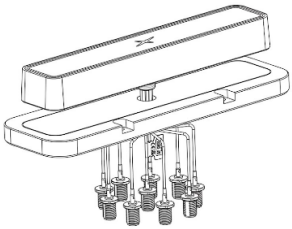
E Gasket Installation

Position the gasket over the mounting plate and align it with the designated groove features. Press the gasket uniformly into the groove along its entire perimeter until it is fully seated. Ensure correct alignment and verify that the gasket is not twisted, stretched, or protruding outside the groove.



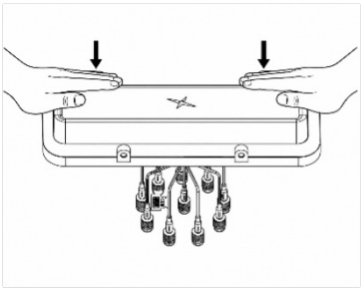
F Cable Routing and Connection

Route all cables through the central hole in the mounting plate as shown and ensure the cables pass freely without twisting, bending, or pinching. Verify that the cable bundle is centred within the hole and that adequate clearance is maintained to prevent damage during installation.



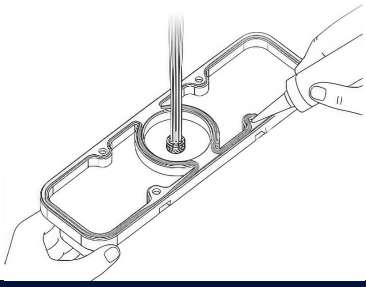
G Stick Antenna to Mounting Bracket

Position the antenna onto the mounting plate, ensuring proper alignment with the mounting features and central hole and align to the embossed profile. Peel the protective liner from the adhesive surface of the antenna base, ensuring the adhesive surface is not touched or contaminated. Apply uniform downward pressure using both hands as shown to ensure proper seating and full contact of the adhesive with the surface. Avoid shifting the antenna after placement.



H Applying PU Sealant

Apply a continuous and uniform bead of silicone/PU sealant along the designated groove area of the mounting plate as indicated. Ensure complete coverage without gaps or air pockets. The sealant bead shall be consistent in thickness to ensure proper sealing performance. Avoid excess application beyond the groove boundaries.



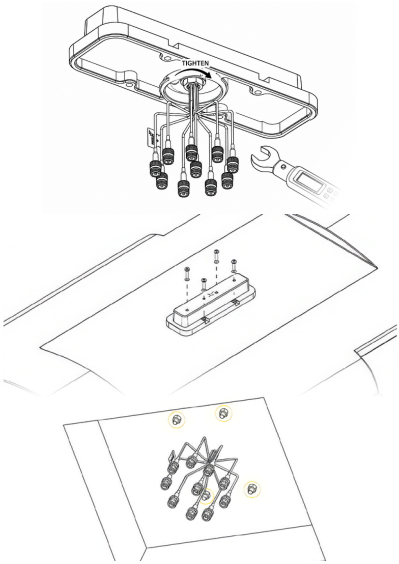
I Mounting on Carriage Surface

Position the open-head torque wrench correctly onto the hex nut, ensuring full engagement and proper alignment. Tighten the fastener clockwise until a torque of 12 Nm is achieved. Apply force steadily and avoid angular misalignment to prevent damage.

Insert mounting screws with washers through the antenna housing into the mounting plate. Ensure proper alignment, then tighten uniformly in a cross pattern.

Pass connector cables through the panel holes from the outside, aligning all threaded sections. Fully insert connectors and install mounting nuts from the inside.

Hand-tighten first to maintain alignment, then securely tighten with a suitable spanner or torque tool.



J Notices

Warning
Handle with care when installing. Dropping the antenna may compromise its performance.

Caution
To comply with FCC RF Exposure requirements in section 1.1310 of the FCC Rules, antennas used with this device must be installed to provide a separation distance of at least 20 cm from all persons to satisfy RF exposure compliance.

Warning
Do not operate the equipment in an explosive atmosphere.

European Waste Electronic Equipment Directive 2012/19/EU
Please ensure that your old Waste Electrical and Electronics are recycled do not throw them away into standard waste.

Hazardous Substances Directive (RoHS) 2011/65/EU / 2015/863/EU
Radio Equipment Directive (RED) 2014/53/EU

Harmonized Standards and References:
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Part 1: Common technical requirements; Harmonized Standard for Electro Magnetic Compatibility

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Installation Instructions

Raptor X MA8020 Rail Antenna Series

Mounting Instructions - Without Mounting Plate

A Introduction

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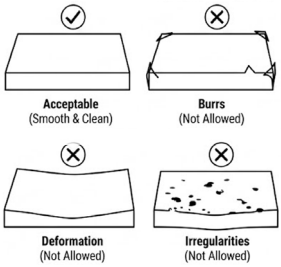
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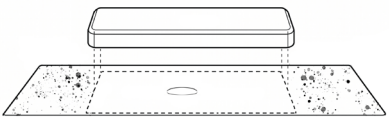


C Surface Preparation

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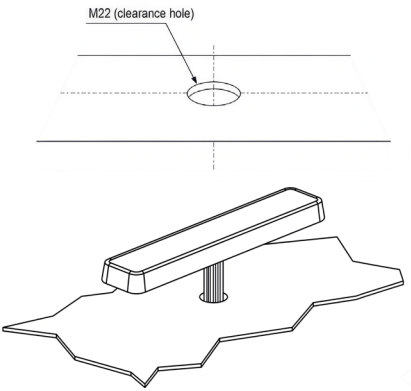


D Mounting

Drill a M22 (Clearance) hole at the specified location on the mounting surface using a suitable hole saw. Ensure the drill is held perpendicular to the surface to maintain dimensional accuracy. After drilling, remove all burrs and clean the area to prepare for installation.

Pass all antenna cables through the drilled central hole in the mounting surface as shown.

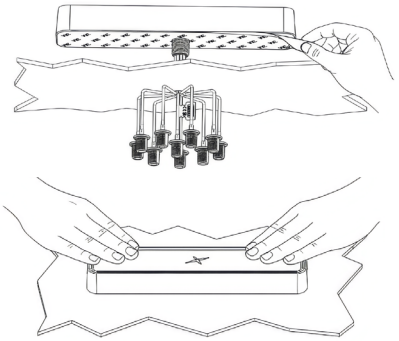
Ensure the cables are routed straight without twisting or sharp bends and verify that no pinching or damage occurs during routing



E Adhesive Mount

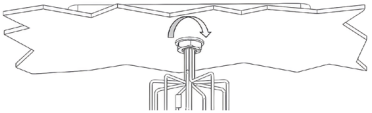
Remove the protective liner from the adhesive surface of the antenna base as shown. Peel the liner gradually from one edge, ensuring the adhesive surface is not touched or contaminated. Proceed with installation immediately after removal to maintain optimal adhesion.

Place the antenna onto the mounting surface and align it with the designated position. Apply uniform downward pressure using both hands as shown to ensure proper seating and full contact of the adhesive with the surface. Avoid shifting the antenna after placement.



F Locking Mounting Nut

Tighten the mounting nut using an open-head torque wrench as shown. Apply torque in the clockwise direction until a value of 12 Nm is reached. Ensure proper tool alignment with the nut to avoid slippage or damage during tightening.



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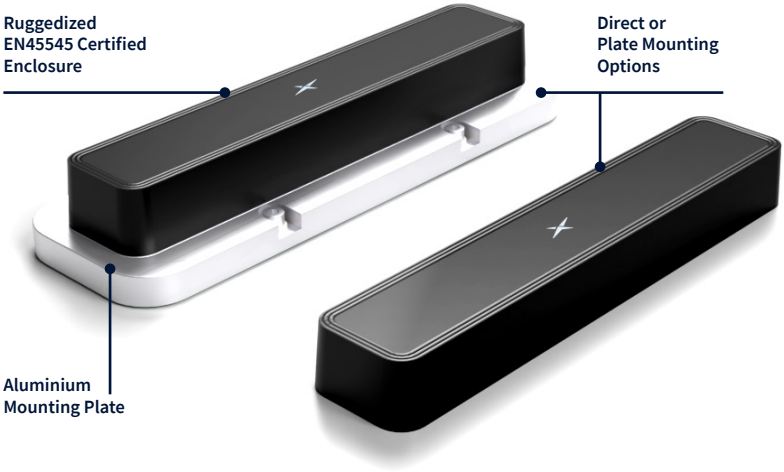
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