PUCK-4

ANTENNAS | PUCK-4 SERIES

3-IN-1 TRANSPORTATION & IOT/M2M ANTENNA

698 - 3800 MHz; 2X2 LTE (MIMO), 6 dBi; GPS/GLONASS, 21 dBi

698 – 960 MHz; 1710 – 2700 MHz; 3400 – 3800 MHz

LTE: 6 dBi GPS: 21 dBi

Omni-Directional

4G LTE

5G Ready

IoT

CBRS Band

Machine to Machine

2x2 MIMO

-40°C to +70°C

Fire Resistant

GPS included

IP 68

APPLICATION AREAS

Urban

Rural/Farm

Marine

Vehicle

Meter

- **3-in-1 high performance multi-frequency antenna**
- **2G/3G/4G/LTE and 5G ready antenna**
- **LTE (2X2 MIMO) & GPS/GLONASS**
- **Wideband frequency range, incl. the CBRS band**
- **Ground plane independent antenna**
- **Robust, vandal resistant and waterproof antenna (IP 68 rating)**
- **Ideal for transportation, marine and IoT/M2M use**
- **Ultra-versatile mounting options for easy installation**

Product Overview

Poynting's new PUCK range offers a small profile antenna for use in the IoT/M2M, Smart Meter, Smart Utilities, Transportation, Marine and the Agricultural/Farming markets. The PUCK-4 consists of a 3-in-1 antenna system within a single housing, featuring 2X2 MIMO LTE, and GPS/GLONASS. The 2X2 Cellular MIMO antennas (for 2G/3G/4G) cover the 698 to 3800 MHz band, this includes the most popular international LTE bands. The third antenna is a high-performance active GPS/GLONASS system operating at temperatures as low as -40°C. The PUCK exceeds the performance of many competitors due to the attention to design of this high-performance antenna. The radiation patterns of all radiating elements provide an excellent balance between omnidirectionality, pattern diversity and good radiation abilities at the desired elevation, which is often overlooked in such a small size antenna. Despite its small size, this antenna provides excellent performance especially at the higher frequency bands, where performance is critical for LTE throughput and connection stability. This antenna is designed so that both the LTE ports are connected to the router/device to ensure the best performance. Please see other derivatives of the PUCK range that are more suitable for a SISO application.

Features

- Small & Low-Profile (Ø100mm x 36mm (h))
- Careful mechanical design provides ruggedness, corrosion, water, and dust resistance (IP68)
- Fire Resistant
- UV Stable Enclosure
- Ground plane independent – performs consistently with and without a ground plane
- 5G Ready – includes the 3.2 GHz to 3.8 GHz CBRS Band
- Easy installation; multi implementation options available:
  - Spigot Mount
  - Magnetic Mount
  - Adhesive Tape Mount
  - Bracket Mount

Application Areas

- Smart Utilities: Smart Power, Gas & Water Metering
- Smart Buildings: Climate control, access control, security, irrigation
- Industrial factory automation, robotic machinery and other M2M systems
- Digital Signage
- Warehouses & Logistic systems
- Transport (Busses, Utility & Public Safety)
- Mining Vehicles & Machinery communications, telemetry, and automation (M2M & IoT)
- Agricultural machinery
- Marine: small boats, yachts near to coastlines or inner waters

Revised: November 2020

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-PUCK-0004-V1-01 REV 6
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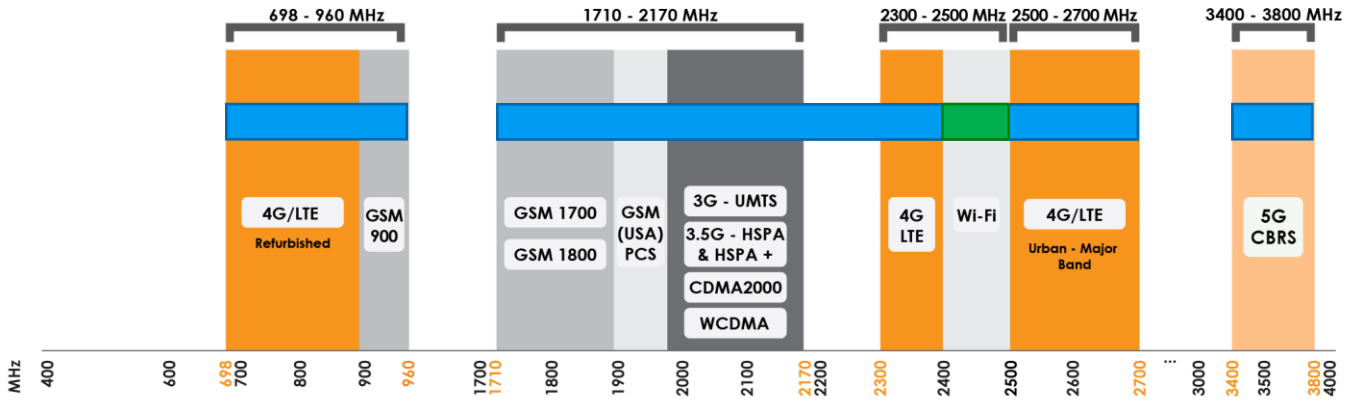
Frequency Bands

The PUCK-4 is suitable for the following cellular frequency bands from | 698 – 960 MHz | 1710 – 2700 MHz | 3400 – 3800 MHz



Indicates the LTE bands on which **PUCK-4** works

Indicates the WI-FI bands on which **PUCK-4** works

Antenna Overview

	LTE	GPS
Ports	1 & 2	3
SISO / MIMO	MIMO	N/A
Frequency Bands	698 - 3800 MHz	1575.42 MHz/1600 MHz
Polarisation	Linear Vertical	Linear Vertical
Peak Gain	6 dBi	21 dBi
Coax Cable Type	RTK-031	RTK-031
Coax Cable Length	2m	2m
Connector Type	SMA (M)	SMA (M)

**The coax cable & connector are factory mounted to the antenna*

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Electrical Specifications

Frequency bands:	698-960 MHz 1710-2700 MHz 3400-3800 MHz
Gain (max):	-1dBi @ 698-960 MHz 6dBi @ 1710-2700 MHz 6dBi @ 3400-3800 MHz
VSWR:	≤2.5:1 across 85% of the bands
Feed power handling:	10 W
Input impedance:	50 Ohm (nominal)
Polarisation:	Linear Vertical
Coax cable loss:	0.43 dB/m @600 MHz 0.56 dB/m @ 900 MHz 0.785 dB/m @ 1800 MHz 0.91 dB/m @ 2400 MHz 1.2 dB/m @ 3000 MHz
DC Short:	Yes

GPS/Glonass Antenna Electrical Specifications

Frequency Range (GPS):	1575.42MHz/1600MHz
Gain (Max):	21+/-2dBi
VSWR:	≤1.5:1
DC Voltage:	2.7-3.3 V
DC Current:	5-15mA
Noise Figure:	≤1.5 dB
Nominal Impedance:	50 Ω
Polarisation:	RHCP
Filter Out Band Attenuation:	12dB Min f0+50MHz, 16dBi Min f0-50MHz
Voltage:	2.7 - 3.3V
Max. Power-W:	50
Coax cable loss:	0.71 dB/m @ 1500 MHz

Product Box Contents

Antenna:	A-PUCK-0004-V1-01
Mounting bracket:	Ø20 Threaded Spigots (Up to 60mm clamping thickness), Adhesive Surface Mounting & Magnetic Mount

Ordering Information

Commercial name:	PUCK-4
Order product code:	A-PUCK-0004-V1-01
EAN number:	6009880915224

Mechanical Specifications

Product dimensions	Ø99.3 mm x 36 mm
Packaged dimensions:	150 mm x 150 mm x 120 mm
Weight:	0.426kg
Packaged weight:	0.557kg
Radome material:	PC+ABS (Halogen free)
Radome colour:	Black
Mounting Type:	Ø20 Threaded Spigot, Pole, Wall, Surface and Magnetic mount

Environmental Specifications, Certification & Approvals

Wind Survival:	<220 km/h
Temperature Range (Operating):	-40°C to +80°C
Environmental Conditions:	Outdoor/Indoor
Water ingress protection ratio/standard:	IP 68 – 30 minutes up to 1.5m
Salt Spray:	MIL-STD 810F/ASTM B117
Operating Relative Humidity:	Up to 98%
Storage Humidity:	5% to 95% - non-condensing
Storage Temperature:	-40°C to +80°C
Enclosure Flammability Rating:	UL 94-HB
Impact resistance:	IK 10
Product Safety & Environmental:	Complies with CE and RoHS standards

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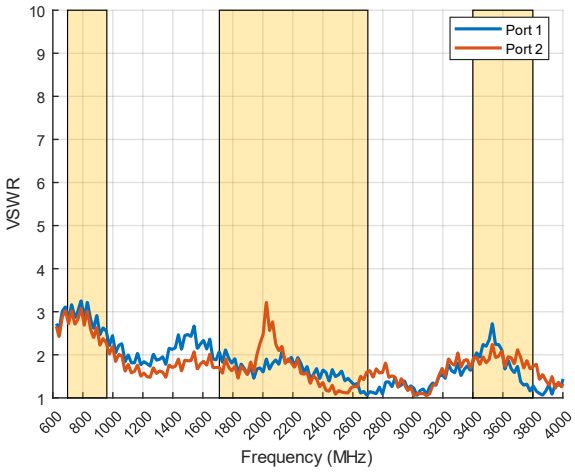
Antenna Performance Plots

VSWR

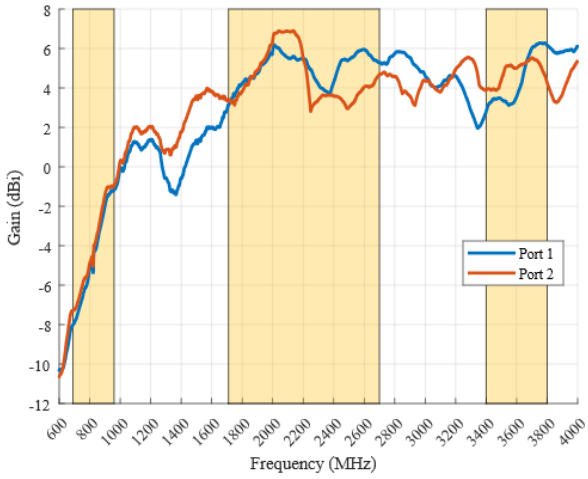


Voltage Standing Wave Ratio (VSWR)

VSWR is a measure of how efficiently radio-frequency power is transmitted from a power source, through a transmission line, into a load. In an ideal system, 100% of the energy is transmitted which corresponds to a VSWR of 1:1.

The PUCK-4 delivers superior performance across all bands with a VSWR of 2.5:1 or better across 85% of the bands.

GAIN (EXCLUDING CABLE LOSS)



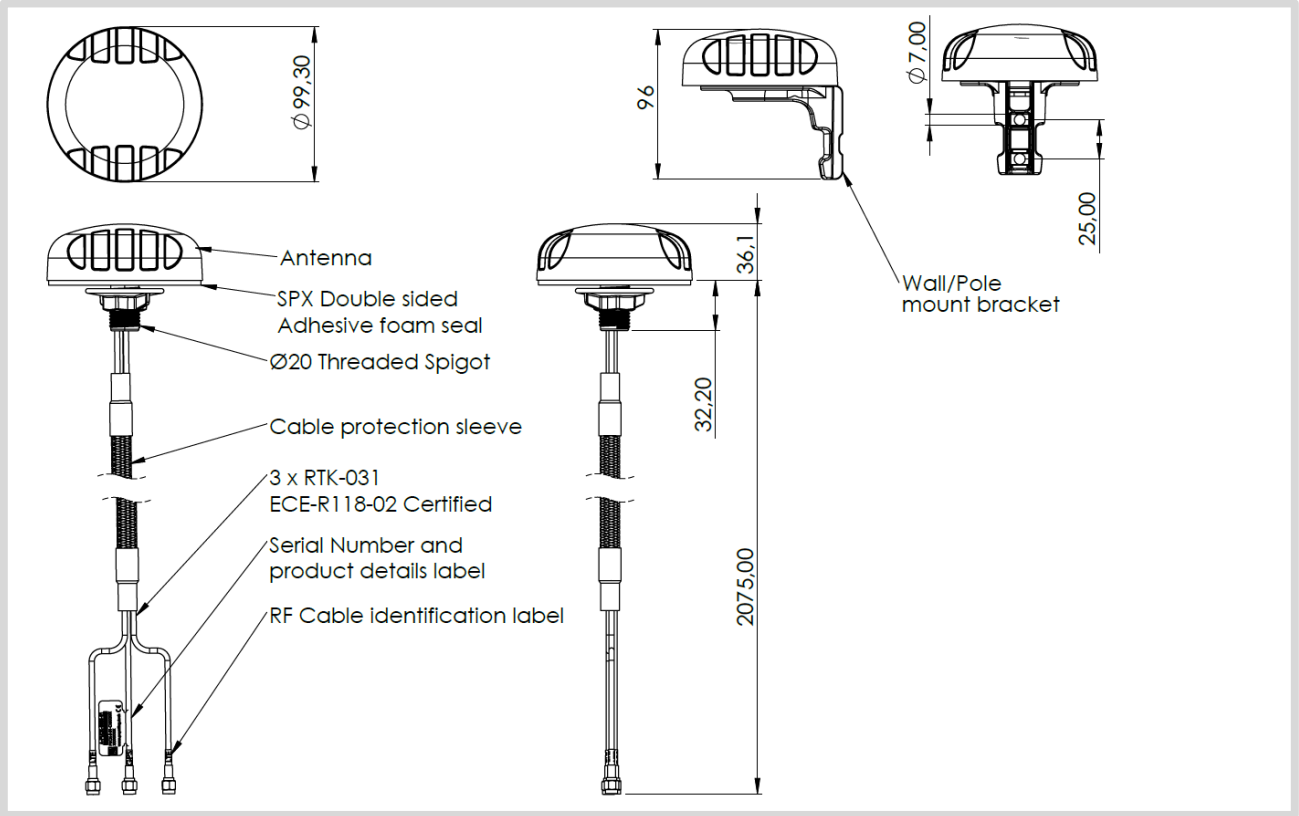
Gain* in dBi

6 dBi is the peak gain across all bands from 698 - 3800 MHz

Gain @ 698 – 960 MHz:	-1 dBi
Gain @ 1710 – 2700 MHz:	6 dBi
Gain @ 3400 – 3800 MHz:	6 dBi

**Antenna gain measured with polarisation aligned standard antenna*

Technical Drawings



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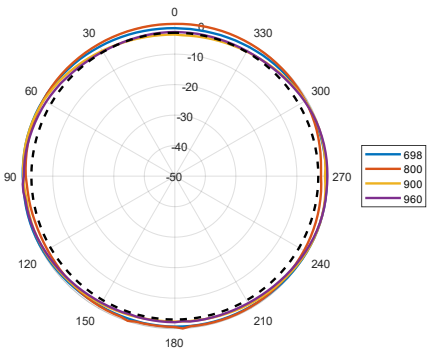
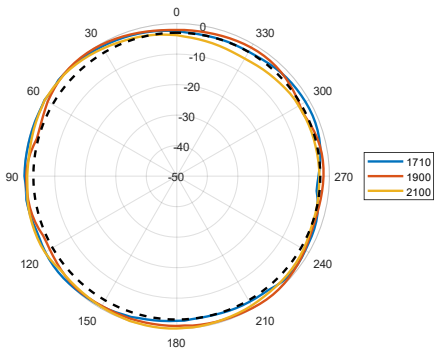
Radiation Patterns – Cellular

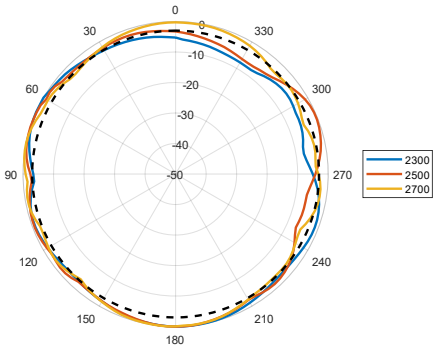
Azimuth (Top View): 698–960 MHz



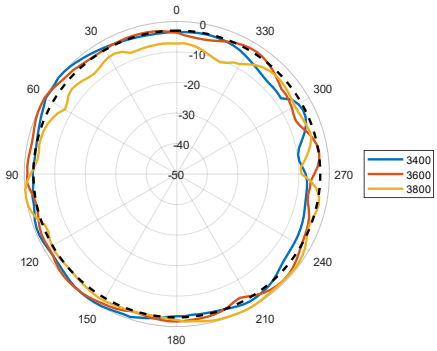
Azimuth (Top View): 1710–2100 MHz



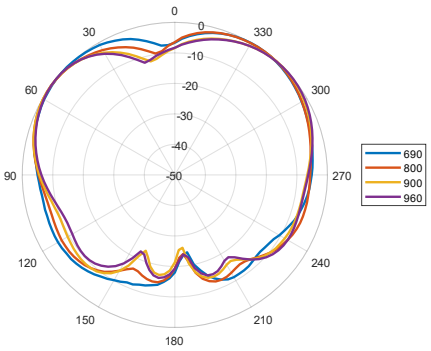
Azimuth (Top View): 2300–2700 MHz



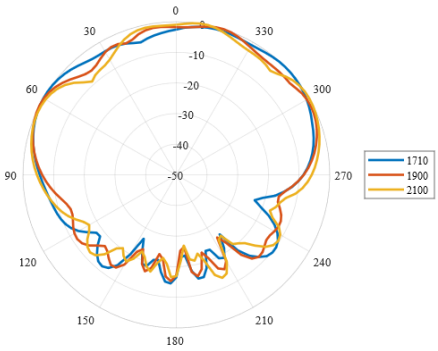
Azimuth (Top View): 3400–3800 MHz



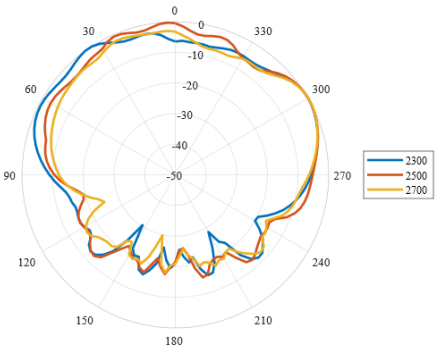
Elevation (Side View): 698–960 MHz



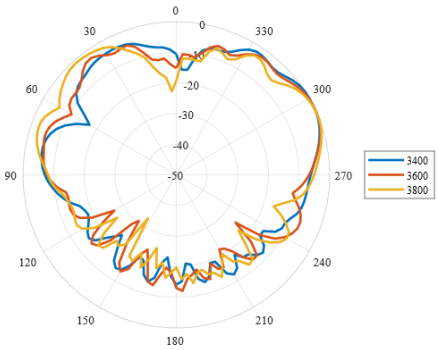
Elevation (Side View): 1710–2100 MHz



Elevation (Side View): 2300–2700 MHz



Elevation (Side View): 3400–3800 MHz



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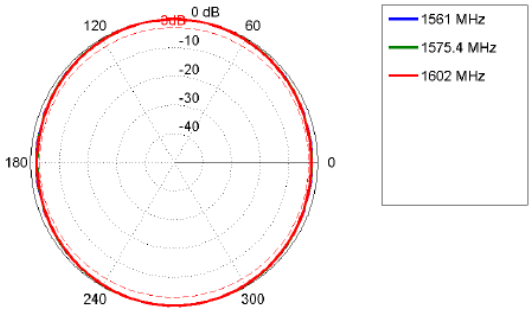
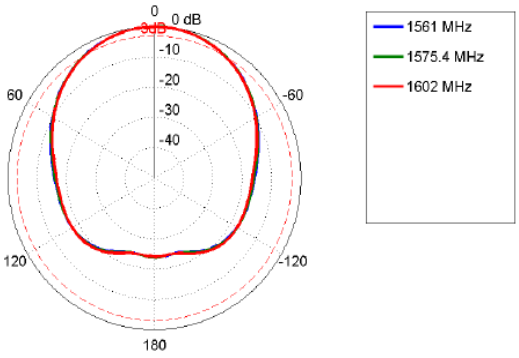
Radiation Patterns – GPS

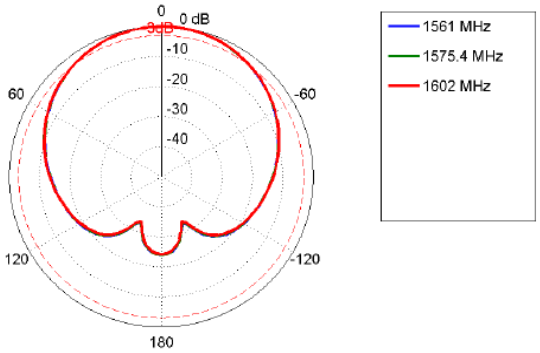
XY Plane: 1561–1602 MHz



XZ Plane: 1561–1602 MHz



YZ Plane: 1561–1602 MHz



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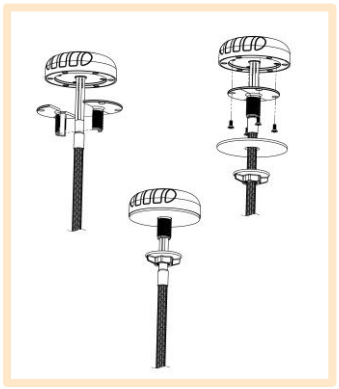
Mounting Options

Many Mounting Possibilities – included as standard

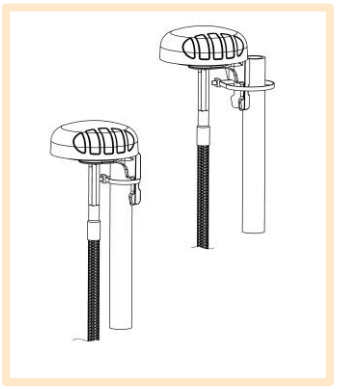
Poynting's new PUCK antenna range provides easy installation with the multiple mounting options. This includes as standard:

- Spigot Mount - two different lengths included (40mm & 80mm)
- Vertical Pole mount (inner & outer mounting for smaller and larger poles)
- Horizontal Pole Mount (e.g. marine rails)
- Magnetic Mount
- Surface Mount (Double Sided Tape)
- Wall Mount



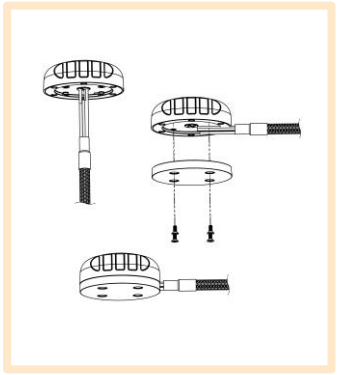
Spigot Mount

Removable 40mm & 80mm threaded spigot (included)



Vertical Pole Mount

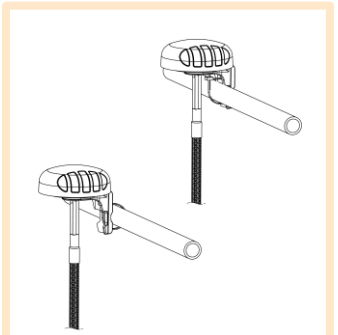
Pole/Wall Mounting bracket (included)



Magnetic Mount

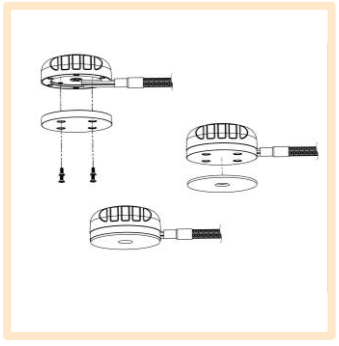
Magnetic Base (included)

For temporary and low mobility installations.



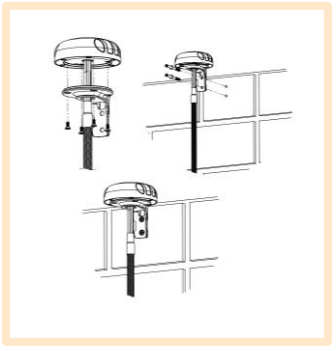
Horizontal Pole Mount

Pole/Wall Mounting bracket (included)



Surface Mount

Adhesive Surface Mounting (included) or can also be directly secured with longer M4 bolts (not included) to the female threaded inserts located in the antenna base



Wall Mount

Pole/Wall Mounting bracket (included)

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Additional Accessories

See accessories technical specifications on www.poynting.tech

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