



MULTI BAND ROOF ANTENNA

UHF/CDMA, GPRS&3G, LTE, Wi-Max, WiFi AND L1 GPS

16100400
DOLPHIN-G

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POLOMARCONI offers a very wide range of wireless products.
Our products can be tailored according to the customer's need.

TRANSPORT

Electrical Specifications

UHF/ CDMA BAND

Frequency range (MHz)	380 ÷ 470
Input impedance (Ω)	50
VSWR	$\leq 1.8:1$
Polarization	vertical
Gain (dBi)	4

GPRS&3G BANDS

Frequency range (MHz)	
GSM 900 band	870 ÷ 960
GSM 1800 band	1710 ÷ 1880
GSM/PCS 1900 band	1850 ÷ 1990
UMTS band	1920 ÷ 2170
Input impedance (Ω)	50
Polarization	vertical
VSWR	$\leq 1.8:1$
Gain (dBi)	6 for GSM 900 band 6 for GSM 1800, GSM/PCS 1900 and UMTS bands

LTE BANDS

Frequency range (MHz)	690 ÷ 862 2500 ÷ 2690
Input impedance (Ω)	50
VSWR	$\leq 1.8:1$
Polarization	vertical
Gain (dBi)	5 for 690 ÷ 862 MHz band 8 for 2500 ÷ 2690 MHz band

Wi-Max BANDS

Frequency range (MHz)	
Wi-Max band	3400 ÷ 3600
Wi-Max additional band	3600 ÷ 3800
Input impedance (Ω)	50
Polarization	vertical
VSWR	$\leq 1.8:1$
Gain (dBi)	7.5

Wi-Fi BANDS

Frequency range (MHz)	2400 ÷ 2500 5150 ÷ 5875
Input impedance (Ω)	50
Polarization	vertical
VSWR	$\leq 1.8:1$
Gain (dBi)	8.0

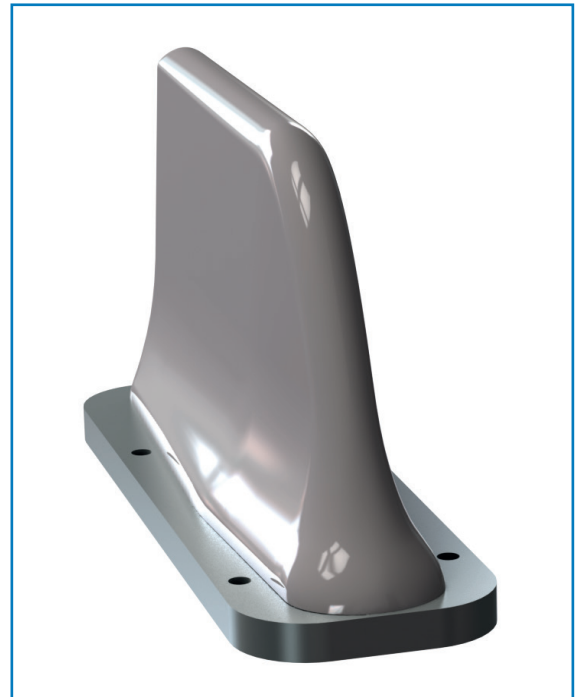
SATELLITE NAVIGATION AND GEOLOCALIZATION BANDS

Frequency band (MHz)	1574.42 ÷ 1576.42
Impedance (Ω)	50
Polarization	Right Hand Circular Polarization (RHCP)
Gain (dBic) @ 90° of elevation	≥ 25 (typ.27), @ $T_0=25^\circ\text{C}$, $V_{DC}=5\text{V}$
Noise Figure (dB)	≤ 2.5 , @ $T_0=25^\circ\text{C}$, $V_{DC}=5\text{V}$
Operating supply voltage (V_{DC})	3 ÷ 6
Current consumption (mA)	≤ 35 , @ $T_0=25^\circ\text{C}$, $V_{DC}=5\text{V}$
Satellite navigation and geolocation supported systems	GPS
Operating Temp. Range ($^\circ\text{C}$)	-40 ÷ +85
Maximum rated RF composite power (W)	100



Patent n° 1548873

Antenna for train with protective means against high voltages.
Patent has been used by SNCF and by the most important producers of trains.





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Mechanical Specifications

Connectors	Silver plated brass
Type of connection	N female connector for UHF / CDMA, GPRS&3G, LTE, Wi-Max and WiFi bands TNC female connector for GPS band
Dimensions (Height x Width x Depth, mm)	165x100x315
Weight (kg)	abt. 1.7
Base material	Aluminium with SURTEC 650 treatment
Radome	High impact polycarbonate
Mounting	on metallic conductive surface (minimum dimensions 800x800mm)
Operating temperature range (°C)	- 40° ÷ +85°

Environmental Specifications

ATMOSPHERIC and CLIMATIC CONDITIONS according to NF EN 60068

Temperature conditions	-40°C, +85°C
Atmospheric pressure	-40°C, +85°C, 95% HR at 2000 m
Rain, hail, snow, frost	1000 mm/h, 1 J impact, 0.5 m, 3 cm
Combined wind and train speed	530 km/h

MECHANICAL CONDITIONS according to NF EN 60068, 61373 and 15-818

Free falls	1 m
Hits (vertical, cross-sectional, longitudinal)	30m/s ² , 30m/s ² , 50m/s ² , 30ms
Impacts	50 J

PREAMPLIFIER EMC according to CEI 61000 and ETSI GSM 11-10

Radiated electromagnetic fields	20 V/m (30 MHz – 1 GHz)
Electrostatic discharges	±15 kV on air, ±8 kV on contact
Pulsed magnetic fields	1000 A/m

GROUNDING and HIGH VOLTAGE PROTECTION according to NF EN 50388 and NF EN 50123

Short-circuit currents flow / time before breaking	70 kA / 5 ms – 40 kA / 100 ms (DC) 31.5 kA / 10 ms – 15 kA / 100 ms (AC)
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MOUNTING FLANGE

Mounting: on a conductive surface with a minimum size of 800x800 mm; it's advisable to keep the mounting surface clean for a better electrical contact.

Mounting flange holes are indicated in the relevant mounting instruction document.

Advantage: amplifier included; there is no need of an external low noise GPS amplifier as the internal GPS signal is already amplified.



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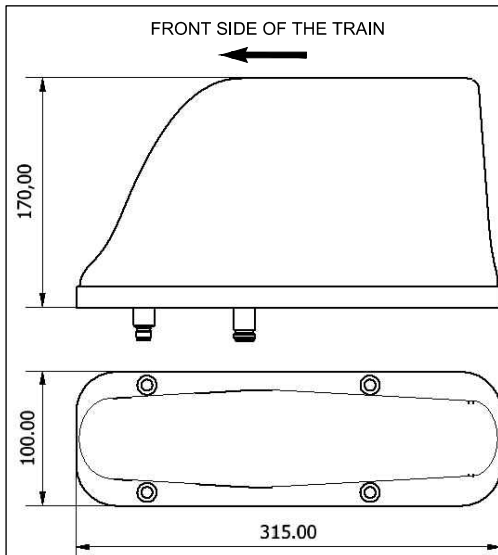
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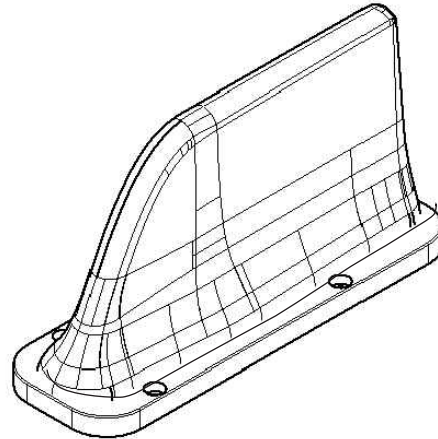
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MOUNTING INSTRUCTION

GENERAL DIMENSIONS



EXPLODED VIEW



MANUAL OF USE:

- 1) In order to guarantee the SECURITY OF THE STAFF, in case of fall of the catenary and consequent contact of the same one with the antenna, it's necessary that the antenna is mounted on conductive surface (metallic) connected to earth.
- 2) For the use of the antenna on glass-reinforced plastic surfaces or however on non metallic surfaces, making sure that the antenna is mounted on a conductive surface (metallic) of minimum dimensions 800x800 mm; IN THIS CASE IS NOT GUARANTEED HOW MUCH BROUGHT BACK TO POINT 1 also maintaining the radioelectric characteristics unchanged.
- 3) For an optimal connection of the antenna with the conductive surface (metallic), before the assembly, strip the zones of contact between surface of antenna's installation and nuts and bolts of implantation.
- 4) The optimal dimensions of the installation conductive surface (metallic) for an optimal radioelectrical performance are 1000x1000mm.

PERFORATION MASKS

