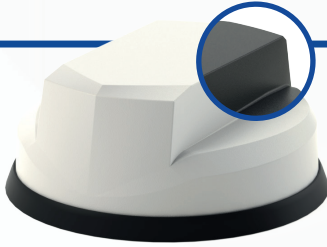




Transportation

PRODUCT CATALOGUE

**IP69K
RATED**



Great White® 5G MiMo Antenna

FEATURES

2x2 MiMo 5G/4G LTE
617-960 / 1710-6000MHz
Optional Integrated GPS/GNSS
Up to 6x6 MiMo WiFi 2.4/5.0GHz
ECE R118.03 Compliant
IK10 & IP69K Rated

The LPMM/LGMM-6-60 range provides effective 2x2 MiMo LTE operation with excellent isolation and low correlation coefficient values. Available in Black or White. Optional GPS/GNSS module incorporates advanced filtering.

Part no.	MiMo LTE	GPS/ GNSS	MiMo WiFi
LPMM-6-60	2x2		
LGMM-6-60	2x2	•	
LGMDM-6-60-24-58	2x2	•	2x2
LGMTM-6-60-24-58	2x2	•	3x3
LGMQM-6-60-24-58	2x2	•	4x4
LGMHM-6-60-24-58	2x2	•	6x6

*Part numbers refer to the white version only
** Part number represents antenna only. Please contact your local sales representative for kit part numbers with full cable assemblies supplied

Bus & Tram

MAKO® 5G MiMo Antenna

FEATURES

4x4 MiMo 5G/4G LTE
617-960 / 1710-6000MHz
Optional Integrated GPS/GNSS
Up to 6x6 MiMo WiFi 2.4/5.0GHz
ECE R118.03 Compliant
IK10 & IP69K Rated

The LPMM4/LGMM4-6-60 range enables multiple antenna functions to be fitted using a single hole mount. Designed for use with LTE Cat 18/20 & 5G routers that require a 4x4 MiMo antenna system. Available in Black or White. Optional GPS/GNSS module incorporates advanced filtering.

**IP69K
RATED**



Part no.	MiMo LTE	GPS/ GNSS	MiMo WiFi
LPMM4-6-60	4x4		
LGMM4-6-60	4x4	•	
LGMDM4-6-60-24-58	4x4	•	2x2
LGMTM4-6-60-24-58	4x4	•	3x3
LGMQM4-6-60-24-58	4x4	•	4x4
LGMHM4-6-60-24-58	4x4	•	6x6

*Part numbers refer to the white version only
** Part number represents antenna only. Please contact your local sales representative for kit part numbers with full cable assemblies supplied

Bus & Tram

Heavy Duty MiMo Transit Antenna

FEATURES

2x2 MiMo 5G/4G LTE
698-960 / 1710-6000MHz
Optional Integrated GPS / GNSS
Fully Rail Industry Certified
IP69K rated

The TRNM[G]-7-60 2x2 MiMo antenna series is designed specifically for use on trains (under/overground), trams and buses. Incorporating two DC grounded wideband elements for 698MHz to 6000MHz, the TRNM(G) range is versatile and future proof.

The TRNM(G)-7-60 series is suitable for use with GSM-R, 800MHz TETRA and trunking bands along with all Cellular LTE/5G bands and 2.4 / 5GHz WiFi.

**IP69K
RATED**



Part no.	MiMo LTE	GPS/ GNSS
TRNM-7-60-NJ	2x2	
TRNMG-7-60-NJ	2x2	•

Train & Tram

**IP69K
RATED**



Heavy Duty SiSo Transit Antenna

FEATURES

5G/4G/3G/2G LTE or UHF
698-6000MHz or 380-520MHz (Banded)
Optional integrated GPS / GNSS
Fully Rail Industry Certified
IP69K rated

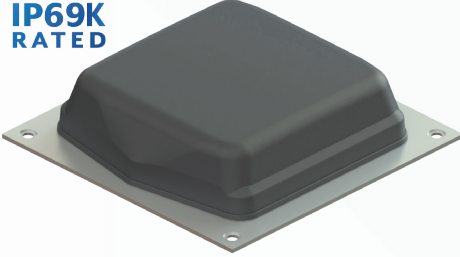
The TRNC[G] series antenna has been designed specifically to meet railway engineering standards and features a DC grounded radiating element.

The TRNC antenna has a heavy duty cast aluminium base and is housed in a high impact, flame retardant radome moulded in Ultem which provides ingress protection to IP69K.

Part no.	LTE	GPS/ GNSS	WiFi	UHF
TRNC-7-60	•			•
TRNCG-7-60	•	•	•	
TRNC-TET/S4				•
TRNCG-TET/S4		•		•

Train & Tram

**IP69K
RATED**



4x4 MiMo 4G/5G Transit Antenna

FEATURES

Low Profile Transit Antenna

4x4 MiMo 617-960/1427-6000MHZ

Up to 4x4 MiMo WiFi 6e

Up to 2x GPS/GNSS L1 or

1x GPS/GNSS L1/L2/L5

Meets Railway Standards EN50155,
EN45545-2 and EN50124-1

The TRNM[X]4-6-60[-X] MiMo antenna series is designed specifically for use on trains (under/overground), trams and buses.

Incorporating four wideband elements, covering 617MHz to 6000MHz the TRNM[X]4-6-60[-X] range is versatile and future proof.

Part no.	4x4 MiMo LTE	GPS/ GNSS	MiMo WiFi
TRNMG4-6-60-Q	•	•	4x4
TRNMG4-6-60-T	•	•	3x3
TRNMG4-6-60-D	•	•	2x2
TRNMG4-6-60-S	•	•	SiSo
TRNMG4-6-60	•	•	
TRNM4-6-60	•		

Train & Tram

2x2 MiMo Dash Antenna

FEATURES

2x2 MiMo 5G/4G LTE

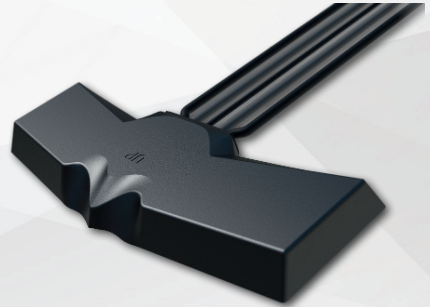
617-960 / 1710-6000MHZ

Optional Integrated GPS/GNSS

Optional SiSo or 2x2 MiMo WiFi 2.4/5GHz

Compliant with ECE R118.03 fire safety

The Panorama BAT range is an ideal 2x2 MiMo 4G/5G antenna for Covert installations with fall back capability to 3G/2G. It can also incorporate a GPS/GNSS antenna and Single or 2x2 MiMo dual band WiFi antenna(s).



Part no.	MiMo LTE	GPS/ GNSS	WiFi	MiMo WiFi
BATM-7-60	2x2			
BATGM-7-60	2x2	•		
BATGM-7-60-S24-58	2x2	•	•	
BATGM-7-60-24-58	2x2	•		2x2

Bus | Train | Tram

The Fez Antenna

FEATURES

- 5G/4G/3G/2G LTE
- 617-6000MHz
- Optional 1x, 2x2 or 4x4 MiMo WiFi
- Optional integrated GPS/GNSS antenna
- Ground plane independent

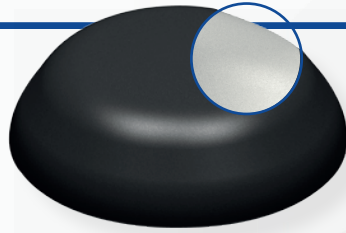
The Fez is a range of robust, compact low profile antennas incorporating a SiSo wideband cellular element covering 617-6000MHz. Versions are available with an active GPS/GNSS antenna and Single, 2x2, or 4x4 MiMo dual band WiFi.

**IP69K
RATED**



Part no.	LTE	GPS/ GNSS	WiFi	MiMo WiFi
LPE-6-60	•			
LGE-6-60	•	•		
LGE-6-60-SW	•	•	•	
LGE-6-60-DW	•	•		2x2
LGE-6-60-QW	•	•		4x4

Bus



**IP65
RATED**

LowProfile UHF Antenna

FEATURES

- 380-520 (Banded) or 806-870MHz
- Optional GPS/GNSS antenna (LG type)
- Rugged design for heavy duty applications
- Easy installation
- Ground plane Independent

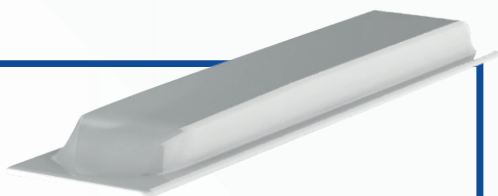
The Panorama UHF low profile antenna range has been designed to perform under extreme conditions. The radome is designed to withstand high impacts and is IP65 rated.

*The standard antenna tuning is suitable for use without a groundplane - on request it can be supplied tuned for installation on a metal panel.

Part no.	Frequency (MHz)
LP390	380-400
LP420	410-430
LP440	430-450
LP460	450-470
LPL-S5	806-870

LG versions available with GPS/GNSS
White cover version upon request

Bus



Low Profile Multi-function VHF Bus Antenna

FEATURES

- 2x2 MiMo 5G/4G LTE
- 698-6000MHz
- 2x2 MiMo WiFi 2.4/5.0GHz
- VHF (tuned to customer frequency requirements within range 136-208MHz)
- Integrated GPS/GNSS (L1 or L1/L2L5)
- Rugged, heavy duty design
- Ground plane independent

The LG[X][VAR]-7-60-[X]W features a wideband VHF antenna, 2x2 MiMo Cellular, 2x2 MiMo WiFi and GPS/GNSS.

The antenna can be supplied with 1 or 2x 24mm (1") threaded mounting bushes.

Part no.	MiMo LTE	GPS/ GNSS	MiMo WiFi	VHF
LG[X][VAR]-7-60-[X]W	2x2	●	2x2	●

UHF Centre-fed Dipole Antenna

FEATURES

- Covert application
- No-hole installation
- Can be removed without a trace

The EF series UHF internal glass mounting antenna provides a low visibility antenna solution for discreet and covert installations or simply where a simple adhesive fitment is desired.

The antenna tuning is optimised to match a range of different automotive glass types to provide consistent performance in a wide range of vehicles and mounting positions.



Part no.	Frequency (MHz)
EF-S1	380-400
EF-S2	410-430
EF-TET	380-430
EF-442	420-465
EF-460	450-470
EF-486	458-515

Bus

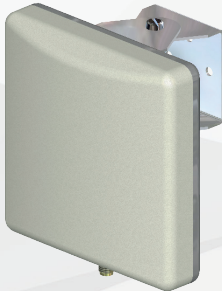
Bus

SiSo WiFi Panel Antenna

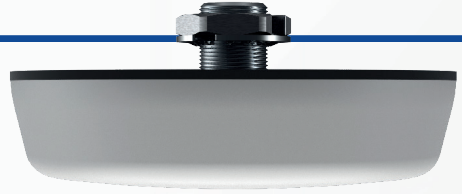
FEATURES

- Covers 2.4 & 5GHz dual band WiFi
- High gain directional antenna
- Ideal WiFi coverage extender

The W24-58-CP-9 is a 9dBi gain dual band WiFi antenna covering 2.4 & 5GHz bands. The antenna can be used internally or externally and has 60° beam width in both azimuth and elevation planes.



Part no.	WiFi
W24-58-CP-9	•



Low Profile Internal MiMo WiFi

FEATURES

- Up to 4x4 MiMo WiFi 2.4/5.0GHz
- Ceiling mount
- Low profile, robust housing
- EN50155, EN45545-2 & UN ECE R118.03

The CM(x)-24-58 range provides a compact, robust internal WiFi antenna with 2x2, 3x3 or 4x4 MiMo function. It is ground plane independent and has integral ultra-low loss coax cables with pre-fitted connectors. The antenna compliance ensures that it is suitable for use in buildings, railway rolling stock and other transportation.

Part no.	MiMo WiFi
CM2-24-58	2x2
CM3-24-58	3x3
CM4-24-58	4x4



Stingray SiSo Antenna

FEATURES

Cellular, WiFi and GPS/GNSS included
 Dashboard or windshield mount
 Suitable for M3 category vehicles
 (Compliant with UN ECE R118.03)

This internal antenna offers a “3 in 1” solution ideal for telematics or other vehicle communications, where the antenna needs to be fitted discretely or for a “no hole” installation. The compact housing incorporates antennas for LTE / Cellular, Dual Band WiFi and GPS/GNSS.

Meeting the requirements of UN ECE R118.03, the antenna is suitable for use in M3 Category vehicles (Transportation). The antenna housing is UV resistant and flame retardant, while the integrated coax cables are flame retardant, low smoke specification.

Part no.	Termination
GPSCO-7-27-24-58	SMA
GPSCOF-7-27-24-58	FAKRA

LTE+GNSS Puck Antenna

FEATURES

Mount on or under dashboard
 Cellular/LTE and GPS/GNSS
 Suitable for telematics or IOT applications

The GPSC-7-27 range of telematics antennas offer a 2-in-1 product for vehicle communications and telematics. The housing incorporates antennas for Cellular/LTE and GPS/GNSS with a 30dB gain LNA.



Part no.	Termination
GPSC-7-27-3SP	SMA
GPSC-7-27-3FAKRA	FAKRA

Internal SiSo LTE Antenna

FEATURES

- 5G/4G/3G/2G LTE
- 698-2700MHz (EF-BC3G-26)
- 600-6000MHz (EF-6-60)
- Simple adhesive pad fitment
- Can be fitted on glass or plastic panel

The EF antenna is a low cost single antenna available in 2 versions that cover either 698-2700MHz or 617-6000MHz. The antenna is designed to be installed on glass, but can also be fitted on any non-conductive surface. With correct spacing, a pair can be installed to provide a covert 2x2 MiMo antenna system.



Part no.	Termination
EF-BC3G-26-3SP	SMA Male
EF-6-60-3FAKDJ	FAKRA D Jack
EF-6-60-3SP	SMA Male

**IP66
RATED**



MiMo LTE Panel Mount

FEATURES

- 2x2 MiMo 5G/4G LTE
- 698-3800MHz
- Optional integrated GPS/GNSS antenna
- Robust and cost effective
- Magnetic version available
- Low profile and weatherproof housing

The LP[G]AM-BC3G-26 range has been designed to provide MiMo LTE / Cellular antenna function for IOT and M2M applications. The compact, robust low-profile housing is weatherproof and contains two antenna elements with effective isolation.

Part no.	MiMo LTE	GPS/GNSS	Magnetic
LPAM-BC3G-26	2x2		
LGAM-BC3G-26	2x2	•	
LPAMM-BC3G-26	2x2		•
LGAMM-BC3G-26	2x2	•	•

Vending Machine | Card Machine

Vending Machine | Card Machine

**IP66
RATED**



MiMo LTE & WiFi Panel Mount

FEATURES

- 2x2 MiMo 5G/4G LTE
698-3800MHz
- 2x2 MiMo WiFi 2.4/5.0GHz
- Optional integrated GPS/GNSS
- Robust and cost effective solution
- Low profile design

The LP[G]AM-7-27-24-58 has a compact housing and is ideal for vending machines, payment terminals and other M2M type applications.

Part no.	MiMo LTE	GPS/ GNSS	MiMo WiFi	Magnetic
LPAM-7-27-24-58	2x2		2x2	
LGAM-7-27-24-58	2x2	•	2x2	
LPAMM-7-27-24-58	2x2		2x2	•
LGAMM-7-27-24-58	2x2	•	2x2	•

4G/5G MiMo IoT Antenna

FEATURES

- Low Profile 2x2 MiMo Antenna for 4G/5G
- Optional GPS/GNSS
- Optional up to 4x MiMo WiFi 2.4/5.0/7.2GHz
- Meets IP69K for ingress protection

The LP[G]AM[F]-6-60 platform has 2x2 MiMo function for 4G/5G (617-960/1427-6000MHz) and the option of 2x2, 3x3 or 4x4 MiMo dual-band WiFi, which supports WiFi 6E. An optional active antenna for GPS/GNSS can be included, with 26dB gain LNA and advanced filtering for LTE Band 13/14 operation.



Part no.	MiMo LTE	GPS/ GNSS	MiMo WiFi
LPAM-6-60	2x2		
LGAM-6-60	2x2	•	
LPAM-6-60-D	2x2		2x2
LGAM-6-60-D	2x2	•	2x2
LGAM-6-60-Q	2x2	•	4x4

Vending Machine | Card Machine

Vending Machine | Card Machine

Low Profile External MiMo WiFi

FEATURES

- Up to 4x4 MiMo WiFi 2.4/5.0GHz
- Rugged Low Profile Design
- Ground plane independent
- Optional integral GPS/GNSS*
- EN50155 certified
- IP69K rated

The LPM/LGM(x)-24-58 range provides a compact, robust roof top WiFi antenna with 2x2, 3x3 or 4x4 MiMo function. It is ground plane independent and has integral ultra-low loss coax cables with pre-fitted connectors.

The antenna compliance ensures that it is suitable for use on railway rolling stock and other transportation.



Part no.	MiMo
LPM2-24-58	2x2
LPM3-24-58	3x3
LPM4-24-58	4x4

*GPS/GNSS version upon request

Router

Low Profile Puck Antenna

FEATURES

- Low Profile 'Hockey Puck' Design
- 3G/4G+ Functionality
- Optional SiSo dual band WiFi
- Optional GPS/GNSS
- Suitable for M2M and IOT Installations

The Panorama LPP-7-38 range is a cost effective antenna solution for M2M and IOT applications in the range of 698-960/1710-3800MHz. Versions are also available with GPS/GNSS and/or dual band WiFi. The antenna has a robust low profile, compact enclosure and is ideal for applications where a discreet antenna is required.



Part no.	Termination	Cable Length
LPP-7-38-1SP	SMA Male	1m (3')
LPP-7-38-3SP	SMA Male	3m (10')
LPP-7-38-IFAK	FAKRA D	1m (3')
LPP-7-38-3FAK	FAKRA D	3m (10')
LPP-7-38-24-58-1SP	SMA Male	1m (3')
LPP-7-38-24-58-3SP	SMA Male	3m (10')
LPP-7-38-24-58-IFAK	FAKRA D	1m (3')
LPP-7-38-24-58-3FAK	FAKRA D	3m (10')

*LGP versions include GPS/GNSS

Router



Panel Mount SiSo Antenna

FEATURES

Covers 5G/4G/3G/2G LTE
617-6000MHz

Low Profile, compact design
High impact resistant housing

The Panorama LPB 5G low profile antenna range has been designed to perform in harsh environments with a robust high impact radome only 82mm (3.2") high.

The LPB covers global LTE/5G and other cellular bands in the range 617-6000MHz, making it an extremely versatile product.

Part no.	Termination	Cable Length
LPB-6-60-05SP	SMA Male	0.5m (1.6')
LPB-6-60-2SP	SMA Male	2m (6.6')
LPB-6-60-2F	FME Female	2m (6.6')
LPB-6-60-5SP	SMA Male	5m (16.4')
LPB-6-60-5F	FME Female	5m (16.4')

Vending Machine | Card Machine

4G/5G Bracket Mount Antenna

FEATURES

Cost Effective 2G/3G/4G/5G antenna
617-960 / 1710-6000MHz

Bracket for wall or mast mount
Integrated low loss cable

The B4BE-6-60 antenna is a cost effective omni-directional bracket mount antenna for cellular devices covering 617-960/1710-6000MHz and is suitable for external or internal installation. The omni-directional radiation pattern allows easy installation of the antenna in an elevated position.



Part no.	Termination	Cable Length
B4BE-6-60-05SP	SMA Plug	0.5m (1.6')
B4BE-6-60-2SP	SMA Plug	2m (6.6')
B4BE-6-60-5SP	SMA Plug	5m (17')

Vending Machine | Card Machine

Coming soon

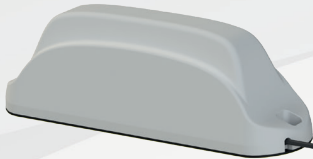
4G/5G IoT SiSo Antenna

FEATURES

- High Performance SiSo IoT Antenna
698-960MHz & 1427-4200MHz
- Adhesive/Screw Mount (Panel Mount on request)
- Optional active GPS/GNSS antenna (Panel Mount version only)
- Integral FR rated RG174 cable with SMA or FAKRA connector

The LP[G]-7-42 series is a high performance SiSo antenna for IoT applications, including ticket machines and destination boards. It covers all the main cellular bands up to 4200MHz, providing future proof function. The standard version has a flat base with adhesive and/or screw mounting with a panel mount version available on request.

The integral RG174 cable is FRZH type and available with SMA or right angle FAKRA connector.



Part no.	GPS/ GNSS	Termination	Cable Length
LPA-7-42-2SP		SMA Plug	2m (6.6')
LPA-7-42-2RFDJ		right angle FAKRA	2m (6.6')
LPAP-7-42-2SP		SMA Plug	2m (6.6')
LPAP-7-42-2RFDJ		right angle FAKRA	2m (6.6')
LGAP-7-42-2SP	●	SMA Plug	2m (6.6')
LGAP-7-42-2RFDJ	●	right angle FAKRA	2m (6.6')

Vending Machine | Card Machine



WiFi 2.4/5.0GHz Easyfit Antenna

FEATURES

- Adhesive Mount Antenna
- Install on Window or plastic panel
- Dual Band WiFi 2.4/5.0GHz
- SMA or FAKRA I connector options

EF-24-58 is an efficient and easy to install antenna for providing WiFi connectivity. The compact antenna can be easily positioned on a device plastic housing or vehicle windscreen using the supplied automotive industry grade adhesive pad.

Versions are available with Rev pol SMA plug, Std SMA plug or FAKRA I jack connectors.

Part no.	Termination	Cable Length
EF-24-58-3RPSP	Rev Pol SMA	3m (10')
EF-24-58-3SP	SMA Male	3m (10')
EF-24-58-3FIJ	FAKRA I Jack	3m (10')

Vending Machine | Card Machine



M2M & IoT SiSo Antenna

FEATURES

4G/3G/2G Cellular
698-2700MHz

Low profile, vandal & tamper proof design
Simple adhesive pad or screw fix installation
Suitable for mounting on any surface

The LPW antenna provides a robust, effective antenna solution for M2M and IoT applications. The antenna is ground-plane independent, omni-directional and covers all cellular bands, making it a universal and versatile solution. The efficient design of the antenna ensures a reliable network connection even in poor coverage areas.

Part no.	Termination
LPW-BC3G-26-2SP	SMA Male

Wideband Cellular Combiner

FEATURES

Connect two cellular devices into one antenna or connect two antennas to one cellular device

The DBLC-C3G-2N is a low cost, compact, 2 port, 3dB split combiner with low insertion loss and provides around 20dB isolation between the split ports.

It is designed to allow two cellular devices to use a single antenna and is available with N Type or SMA sockets.



Part no.	Termination
DBLC-C3G-2N	N Socket
DBLC-C3G-2SJ	SMA Socket

Vending Machine | Card Machine

Bus | Train | Tram

Coaxial Cables

Panorama offers a large range extension and adapter cables.

Our FRZH type cables are UN ECE R118 and EN45545-1/2 certified. These cables are flame retardant, low smoke and halogen-free.

For project quantity, we can provide custom length and connector configurations.

Part no. C23

VHF / UHF / GPS

Attenuation (per 10m) - 2.5 dB @ 400 MHz, 4 dB @ 1GHz, 5.8 dB @ 2GHz

Outer diameter - 5mm (0.2")



Part no. C29

Cellular 2G/3G/4G

Attenuation (per 10m) - 3dB @ 400MHz, 5dB @ 1GHz, 7.5dB @ 2GHz

Outer diameter - 5mm (0.2")



Part no. C32

4G/5G & WiFi

Attenuation (per 10m) - 2.5dB @ 400 MHz, 4dB @ 1 GHz, 5.8dB @ 2GHz, 11dB @ 6GHz

Outer diameter - 5mm (0.2")



Part no. C240

4G/5G & WiFi (longer lengths)

Attenuation (per 10m) - 1.7dB @ 400 MHz, 2.5dB @ 1 GHz, 3.7dB @ 2GHz, 6.7dB @ 6GHz

Outer diameter - 6.1mm (0.24")



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