



IoT & M2M

Guide for 169MHz, 433MHz
& 868/915MHz Bands



Over 70 Years of Experience

Panorama Antennas is a privately owned family business, now in its third generation, and is a leading designer and manufacturer of antennas for wireless communication. Established in London in 1947, Panorama started life as a manufacturer of consumer products and buoyed by huge demand in 1952, began manufacturing TV components and antennas. With the transistor radio trend of the 1960s, Panorama's expert knowledge swiftly led us into the manufacturing of communication antennas.

Throughout the 70s and 80s, Panorama evolved to become the first specialized communication antenna manufacturer in the UK, developing a range of cellular antennas to coincide with the launch of the mobile phone network in Britain. 1990 was a year of huge change as Panorama found itself revolutionizing cellular glass mount antenna technology, filing a patent application for the first ever solid state coupling circuit. Through creating a new benchmark for quality in the production of components and leading technology development, Panorama has grown side by side with the cellular telecommunications industry.

Today Panorama produces antennas for the world's leading communication companies and has grown to include over 80 staff in 8 international sales offices, as well as operating 3 fully owned subsidiaries. Manufacturing, design and development are located in London less than a mile from the original factory. Our network of international sales representatives means that all customers get the attention and advice they require, providing local support on a global scale.

Antennas For Next Generation

Panorama's constant cutting-edge research ensures that our antennas meet the demands of the very latest technology. With over 70 years' experience in delivering world-class antenna products, Panorama's current product range reflects our unparalleled expertise in providing high-quality performance antennas.



Quality As Standard

Quality Assurance

In 1989, Panorama Antennas became the first antenna manufacturer in Europe to gain ISO 9000 certification. Panorama currently holds the ISO 9001-2015 certificate for quality assurance.

Environmental Management System

Panorama has attained ISO 14001:2015 International standard for effective environmental management system (EMS)

Patents

Panorama Antennas currently holds several patents and registered designs both in Europe and worldwide.

RoHS Compliance

All products that Panorama Antennas manufactures are 100% compliant to 2015/863 RoHS 3 European legislation which is due to replace RoHS 2 regulation on 22nd July 2019. Advanced "in-house" technology enables Panorama to test supplied materials at the factory "goods in", ensuring that non-compliant material is not used in production.

REACH

REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals, EC 1907/2007) is the European Union's chemical regulation that came into force on 1 June 2007 and will be phased in over an 11 year period (until 2018). Panorama Antennas wholeheartedly supports the objective of REACH to enhance public health and safety and the protection of the environment. Panorama is committed to meeting REACH requirements and can provide information about substances in accordance with the requirements.

Associations

Panorama Antennas is currently a member of the following professional associations:

- **Federation of Communication Services**
- **TCCA (The Critical Communications Association)**
- **British Safety Council**
- **B-APCO (British Association of Public Communication Officers)**



Bracket Mount 169MHz

FEATURES

Robust low profile design
Bracket mount (Wall/Mast)
Tuned to 169MHz

The LPBV-169 antenna is a low profile, fixed site VHF antenna. Easy to install, its robust design ensures it is weather and vandal resistant as well as being a cost effective antenna solution.

IP65
RATED

Part no.	Cable	Connector
LPBV-169-NJ	N/A	'N' Type Female

Smart Metering

Wall Mount 169MHz

FEATURES

Discrete low profile design
Vandal resistant
Tuned to 169MHz

The LPW-169 antenna is an easy to install, discrete and robust VHF antenna in a sleek housing which is weather resistant. This high performance product is also a cost effective antenna solution.

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Part no.	Cable	Connector
LPW-169-2SP	2m/6ft	SMA Plug
LPW-169-2SMBBUC	2m/6ft	SMB Buccaneer Plug

Smart Metering

Mini Magnet 169MHz

FEATURES

- No hole installation
- Magnetic mount
- Tuned to 169MHz

For rapid deployments or when there are installation constraints, the MAR-169 is a small and lightweight VHF antenna solution. Cost effective and low visibility.



Part no.	Cable	Connector
MAR-169-2SP	2m/6ft	SMA Plug

Smart Metering



Magnet Mount 169MHz

FEATURES

- No hole installation
- Midi magnet mount
- Tuned to 169MHz

For temporary or permanent mounting, the MD-168 is a durable magnetic mount antenna solution that is tuned to 169MHz.

Part no.	Cable	Connector
MD168-5SP	5m/16ft	SMA Plug

Smart Metering

Offset Dipole 169MHz



FEATURES

Easy to install
Suitable for indoor or outdoor use
Tuned to 169MHz

A light weight, compact and efficient antenna, the ODP-H7 is an extremely versatile solution that can be wall or pole mounted.

Part no.	Cable	Connector
ODP-H7-8BP	8m/26ft	BNC Plug
ODP-H7-8SP	8m/26ft	SMA Plug
ODP-H7-8TP	8m/26ft	TNC Plug

Smart Metering

Mast Mount 169MHz

FEATURES

Mast or pole mountable
Temporary or permanent installation
Tuned to 169MHz

A unique and highly efficient antenna solution for certain applications. This base station type antenna is weather resistant, durable and ideal for any pole or mast mount installations.



Part no.	Cable	Connector
BSV-H7	N/A	'N' Type Female

Smart Metering

Helical Antenna

169MHz

FEATURES

- Durable
- Fully over-moulded
- Tuned to 169MHz

Durable and compact, our range of helical antennas for devices are fully over-moulded in high quality plastic and tuned for optimal performance.



Part no.	Cable	Connector
MFH-BNC-H7	N/A	BNC Plug
MFH-SMAFR-H7	N/A	SMA Female
MFH-SMAMO-H7	N/A	SMA Plug
MFH-TNC-H7	N/A	TNC Plug

Smart Metering



1/4 Wave Antenna

169MHz

FEATURES

- Durable
- Over-moulded stain relief
- Tuned to 169MHz

Our range of 1/4 wave antennas for use with terminal radios and telemetry devices are ideal if you require a highly efficient, flexible and robust antenna solution.

Part no.	Cable	Connector
MVQ-BNC-H7	N/A	BNC Plug
MVQ-SMAFR-H7	N/A	SMA Female
MVQ-TNC-H7	N/A	TNC Plug

Smart Metering



Bracket Mount 433MHz

FEATURES

Robust low profile design
Bracket mount (Wall/Mast)
Tuned to 433MHz

The LPBU-433-NJ antenna is a low profile, fixed site UHF antenna. Easy to install, its robust design ensures it is weather and vandal resistant as well as being a cost effective antenna solution.

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Part no.	Cable	Connector
LPBU-433-NJ	N/A	'N' Type Female

Wall Mount 433MHz

FEATURES

Discrete low profile design
Vandal resistant
Tuned to 433MHz

The LPW-433 antenna is an easy to install, discrete and robust VHF antenna. In a sleek housing which is weather resistant, this high performance product is also a cost effective antenna solution.

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Part no.	Cable	Connector
LPW-433-2SP	2m/6ft	SMA Plug

Smart Metering | M2M | Industrial IoT

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Mini Magnet 433MHz

FEATURES

- No hole installation
- Magnetic mount
- Tuned to 433MHz

For rapid deployments or when there are installation constraints, the MAR-433 is a small and lightweight UHF antenna solution ideal for various different deployment scenarios.



Part no.	Cable	Connector
MAR-433-2SP	2m/6ft	SMA Plug



Half-Wave 433MHz

FEATURES

- 5dBi Gain
- Ground Plane Independent
- Flexible Whip

The HM-433 and PUG-433 are robust yet flexible 5dBi antennas, perfect for UHF telemetry devices without a ground plane, that also require more gain.

Part no.	Cable	Connector
HM-433-5BP	5m/16ft	BNC Plug
HM-433-5SP	5m/16ft	SMA Plug
PUG-TNC-433 (Whip only)	N/A	TNC Plug



Low Profile Dome 433MHz

FEATURES

Rugged
Heavy duty
Ground-plane independent

A high performance, robust antenna solution ideal for any application that requires a low profile UHF antenna that is easy to install and durable.

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Part no.	Cable	Connector
LP430-5BP	5m/16ft	BNC Plug
LP430-5SP	5m/16ft	SMA Plug
LP430W-5BP*	5m/16ft	BNC Plug
LP430W-5SP*	5m/16ft	SMA Plug

*White housing

Mast Mount 433MHz

FEATURES

Mast mount
Rugged
Tuned to 433MHz

A unique and highly efficient antenna solution for certain applications, this base station type antenna is weather resistant, durable and ideal for any pole or mast mount installations.



Part no.	Cable	Connector
BSU-T2	N/A	'N' Type Female

M2M Applications & Industrial IoT

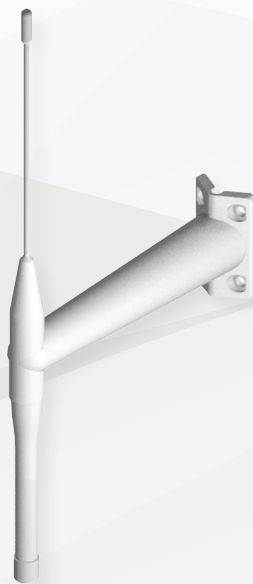
M2M Applications & Industrial IoT

Offset Dipole 433MHz

FEATURES

- Easy to install
- Suitable for indoor or outdoor use
- Tuned to 433MHz

A light weight, compact and efficient antenna, the ODP-433 is an extremely versatile solution that can be wall or pole mounted.



Part no.	Cable	Connector
ODP433-8BP	8m/26ft	BNC Plug
ODP433-8SP	8m/26ft	SMA Plug

M2M Applications & Industrial IoT



Bracket Mount 433MHz

FEATURES

- 4dBi Gain
- Improves Range
- Wall or Mast mount options
- Indoor or Outdoor

The ideal antenna solution for a fixed radio terminal, the BM433 is easy and simple to install, discrete, and very reliable to offer improved coverage performance for your radio.

Part no.	Cable	Connector
BM433-5BP	5m/16ft	BNC Male
BM433-5SP	5m/16ft	SMA Male

M2M Applications & Industrial IoT

Rapid Deployment 433MHz



FEATURES

- 4dBi Gain
- Clip Mount Design
- Simple Installation
- Half Wave Antenna

The CD433 antenna features an end fed half-wave antenna element on a spring clip with fully over-moulded cable for weatherproofing and resilience.

Part no.	Cable	Connector
CD430-3BP	3m/10ft	BNC Plug
CD430-3SP	3m/10ft	SMA Plug
CD430-3TP	3m/10ft	TNC Plug

Rapid Deployment Clip Dipole 433MHz

FEATURES

- Rugged construction
- Fast installation
- Adjustable angle

Quick and easy to assemble and deploy in the field, this is a unique antenna solution that is ideal where coverage needs to be improved.



Part no.	Cable	Connector
CDU-T2-5BP	5m/16ft	BNC Plug
CDU-T2-5SP	5m/16ft	SMA Plug
CDU-T2-5TP	5m/16ft	TNC Plug

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Helical Antenna 433MHz

FEATURES

Durable
Fully over-moulded
Tuned to 433MHz

Durable and compact, our range of helical antennas for devices are fully over-moulded in high quality plastic and are tuned for optimal performance.



Part no.	Cable	Connector
MF XU-BNC-433	N/A	BNC Plug
MF XU-SMAFR-433	N/A	SMA Female
MF XU-SMAMO-433	N/A	SMA Plug
MF XU-TNM-433	N/A	TNC Plug

M2M Applications & Industrial IoT



1/4 Wave Antenna 433MHz

FEATURES

Durable
Fully over-moulded
Tuned to 433MHz

Our range of 1/4 wave antennas for use with terminal radios and telemetry devices are ideal if you require a highly efficient, flexible and robust antenna solution.

Part no.	Cable	Connector
MQ-BNC-433	N/A	BNC Plug
MQ-SMAFR-433	N/A	SMA Female
MQ-SMAMO-433	N/A	SMA Plug
MQ-TNC-433	N/A	TNC Plug

M2M Applications & Industrial IoT



Panel Mount 868/915MHz

FEATURES

Robust low profile design
Vandal resistant
868MHz or 915MHz

The LPBE range is an extremely popular, low profile, cost effective antenna solution. With a robust design, its a great weather and vandal resistant fixed site antenna solution.

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Part no.	Cable	Connector
LPBE-868-2SP	2m/6ft	SMA Plug
LPBE-915-2SP	2m/6ft	SMA Plug

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Wall Mount 868/915MHz

FEATURES

Discrete low profile design
Vandal resistant
868MHz or 915MHz

The LPW antenna is an easy to install, discrete and robust antenna in a sleek housing which is weather resistant. This high performance product is also a cost effective antenna solution.

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Part no.	Cable	Connector
LPW-868-2SP	2m/6ft	SMA Plug
LPW-915-2SP	2m/6ft	SMA Plug

M2M Applications & Smart Metering

Ultra Low Profile 868/915MHz

FEATURES

- Ultra low profile antenna
- Mounting bush or screw fitment
- Robust, tamper proof design

The LPAB range of antennas combine ergonomic style along with sophisticated engineering. The low profile housing gives a high degree of vandal resistance making it perfect for vending machines or other telemetry devices in exposed locations that require reliable communications.



Part no.	Cable	Connector
LPAB-868-2SP	2m/6ft	SMA Plug
LPAB-915-2SP	2m/6ft	SMA Plug

M2M Applications & Smart Metering



Low Profile 868/915MHz

FEATURES

- Low profile puck design
- Built for IoT applications
- Covers both 868 & 915MHz frequencies

Designed for IoT applications, the antenna utilises a ruggedized low profile housing. A ground plane independent antenna that has cost at the heart of its design.

Part no.	Cable	Connector
LPP-7-38-ISP	1m/3ft	SMA Plug
LPP-7-38-IFAK	1m/3ft	FAKRA D Jack

M2M Applications & Industrial IoT



Magnetic Mount 868/915MHz

FEATURES

No holes installation
Cost effective
Magnetic base

As a temporary or permanent, no-hole discrete antenna solution for internal or external use, the product is ideal for many different applications especially when cost is a sufficient factor.

Part no.	Cable	Connector
MAR-868-2SP	2m/6ft	SMA Plug
MAR-915-2SP	2m/6ft	SMA Plug

M2M Applications & Industrial IoT

DIN Rail Mount 868/915MHz

FEATURES

Easy 'click' fit
EN50022 Mount
Supplied with right angle FAKRA D

The perfect solution for certain IoT scenarios, this ground plane independent, highly efficient rail mount antenna is a unique design that's also very easy to install.



Part no.	Cable	Connector
IN2216	1m/3ft	FAKRA D

M2M Applications & Industrial IoT

Internal 868/915MHz

FEATURES

- 868/915MHz 2dBi
- Simple adhesive pad fitment
- Can be fitted on glass or plastic panel

The EF-BC3G-26 antenna is a low cost single 4G/3G/2G product that can be fitted on any non-conductive surface. It is typically fitted on a window.



Part no.	Cable	Connector
EF-BC3G-26-3SP	3m/10ft	SMA Plug

M2M Applications & Industrial IoT



Half-Wave 868/915MHz

FEATURES

- 4dBi Gain
- Ground Plane Independent
- Flexible Whip

The HM-S5 and HM-D are robust yet flexible whip antenna products perfect for telemetry devices with no ground plane that also require more gain.

Part no.	Cable	Connector
HM-S5	5m/16ft	N/A
HM-D	5m/16ft	N/A

M2M Applications & Industrial IoT

Rapid Deployment 868/915MHz



FEATURES

Clip mount design
4dBi Gain
Simple installation
Half Wave antenna

The CD800/900 antenna features an end fed half-wave antenna element with a spring clip and a fully over-moulded cable for weatherproofing and resilience.

Part no.	Cable	Connector
CD800	3m/10ft	N/A
CD900	3m/10ft	N/A

M2M Applications

Mast Mount 868/915MHz

FEATURES

Mast mount
5dBi Gain
800MHz/900MHz

A unique and highly efficient antenna solution for certain applications, this base station type antenna is weather resistant, durable and ideal for mast mount installations.



Part no.	Cable	Connector
BS800	N/A	'N' Type Female
BS900	N/A	'N' Type Female

M2M Applications

Wall Mount Base Station 868/915MHz

FEATURES

- 6dBi Gain
- Wall mounted with brackets supplied
- Robust construction

An omni-directional, 6dBi gain antenna solution that can be wall mounted to offer improved coverage. Weatherproof and supplied with mounting brackets, it's an ideal IoT antenna.



Part no.	Cable	Connector
B6SE-868-03NJ	0.3m/1ft	'N' Type Female
B6SE-915-03NJ	0.3m/1ft	'N' Type Female

M2M Applications



Bracket Mount 868/915MHz

FEATURES

- Cost effective wideband LTE / Cellular
- Easy installation
- Wall or Mast mounting
- Compact design

The B4BEE antenna is fully weather proof and is omni-directional, providing simple installation in an elevated or external location to achieve optimum network signal.

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Part no.	Cable	Connector
B4BEE-868-2SP	2m/6ft	SMA Plug
B4BEE-915-2SP	2m/6ft	SMA Plug

M2M Applications



Directional Panel Mount 868/915MHz

FEATURES

3dBi Gain
Weatherproof housing
Mast or wall mountable

A versatile, 8dBi gain directional antenna ideal for indoor or outdoor areas, it allows the user to improve their coverage.

Part no.	Cable	Connector
WM8E-BADEP3G-26-NJ	N/A	'N' Type Female

M2M Applications & Industrial IoT

1/4 Wave Antenna 868/915MHz

FEATURES

Durable
Fully overmoulded
868 or 915MHz

Our range of 1/4 wave antennas for use with terminal radios and telemetry devices are ideal if you require a highly efficient, flexible and robust antenna solution.



Part no.	Cable	Connector
MQ-SMAMO-868	N/A	SMA Plug
MQ-SMAMO-915	N/A	TNC Plug
MQ-TNM-868	N/A	SMA Plug
MQ-TNM-915	N/A	TNC Plug

Smart Metering & M2M Applications

ISM Bands



NB-IoT



CAT-M1

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