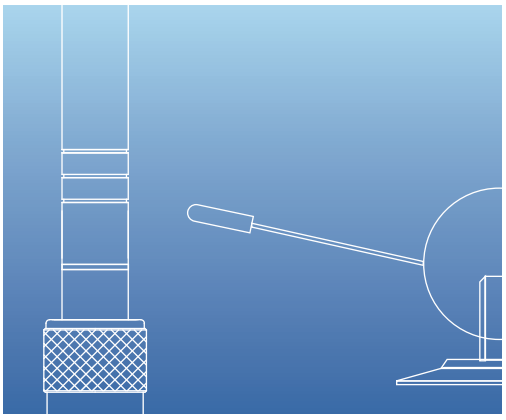


# Product Catalogue

SMARTEQ™ antennas

# Introducing Smarteq

Smarteq develops, produces and sells high quality rugged antennas on a global market. The company was formed 1996 and through acquisitions of Allgon Applications and Carant AB it was formed into its present shape. Together the companies have over forty years of experience in the wireless industry and development of RF products is in our DNA.

Developing new RF products is important to us, bringing innovating products to market is the foundation of our business. To maximize our development resources we cooperate with our customers, technology and manufacturing partners, universities, public and private research centers in order to shorten time to market for new products. This strategy keeps us at the edge of RF-development and helps us to constantly improve ourselves. Smarteq has 25 active patents and we are continuously filing new ones.

Smarteq is a Swedish company based in Kista, Stockholm. Kista is the center of the Swedish IT and telecom industry located 10 km north of Stockholm. Smarteq has a subsidiary in Shanghai, China and a sales office in Eindhoven, Holland.

Base 128

# Robust Design

Smarteq offers products with robust design and high reliability. The antennas are often used in outdoor applications and are designed to withstand rough weather conditions over a long period of time. Smarteqs products are often in the highest IP-class. A higher IP-class indicates that the product will be reliable under tough conditions and that is has been thoroughly tested.

Early stage prototyping and design work is followed by extensive product validation and testing before production starts. Smarteq has extensive experience working with third party test institutions for tough environmental testing.

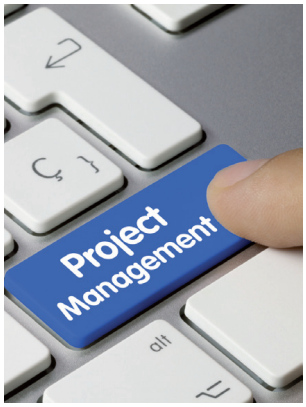
LPCA

# Project Management

Over the past forty years Smarteq has been a reliable, competent and proven development partner to demanding customers in the automotive and M2M business. The senior design team at Smarteq has a huge experience in antenna design and engages with customers, our technology and manufacturing partners in early stages of projects using the latest CAD design, development and quality assurance tools.

The Smarteq team is recognized by customers to be open minded and eager to find an optimized product solution. Product programs are developed with a modular design concept enabling cost competitive solutions and secured future antenna functions.

Smarteqs project model is aligned with our customer's project models. This is a requirement due to early and close cooperation in projects from the early idea stages to the finished product. The project model is adapted for all projects ensuring the fulfillment of all critical milestones.



# Efficient Supply Chain

Supply chain activities transform resources, raw materials and components into finished products which are delivered to the end customer.

Smarteq has a long term sourcing strategy and is relying on an efficient supply chain. We have our key technology and production partners in East Asia where they have short production lead-time and flexible production planning.

All our key manufacturers are certified according to the international standards ISO/TS 16949 and ISO 14001.

Smarteqs manufacturers are reliable partners. We have worked with some of these companies for over thirty years. Our partners have stable management teams, dedicated and competent staff and stable supply chains to secure Smarteqs high quality requirements and expectations.

As our goods are transported from Asia by sea to Sweden, Smarteq rely on the best in class logistics partners. Smarteq has qualified high performance warehousing and freight partners who can meet the global, regional and local requirements on logistics driven by customers in the Automotive, M2M and Consumer business.

## Smarteq Asia/Shanghai:

Being close to our technology and manufacturing partners is a key factor for Smarteqs future success. Smarteqs most important contract manufactures are in Shanghai and Taipei and therefore it is necessary to have local presence in East Asia. We believe that this adds strength to our supply chain and the continuous improvement efforts. With a local office in Shanghai we can support customers in the region on a daily basis. Smarteq Shanghai manages quality and precision in deliveries to ensure that we always live up to the high standards our customers demand.

# Quality and Environmental Commitment

The Smarteq team always strives to be pro-active in our work. We try very hard to do things right the first time to ensure high quality and low impact on the environment in our processes, products and organization. Our excellent quality performance is a result of our structured way of working and the robust and reliable design of our products.

As being a tier 1 supplier to the global automotive industry for over forty years, Smarteq has great experience of fulfilling high quality and environmental requirements and expectations. The Smarteq team has long experience and good knowledge of working with PPAP, APQP, FMEA, MSA, IMDS, SPC, 8D and EDI/Odette. This experience and knowledge is well implemented and applied into our other two business areas; M2M and Consumer.

Smarteq is certified according to the international standards ISO/TS 16949 and ISO 14001. A thoroughly documented Quality and Environmental Management System (QEMS) is well implemented throughout the organization and serves as a guideline for all activities within the company. We are continuously challenging ourselves to improve our QEMS and our product range. The QEMS is regularly audited by an accredited third party to make sure all requirements in the standards are fulfilled and that the system is continuously improved.

# Antenna Selection Guide

| Type | Markets | GSM/GPRS | | | LTE | | | Satellite | |
|---|---|---|---|---|---|---|---|---|---|
| | Antenna | 2G 900 | 2G 1800 | 3G | 4G-2690 | 4G-790 | 4G-698 | GPS | GNSS |
| Combination Antennas | LPCA 4 | ● | ● | ● | ● | ● | | ● | |
| | LPCA 6 | ● | ● | ● | ● | ● | | ● | |
| | LPCA 1 | ● | ● | ● | ● | ● | | ● | |
| | LPCA 3 | ● | ● | ● | ● | ● | | ● | |
| | LPCA 5 | ● | ● | ● | ● | ● | | ● | |
| | SmartDisc Combi | ● | ● | ● | ● | | | ● | |
| | SmartDisc Combi GNSS | ● | ● | ● | ● | | | ● | ● |
| | SmartDisc | ● | ● | ● | ● | ● | | | |
| | SmartDisc WiFi | | | | | | | | |
| | SmartWing | ● | ● | ● | | | | ● | |
| | SmartWing GNSS | ● | ● | ● | | | | ● | ● |
| | ANT | ● | ● | | | | | ● | |
| | MiniWing | ● | ● | ● | ● | | | | |
| M2M | LP90x series | ● | ● | ● | ● | | | | |
| | LP400 | | | | | | | | |
| | DP90 | ● | ● | ● | | | | | |
| | VO450 | | | | | | | | |
| GPS | GPS HG | | | | | | | ● | |
| | GNSS HG | | | | | | | ● | ● |
| Directional Antennas | VPD90 | ● | ● | ● | | | | | |
| | WLD-2 | ● | ● | ● | | | | | |
| | AGY10 | | ● | | | | | | |
| | ABY7-10/11 | | | | | | | | |
| | ABY9-10 | ● | | | | | | | |
| | ACY15 | ● | | | | | | | |
| | LPA922 | ● | ● | ● | ● | ● | ● | | |
| Antenna Bases | Base 128 | ● | | | | | | | |
| | Base NCD | ● | | | | | | | |
| | Base 2500 | ● | ● | ● | ● | | | | |
| | Base 1123 | ● | | | | | | | |
| | Base 1131 | ● | | | | | | | |
| | MiniMag | ● | ● | ● | ● | | | | |
| | MidiMag | ● | | | | | | | |
| | MaxiMag | ● | | | | | | | |
| Terminal Antennas | TRA 169 | | | | | | | | |
| | TRA 450 | | | | | | | | |
| | TRA 900 | ● | ● | ● | | | | | |
| | TRA 2400 | | | | | | | | |
| | AMR TEQ | ● | ● | ● | | | | | |
| | 710254 | | | | | | | | |
| | 707181 | ● | ● | ● | | | | | |
| | 710097 | ● | ● | | | | | | |
| | 710102 (315MHz) | | | | | | | | |
| | 710103 | | | | | | | | |
| | 710106 & 710107 | | | | | | | | |
| | Rod guide | | | | | | | | |
| | Cable guide | | | | | | | | |

| TETRA | | | Radio | WiFi | | ISM | | | Low band | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 380-410 | 410-430 | 450-470 | AM / FM | 2400 | 5800 | 169 | 433/434 | 868 | VHF / UHF | with Rod | Page |
| | | ● | | ● | ● | | | | | | 6 |
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| ● | ● | ● | | | | | ● | | | | 12 |
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| ● | ● | ● | ● | | | ● | ● | ● | ● | ● | 13 |
| ● | ● | ● | ● | | | ● | ● | ● | ● | ● | 13 |
| ● | ● | ● | ● | ● | | ● | ● | ● | ● | ● | 13 |
| ● | ● | ● | ● | | | ● | ● | ● | ● | ● | 13 |
| ● | ● | ● | ● | | | ● | ● | ● | ● | ● | 14 |
| | | ● | | | | | ● | ● | ● | ● | 14 |
| ● | ● | ● | ● | | | | ● | ● | ● | ● | 14 |
| ● | ● | ● | ● | | | | ● | ● | ● | ● | 14 |
| | | | | | | ● | | | | | 15 |
| | | ● | | | | | ● | | | | 15 |
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# Combination Antennas

## LPCA 4

Rugged low profile combination antenna for hole mounting. Ground plane independent, DC short and IP67 class.

| | | |
|---|---|---|
| **Frequencies** | CDMA450 | 450-470MHz |
| | Cellular | 790-960MHz |
| | | 1710-2690MHz |
| | GPS | 1575.42MHz |
| | WiFi | 2400-2485MHz |
| | | 4615-5875MHz |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | CDMA450, Cellular, WiFi |
| | RHCP | GPS |
| **VSWR** | 2:1 | CDMA450, Cellular 1710-2690MHz |
| | 3:1 | Cellular 790-960MHz |
| | 1.5:1 | WiFi, GPS |
| **Gain** | 2.15dBi | CDMA450, Cellular 790-960MHz, WiFi |
| | 3.15dBi | Cellular 1710-2690MHz |
| | 5dBic @ zenit | GPS Passive |
| | 27dB | GPS Active |
| **Max Power** | 10W | CDMA450, Cellular, WiFi |
| **Supply voltage** | 3.3-5V | |
| **L x W x H** | 280 x 120 x 50mm | |

## LPCA 6

Rugged low profile combination antenna for hole mounting. Ground plane independent, DC short and IP67 class.

| | | |
|---|---|---|
| **Frequencies** | TETRA | 410-430MHz |
| | Cellular | 790-960MHz |
| | | 1710-2690MHz |
| | GPS | 1575.42MHz |
| | WiFi | 2400-2485MHz |
| | | 4615-5875MHz |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | TETRA, Cellular, WiFi |
| | RHCP | GPS |
| **VSWR** | 2:1 | TETRA, Cellular 1710-2690MHz |
| | 3:1 | Cellular 790-960MHz |
| | 1.5:1 | WiFi, GPS |
| **Gain** | 2.15dBi | TETRA, Cellular 790-960MHz, WiFi |
| | 3.15dBi | Cellular 1710-2690MHz |
| | 5dBic @ zenit | GPS Passive |
| | 27dB | GPS Active |
| **Max Power** | 10W | TETRA, Cellular, WiFi |
| **Supply voltage** | 3.3-5V | |
| **L x W x H** | 280 x 120 x 50mm | |

## LPCA 1

Rugged low profile combination antenna for hole mounting. Ground plane independent, DC short and IP67 class.

| | | |
|---|---|---|
| **Frequencies** | CDMA450 | 450-470MHz |
| | Cellular | 790-960MHz |
| | | 1710-2690MHz |
| | GPS | 1575.42MHz |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | CDMA450, Cellular |
| | RHCP | GPS |
| **VSWR** | 2:1 | CDMA450, Cellular 1710-2690MHz |
| | 3:1 | Cellular 790-960MHz |
| | 1.5:1 | GPS |
| **Gain** | 2.15dBi | CDMA450, Cellular 790-960MHz |
| | 3.15dBi | Cellular 1710-2690MHz |
| | 5dBic @ zenit | GPS Passive |
| | 27dB | GPS Active |
| **Max Power** | 10W | CDMA450, Cellular |
| **Supply voltage** | 3.3-5V | |
| **L x W x H** | 280 x 120 x 50mm | |

## LPCA 3

Rugged low profile combination antenna for hole mounting.
Ground plane independent, DC short and IP67 class.

| | | |
|---|---|---|
| **Frequencies** | TETRA | 410-430MHz |
| | Cellular | 790-960MHz |
| | | 1710-2690MHz |
| | GPS | 1575.42MHz |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | TETRA, Cellular |
| | RHCP | GPS |
| **VSWR** | 2:1 | TETRA, Cellular 1710-2690MHz |
| | 3:1 | Cellular 790-960MHz |
| | 1.5:1 | GPS |
| **Gain** | 2.15dBi | TETRA, Cellular 790-960MHz |
| | 3.15dBi | Cellular 1710-2690MHz |
| | 5dBic @ zenit | GPS Passive |
| | 27dB | GPS Active |
| **Max Power** | 10W | TETRA, Cellular |
| **Supply voltage** | 3.3-5V | |
| **L x W x H** | 280 x 120 x 50mm | |

## LPCA 5

Rugged low profile combination antenna for hole mounting.
Ground plane independent, DC short and IP67 class.

| | | |
|---|---|---|
| **Frequencies** | TETRA | 380-410MHz |
| | Cellular | 790-960MHz |
| | | 1710-2690MHz |
| | GPS | 1575.42MHz |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | TETRA, Cellular |
| | RHCP | GPS |
| **VSWR** | 2:1 | TETRA, Cellular 1710-2690MHz |
| | 3:1 | Cellular 790-960MHz |
| | 1.5:1 | GPS |
| **Gain** | 2.15dBi | TETRA, Cellular 790-960MHz |
| | 3.15dBi | Cellular 1710-2690MHz |
| | 5dBic @ zenit | GPS Passive |
| | 27dB | GPS Active |
| **Max Power** | 10W | TETRA, Cellular |
| **Supply voltage** | 3.3-5V | |
| **L x W x H** | 280 x 120 x 50mm | |

## SmartDisc Combi

Low profile combination antenna for hole mounting.
Ground plane independent, DC short and IP67 class.

| | | |
|---|---|---|
| **Frequencies** | Cellular | 790-960MHz |
| | | 1710-2690MHz |
| | GPS | 1575.42MHz |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | Cellular |
| | RHCP | GPS |
| **VSWR** | 3:1 | Cellular |
| | 1.5:1 | GPS |
| **Gain** | 2.15dBi | 790-960MHz |
| | 3.15dBi | 1710-2690MHz |
| | 5dBic @ zenit | GPS Passive |
| | 27dB | GPS Active |
| **Max Power** | 10W | |
| **Supply voltage** | 3.3-5V | |
| **D x H** | 96 x 26mm | |

# Combination Antennas

## SmartDisc Combi GNSS

Low profile combination antenna for hole mounting.
Ground plane independent, DC short and IP67 class.

| | | |
|---|---|---|
| **Frequencies** | Cellular | 790-960MHz |
| | | 1710-2690MHz |
| | GPS | 1575.42MHz |
| | Glonass | 1598.06-1609.31MHz |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | Cellular |
| | RHCP | GPS, Glonass |
| **VSWR** | 3:1 | Cellular, Glonass |
| | 1.5:1 | GPS |
| **Gain** | 2.15dBi | 790-960MHz |
| | 3.15dBi | 1710-2690MHz |
| | 5dBic @ zenit | GPS, Glonass Passive |
| | 27dB | GPS, Glonass Active |
| **Max Power** | 10W | |
| **Supply voltage** | 3.3-5V | |
| **D x H** | 96 x 26mm | |

## SmartDisc

Low profile cellular combination antenna for hole mounting.
Ground plane independent, DC short and IP67 class.

| | | |
|---|---|---|
| **Frequencies** | 790-960MHz | |
| | 1710-2690MHz | |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | |
| **VSWR** | 3:1 | |
| **Gain** | 2.15dBi | 790-960MHz |
| | 3.15dBi | 1710-2690MHz |
| **Max Power** | 10W | |
| **D x H** | 96 x 26mm | |

## SmartDisc WiFi

Low profile WiFi antenna for hole mounting.
Ground plane independent, DC short and IP67 class.

| | |
|---|---|
| **Frequencies** | 2400-2690MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | < 2:1 |
| **Gain** | 5dBi |
| **Max Power** | 10W |
| **D x H** | 96 x 26mm |

## SmartWing™

Combination antenna for discreet adhesive mounting on glass or plastic inside vehicles.

| | | |
|---|---|---|
| **Frequencies** | Cellular | 824-960MHz |
| | | 1710-2170MHz |
| | GPS | 1575.42MHz |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | Cellular |
| | RHCP | GPS |
| **VSWR** | < 2:1 | Cellular |
| | 1.5:1 | GPS |
| **Gain** | 0dBi | Cellular |
| | 2dBic @ zenit | GPS Passive |
| | 27dB | GPS Active |
| **Max Power** | 10W | |
| **Supply voltage** | 3.3-5V | |
| **L x W x H** | 135 x 58 x 18mm | |

## SmartWing™ GNSS

Combination antenna for discreet adhesive mounting on glass or plastic inside vehicles.

| | | |
|---|---|---|
| **Frequencies** | Cellular | 824-960MHz |
| | | 1710-2170MHz |
| | GPS | 1575.42MHz |
| | Glonass | 1598.06-1609.31MHz |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | Cellular |
| | RHCP | GPS, Glonass |
| **VSWR** | < 2:1 | Cellular, Glonass |
| | 1.5:1 | GPS |
| **Gain** | 0dBi | Cellular |
| | 2dBic @ zenit | GPS, Glonass Passive |
| | 27dB | GPS, Glonass Active |
| **Max Power** | 10W | |
| **Supply voltage** | 3.3-5V | |
| **L x W x H** | 135 x 58 x 18mm | |

## Ant™

Combination antenna for hole mounting. IP67 class. Optional rod, see rod guide.

| | | |
|---|---|---|
| **Frequencies** | Cellular | 890-960MHz |
| | | 1710-1880MHz |
| | GPS | 1575.42MHz |
| | Rod | 27-600MHz |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | Cellular, Rod |
| | RHCP | GPS |
| **VSWR** | 2:1 | Cellular |
| | 1.5:1 | GPS |
| **Gain** | 2.15dBi | Cellular |
| | 5dBic@ zenit | GPS Passive |
| | 27dB | GPS Active |
| **Max Power** | 10W | Cellular |
| | 25W | Rod |
| **Supply voltage** | 3.3-5V | |
| **Thread for rod** | M6 | |
| **L x W x H** | 108 x 80 x 60mm | |

## MiniWing™

Adhesive mount antenna, discrete design for mounting inside vehicle.

| | | |
|---|---|---|
| **Frequencies** | 824–960MHz | |
| | 1710–2170MHz | |
| | 2400-2690 MHz | |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | |
| **VSWR** | 2:1 | 824-960 / 1710-2170MHz |
| | 3:1 | 2400-2690MHz |
| **Gain** | 2.15dBi | |
| **Max Power** | 10W | |
| **L x W x H** | 127 x 18 x 9.5mm | |

# M2M

## LP90x series

Low profile M2M antenna.Ground plane independent and DC short.

LP900: Screw mounted and IP44

LP901: Screw mounted, IP65 and electrical isolation according to SS-EN 61010

LP902: Hole mounted, IP65 and electrical isolation according to SS-EN 61010

| | | |
|---|---|---|
| **Frequencies** | 824-960MHz | |
| | 1710-2170MHz | |
| | 2400-2690MHz | |
| **Impedance** | 50Ω | |
| **VSWR** | < 2.5:1 | |
| **Polarization** | Vertical | |
| **Gain** | 2.15dBi | 824-960MHz |
| | 4.15dBi | 1710-2170MHz |
| | 3.15dBi | 2400-2690MHz |
| **Max Power** | 10W | |
| **L x W x H** | LP900: 136 x 48 x 42mm | |
| | LP901: 162 x 50 x 45mm | |
| | LP902: 140 x 52 x 45mm | |

## LP400™

Low profile ISM band antenna, discrete design.
Ground plane independent and DC short.

| | | |
|---|---|---|
| **Frequencies** | Version 1 | 444MHz +/- 1MHz |
| | Version 2 | 433MHz +/- 1MHz |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | |
| **VSWR** | 1.5:1 | |
| **Gain** | 2.15dBi | |
| **Max Power** | 10W | |
| **L x W x H** | 190 x 80 x 25mm | |

## DP90

Embedded dipole antenna for adhesive mount for fixed installation.

| | |
|---|---|
| **Frequencies** | 868-960MHz |
| | 1710-2170MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | <3:1 depending on surroundings |
| **Gain** | 2.15dBi |
| **Max Power** | 10W |
| **L x W x H** | 87 x 30 x 4mm |

## VO450

Omni directional antenna, pole mount with type N-connector(f).

| | |
|---|---|
| **Frequencies** | 433-470MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | 1.7:1 |
| **Gain** | 3dBi |
| **Max Power** | 20W |
| **D x H** | 30 x 330mm |

# GPS

## GPS HG

GPS antenna for adhesive mount, IP67 and IPX9K class.

| | |
|---|---|
| **Frequency** | 1575.42MHz |
| **Impedance** | 50Ω |
| **Polarization** | RHCP |
| **Gain** | 28dB |
| **Noise figure** | 1.2dB |
| **VSWR** | 1.5:1 |
| **Out of Band rejection Fc ± 50MHz** | >25dB |
| **Patch antenna gain @ zenit** | 3.5* dBic |
| **Supply voltage(Phantom feed)** | 2.6 - 10VDC |
| **Supply current @ 2.6 to 6 VDC** | 17 - 19mA |
| **L x W x H** | 37 x 32 x 14mm |

* On 50x50mm ground plane

## GNSS HG

Glonass and GPS Antenna for adhesive mount, IP67 and IPX9K class.

| | | |
|---|---|---|
| **Frequencies** | GPS | 1575.42MHZ |
| | Glonass | 1598.06-1609.31MHz |
| **Impedance** | 50Ω | |
| **Polarization** | RHCP | |
| **Gain** | 28dB | |
| **Noise figure** | 1.2dB | |
| **VSWR** | 1.5:1 | |
| **Out of Band rejection Fc ± 50MHz** | >25dB | |
| **Patch antenna gain @ zenit** | 3.5* dBic | |
| **Supply voltage(Phantom feed)** | 2.6 - 10VDC | |
| **Supply current @ 2.6 to 6 VDC** | 17 - 19mA | |
| **L x W x H** | 37 x 32 x 14mm | |

* On 50x50mm ground plane

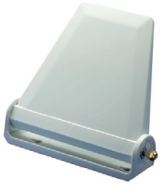
# Directional Antennas

## VPD90

High gain rugged directional wall mount antenna, for M2M and IP44 class.

| | | |
|---|---|---|
| **Frequencies** | 824-960MHz | |
| | 1710-2170MHz | |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | |
| **VSWR** | 2:1 | |
| **Gain** | 7dBi | 824-960MHz |
| | 5dBi | 1710-2170MHz |
| **Max Power** | 10W | |
| **L x W x H** | 200 x 110 x 110mm | |

## WLD-2



Directional indoor wall mounted antenna.

| | | |
|---|---|---|
| **Frequencies** | 890-960MHz | |
| | 1710-2170MHz | |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | |
| **VSWR** | < 1.6:1 | |
| **Gain** | 4dBi | 890-960MHz |
| | 5dBi | 1710-2170MHz |
| **Max Power** | 15W | |
| **L x W x H** | 200 x 150 x 45mm | |

# Directional Antennas

## AGY10™

High gain directional antenna, wall or pole mounted.

| | |
|---|---|
| **Frequencies** | 1710-1990MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | < 1.8:1 |
| **Gain** | 11.5dBi |
| **Max Power** | 6W |
| **L x W x H** | 347 x 132 x 75mm |

## ABY7-10/11

High gain directional antenna, wall or pole mounted.

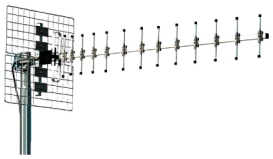
| | |
|---|---|
| **Frequencies** | 380-500MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | 1.8:1 |
| **Gain** | 9dBi |
| **F/B ratio** | 15dB |
| **Max Power** | 15W |
| **L x W x H** | 720 x 400 x 40mm |

## ABY9-10

High gain directional antenna, wall or pole mounted.

| | |
|---|---|
| **Frequencies** | 800-960MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | < 1.8:1 |
| **Gain** | 10.65dBi |
| **F/B ratio** | > 15dB |
| **Max Power** | 6W |
| **L x W x H** | 54 x 25 x 35mm |

## ACY15



High gain directional antenna, pole mounted.

| | |
|---|---|
| **Frequencies** | 800-960MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | 2:1 |
| **Gain** | 15dBi |
| **F/B ratio** | > 20dB |
| **Max Power** | 6W |
| **L x W x H** | 1005 x 420 x 410mm |

## LPA922

High gain directional antenna, broad band, wall or pole mount.

| | | |
|---|---|---|
| **Frequencies** | 698-960MHz | |
| | 1710-2690MHz | |
| **Impedance** | 50Ω | |
| **Polarization** | Vertical | |
| **VSWR** | < 1.5:1 | |
| **Gain** | 8dBi | 698-790MHz |
| | 11dBi | 790-960MHz / 1710-2690MHz |
| **Max Power** | 10W | |
| **L x W x H** | 1000 x 170 x 40mm | |

# Antenna Bases

## Base128

Body mount antenna base, seamless alignment of rod.
Optional rod, see rod guide.

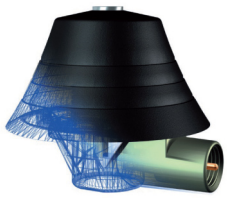
| | |
|---|---|
| **Frequency** | 27-1000MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | Depending on rod |
| **Gain** | Depending on rod |
| **Max power** | 100W |
| **Thread for rod** | M6 |
| **D x H** | 48 x 40mm |

## Base NCD

Heavy duty body mount antenna base, seamless alignment of rod.
Optional rod, see rod guide.

| | |
|---|---|
| **Frequency** | 27–1000MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | Depending on rod |
| **Gain** | Depending on rod |
| **Max power** | 100W |
| **Thread for rod** | M6 |
| **D x H** | 45 x 86mm |

## Base 2500™



Body mount antenna base, wide range of rods.
Optional rod, see rod guide.

| | |
|---|---|
| **Frequency** | 27–2690MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | Depending on rod |
| **Gain** | Depending on rod |
| **Max power** | 50W |
| **Thread for rod** | M4 or M6 |
| **D x H** | 39 x 22mm |

## Base 1123™

Body mount antenna base with bending shaft.
Optional rod, see rod guide.

| | |
|---|---|
| **Frequency** | 27–1000MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | Depending on rod |
| **Gain** | Depending on rod |
| **Max power** | 50W |
| **Thread for rod** | M6 |
| **D x H** | 32 x 39mm |

# Antenna Bases

## Base 1131™

Side body mount antenna base, fit to angled surface.
Optional rod, see rod guide.

| | |
|---|---|
| **Frequency** | 27–1000MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | Depending on rod |
| **Gain** | Depending on rod |
| **Max power** | 50W |
| **Thread for rod** | M6 |
| **D x H** | 32 x 71mm |

## MiniMag™

Magnet mount antenna base, portable ground plane available.
Optional rod, see rod guide.

| | |
|---|---|
| **Frequency** | 430-470MHz<br>790-2690MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | Depending on rod |
| **Gain** | Depending on rod |
| **Max power** | 10W |
| **Thread for rod** | M3 |
| **D x H** | 27 x 31mm |

## MidiMag™

Magnet mount antenna base with bending shaft.
Optional rod, see rod guide.

| | |
|---|---|
| **Frequency** | 27–1000MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | Depending on rod |
| **Gain** | Depending on rod |
| **Max power** | 50W |
| **Thread for rod** | M6 |
| **D x H** | 59 x 55mm |

## MaxiMag™

Heavy duty magnet mount antenna base, seamless alignment of rod.
Optional rod, see rod guide.

| | |
|---|---|
| **Frequency** | 27–1000 MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | Depending on rod |
| **Gain** | Depending on rod |
| **Max power** | 50W |
| **Thread for rod** | M6 |
| **D x H** | 87 x 80mm |

# Terminal Antennas

## TRA169

Rubber antenna, for M2M, knock-out hole for installation in cabinets.

| | |
|---|---|
| **Frequency** | 169 +/-1MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | < 4:1 |
| **Gain** | -5dBi |
| **Max power** | 10W |
| **D x H** | 21 x 100mm |

## TRA450

Rubber antenna, for M2M, knock-out hole for installation in cabinets.

| | |
|---|---|
| **Frequencies** | 430-470MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | < 2:1 |
| **Gain** | -2dBi |
| **Max power** | 10W |
| **D x H** | 21 x 100mm |

## TRA900

Rubber antenna, for M2M, knock-out hole for installation in cabinets.

| | |
|---|---|
| **Frequencies** | 868-960MHz<br>1710-1880MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | < 2:1 |
| **Gain** | 1dBi |
| **Max power** | 10W |
| **D x H** | 21 x 100mm |

## TRA2400

Rubber antenna, for M2M, knock-out hole for installation in cabinets.

| | |
|---|---|
| **Frequencies** | 2400-2485MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | < 1.5:1 |
| **Gain** | 2.15dBi |
| **Max power** | 10W |
| **D x H** | 21 x 100mm |

## AMR TEQ

Terminal quarter wave penta band antenna with SMA-connector(m).

| | |
|---|---|
| **Frequencies** | 868-960MHz<br>1710-2170MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | 2:1 |
| **Gain** | 2.15dBi |
| **Max power** | 10W |
| **D x H** | 10 x 60mm |

# Terminal Antennas

## 710254

Terminal quarter wave WiFi antenna with SMA-connector(m).

| | |
|---|---|
| **Frequencies** | 2400-2485MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | < 2:1 |
| **Gain** | 2.15dBi |
| **Max power** | 10W |
| **D x H** | 12 x 33mm |

## 707181

Terminal cellular penta band antenna with SMA-connector(m).

| | |
|---|---|
| **Frequencies** | 868-960MHz<br>1710-2170MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | < 2:1 |
| **Gain** | 2.15dBi |
| **Max power** | 10W |
| **D x H** | 12 x 70mm |

## 710097

Terminal cellular dual band quarter wave swivel antenna with SMA-connector(m).

| | |
|---|---|
| **Frequencies** | 880-960MHz<br>1710-1880MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | < 2.5:1 |
| **Gain** | 2.15dBi |
| **Max power** | 10W |
| **D x H** | 13 x 136mm |

## 710102

Terminal quarter wave ISM band antenna with type N-connector(m).

| | |
|---|---|
| **Frequencies** | 315 +/-1MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | 2.5:1 |
| **Gain** | 2.15dBi |
| **Max power** | 10W |
| **D x H** | 20 x 175mm |

## 710103

Terminal quarter wave dual ISM band antenna with type N-connector(m).

| | |
|---|---|
| **Frequencies** | 433-436MHz<br>868-870MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | 2.5:1 |
| **Gain** | 2.15dBi |
| **Max power** | 10W |
| **D x H** | 20 x 175mm |

## 710106 & 710107

Terminal quarter wave dual band WiFi swivel antenna.
710106: With SMA-connector(m).
710107: With RP-SMA-connector(m).

| | |
|---|---|
| **Frequencies** | 2400-2485MHz<br>4915-5875MHz |
| **Impedance** | 50Ω |
| **Polarization** | Vertical |
| **VSWR** | < 2.5:1 |
| **Gain** | 2.1dBi |
| **Max power** | 10W |
| **D x H** | 10 x 108mm |

# Rod Guide

| Rod P/N | Freq (MHz) | Type | Gain (dBi) | Thread | Length (mm) | Base 128 | Base NCD | Base 2500 | Base 1123 | Base 1131 | Mini Mag | Midi Mag | Maxi Mag | ANT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 313.01.00.00 | 27 | Quarter | 3 | M6 | 600 | ● | | ● | ● | ● | | | ● | ● |
| 3100.03.00.00 | 65-1000 | Quarter | 2 | M6 | <1098 | ● | | ● | ● | ● | | ● | ● | ● |
| 310.06.00.00 | 68-225 | Quarter | 2 | M6 | <1121 | ● | | ● | ● | ● | | | ● | ● |
| 3183.01.00.00 | 27 | Quarter | 2 | M6 | 379 | ● | | ● | ● | ● | | | | ● |
| 3183.02.00.00 | 68-88 | Quarter | 2 | M6 | 379 | ● | | ● | ● | ● | | | | ● |
| 3183.03.00.00 | 88-108 | Quarter | 2 | M6 | 379 | ● | | ● | ● | ● | | | | ● |
| 351.04.00.00 | 144-225 | Colinear | 3 | M6 | <1350 | ● | | | ● | ● | | ● | | ● |
| 3126.04.00.00 | 375-480 | Colinear | 5 | M6 | <735 | ● | | ● | ● | ● | | ● | ● | ● |
| 3132.13.00.00 | 380-445 | Quarter | 2 | M6 | 145 | ● | | ● | ● | | | ● | ● | ● |
| 3132.01.00.00 | 445-470 | Quarter | 2 | M6 | 130 | ● | | ● | ● | | | ● | ● | ● |
| 3178.1 | 450-466 | Colinear | 8 | M6 | 910 | ● | | ● | ● | ● | | | | ● |
| 3126.01.00.00 | 450-470 | Colinear | 5 | M6 | 565 | ● | | ● | ● | ● | | ● | ● | ● |
| 3122.01.00.00 | 452-468 | Colinear | 5 | M6 | 605 | ● | | ● | ● | ● | | | ● | ● |
| 3206.1 | 450-470 | Quarter | 2 | M4 | 143 | | | ● | | | | | | |
| 51274＋ | 430-470 | Quarter | 3 | M3 | 144 | | | | | | ● | | | |
| 3122.13.00.00 | 415-430 | Colinear | 5 | M6 | 600 | ● | | ● | ● | ● | ● | | ● | ● |
| 810 | 365-510 | Colinear | 5 | M6 | 860 | | ● | | | | | | | |
| 851-1 | 365-510 | Quarter | 2 | M6 | 283 | | ● | | | | | | | |
| 3146.383 | 806-870 | Colinear | 5 | M6 | 203 | ● | | ● | ● | ● | | ● | | |
| 3178.1 | 450-466 | Colinear | 8 | M6 | 910 | | | | ● | | | ● | | |
| 3178.3 | 380-395 | Colinear | 8 | M6 | 910 | | | | ● | | | ● | | |
| 3205 | 1600-2690 | Quarter | 2 | M4 | 17 | | | ● | | | | | | |
| 314 | 40 | Quarter | 3 | M6 | 1000 | ● | | | ● | ● | | | | |
| 358.01 | 88-108 | Quarter | 2 | M6 | 675 | ● | | ● | ● | ● | | | | |
| 3146.838 | 806-870 | Colinear | 5 | M6 | 285 | ● | | ● | ● | ● | | ● | | ● |
| 3146.01 | 824-894 | Colinear | 5 | M6 | 314 | ● | | ● | ● | ● | | ● | | ● |
| 3146.03 | 872-960 | Colinear | 5 | M6 | 275 | ● | | ● | ● | ● | | ● | | ● |
| 3157.01 | 824-894 | Colinear | 5 | M6 | 277 | ● | | ● | ● | ● | | ● | | |
| 3157.03 | 872-960 | Colinear | 5 | M6 | 263 | ● | | ● | ● | ● | | ● | | |

# Cable Guide

| Frequency (MHz) | RG178 | RG174 | RG316 | RG316 LSOH | RG223 | Low Loss | LL58 | NFC-200 |
|---|---|---|---|---|---|---|---|---|
| | Nominal attenuation for dB/100m | | | | | | | |
| 100 | 43.8 | 26.5 | 27.4 | 28.9 | 12.9 | 10.2 | 15.7 | 10.3 |
| 200 | 62.2 | 38.7 | 39.0 | 38.8 | 18.8 | 14.8 | 22.8 | 14.3 |
| 400 | 93.4 | 54.2 | 58.0 | 53.9 | 27.7 | 21.4 | 33.1 | 20.7 |
| 700 | 125.7 | 73.0 | 78.3 | 72.7 | 35.8 | 31.2 | 45.5 | 28.1 |
| 1000 | 152.3 | 89.0 | 95.3 | 88.9 | 43.4 | 35.1 | 54.8 | 34.0 |
| 2000 | 224.8 | 149.2 | 137.0 | 133.9 | 64.7 | 55.8 | 81.6 | 49.1 |
| 2500 | 254.4 | 169.6 | 155.0 | 150.7 | 73.5 | 57.8 | 94.5 | 55.4 |
| 3000 | 280.8 | 190.0 | 174.0 | 170.0 | 79.9 | 64.9 | 104.6 | 61.4 |
| 6000 | 411.4 | 299.7 | 325.0 | 257.7 | 119.4 | 110.7 | 168.5 | 88.8 |
| Overall diameter (mm) | 1.8 | 2.8 | 2.5 | 2.7 | 5.3 | 5.5 | 5.0 | 5.0 |

Edition 02

SMARTEQ™ antennas

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