Wireless Division

A global leader in antennas for wireless device applications:

- A leader in IoT, offering top-notch antenna solutions for the Medical, Utility, Transportation, Exploration and Smart markets.
- Offering IoT solutions for sensing, connectivity, data collection, monitoring, tracking and many more applications!
- Internal and external solutions covering frequencies from 13.6 MHz to 6 GHz.
- Covering technologies such as WLAN, WiFi, Zigbee, ISM, GPS, Cellular, LTE, GSM, UHF and VHF.

Core Skills

- Excellent value and outstanding quality products delivered from high-volume production facilities.
- Key supplier to the leading global OEMs.
- Worldwide Distribution support.
- Geographic proximity to customers’ design and production.
- Unique far-reaching understanding of antennas and RF issues.
- Our extensive R&D has made us the technology leader in our field.

We have shipped over 2 Billion antennas!

Embedded Antennas

Embedded onto / soldered to PCB
- Antenna Technology: Ceramic, Helical, Patch, Stamped Metal.
- Applications: OEM equipment, medical devices, security systems, tracking and monitoring devices, handhelds, meter reading, smart devices and more.

Internal Antennas

Located inside the device – cable assembly connected to PCB
- Antenna Technology: Flex Printed Circuit Board (FPCB), Patch.
- Applications: Located inside medical devices, security systems, tracking and monitoring devices, handhelds, meter reading, smart devices, etc. and usually connected by a cable assembly.

External Antennas

For indoor use – with radome, connected outside the device
- Radome included – cosmetics matter.
- Technology: dipoles, blades, external patches.
- Cable assemblies or connector options.
- Mounting options: adhesive, direct, etc.
- Applications: access points, utilities, tracking, wireless communication, remote monitoring, telemedicine, handhelds, POS.

Outdoor Antennas

For outdoor use – with radome
- Weatherproof (IP65/67 ratings).
- Technology: radome omni, monopole, dipole, yagi, base station, panel.
- Different mounting options.
- Optional cable assemblies.
- Applications: mesh networks, security, smart devices, utilities, tracking, wireless communication, oil & gas exploration, transportation, railroad, and vending.

Outdoor-Vehicular

For outdoor vehicular use – with radome
- Weatherproof (IP65/67 ratings).
- Technology: monopole, dipole, elevated feed, whips, low profile, pcb, shark fin.
- Different mounting options: NMO mount, direct mount, mag mount, glass mount.
- Optional cable assemblies.
- Frequencies: UHF, VHF, WLAN/WiFi, ISM, GPS, 3G, 4G, LTE, multi-bands.
- Applications: tracking, wireless communication, transportation, railroad, public safety, military, video, monitoring.

Pulse Electronics

MAKING IOT POSSIBLE

INTERNET OF THINGS

PEOPLE

MACHINES

SYSTEMS

Europe Tel: 49.7032.7806.0 | China Tel: 86.755.33966678 | Taiwan Tel: 886.3.4356768 | USA Tel: 858.674.8100 | PulseElectronics.com | IoT.A
## Medical Monitoring
- Devices
- Sensors
- Patient Tracking
- Handheld equipment
- Remote Monitoring
- Telemedicine
- Patient Data Transmission
- Wireless connectivity

## Transportation
- Railroad
- Remote monitoring
- Vehicular monitoring devices: tire pressure, air bags, etc.
- Vehicle tracking
- Container tracking
- Hands-free communication
- WiFi enabled “smart” vehicles
- DSRC – dedicated short range communication
- Video streaming

## POS/Vending
- Point of Sale Equipment
- Vending Machines
- Parking Meters
- Credit Card Readers
- Remote Payments
- Product Tracking
- Stock Management
- Wireless Scanners
- Bar Code Readers

## Energy/Oil/Gas
- Remote Monitoring
- Equipment Tracking
- Sensoring
- Wireless Communication
- Small Base Stations
- Data Transmission
- Vehicle Tracking
- People Tracking
- Oil/Gas levels

## Smart Homes/Cities
- Smart Lighting
- Smart Metering
- Security
- Smart Clothing and Wearables
- Smart Home Equipment
- Mesh Networks
- Traffic Monitoring
- Access Points
- Water and Waste Management
- Parking and Public Transportation

### Application

<table>
<thead>
<tr>
<th>ANTENNA STYLE</th>
<th>ISM</th>
<th>WLAN, BLE/Bluetooth</th>
<th>3G/4G (LTE)</th>
<th>GPS, GNSS (#) GPS+Glonass</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Embedded</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On the board:</td>
<td></td>
<td>W3000, W3012, W3013</td>
<td>W3006- Dual</td>
<td>W3009, W3010(#), W3012A(#)</td>
</tr>
<tr>
<td>Ceramic, Helical, Patch, Stamped Metal</td>
<td></td>
<td>W3008, W3009C</td>
<td>W3011, W311A</td>
<td>W3011, W3012A(#)</td>
</tr>
<tr>
<td>Embedded</td>
<td></td>
<td>W3056, + GPS</td>
<td>W3095 - + GPS</td>
<td>W3056 - + GPS + WLAN</td>
</tr>
<tr>
<td>Embedded</td>
<td></td>
<td>W3095 - + GPS</td>
<td>W3095 - + GPS</td>
<td>W3095 - + WLAN</td>
</tr>
<tr>
<td>Embedded</td>
<td></td>
<td>W3108</td>
<td>W3070, W3073</td>
<td>W3110</td>
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<tr>
<td>Embedded</td>
<td></td>
<td>W3124</td>
<td>W3011, W3024</td>
<td>W3213, W3216</td>
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<tr>
<td>Embedded</td>
<td></td>
<td>W3127</td>
<td>W3127</td>
<td></td>
</tr>
<tr>
<td><strong>Internal</strong></td>
<td></td>
<td>W3513 - Dual</td>
<td>W3501, W3502</td>
<td>W3503 - Dual</td>
</tr>
<tr>
<td>Inside device, with cable assembly connecting to board</td>
<td></td>
<td>W3525</td>
<td>W3538B0150*</td>
<td>W3538B0140*</td>
</tr>
<tr>
<td><strong>External</strong></td>
<td></td>
<td>W1063, SPDA24918</td>
<td>SPDA17806/2170</td>
<td>GPSDM02*</td>
</tr>
<tr>
<td>Outside device, indoor-use</td>
<td></td>
<td>W1010, W1027, W1030</td>
<td>W1700, W1701, W1702</td>
<td>GPSDM02*</td>
</tr>
<tr>
<td><strong>Outdoor</strong></td>
<td></td>
<td>W1038, W1043 - Dual</td>
<td>W1900, W1901, W1902</td>
<td>GPSDM02*</td>
</tr>
<tr>
<td>Weatherproof, with a radome</td>
<td></td>
<td>W1028B - 5 GHz</td>
<td>W1910, W1911, W1920G0915**</td>
<td>GPSDM02*</td>
</tr>
</tbody>
</table>

*See Mkt for cable & conn. Option  ** See Mktg for gain options