2015
Edition

taoglas
antenna solutions

PRODUCTS & SERVICES
CATALOGUE

GLOBAL
M2M ANTENNA
MARKET LEADERS

DEVICE RF AND
OTA PERFORMANCE
OPTIMIZATION

FULL TEST AND
DESIGN SERVICES

GLOBAL SUPPORT

Application Area

1. Automotive / Transportation
2. Remote Monitoring, Flow Meters, Level Detection, Scada and Telemetry
3. Health Care and Medical

For full application area's of Taoglas products **see pg.12**

Dear Customers

Welcome to the Taoglas Products and Services Catalogue 2015

Inside you will find our extensive range of high performance antennas for a variety of wireless applications.

Inside you will find our range of market-leading products that will take your business to the next level of integration and productivity. As our world becomes increasingly integrated, the opportunities to link every facet of your business together grow every day. At Taoglas we are committed to helping you create a truly connected business.

2014 marked the year the "Internet of Things" really took off and Taoglas has added several new cutting edge antenna products for this new era. Included are a number of embedded (e.g. the FXUB71 on page 21) and external (e.g. the MA240 on page 86) globally capable LTE MIMO antennas that meet the bandwidth demands of modern devices. Another exciting development is our NFC Reader Antennas - the FXR series. Up to 40% of the 1.4bn cellphones being shipped this year will have NFC built-in and the technology is quickly being adapted in point-of-sales machines as an instant payment method, making our FXR NFC antennas an astute investment. We are also proud to showcase our new certified Iridium satellite system antennas. (IAA, CGIP, IP.1615, STS.01).

We are also launching several Iridium satellite system antennas for customers who demand signal performance in every possible locale.

Our service offerings have expanded too, with our three state of the art labs worldwide in Ireland, Taiwan and US where we have the best antenna engineering talent in the industry. Chris Anderson has joined as our VP of Global Engineering. Chris's vast experience and managerial skills are sure to push our newest office in Minneapolis to a new level. Chris and his team will be working on wireless device integration, debugging and testing. You can check out those services and more on our website **www.taoglas.com**.

The world's largest wireless brands work with Taoglas to get their products optimized for a global market where reliable performance is key to winning in that same global market. You can too! We have a one stop solution to optimize your wireless device board design, and get you through regulatory radiated power, sensitivity and spurious emissions testing first time without delays.

If you can't find what you're looking for here please email us or call us and we guarantee to support you in every way possible..

By: Dermot O'Shea and Ronan Quinlan
Co-Founders/Joint Managing Directors

Taoglas is an international company with a 100% positive approach and a world-class way of doing things. We listen. We learn. We respond.

Since our foundation in 2004, we've combined forward-focused technological thinking with a determination to understand and respond to the real needs of our customers.

Our cross-cultural business-solutions approach means research, design and customer support services are based at our world-class technology centres in Ireland, the US and Taiwan.

Today Taoglas provides a comprehensive range of external, embedded and base station antenna solutions for M2M applications such as Telematics / Automotive, Smart-Grid, Metering / Telemetry, Home Automation, Remote Monitoring and Medical applications.

We are committed to continually researching new materials and improved antenna designs. Our surface-mount antenna range and flexible embedded products are unique in the industry.

Taoglas works with you to enable your company achieve the best possible performance from your wireless devices.

We can custom-design to suit your individual needs or provide highly-economical off-the-shelf solutions.

Our step-by-step design process ensures your devices achieve target specifications and comply with all required approvals so they're 'right first time'. If you're looking for a pioneering approach to problem-solving, talk to us at Taoglas. In the field of M2M, we outperform the rest.

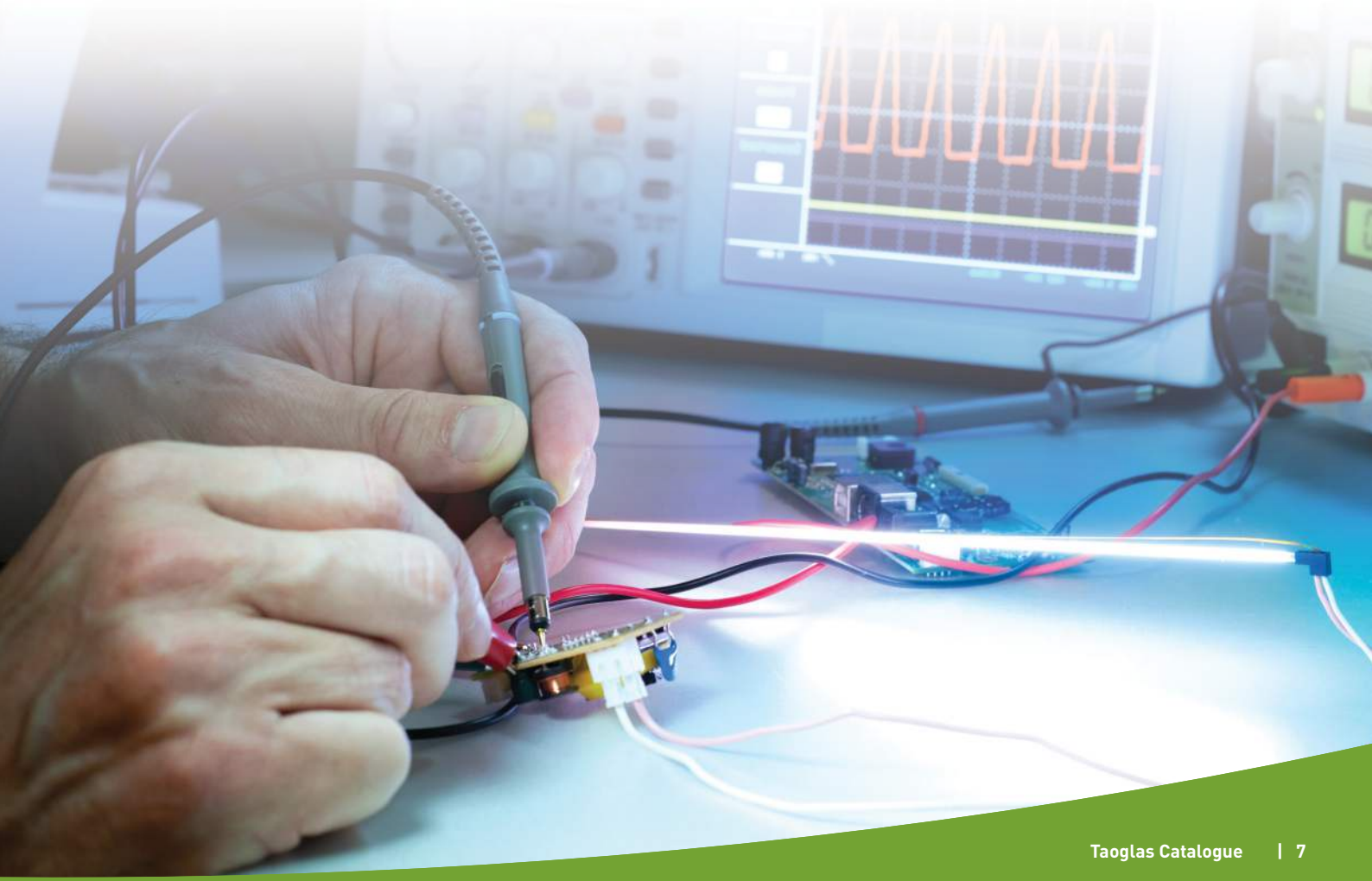
'Taoglas shows a real willingness to solve problems. I value this'

Client Comment

We work with the top innovators in M2M that are tasked to deliver smarter and/or better performing systems for wireless applications.

As well as a wide range of off the shelf antenna solutions (embedded and external) Taoglas has grown with the market and now offer a suite of related services;

- → **Custom Antenna Design**
- → **Device Layout Optimization**
- → **Noise Control**
- → **Certification (e.g. PTCRB) Pre-testing**
- → **Over the Air TRP/TIS Optimization to pass carrier / network requirements**
- → **First Tier Automotive approved antennas produced at TS16949 facility using PPAP and IMDS**
- → **Global Coverage with full test labs in USA, Taiwan, Ireland**



1. Materials
We are not committed to one material technology. We use a wide variety of materials and are constantly researching the latest developments. We ship antennas made from high grade Ceramics, FR4, Metal, Fiberglass, PTFE, Mylar and flexible PCB.

2. Surface Mount Technology
Taoglas are the worldwide leaders of high performance surface mounted antenna solutions for M2M with unique (patent pending) products for cellular, GPS, WiFi and other ISM band antennas. These products are delivered on tape and reel and connect to our customers devices during the standard reflow process.

We are the first in the market to provide automotive approved SMT GPS patch antenna products and also unique multi-band cellular antennas that achieve high efficiency and performance off the shelf in a small footprint.

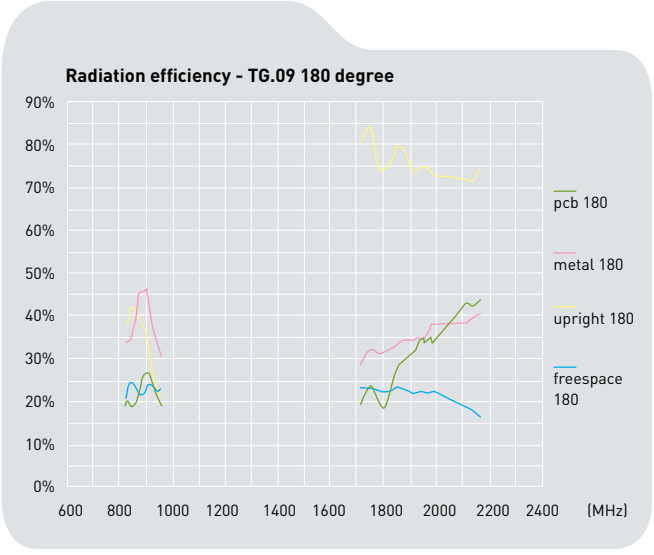
3. Antenna Design Techniques
We select the antenna design that is right for the individual project, application or market; PIFA antennas, Monopoles, Dipoles, Loop Antennas etc.

We are not limited by design methodology, we use software and practical tried and tested procedures to deliver the most effective and efficient antenna. This means we are also not limited by antenna frequency we have the ability to deliver all antennas for the project.

For the device itself you may need to have multiple antenna types GPS,multi-band cellular,diversity, WiFi, Bluetooth, RFID etc. It is best to have one antenna company provide all the antennas because it cuts development time by half while also availing of bulk buying discounts.
We can design and deliver an antenna at any frequency and we have a huge amount of experience in being challenged to design with small spaces and high target specifications. This means we can provide full antenna network solutions - base station antennas, external/remote/ mobile and embedded antennas.

4. M2M Focused
Taoglas employees have built up years of practical international experience in different markets, and have worked on thousands of custom M2M devices.

Simply put, we know what designs work and what do not. We also stay close to M2M module developments and tradeshows so we can keep our product



TRP (Total Radiated Power)
with Sample Custom Device for TG.09

	CDMA (Loop Back Service)			
Band (MHz)	**Position**	**Channel**	**Frequency (MHz)**	**TRP (dBm)**
CDMA800	L	1013	824.70	21.72
	M	384	826.52	22.21
	H	777	848.31	22.23
Band (MHz)	**Position**	**Channel**	**Frequency (MHz)**	**TRP (dBm)**
CDMA1900	L	25	1851.25	20.35
	M	600	1880.00	20.57
	H	1175	1908.75	20.51

TIS (Total Isotropic Sensitivity)
with Sample Custom Device for TG.09

	CDMA (Loop Back Service)			
Band (MHz)	**Position**	**Channel**	**Frequency (MHz)**	**TIS (dBm)**
CDMA800	L	1013	869.70	-100.73
	M	384	881.52	-101.94
	H	777	893.31	-101.66
Band (MHz)	**Position**	**Channel**	**Frequency (MHz)**	**TIS (dBm)**
CDMA1900	L	25	1931.25	-105.61
	M	600	1960.00	-106.36
	H	1175	1988.75	-106.71

Howland WLTE 3100 700mhz to 6GHz 3D OTA chamber, (San Diego, USA)

Taoglas' 12 metre 400 MHz to 6000 MHz ETS Lindgren 3D Tapered Anechoic Chamber in Wexford, Ireland

line as close as possible to ever changing market demands. We work with the leading certified test labs so we are fully aware of wireless device approvals and test methods.

5. The Taoglas promise

Taoglas antennas are tested in the industry's most advanced CTIA approved test chambers, the very same ones that the world's automobile, mobile phone and notebook companies use to qualify the RF performance of their antennas.

Unlike other antenna companies we show the real test results and conditions they were tested in. Antenna performance will change if any parameter of the antenna or environment is changed.

For omni-directional antennas the average gain over 360 degrees, also known as efficiency, is the only proper indicator of antenna performance.

A single peak gain figure used by most of our competitors are not indicative of real performance for omni-directional antennas as they only give the gain at one particular angle or plane and mounting condition for one frequency point only.

You will often see antennas with peak gain of 2dBi listed, however this is largely meaningless as the average gain will be much lower, and it is average gain that influences the power and sensitivity of your product, not the peak gain.

In contrast Taoglas antenna specifications show average gain, efficiency and peak gain across the whole frequency band. Changing a cable type, length, will also change the gain of any antenna.

We are committed to being honest and open in our specifications.

It is advised to try different antennas in real life test conditions. It is recommended never to rely on an antenna specification as a guarantee of antenna performance. Taoglas will gladly test our antenna with your product and compare to a competitor's antenna in your product to get the real test results.

6. Your TOTAL antenna and RF solution for wireless

Please contact us today to discuss your wireless communication requirements or see how we can help you be more competitive in your market.

Avail of our test and design service packages at our fully qualified OTA test facilities in Wexford, Ireland and San Diego, USA.

Contact Details

Worldwide Presence

USA (San Diego)
Taoglas USA, INC.
Region Covered = **Americas**

Ireland - Head Quarters
Taoglas Ltd.
Region Covered =
Europe, Middle East
Africa - EMEA

USA (Minneapolis)
Taoglas USA, INC.
Region Covered = **Americas**

Taiwan
Taoglas Limited
Region Covered =
Asia & Australasia

Contact Details

Worldwide Presence

taoglas
antenna solutions

Ireland

Taoglas Ltd.
Unit 5
Kilcannon Business Park
Old Dublin Road
Enniscorthy, Co. Wexford
Ireland.

Phone: +353 53 9169500
Fax: +353 53 9169655
Email: eusales@taoglas.com

Taiwan

Taoglas Limited.
No.2-2
Ln. 66, ZhongShan 1st Rd.
Bade City
Taoyuan County, 33454
Taiwan, ROC.

Phone: +886 3 3681223
Email: asiasales@taoglas.com

USA (San Diego)

Taoglas USA, Inc.
8375 Camino Santa Fe
Suite A
San Diego
CA 92121
USA.

Phone: +1 858 450 0888
Fax: +1 858 550 0157
Email: nasales@taoglas.com

USA (Minneapolis)

Taoglas USA, Inc.
530 N 3rd St.
Suite B10
Minneapolis
MN 55401-1256
USA.

Phone: +1 858 450 0888
Email: nasales@taoglas.com

Visit our website:
www.taoglas.com

Contact us:
sales@taoglas.com

Feel free to contact our co-founders and Joint Managing Directors directly anytime.

Dermot O' Shea | **Ronan Quinlan**

Applications

Application areas for products

Below are some examples of M2M applications for our products

1. Automotive/Transportation

- First tier OEM
  - In car entertainment
  - E-Call
- Aftermarket
  - Tracking
  - In vehicle diagnostics (OBD II)
  - In car entertainment

2. Remote Monitoring, Flow Meters, Level Detection, Scada and Telemetry

- Electronic Flow Meter (EFM) and Remote Monitoring
- Railroad Communications, Anti-Collision and Switching Control
- Heavy duty, rugged solutions for harsh environments

3. Smart Grid and Utilities

- Advanced Metering Infrastructure (AMI)
- Automatic Meter Reading (AMR)
- Water and Gas Monitoring & Flow Control
- Ruggedized sub-station deployments

4. Agriculture and Water Irrigation Management

- Precision Guidance
- Flow Control Information
- Data & Logistics Management
- Ruggedized and Multiple Frequency Mobile Antennas

5. Industrial and Commercial Application

- Traffic Control Systems
- Scoreboards, Advertising Billboards, Digital Signage
- Taxi Cab Communications, Internet and Advertising
- Wireless Kiosks and Electric Charging Stations

6. Healthcare and Medical

- Support & optimise wireless networks in hospitals & clinics for real-time data voice & video comm
- Wireless Medical Carts
- Tablet PCs & Laptops
- Medical Diagnostic Equipment

7. Home Automation

- Control Screens
- Hubs and Control Points

8. Defence

- Ruggedized Handsets
- Vehicle Telematics
- Special Applications

9. Public Safety: Wireless Data Video Stream, Police, Fire and EMS

- Carrier Network Optimization
- Mass Transit Wireless Internet Access
- Utilities Data Transfer and Processing
- Rugged, low profile housings
- Glass or dash board mount
- GPS, WiFi and Multi-Band Cellular
- Easy to install designs with minimal exposure to theft or vandalism.

Applications

Application areas for products

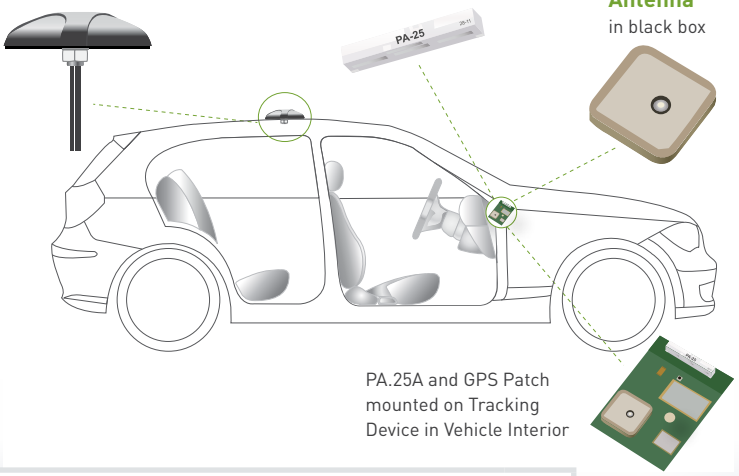
taoglas antenna solutions

Here is a list of common applications where our antennas are used, and a recommendation of our most popular and high performance solutions for each application.

MA.600 Spartan
3in1 Combination
GPS-GLONASS/Cellular/WIFI
Screw Mount Antenna on car

PA.25A Anam
Hexa-Band Cellular
SMT Antenna
in car black box

GPS Patch Antenna
in black box



PA.25A and GPS Patch mounted on Tracking Device in Vehicle Interior

1. Automotive/Transportation

	Category	Part No.	Description	pg
External	GPS-GLONASS-COMPASS-(GNSS)	AA.105	**Titan** Magnetic Mount High Gain (30dB) GPS Antenna	48
		AA.108	**Titan** Adhesive Mount High Gain (30dB) GPS Antenna	48
		AA.161	**Dominator** Magnetic Mount GPS-GLONASS Antenna	64
		AA.162	**Ulysses** Ultra-Low Profile Magnetic Mount GPS-GLONASS Antenna	64
	Cellular/LTE	G.21.B	**Hercules** Gen.II Penta Band Cellular Screw Mount	28
		G.30.B	**Olympian** Wide Band LTE Antenna	29
		GSA.8821	**I-Bar** Penta-Band GSM Antenna	23
	WiFi	WS.01.B	**Hercules** Gen.II Dual Band WiFi Screw Mount	118
		WA.500w	**Stingray** Adhesive Mount WiFi / Zigbee Antenna	119
	ISM	IS.05.B	**Hercules** Gen.II ISM 915 MHz Screw Mount	91
	Combination	MA.204	**Stingray** 2in1 Adhesive Mount GPS / Glonass / Cellular Antenna	82
		MA.104	**Hercules** Gen.II 2in1 GPS / Cellular Screw Mount	70
		MA.303	2in1 Puck Magnetic Mount GPS / Glonass / Cellular Antenna	87
		MA.501.C	**Hercules** Gen.II 2in1 GPS / WiFi Screw Mount	57
		MA.220	**Optimus** 2in1 GPS / GLONASS / LTE Antenna	83
		MA.230	**Stream** 3in1 GLONASS / Cellular / WiFi	85
		MA.240	**Genesis** 3in1 GPS / GLONASS / LTE MIMO Antenna	86
		MA.600	**Spartan** 3in1 GPS / GLONASS / Cellular/ WiFi Screw Mount	75
		MA.603	**Spartan** 3in1 GPS / GLONASS / Cellular/ ISM 915MHz Screw Mount	76
		MA.760	**Pantheon** 4in1 GPS / GLONASS / 2x LTE MIMO / WiFi Screw Mount	80
		MA.750	**Pantheon** 5in1 GPS / 2x LTE MIMO / 2x WiFi MIMO Screw Mount	81
Internal	GPS-GLONASS-COMPASS (GNSS)	AGGP.25	Active GPS-GLONASS Patch Antenna Module	63
		SGP.25	Passive GPS SMT Mount Patch Antenna	55
		CGGP.25	Passive GPS-GLONASS Patch Antenna	61
		FXP.611	**The Cloud** GPS-GLONASS-COMPASS Flexible PCB Antenna	60
		AP.25F	Active GPS Patch Antenna Module	52
	Cellular	PA.25A	**Anam** Hexa-Band Cellular Ceramic PIFA	16
		PA.710	**Warrior** Ultra Wide-Band LTE/Cellular/CDMA SMT Antenna	17
		FXP.14	Hepta-Band Cellular/ Assisted GPS Flexible PCB Antenna	19

2. Remote Monitoring, Flow Meters, Level Detection, Scada and Telemetry

Area	Category	Part No.	Description	pg
Internal	Cellular	PA.710	**Warrior** Ultra Wide-Band LTE/Cellular/CDMA SMT Antenna	17
		PA.25.A	**Anam** Hexa-Band Cellular SMT antenna	16
		FXP.14	Hepta-Band Cellular/ Assisted GPS Flexible PCB Antenna	19
	ISM	PC81	**The Stripe™** 868MHz PCB Antenna	102
		PC91	**The Stripe™** 915MHz PCB Antenna	102
		HA.10.A	169 MHz Helical Monopole Antenna	103
		CA.69	169 MHz VHF Ceramic Chip Monopole Antenna	103
External	Cellular	GSA.8827	**Phoenix I-Bar** Adhesive Mount Wide-Band LTE/ Cellular/ CDMA Antenna	23
		GSA.8841	I-Bar Wide-band 4G LTE	24
	Combination	MA.600	**Spartan** 3in1 GPS-GLONASS/ Cellular/ WiFi Screw Mount	75
		MA.510	**Hercules** 2in1 MIMO Dual Band 2.4/5.8GHz	72
		MA.120	**Hercules** 2in1 450MHz & 868MHz Screw Mount	71
		MA.602	**Spartan** 3in1 GPS-GLONASS/Cellular/Iridium Screw Mount	129
		GSA.8841	I-Bar Wide-band 4G LTE	24
	ISM	FW.80	**Meteor** 169MHz Omni-Directional Flexible Whip	95
	Iridium	STS.01	**Spartan** Iridium Transceiver Antenna System	128

3. Smart Grid and Utilities

Area	Category	Part No.	Description	pg
External	Cellular	G.30	Wide-Band 2G/3G/4G Antenna	29
	ISM	FW.80	**Meteor** 169MHz Omni-Directional Flexible Whip	95
	Iridium	STS.01	**Spartan** Iridium Transceiver Antenna System	128

4. Agriculture and Water Irrigation Management

Area	Category	Part No.	Description	pg
External	Cellular	G.30	Wide-Band 2G/3G/4G Antenna	29
	ISM	FW.80	**Meteor** 169MHz Omni-Directional Flexible Whip	95
	Iridium	STS.01	**Spartan** Iridium Transceiver Antenna System	128

5. Industrial and Commercial Application

Area	Category	Part No.	Description	pg
Internal	Cellular	PA.710	**Warrior** Ultra Wide-Band LTE/Cellular/CDMA SMT Antenna	17
		PCS.06.A	**Havok** Low Profile LTE/Cellular 2G/3G/4G SMD Dielectric Antenna	18
		FXUB.70	2G/3G/4G Flexible MIMO Antenna	21
		FXP.14	Hepta-Band Cellular/ Assisted GPS Flexible PCB Antenna	19
External	Cellular	TG.35	**Apex II** Ultra-Wideband 4G LTE Antenna	41
		GSA.8827	**Phoenix I-Bar** Adhesive Mount Wide-Band LTE/ Cellular/ CDMA Antenna	23
	Combination	MA.600	**Spartan** 3in1 GPS-GLONASS/ Cellular/ Wi Fi Screw Mount	75
		MA.602	**Spartan** 3in1 GPS-GLONASS/Cellular/Iridium Screw Mount	129
	Iridium	STS.01	**Spartan** Iridium Transceiver Antenna System	128

6. Healthcare and Medical

Area	Category	Part No.	Description	pg
Internal	**WiFi**	**PC14**	Circular Dual Band 2.4~5.2GHz PCB Antenna	91
		FXP.831	2.4/4.9-6.0Ghz Flex PCB Antenna	123

7. Home Automation

Area	Category	Part No.	Description	pg
Internal	**Cellular**	**PA.710**	**Warrior** Ultra Wide-Band LTE/Cellular/CDMA SMT Antenna	17
		PCS.06.A	**Havok** Low Profile LTE/Cellular 2G/3G/4G SMD Dielectric Antenna	18
		FXUB.70	2G/3G/4G Flexible MIMO Antenna	21
		FXP.14	Hepta-Band Cellular/ Assisted GPS Flexible PCB Antenna	19
	WiFi	**FXP.74**	**Black Diamond** 2.4GHz Band/ Flexible PCB Antenna	110
		FXP.524	**Venti** 4x4 MIMO Dual-Band 5GHz Flex PCB Antenna	124
		FXP.840	**Freedom** Dual Band 2.4GHz - 5GHz/ Micro Flexible PCB Antenna	123
		WLA.01	2.4GHz WLAN/WiFi/Bluetooth/Zigbee/ High Efficiency Loop Antenna	114
		SDWA.01	Dual Band 2.4/5.8GHz Wi-Fi Ceramic SMT Antenna	125
		SWLP.12	2.4GHz Wi-Fi/WLAN/ISM/Zigbee SMT Patch Antenna	112
External	**Cellular**	**GSA.8841**	I-Bar Wide-band 4G LTE	24
		GSA.8827	**Phoenix I-Bar** Adhesive Mount Wide-Band LTE/ Cellular/ CDMA Antenna	23
	WiFi	**GW.05**	Dual-Band WiFi 2.4-5GHz Terminal Mount Antenna	120
	Combination	**MA.600**	**Spartan** 3in1 GPS-GLONASS/ Cellular/ WiFi Screw Mount	575
	Iridium	**STS.01**	**Spartan** Iridium Transceiver Antenna System	128

8. Defence

Area	Category	Part No.	Description	pg
Internal	**Cellular**	**PA.710**	**Warrior** Ultra Wide-Band LTE/Cellular/CDMA SMT Antenna	17
		FXP.14	Hepta-Band Cellular/ Assisted GPS Flexible PCB Antenna	19
External	**Cellular**	**GSA.8827**	**Phoenix I-Bar** Adhesive Mount Wide-Band LTE/ Cellular/ CDMA Antenna	23
	Combination	**MA.600**	**Spartan** 3in1 GPS-GLONASS/ Cellular/ WiFi Screw Mount	75
		MA.602	**Spartan** 3in1 GPS-GLONASS/ Cellular/ Iridium Screw Mount	129
	Iridium	**STS.01**	**Spartan** Iridium Transceiver Antenna System	128

9. Public Safety: Wireless Data Video Stream, Police, Fire and EMS

Area	Category	Part No.	Description	pg
Internal	**Cellular**	**PA.710**	**Warrior** Ultra Wide-Band LTE/Cellular/CDMA SMT Antenna	17
		FXP.14	Hepta-Band Cellular/ Assisted GPS Flexible PCB Antenna	19
	WiFi	**FXP.524**	**Venti** 4x4 MIMO Dual-Band 5GHz Flex PCB Antenna	124
External	**Combination**	**MA.600**	**Spartan** 3in1 GPS-GLONASS/ Cellular/ WiFi Screw Mount	75
		MA.673	**Spartan** 3in1 3x Dual Band WiFi MIMO Screw Mount	88
		MA.602	**Spartan** 3in1 GPS-GLONASS/ Cellular/ Iridium Screw Mount	129
		MA.510	**Hercules** 2in1 MIMO Dual-Band 2.4/5.0GHz	72
		MA.760	**Pantheon** 4in1 GPS-GLONASS/ 2x LTE MIMO/ WiFi Screw Mount	80
		MA.750	**Pantheon** 5in1 GPS/ 2x LTE MIMO/ 2x WiFi MIMO Screw Mount	81
	Cellular	**TG.35**	**Apex II** Ultra -Wideband 4G LTE Antenna	41
		GSA.8827	**Phoenix I-Bar** Adhesive Mount Wide-Band LTE/ Cellular/ CDMA Antenna	23
	Iridium	**STS.01**	**Spartan** Iridium Transceiver Antenna System	128

On Board Cellular Antenna Solutions (SMT)

Embedded Cellular 2G/3G/4G SMT Mount Range

Taoglas' unique ceramic multiband cellular antennas use high grade ceramics which have been developed through years of expertise in delivering the right materials for high performance antennas.

The patent pending PA.700.A or "Viking" is an SMT solution and a favourite of global vehicle manufacturers. It is capable of operating at 700 to 960MHz and 1710 to 2200MHz and is 2G/3G/4G compatible. The "Viking" has wide bandwidths over a small area and minimal transmission loss while being highly efficient and giving impressive TRP/TIS results. The dense, robust ceramic antennas pass drop tests and 20G automotive vibration tests. Delivered on tape and reel and then soldered onto the board during the reflow process, the "Viking" brings clear production benefits. The "Viking" antenna offers you automated assembly, reliability and uniform performance from every device.

Model No	
	PA.22A GSM Dielectric PIFA Antenna Tri-Band Cellular Ceramic PIFA

Electrical Data	
Working Freq.	880~960MHz 1710~1990MHz
VSWR	2.5 Max*.
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB
Efficiency	>50%

Mechanical Data	
Dimensions	29.8*6*5mm
Mounting	SMT
Ground Plane	35*115mm
Op. Temp.	-40°C~+85°C

Model No	
	PA.25A **Anam** Hexa-Band Cellular Ceramic PIFA

Electrical Data	
Working Freq.	824~960MHz 1700~2170MHz
VSWR	3.0 Max.*
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB
Efficiency	>50%

Mechanical Data	
Dimensions	35*6*5mm
Mounting	SMT
Ground Plane	40*95mm
Op. Temp.	-40°C~+85°C

Model No	
	PA.700.A **Viking** Wide-Band LTE/Cellular/CDMA Ceramic PIFA

Electrical Data	
Working Freq.	689~960MHz 1710MHz to 2170MHz
VSWR	3.0 Max
Polarization	Linear
Impedance	50Ω
Return Loss	≤-16dB
Efficiency	>56%

Mechanical Data	
Dimensions	40*6*5mm
Mounting	SMT
Ground Plane	140*40mm
Op. Temp.	-40°C~+85°C

*VSWR depends on the environment

Cellular SMT Mount Metal PIFA Range

Our custom metal stamp PIFA and monopole antenna range offers the highest efficiency for small form factor applications where ground is small or where there is no room for a ceramic solution. These antennas are 100% customised for each design so will suit high volume or critical applications.

Example of a Metal Stamp Solution

On Board Cellular Antenna Solutions (SMT)

Embedded LTE Cellular SMT Mount Range

The patent pending PA.710.A or “Warrior” is a revolutionary high efficiency SMT LTE ceramic antenna, with 2G/3G/4G compatibility and operates at 698 to 960MHz and 1710 to 2690MHz. The “Warrior” is manufactured with high grade custom ceramic material and new design techniques to attain the highest stability in all bands when mounted on the devices main PCB. These antennas are delivered on tape and reel.

Model No	PA.710.A **Warrior** LTE Ultra Wide-Band SMT Antenna Ceramic PIFA
Electrical Data	
Working Freq.	698~960MHz 1710MHz to 2690MHz
VSWR:	3.0 Max
Polarization	Linear
Impedance	50Ω
Peak Gain	2 dBi typ.
Efficiency	> 50%
Mechanical Data	
Dimensions	40*6*5mm
Mounting	SMT
Ground Plane	120*45mm
Op. Temp.	-40°C~+85°C

Model No	PA.711.A **Warrior II** LTE Ultra Wide-Band SMT Antenna Ceramic PIFA
Electrical Data	
Working Freq.	698~960MHz 1710MHz to 2690MHz
VSWR:	3.0 Max
Polarization	Linear
Impedance	50Ω
Peak Gain	2 dBi typ.
Efficiency	> 50%
Mechanical Data	
Dimensions	40*6*5mm
Mounting	SMT
Ground Plane	120*125*6.8mm
Op. Temp.	-40°C~+85°C

* Supplied as part of a MIMO Antenna Setup with PA710.
** Refer to PAD.71X.A

On Board Cellular Antenna Solutions (SMT)

Embedded Cellular 2G/3G/4G SMT Mount Range

The PCS range are discreet and sturdy, with small form factors, lower profile of 3mm in height and resistance to detuning alongside the ease of tuning them in their device environment, instead of a complete retool.

The PCS.06.A “Havok” and PCS.07.A “Nemesis” are both SMT LTE cellular 2G/3G/4G embedded antenna. Small dimensions and low profile are the key features of the “Havok” and “Nemesis” antenna while maintaining the performance of larger equivalent models. The two models are also easily tuned in the device environment. The minimal design of the “Havok” and “Nemesis” make them easy to mount directly on the edge of the PCB board. This range is more economical than ceramic antennas but they need a slightly larger ground plane to achieve greater efficiency.

Model No	
	PCS.06.A **Havok** Low Profile LTE/Cellular 2G/3G/4G SMD Dielectric Antenna

Electrical Data	
Working Freq.	698~960MHz 1710MHz to 2690MHz
VSWR:	3.0 Max
Polarization	Linear
Impedance	50Ω
Peak Gain	3 dBi typ.
Efficiency	> 65%

Mechanical Data	
Dimensions	42*10*3mm
Mounting	SMT
Ground Plane	123*45mm
Op. Temp.	-40°C~+85°C

Model No	
	PCS.07.A **Nemesis** Low Profile Cellular 2G/3G SMD Dielectric Antenna

Electrical Data	
Working Freq.	824~960MHz 1710MHz to 2170MHz
VSWR:	3.0 Max
Polarization	Linear
Impedance	50Ω
Peak Gain	2.9 dBi typ.
Efficiency	> 45%

Mechanical Data	
Dimensions	35*7*3mm
Mounting	SMT
Ground Plane	100*40mm
Op. Temp.	-40°C~+85°C

Embedded Cellular Flexible Polymer Series (with Cable & Connector)

Flexible Polymer 2G/3G PCB Antennas

Flexible printed circuit antennas are made from Flexible Polymer. Ultra low-profile, they can be directly adhered to even the curved housings of a product.

The FXP14 Hexa Band Cellular antenna is an extremely versatile product, covering all world-wide bands (850/900/1700/1800/1900/2100MHz). The FXP14 is adaptable to a huge variety of technologies. The FXP14 is an extremely versatile and powerful antenna used by some of the worlds largest brands.

The FXP07.07.B and FXP14 are general purpose, flexible stick-on PCB's.

Connection to the main board is usually made by mechanical contact. The FXP07B has an added feature that it can be soldered to the edge of the main device ground-plane to optimize the efficiency.

Model No

FXP14
2G/3G Cellular
1575MHz GPS
Flexible Polymer
Antenna
Ground Plane
Independent

Electrical Data

Working Freq.	850/900/1700/1800/1900/2100 MHz 1575.42MHz GPS
Peak Gain	3dBi
Polarization	Linear
Impedance	50Ω
Return Loss	≤ -17dB
Efficiency	> 50%

Mechanical Data

Dimensions	70*20*0.1mm
Mounting	Adhesive
Op. Temp.	-40°C~+85°C
Cable*	100mm Ø 1.13
Connector*	IPEX MHFI (U.FL comp)
Material	Flex Polymer
Adhesive Tape	3M 467

Model No

FXP07.B
Embedded
2G/3G
Flex Monopole
Antenna

Electrical Data

Working Freq.	850/900/1800/1900/2100MHz
Radiation Pattern	Omni-Directional
Polarization	Linear
Impedance	50Ω
Return Loss	≤9dB avg.
Efficiency	> 30% w/ GND

Mechanical Data

Dimensions	41*24*0.1mm
Mounting	Adhesive
Op. Temp.	-40°C~+85°C
Cable*	100mm Ø 1.13
Connector*	IPEX MHFI (U.FL comp)
Material	Flex Polymer
Adhesive Tape	3M 467

* For assisted GPS only.

* Cables and connectors are customizable.

Embedded Cellular Flexible Series (with Cable & Connector)

Flexible Polymer PCB Antennas

The FXP40 is made from poly-flexible material, has a tiny form factor (42.6mm*12.1mm*0.15mm) and has double-sided 3M tape for easy “peel and stick” mounting. The patent pending FXUB63 flexible ultra wideband antenna has been designed to cover all working frequencies in the 698 -3000MHz spectrum, covering all Cellular, 2.4GHz Wi-Fi, ISM and AGPS. The antenna features excellent efficiencies on all bands, ground independent, with cable and connector for easy installation.

Model No

FXUB63
LTE Wide Band
Flex Antenna
698~3000MHz

Electrical Data

Working Freq.	698~3000MHz
Radiation Pattern	Omni-Directional
Peak Gain	5dBi
Polarization	Linear
Impedance	50Ω
Return Loss	-12dB typ.
Efficiency	> 45%

Mechanical Data

Dimensions	96*21*0.2mm
Mounting	Adhesive
Op. Temp.	-40°C~+85°C
Cable	150mm Ø1.37
Connector	IPEX MHFI (U.FL comp)
Material	Flexible Polymer
Adhesive Type	3M 467

Model No

FXP40
2G Quad-Band
GSM850/GSM900/
DCS/PCS
Flexible PCB Antenna

Electrical Data

Working Freq.	824~960/ 1710~1990MHz
Radiation Pattern	Omni-Directional
Peak Gain	1.37dBi
Polarization	Linear
Impedance	50Ω
Return Loss	≤ 5dB
Efficiency	> 24%

Mechanical Data

Dimensions	46.2*12.1*0.15mm
Mounting	Adhesive
Op. Temp.	-40°C~+85°C
Cable*	85mm Ø 1.13
Connector*	IPEX MHFI (U.FL comp)
Material	Flex Polymer
Adhesive Tape	3M 467

Model No

FXP29
2100MHz 3G
UMTS/HSPA+ Band
Flexible PCB Antenna

Electrical Data

Working Freq.	1920~2170MHz
Radiation Pattern	Omni-Directional
Peak Gain	1.5dBi
Polarization	Linear
Impedance	50Ω
Return Loss	-10dB max
Efficiency	45%

Mechanical Data

Dimensions	12.7*8.4*0.24mm
Mounting	Adhesive
Op. Temp.	-40°C~+85°C
Cable*	70mm Ø1.13mm
Connector*	IPEX MHFI (U.FL comp)
Material	Flex Polymer
Adhesive Tape	3M 467

Embedded Cellular Flexible Series (with Cable & Connector)

LTE Flexible Polymer PCB Antennas

The Maximus antenna has a unique hybrid design. Within one antenna structure the electromagnetic waves travel in two predominant propagation modes - one for lower frequencies, (e.g. LTE at 700 MHz) and the other for higher 4G and Wi-Fi frequencies up to 6GHz.

The FXUB70 flexible polymer antenna, at 182*21*0.2mm, is ultra thin and truly wideband with high efficiencies across the bands. The patent pending FXUB71 antenna is an industry leading embedded LTE 2*2 MIMO flexible polymer monopole type antenna for worldwide LTE applications, which also works equally well on 2G and 3G applications. Great care has been taken to ensure high isolation between the MIMO antenna elements to maximise MIMO throughput.

Model No	
	FXUB66 **Maximus** Flexible Ultra Wide Band Antenna 698~6000MHz

Electrical Data	
Working Freq.	700~6000MHz
Radiation Pattern	Omni-Directional
Peak Gain	5dBi
VWSR	< 3:1 typ.
Polarization	Linear
Impedance	50Ω
Return Loss	-10dB typ.
Efficiency	> 60%
Max Input Power	5W

Mechanical Data	
Dimensions	120.4*50.4*0.2mm
Mounting	Adhesive
Op. Temp.	-40°C~+85°C
Cable	150mm Ø1.37mm
Connector	IPEX MHFI (U.FL comp)
Material	Flexible Polymer
Adhesive Type	3M 467

Model No	
	FXUB70 4G LTE Wide Band Flex MIMO Antenna 698~3000MHz

Electrical Data	
Working Freq.	698~3000MHz
Radiation Pattern	Omni-Directional
Peak Gain	5dBi
VWSR	< 3:1 typ.
Polarization	Linear
Impedance	50Ω
Return Loss	-10dB typ.
Efficiency	> 50%
Max Input Power	5W

Mechanical Data	
Dimensions	182*21*0.2mm
Mounting	Adhesive
Op. Temp.	-40°C~+85°C
Cable	150mm Ø1.37mm
Connector	IPEX MHFI (U.FL comp)
Material	Flexible Polymer
Adhesive Type	3M 467

Model No	
	FXUB71 4G LTE Wide Band Flex MIMO Antenna 698~3000MHz

Electrical Data	
Working Freq.	698~3000MHz
Radiation Pattern	Omni-Directional
Peak Gain	5dBi
VWSR	< 3:1 typ.
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB typ.
Efficiency	50% typ.
Max Input Power	5W

Mechanical Data	
Dimensions	240*21*0.15mm
Mounting	Adhesive
Op. Temp.	-40°C~+85°C
Cable	150mm Ø1.37mm
Connector	IPEX MHFI (U.FL comp)
Material	Flexible Polymer
Adhesive Type	3M 467

* Cables and connectors are customizable.

Embedded Cellular Rigid Series (Cable & Connector)

PC Series - Rigid 2G/3G Cellular Antennas

The PC series are ground plane independent antennas which save on space, making them suitable for even smaller sized M2M devices in tracking, navigation, automotive and telemedical markets. Taoglas also can design and tune custom antennas for your device. Where space is available the PC104 should be used to provide high efficiency and best performance.

Model No

PC104
Penta-Band Cellular
FR4 PCB Antenna
Adhesive Mount

Electrical Data

Working Freq.	850/900/1800/ 1900/2100MHz
Radiation Pattern	Omni-Directional
Peak Gain	2dBi
Polarization	Linear
Impedance	50Ω
Return Loss	< -10bB
Efficiency	50%+

Mechanical Data

Dimensions	80*20*1mm
Cable*	164.9mm Ø 1.37
Connector*	IPEX MHFI (U.FL comp)
Adhesive	3M 9448
Op. Temp.	-40°C~+85°C

Model No

PC27
The Stripe™
Quad-Band Cellular
FR4 PCB Antenna

Electrical Data

Working Freq.	850/900/ 1800/1900MHz
Radiation Pattern	Omni-Directional
Peak Gain	0dBi
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB
Efficiency	25% avg.

Mechanical Data

Dimensions	34*7*0.8mm
Cable*	100mm Ø 1.13
Connector*	IPEX MHFI (U.FL comp)
Op. Temp.	-40°C~+85°C

Model No

PC30
Penta-Band Cellular
FR4 PCB Antenna

Electrical Data

Working Freq.	850/900/1800 /1900/2100MHz
Radiation Pattern	Omni-Directional
Peak Gain	0dBi
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB
Efficiency	50% avg.

Mechanical Data

Dimensions	75*8*0.8mm
Cable*	100mm Ø 1.13
Connector*	IPEX MHFI (U.FL comp)
Op. Temp.	-40°C~+85°C

External Adhesive Mount - Automotive TS16949 First Tier Approved

I-Bar

Our adhesive mount external antennas offer ease of installation, high performance in compact form factors. They are supplied with high quality durable 3M tape to allow secure fixing onto any surface.

The GSA.8827 “Phoenix” Ultra-Wideband I-Bar is a favourite of first-tier automotive manufacturers, aftermarket modification and telematics. Its slim-line design allows for covert and convenient installation in automotive vehicles and its omni-directional gain across all bands ensures constant reception and transmission. The “Phoenix” is a rugged, adept antenna that can pick up all 2G/3G/4G cellular modules worldwide.

The GSA.8821 I-Bar is a high gain, flexible, efficient GSM antenna solution. It is compliant with AT&T antenna standards and comes with fully customizable cables and connectors.

Model No	GSA.8827 **Phoenix I-Bar** 2G/3G/4G Ultra Wide-Band Adhesive Mount
Electrical Data	
Working Freq.	698-960/1575.42 1710-2700MHz
Radiation Pattern	Omni-Directional
Gain	2dBi avg.
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB avg.
Efficiency	> 41% avg. On non-metal
Mechanical Data	
Dimensions	105*30*7.7mm
Mounting	Adhesive
Cable*	1M RG174
Connector*	SMA(M)
Housing	UV Resistant PC/ABS
IP Rating	IP65

Model No	GSA.8821 **I-Bar** 2G/3G Cellular Adhesive Mount
Electrical Data	
Working Freq.	850/900/1800 /1900/2100MHz
Radiation Pattern	Omni-Directional
Gain	2dBi avg.
Polarization	Linear
Impedance	50Ω
Return Loss	≤-7dB avg.
Efficiency	> 30% avg. On non-metal
Mechanical Data	
Dimensions	107*15*6mm
Mounting	Adhesive
Cable*	3M RG-174
Connector*	SMA(M)
Housing	ABS POLYLAC PA-757
IP Rating	IP65

* Cables and connectors are customizable.

External Adhesive Mount - Automotive TS16949 First Tier Approved

I-Bar

The GSA.8822 T-Bar 2G/3G omni-directional antenna is used in many 2G and 3G applications which require stable reception and transmission. Ease and speed of installation make it a perfect fit for the telematics industry, being an ideal tracking system or for cellular car kits.

The GSA.8830 comes in a slim-line, dipole design encased in waterproof heat-shrink material, allowing for covert and convenient installation in automotive vehicle. Omni-directional gain across all bands means that reception and transmission is constant and reliable. The GSA.8830 is a great antenna for customers that appreciate the highest performance at a lower price.

The GSA.8841 LTE Wideband I-Bar Antenna is an external adhesive mount solution on glass and plastic for automotive and telematics applications.

Model No	GSA.8822 **T-Bar** 2G/3G Penta-Band Adhesive Mount
Electrical Data	
Working Freq.	850/900/1800/ 190/2100MHz
Radiation Pattern	Omni-Directional
Gain	-2dBi avg.
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB avg.
Efficiency	> 15% avg.
Mechanical Data	
Dimensions	106*13*6.7mm
Mounting	3M Adhesive
Cable*	3M RG174
Connector*	SMA(M)
Housing	UV Resistant ABS
IP Rating	IP67

Model No	GSA.8830 **I-Bar** Penta-Band Heat-Shrink Wrapped Adhesive Mount
Electrical Data	
Working Freq.	850/900/1800 /1900/2100MHz
Radiation Pattern	Omni-Directional
Gain	xdBi avg.
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB avg.
Efficiency	> 35% avg.
Mechanical Data	
Dimensions	90*20.8*4.6mm
Mounting	3M Adhesive
Cable*	2M RG-174
Connector*	SMA(M)
Housing	PE Heat Shrink
IP Rating	IP67 (Internal PCB)

Model No	GSA.8841 **I-Bar** 2G/3G/4G Heat-Shrink Wrapped Adhesive Mount
Electrical Data	
Working Freq.	698-6000MHz
Radiation Pattern	Omni-Directional
Gain	2dBi avg.
Polarization	Linear
Impedance	50Ω
Return Loss	≤-5dB avg.
Efficiency	> 43% avg.
Mechanical Data	
Dimensions	176 * 59 *11.6 mm
Mounting	3M Adhesive
Cable*	1M NFC-200
Connector*	SMA(M)
Housing	UV Resistant ABS
IP Rating	IP65

External Cellular Magnetic Mount

Magnetic Mount Antennas

Compact, highly proficient and with a straightforward installation process, Taoglas Magnetic Mount external antennas are perfect for remote monitoring, vending machines and other terminal type applications.

At Taoglas our approach is to tune the antenna specifically for its housing, giving your device maximum sensitivity. We provide the cable and connector required to directly connect your to device to our antennas, making the install that much easier.

The MC.TG30 achieves world class standards for a magnet mount 4G solution with highest efficiencies.

Model No	GA.110 2G/3G/4G High Gain Ultra Wide-Band Magnetic Mount
Electrical Data	
Working Freq.	698MHz to 960MHz, 1575.42MHz, 1710MHz to 2700MHz, 3500MHz
Radiation Pattern	Omni-Directional
Peak Gain	3dBi
Polarization	Linear
Impedance	50Ω
Return Loss	<10dB
Efficiency	40%
Mechanical Data	
Dimensions	H: 298mm Ø 50mm
Mounting	Magnetic Mount
Whip Material	Coated Brass
Connector	1M RG-174 SMA(M)
IP Rating	IP65

Model No	GA.107 Penta-Band Whip Antenna Magnetic Mount
Electrical Data	
Working Freq.	850/900/1800 /1800/1900 /2100MHz
Radiation Pattern	Omni-Directional
Peak Gain	2dBi Typ.
Polarization	Linear
Impedance	50Ω
Return Loss	≤-12dB avg.
Efficiency	> 30% avg.
Mechanical Data	
Dimensions	H: 116mm Ø 29.5mm
Mounting	Magnetic Mount
Cable*	3M RG-174
Connector*	SMA(M)
IP Rating	IP65

Model No	MB.TG30 Straight Fixed Dipole Terminal Magnetic Mount 4G Antenna
Electrical Data	
Working Freq.	698 ~ 960MHz 1575 MHz 1710 ~ 2700MHz
Radiation Pattern	Omni-Directional
Peak Gain	2dBi Typ.
Polarization	Linear
Impedance	50Ω
Return Loss	≤-12dB avg.
Efficiency	> 50% typ.
Mechanical Data	
Dimensions	H: 196mm Ø 84mm
Mounting	Magnetic Mount
Cable*	3M CFD 200
Connector*	SMA(M)
IP Rating	IP67 (IP65 Base)

* Cables and connectors are customizable.

External Cellular Whip Antennas

Whip Antennas

At Taoglas our approach is to tune the antenna specifically for its housing, giving your device maximum sensitivity. We provide the cable and connector required to directly connect your to device to our antennas, making the install that much easier.

The FW.90 is a flexible cellular whip antenna with IP67 housing. The FW.90 is Ideal for outdoor environments which require high gain on upper and lower bands. It offers stable peak gain above 2dBi on all five common cellular bands (2G/3G/GSM/CDMA) used worldwide.

The FW.92 shares the same IP67 housing, wide response/high peak gain and is equally as effective on 2G/3G/GSM/CDMA bands. It comes with a RP-N type male connector and stable peak gain above 3dBi.

Model No	FW.90.SMA.M
	2G/3G/4G LTE
	Flexible Inner
	Steel Core
	Monopole Whip

Electrical Data	
Working Freq.	698~960MHz
	1710~2690MHz
Radiation Pattern	Omni-Directional
Peak Gain	2dBi avg.
Polarization	Linear
Impedance	50Ω
Return Loss	≤-6dB avg.
Efficiency	> 50% avg.

Mechanical Data	
Dimensions	H: 250mm
	Ø 16mm
Mounting	Screw Mount
Op. Temp.	-40°C~+85°C
Connector*	SMA(M)
IP Rating	IP67
	(IP65 Connector)

Model No	FW.91.TNC.M
	2G/3G
	Flexible Inner
	Steel Core
	Monopole Whip

Electrical Data	
Working Freq.	850/900/1800
	/1900/2100MHz
Radiation Pattern	Omni-Directional
Peak Gain	2.5dBi avg.
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB avg.
Efficiency	> 50% avg.

Mechanical Data	
Dimensions	H: 250mm
	Ø 16mm
Mounting	Screw Mount
Op. Temp.	-40°C~+85°C
Connector*	TNC Male
IP Rating	IP67
	(IP65 Connector)

Model No	FW.92.RNT.M
	2G/3G
	Flexible Inner
	Steel Core
	Monopole Whip

Electrical Data	
Working Freq.	850/900/1800
	/1900/2100MHz
Radiation Pattern	Omni-Directional
Peak Gain	3dBi avg.
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB avg.
Efficiency	> 50% avg.

Mechanical Data	
Dimensions	H: 274mm
	Ø 16mm
Mounting	Screw Mount
Op. Temp.	-40°C~+85°C
Connector*	RP-N-type Male
IP Rating	IP67
	(IP65 Connector)

* Note: These antennas should be used with a ground plane.

External Cellular Wall Mount

Cyclops Cellular Solution for Industrial Applications

With one eye on tenacity, the WM.90 "Cyclops" wall mount monopole is perfect for those in the automotive or industrial industries. Steel-cored and IP67 waterproof the "Cyclops" is resistant to collision, vandalism, wear and tear as well as adverse weather conditions.

The whip of the "Cyclops" is made up of a extensile inner steel core covered by TPU which is the key to its ability to survive accidents and deterioration. The built in bracket allows complete concealment of the cable for more secure integration and cleaner installation. The cable can also be routed out of the back wall of the bracket into the interior of the mounting wall for added security against vandalism. The cable and connector are both customizable and the whip itself can be modified for whatever frequency bands or gain requirements you need. We are constantly working on new connection versions of the whip.

Model No	
	WM.90 **Cyclops** Wall Mount High Gain FW.90 on Integrated L Bracket

Electrical Data	
Working Freq.	698~960MHz 1710~2690MHz
Radiation Pattern	Omni-Directional
Gain	2.8~4.0dBi
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB typ.
Efficiency	> 50% avg.

Mechanical Data	
Dimensions	H: 250mm, Ø 16mm
Bracket	H: 118mm, L: 120mm, W:32mm
Mounting	Wall Mount L Bracket
Cable*	3M CFD-200
Connector*	SMA(M)
Op. Temp.	-40°C~+85°C
IP Rating	IP67

* Cables and connectors are customizable.

External Cellular Permanent Screw Mount Antennas

Cellular Antenna External Range Cable and Connector

The Gen II "Hercules" steel thread antenna is the product of in the field research and expertise, resulting in an ability to operate globally, deliver consistent data and go the distance in a Fleet Management or AVL capacity.

The G30 or "Olympian" can offer 4G LTE speeds globally on vehicles and outdoor assets. The "Olympian" offers consistent high bandwidth transmission that is vital for mobile broadband or video applications.

The G21.B or "Hercules" is the smallest high performance Penta-band Cellular (GSM/CDMA/PCS/DCS/UMTS/WCDMA/HS-DPA) antenna on the market today.

The G24 or "Ultima" is a 2G/3G 800MHz to 2200MHz Cellular antenna solution for professional telematics purposes.

Model No

G30
Olympian
Direct Mount
Ultra Wide-Band
LTE/Cellular/CDMA
Antenna for 2G/3G/4G

Electrical Data

Working Freq.	689~960MHz 1710~2170MHz 2500~2800MHz
VSWR	<3.0:1
Polarization	Linear
Impedance	50Ω
Peak Gain	2.2 dBi typ.
Efficiency	45% avg.
Max Input Power	5 W

Mechanical Data

Dimensions	H:48mm, Ø 50mm
Mounting	Screw Mount
Thread	M12
Cable	1M RG316
Connector	SMA(M)
Housing	UV Resistant ABS
Base and Thread	Nickel plated Copper
IP Rating	IP67

Model No

G21.B
Hercules GEN II
Penta-Band
Screw Mount

Electrical Data

Working Freq.	850/900/1800 /1900/2100MHz
Radiation Pattern	Omni-Directional
Gain	2dBi avg.
Polarization	Linear
Impedance	50Ω
Return Loss	-15dB avg.
Efficiency	> 40% avg.

Mechanical Data

Dimensions	H:29mm, Ø 49mm
Mounting	Screw Mount
Thread	M18
Cable*	3M RG-174
Connector*	SMA(M)
Housing	UV Resistant PC
Op. Temp.	-40°C~+85°C
IP Rating	IP67 & IP69K

Model No

G24
Ultima
Super Low Profile
Penta Band Cellular
Screw Mount (Permanent)
GSM/GPRS/CDMA/HSPA

Electrical Data

Working Freq.	850/900/1700/1800 /1900/2100MHz
Radiation Pattern	Omni-Directional
Gain	2dBi typ
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB typ
Efficiency	> 30% with GND > 40% without GND

Mechanical Data

Dimensions	H:19.6mm, Ø 55mm
Mounting	Screw Mount
Thread	M24
Cable	3M CFD200
Connector	SMA(M)
Housing	UV Resistant ABS
Base and Thread	ABS
IP Rating	IP67

External GSM-Cellular Screw Mount

Olympian and Ultima

The G30 Olympian is a high performance screw mount wide-band cellular antenna for external use on vehicles and outdoor assets worldwide.

The Wall Mount G20 Hercules Gen II is a high performance covert wall mounted cellular antenna for 2G and 3G applications. This antenna can easily fix to a wall or metal surface. The Wall Mount G20 antenna has omnidirectional radiation patterns across all bands ensuring constant reception and transmission. The "Hercules" has been designed for heavy duty applications in outdoor environments, featuring a low profile, extra thick steel threads, strong washers and durable UV resistant ABS. Combined, these features make the Hercules tamper-proof, durable and an inconspicuous piece of kit.

Model No

	G20.WMC **Hercules GEN II** Penta-Band Covert Wall and Cabinet Mount

Electrical Data

Working Freq.	850/900/1700/1800 /1900/2100MHz
Radiation Pattern	Omni-Directional
Gain	2dBi avg.
Polarization	Linear
Impedance	50Ω
Return Loss	-5dB avg.
Efficiency	> 40% avg.

Mechanical Data

Dimensions	H: 92.4mm, L: 129mm
Mounting	Bracket
Thread	M18
Cable*	3M NFC-200
Connector*	SMA(M)
Op. Temp.	-40°C~+85°C
IP Rating	IP67 & IP69K

* Cables and connectors are customizable.

External Cellular Ceiling Mount

Crusader

When you need an all-in-one solution for providing wireless networking in a public or large office situation the "Crusader" gives you omni-directional coverage for cellular and WiFi technologies.

The CM.02 or "Crusader" is a wideband antenna covering 700MHz to 6GHz, with 2G/3G/4G and WiFi 802.11 capability all and is omni-directional, compared to competitors who cannot offer omni-directional on all frequencies. Providing CPE and Hotspot needs all "under one roof" combined with an attractive, subdued form makes it a clear choice for Hotels, Conference Centres, Exhibition Halls, Offices, Retail Outlets and many other locations.

Model No

CM.02
Crusader
Ceiling Mount 3dBi
LTE/GSM/CDMA/HSPA/UMTS/WCDMA/WIFI/ WIMAX/ISM
High Peak Gain, High Efficiency Wide-Band Antenna

Electrical Data

Working Freq.	0.7~1.0	1.0~2.0	2.0~3.0	3.0~4.0	4.0~5.0	5.0~6.0
Radiation Pattern	Omni					
Peak Gain	1.6dBi typ.	1.9dBi typ.	3.0dBi typ.	3.6dBi typ.	3.6dBi typ.	4.4dBi typ.
Ave. Efficiency	88%	87%	85%	81%	73%	65%
Polarization	Linear-Vertical					
Impedance	50Ω					

Mechanical Data

Dimensions	H:97.5mm, Ø 167.5mm
Mounting	Thread Ø 17.25mm
Op. Temp.	-40°C~+85°C
Cable*	0.3M RG-58
Connector*	N Type Female
IP Rating	IP65

Standard length is 3M please contact us at info@taoglas.com.

External GSM-CDMA-Cellular Antenna

Road Marker Antenna

Taoglas USA have designed a range of discreet, hardy antennas for use inside US standard raised non-reflective roadmarkers.

The RG.02.01 and RG.02.02 are purpose made for and installed inside “Bott’s dots” that can be laid directly on the pavement and road in the USA. These antennas exhibit remarkable efficiencies in such small packages and such low profile enclosures as the “Bott’s dots”. They can be mounted directly on the road, pavement or any manhole cover, just like a standard roadmarker.

Road Marker
Top View

Road Marker
Underside View

Model No

RG.02.01
Road Marker Kit
Quad-Band Cellular Antenna RG.01
with CAB.826 Cable Assembly
Low Profile

Electrical Data

Working Freq.	AMPS/GSM/PCS/DCS 850/900/1800/1900
Radiation Pattern	Omni-Directional
Gain	1dBi
Polarization	Linear
Impedance	50Ω
Return Loss	≤-16dB avg.
Efficiency	> 18% avg.

Mechanical Data

Dimensions	H: 17.6mm, Ø 101.4mm
Casing	UV Resistant PP
Cable	**RG.01:** 1.5M WY-100 **CAB.826:** 1.5M WY-100
Connector	**RG.01:** SMB(M) Jack **CAB.826:** SMB(F) to SMA(M)ST
Op. Temp.	-40°C~+85°C
IP Rating	IP67

Model No

RG.02.02
Road Marker Kit
Quad-Band Cellular Antenna RG.01
with CAB.820 Cable Assembly
Low Profile

Electrical Data

Working Freq.	AMPS/GSM/PCS/DCS 850/900/1800/1900
Radiation Pattern	Omni-Directional
Gain	2dBi
Polarization	Linear
Impedance	50Ω
Return Loss	≤-1dB avg.
Efficiency	> 18% avg.

Mechanical Data

Dimensions	H: 17.6mm, Ø 101.4mm
Casing	UV Resistant PP
Cable	**RG.01:** 1.5M WY-100 **CAB.820:** 1.5M WY-100
Connector	**RG.01:** SMB(M) Jack **CAB.820:** SMB(F) to TNC(M)ST
Op. Temp.	-40°C~+85°C
IP Rating	IP67

* Cables and connectors are customizable.

External GSM-Cellular - Omni-Directional Outdoor Antennas

Barracuda Outdoor Antenna

The "Barracuda" excels in difficult outdoor environments or in boosting cellular coverage.

The OMB.8912.03F21 and OMB.8912.05F21 or "Barracuda" are two omni-directional antenna covering frequencies of 850MHz to 2100MHz. With fiberglass housing and UV resistant coating, the "Barracuda" are well suited to outdoor environments, boosting cellular coverage in remote areas. The "Barracuda" includes both pole and wall mountings making it a thoroughly adjustable product.

Model No	
	OMB.8912.03F21
	Barracuda
	3 dBi Penta-band
	Cellular Indoor/Outdoor
	Omni-Directional

Electrical Data	
Working Freq.	850/900/1800 1900/2100 MHz
Radiation Pattern	Omni-Directional
Peak Gain	3 dBi
Polarization	Vertical
Impedance	50Ω
VWSR	2.0 Max
Efficiency	>63%

Mechanical Data	
Length	527 mm
Base Diameter	70*55mm (Max)
Mount Style	Pole Mount/Wall Mount
Mounting	Stainless Steel
Op. Temp.	-40°C~+85°C
Weight (G.W)	350g
Radome Material	White Fiberglass
Connector	N Type Female

Model No	
	OMB.8912.05F21
	Barracuda
	5 dBi Penta-band
	Cellular Indoor/Outdoor
	Omni-Directional

Electrical Data	
Working Freq.	850/900/1800 1900/2100 MHz
Radiation Pattern	Omni-Directional
Peak Gain	5 dBi
Polarization	Vertical
Impedance	50Ω
VWSR	2.0 Max
Efficiency	>77%

Mechanical Data	
Length	595 mm
Base Diameter	70*55mm (Max)
Mount Style	Pole Mount/Wall Mount
Mounting	Stainless Steel
Op. Temp.	-40°C~+85°C
Weight (G.W)	350g
Radome Material	White Fiberglass
Connector	N Type Female

Cellular Terminal Mount Series

Cellular Range Terminal (Connector) Mount Antennas

The TG.10 Triton dipole Antenna can be used straight or hinged 90 degrees. The antenna has a wide-band response 2G/3G/4G and can also be used for other cellular and wireless applications such as GSM, LTE, UMTS, and WI-FI.
The TG.09 Penta-band Cellular Hinged Rotatable SMA antenna, is a high efficiency monopole antenna. Compared to other much larger antennas on the market, it has superior wide-band high efficiency characteristics. This antenna is used by many of the leading wireless device providers in the world marketplace.
The TG.19 Quad-band GSM-DCS-PCS-CDMA-GPRS-EDGE 824MHz to 1990MHz monopole helical antenna is a quality robust antenna with high gain in a small form factor. Its tiny size allows it to be used inside as well as outside product housings.

Available in black and white

Available in black and white

Model No

	TG.10 **Triton** Cellular 2G/3G/4G Assisted GPS Hinged SMA(M) Dipole Terminal Antenna

Electrical Data

Working Freq.	698-960MHz 1710-2690MHz
Radiation Pattern	Omni-Directional
Polarization	Linear
Impedance	50Ω
Return Loss	≤-3dB avg.
Efficiency	50%+ typ.
Input Power	10 W

Mechanical Data

Dimensions	H: 168mm Ø 18mm
Housing	UV Resistant, PC/ABS
Op. Temp.	-40°C~+85°C
Connector	Hinged SMA Male

Model No

	TG.09 Penta-Band Cellular Rotatable Hinge Monopole Terminal Antenna

Electrical Data

Working Freq.	850/900/ 1800/1900/ 2100MHz
Radiation Pattern	Omni-Directional
Polarization	Linear
Impedance	50Ω
Return Loss	≤-7dB avg.
Efficiency	> 60% with Ground

Mechanical Data

Dimensions	H: 72mm Ø 9.8mm
Mounting	Hinged Rotatable 360°
Connector*	SMA(M)
Op. Temp.	-40°C~+85°C

Model No

	TG.19 Quad-Band Cellular Mini Helical Monopole

Electrical Data

Working Freq.	850/900/1800 /1900MHz
Gain	0 dBi
Polarization	Linear
Impedance	50Ω
Return Loss	-9dB avg.
Efficiency	> 45% avg. (Ground plane dependent)

Mechanical Data

Dimensions	H: 28.5mm Ø 7.8mm L: 17mm (connector)
Required Space	28.5*17.0*.7.8mm
Material	UV Resistant ABS
Connector	SMA(M)RA

*Also available with Reverse Polarity Connectors

Cellular Terminal Mount Series

Cellular Range Terminal (Connector) Mount Antennas

Used worldwide by leading wireless devices providers Taoglas Terminal Antennas eliminate cable loss and inconsistent performance associate with cable antennas.

The TG.22 series of antennas are monopole helical antennas for 2G/3G Cellular. Once mounted to an adequate ground plane it is a compact robust terminal antenna with high gain and stable efficiency in a small form factor. Connection is made through a number of options – SMA(M) Straight, Right Angle and Reverse Polarity options available. The HT version applies highly resistant Dupont® Hytrel® TPEE material which is durable in high temperature application environments up to 150°C.

Available in black and white

Model No

TG.22.0111 (Straight)
Penta-Band Cellular Helical Monopole

Electrical Data

Working Freq.	850/900/1800 /1900/2100MHz
Radiation Pattern	Omni-Directional
Polarization	Linear
Impedance	50Ω
Return Loss	≤-6dB avg.
Efficiency	> 17% (Ground plane dependent)

Mechanical Data

Dimensions	H: 45mm Ø 7.8mm
Mount	Straight
Op. Temp.	-40°C~+85°C
Connector	SMA(M)*

* Available with RP-SMA(M)

Available in black and white

Model No

TG.22.0112 (R/A)
Penta-Band Cellular Helical Monopole

Electrical Data

Working Freq.	850/900/1800 /1900/2100MHz
Radiation Pattern	Omni-Directional
Polarization	Linear
Impedance	50Ω
Return Loss	-8.8dB avg.
Efficiency	> 27% (Ground plane dependent)

Mechanical Data

Dimensions	H: 45mm, Ø 7.8mm L: 17mm (connector)
Mount	R/A
Op. Temp.	-40°C~+85°C
Connector	SMA(M) R/A*

* Available with RP-SMA(M) R/A

Available in black and white

Model No

TG.22.0112 HT
Penta-Band Cellular Helical Monopole

Electrical Data

Working Freq.	800MHz~2200MHz
Gain	0dBi
Radiation Pattern	Omni-Directional
Polarization	Linear
Impedance	50Ω
VSWR	≤ 2.3
Power Handling	20W

Mechanical Data

Dimensions	H: 45mm, Ø 7.8mm L: 17mm (connector)
Mount	R/A
Op. Temp.	-40°C~+150°C
Connector	SMA(M) RA

Cellular Terminal Mount Series

Cellular Range Terminal (Connector) Mount Antennas

The TG.22.0221 and TG.22.0222 antenna have been tuned specifically for optimum efficiency when connected directly to the Sierra Wireless Airlink GL series programmable module. Connection is made via FME(F) Straight or Right Angle connectors with a hardened TPEE casing, these antennas are a good compact 2G/3G antenna for remote monitoring devices or telematics applications.

Model No	
	TG.22.0221 Penta-Band Cellular Monopole Helical

Electrical Data	
Working Freq.	850/900/1800 /1900/2100MHz
Radiation Pattern	Omni-Directional
Polarization	Linear
Impedance	50Ω
Return Loss	≤-5dB avg.
Efficiency	> 37% (Ground plane dependent)

Mechanical Data	
Dimensions	H: 52.3mm Ø 7.8mm
Mount	Straight
Op. Temp.	-40°C~+85°C
Connector	FME(F)

Model No	
	TG.22.0222 Penta-Band Cellular Monopole Helical

Electrical Data	
Working Freq.	850/900/1800 /1900/2100MHz
Radiation Pattern	Omni-Directional
Polarization	Linear
Impedance	50Ω
Return Loss	-5dB avg.
Efficiency	> 37% (Ground plane dependent)

Mechanical Data	
Dimensions	H: 45mm, Ø 7.8mm L: 24.7mm (connector)
Mount	R/A
Op. Temp.	-40°C~+85°C
Connector	FME(F)RA

Cellular Terminal Mount Series

Shockwave - Terminal Robust Antenna - NMO Type

The TL.10 “Shockwave” series is a new generation of antenna produced with security in mind. A unique indent tab allows for both securing the antenna with a wrench and also making replacement of the antenna by qualified personnel possible.

Also available in white

Underside of TL.10
with NMO Type connector

Model No

	TL.10
	Shockwave
	Ultra Wide-Band Direct Mount
	Covers all common
	2G/3G/4G Cellular - ISM - WiFi Bands

Electrical Data

Working Freq.	698MHz to 960MHz, 1575.42MHz 1710MHz to 2700Mhz,
Radiation Pattern	Omni-Directional
Peak Gain	2dBi*
Polarization	Vertical
Impedance	50Ω
Efficiency	up to 90%

* on 30cm x 30cm ground plane

Mechanical Data

Dimensions	H: 84mm, Ø 41mm
Housing	PC + PBT
Base	Stainless Steel
Connector	NMO (M)
IP Rating	IP67 and IP69K
Op. Temp.	-40°C~+85°C

TL.10 with NMO Direct Mount

TL.10 with NMO Magnetic Mount

See pg.133 for full range of cable assemblies

LTE Antenna Solutions

Ultra Wide-Band, Fourth Generation, (4G) Network Antenna Range

Taoglas Pantheon is a world leading 2G/3G/4G antenna combined with GPS/GLONASS for navigation and WiFi for hotspots.

Also available in white MA700.W

Model No

MA.700.B

Pantheon 3 in 1 - GPS-GLONASS / WiFi / Cellular 2G 3G 4G

Screw Mount

LTE/Cellular
Wide-Band

WiFi
Dual Band

GPS-GLONASS
2 Stage 30dB LNA

Electrical Data

Working Freq.	698~960MHz 1710~2170MHz 2300~2700MHz 2900-3500MHzz
Peak Gain	2dBi avg.
Avg. Efficiency	50%
Impedance	50Ω
VSWR	≤2.0

Electrical Data

Working Freq.	2.4~2.5GHz 5.15~5.85GHz
Peak Gain	2.5dBi avg.
Avg. Efficiency	55.5%
Impedance	50Ω
VSWR	≤1.92

Electrical Data

Working Freq.	1575~1606MHz
LNA	2 Stage 30dB LNA
Peak Gain	4.0dBic typ.
Avg. Efficiency	50%
Impedance	50Ω
VSWR	≤2.0

Mechanical Data

Dimensions	H:85.73mm Ø 145.59mm
Mounting	Thread Ø 30mm
Op. Temp.	-40°C~+85°C
Cable*	3M Low-loss CFD-200
Connector*	SMA(M)
IP Rating	IP67

Mechanical Data

Cable*	3M Low-loss CFD-200
Connector*	SMA(M)

Mechanical Data

Cable*	3M RG-174
Connector*	SMA(M)

* Cables and connectors are customizable.

LTE Antenna Solutions (External)

Ultra Wide-Band, Fourth Generation, (4G) Network Antenna Range

Taoglas has launched a high efficiency antenna for the emerging LTE system using unique ultra wide-band antenna design techniques. The antenna allows designers to start testing and developing LTE devices with antennas designed to operate efficiently in the bands of interest.

Model No

G30
Olympian
Direct Mount
Ultra Wide-Band
LTE/Cellular/CDMA
Antenna for 2G/3G/4G

Electrical Data

Working Freq.	689~960MHz 1710~2170MHz 2500~2800MHz
VSWR:	<3.0:1
Polarization	Linear
Impedance	50Ω
Peak Gain	2.2 dBi typ.
Efficiency	45% avg.
Max Input Power	5 W

Mechanical Data

Dimensions	H:48mm, Ø 50mm
Mounting	Screw Mount
Thread	M12
Cable	1m RG316
Connector	SMA(M)
Housing	UV Resistant ABS
Base and Thread	Nickel plated Copper
IP Rating	IP67
Op. Temp.	-40°C~+85°C

Model No

MA.741
Pantheon 2 in 1
LTE Cellular 2G/3G/4G
2*2 MIMO
Screw-Mount

Electrical Data

Working Freq.	698~960, 1710~2170 2300~2700, 2900~3500MHz
Polarization	Vertical
Impedance	50Ω
Return Loss	-6dB avg.
Efficiency	> 40% avg.
Peak Gain	2 dBi typ.

Mechanical Data

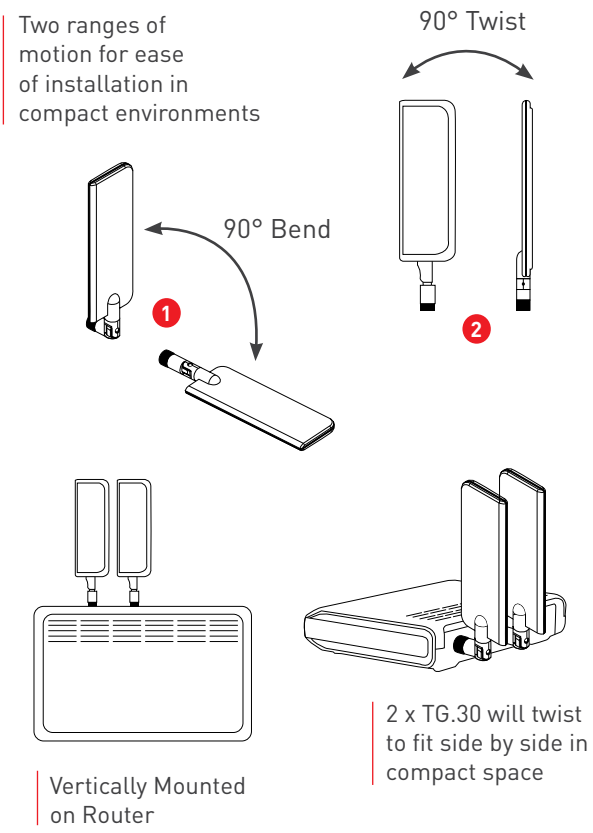
Dimensions	H: 85.7mm, Ø 145.6mm
Mounting	Screw Mount
Thread	Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
IP Rating	IP67
Mimo 1	3M CFD-200 SMA(M)
Mimo 2	3M CFD-200 SMA(M)
Op. Temp.	-40°C~+85°C

LTE Antenna Solutions

Apex TG.30

The Apex Dipole LTE Antenna is primarily designed for use with 4G LTE modules and devices that require the highest possible efficiency and peak gain.

TG.30.8113W



Model No

	TG.30.8113
	Apex
	Hinged and Rotatable
	Ultra Wide-Band
	4G LTE Antenna
	Dipole (Ground Independent)

Electrical Data

Working Freq.	698~960/1575.42
	1700~2700MHz
Radiation Pattern	Omni-Directional
Peak Gain (dBi)	3 dBi
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB avg.
Efficiency	> 70% typ.
Input Power	10 W

Mechanical Data

Dimensions (S)	H: 186mm, L: 49mm, W: 10mm
Dimensions (R/A)	H: 162.5mm, L: 49mm, W: 10mm
	Ø 12.8mm (connector mount)
Housing	UV Resistant, PC/ABS
Connector	SMA Male Hinged 90°
	Swivel 90°
Op. Temp.	-40°C~+85°C

TG.30.8113 on Router

LTE Antenna Solutions

Apex TG.30

The TG.30 “Apex” is a ground plane independent, omni-directional 4G LTE antenna. It can be used on any device with or without a ground plane connection through the connector. The “Apex” has been put through intensive testing and is guaranteed to meet any type of approval or carrier certification requirements from an RF standpoint. The built-in mechanism allows the antenna part itself to be orientated in different directions and can help avoid touching off other antennas close by. The patent pending “Apex” is available in both black and white, with hinged and right angle connectors also offered.

Enhancing product reliability and customer satisfaction is a constant challenge for any business. Taoglas antenna diagnostics will make sure you know that an external antenna is attached properly.

Model No **TG.30.8111**

Apex
Straight
Ultra Wide-Band
4G LTE Antenna

Electrical Data	
Working Freq.	698/960/1575.42 1710/2700MHz
Radiation Pattern	Omni-Directional
Peak Gain (dBi)	3dBi
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB avg.
Efficiency	> 70% typ.
Input Power	10 W

Mechanical Data	
Dimensions	H: 171.1mm, L: 49mm W: 10mm Ø 12.8mm (connector)
Housing	UV Resistant, PC/ABS
Connector	SMA Male
Op. Temp.	-40°C~+85°C

Model No **TG.30.8112**

Apex
Right Angle
Ultra Wide-Band
4G LTE Antenna

Electrical Data	
Working Freq.	698/960/1575.42 1710/2700MHz
Radiation Pattern	Omni-Directional
Peak Gain (dBi)	3dBi
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB avg.
Efficiency	> 70% typ.
Input Power	10 W

Mechanical Data	
Dimensions	H: 148.6mm, L: 49mm W: 10mm ; Ø 12.8mm L: 39.5mm (connector)
Housing	UV Resistant, PC/ABS
Connector	SMA Male
Op. Temp.	-40°C~+85°C

TG.30.8111W

TG.30.8112W

LTE Antenna Solutions

Apex II TG.35

The hinged Apex II TG.35 Ultra-Wideband Dipole Antenna has been designed to cover all Cellular, ISM and Wi-Fi working frequencies in the 700-6000 MHz spectrum. Evolved from the already highly successful Apex TG.30, this second generation has the highest wide-band efficiency in its range of any terminal antenna on the market today. The Apex II has been primarily designed for use with 4G LTE modules and devices that require the highest possible efficiency and peak gain to deliver best in class throughput on all major cellular (2G/3G/4G) bands worldwide for access points, terminals and routers. High efficiency is vital for applications such as high speed video and real-time streaming, or high capacity MIMO networks on public transportation.

Model No

TG.35.8113
Apex II
Hinged
Ultra Wide-Band
4G LTE Antenna

Electrical Data

Working Freq.	698-960/1575/1602 1710-2700MHz 5150-5850MHz
Radiation Pattern	Omni-Directional
Peak Gain (dBi)	3dBi
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB avg.
Efficiency	> 70% typ.
Input Power	10 W

Mechanical Data

Dimensions	H: 171.1mm, L: 49mm W: 10mm Ø 12.8mm (connector)
Housing	UV Resistant, PC/ABS
Connector	SMA Male Hinged
Op. Temp.	-40°C~+85°C

Model No

TG.35.8113W
Apex II
Hinged
Ultra Wide-Band
4G LTE Antenna

Electrical Data

Working Freq.	698-960/1575/1602 1710-2700MHz 5150-5850MHz
Radiation Pattern	Omni-Directional
Peak Gain (dBi)	3dBi
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10dB avg.
Efficiency	> 70% typ.
Input Power	10 W

Mechanical Data

Dimensions	H: 171.1mm, L: 49mm W: 10mm Ø 12.8mm (connector)
Housing	UV Resistant, PC/ABS
Connector	SMA Male Hinged
Op. Temp.	-40°C~+85°C

LTE Antenna Solutions (Embedded)

Ultra Wide-Band, Fourth Generation, (4G) Network Antenna Range

The FXUB63 flexible ultra wideband antenna has been designed to cover all working frequencies in the 698-3000 MHz spectrum, covering all Cellular, 2.4GHz Wi-Fi, ISM and AGPS. The antenna is delivered with a flexible body with excellent efficiencies on all bands, ground independent, with cable and connector for easy installation. It enables designers to use only one antenna that covers all common LTE frequencies.

The FXUB66 future proofs device design for LTE and 4G globally. It is also the ideal antenna to fit in devices that are being retrofitted with wireless functionality, as it will cover non cellular applications such as 868, 915MHz or Zigbee applications. It's inherently wide bandwidth is more resistant to detuning than traditional small but narrow-band legacy antennas.

Model No

FXUB63
LTE Wide Band Flex
Flexible
Ultra Wide-Band
698-3000MHz

Electrical Data

Working Freq.	698-3000MHz
Radiation Pattern	Omni-Directional
Peak Gain	2 dBi typ.
VSWR:	<3.0:1
Polarization	Linear
Impedance	50Ω
Return Loss	-10dB typ.
Efficiency	45% avg.
Max Input Power	5 W

Mechanical Data

Dimensions	96*21*0.2 mm
Mounting	SMT
Op. Temp.	-40°C~+85°C
Cable	1.37mm mini coax
Connector	IPEX MHFI (U.FL comp)
Material	Flexible Polymer
Adhesive Type	3M 467MP

Model No

FXUB66
Maximus
Flexible
Ultra Wide-Band
700~6000MHz

Electrical Data

Working Freq.	700-6000MHz
Radiation Pattern	Omni-Directional
Gain	5 dBi
VWSR	< 3:1 typ.
Polarization	Linear
Impedance	50Ω
Return Loss	-10dB typ.
Efficiency	> 60%
Max Input Power	10 W

Mechanical Data

Dimensions	120.4*50.4*0.2mm
Mounting	Adhesive
Op. Temp.	-40°C~+85°C
Cable	1.37mm mini coax
Connector	IPEX MHFI (U.FL comp)
Material	Flexible Polymer
Adhesive Type	3M 467MP

*Cable and Connectors are Customizable

LTE Antenna Solutions (Embedded)

Ultra Wide-Band, Fourth Generation, (4G) Network Antenna Range

The patent pending FXUB70 and FXUB71 LTE Wide-band flexible wideband antennas have been designed to cover all working frequencies in the 698-3000 MHz spectrum, covering all Cellular, 2.4GHz Wi-Fi, ISM and AGPS. The antennas are delivered with a flexible body with excellent efficiencies on all bands, ground independent, with cable and connector for easy installation.

They are assembled by a simple "peel and stick" process, attaching securely to non-metal surfaces via 3M 467 automotive approved adhesive. It enables designers to use only one antenna that covers all common frequencies for LTE and 4G globally. They are an ideal choice for any device maker that needs to keep manufacturing costs down over the lifetime of a product. They are ground plane independent and delivered with a cable and connector for easy connecting to the wireless module or customer PCB. Like all such antennas, care should be taken to mount the antenna at least 10mm. The FXUB70 is a smaller option. The FXUB71 has a larger form factor but has different cable routing.

Model No	FXUB70
	4G LTE Wide Band
	Flexible
	Ultra Wide-Band
	698-3000MHz

Electrical Data	
Working Freq.	698-3000MHz
Radiation Pattern	Omni-Directional
Gain	5 dBi
VSWR:	<3.0:1
Polarization	Linear
Impedance	50Ω
Return Loss	-10dB typ.
Efficiency	45% avg.
Max Input Power	5 W

Mechanical Data	
Dimensions	182*21*0.2 mm
Mounting	SMT
Op. Temp.	-40°C~+85°C
Cable	1.37mm mini coax
Connector	IPEX MHFI (U.FL comp)
Material	Flexible Polymer
Adhesive Type	3M 467MP

Model No	FXUB71
	4G LTE MIMO
	Flexible
	Ultra Wide-Band
	698-3000MHz

Electrical Data	
Working Freq.	698-3000MHz
Radiation Pattern	Omni-Directional
Gain	5 dBi
VWSR	< 3:1 typ.
Polarization	Linear
Impedance	50Ω
Return Loss	-10dB typ.
Efficiency	> 50%
Max Input Power	2 W

Mechanical Data	
Dimensions	240*21*0.15 mm
Mounting	Adhesive
Op. Temp.	-40°C~+85°C
Cable	1.37mm mini coax
Connector	IPEX MHFHT (U.FL comp)
Material	Flexible Polymer
Adhesive Type	3M 467MP

LTE Antenna Solutions (Embedded)

Ultra Wide-Band, Fourth Generation, (4G) Network Antenna Range

We have used years of cellular antenna design experience to predict the requirements of these new designs for emerging networks.This design can be optimized and/or customized for any 4G device.

On-board solutions of the flexible circuit antennas are also available.

Model No

PA.700.A
Viking
Wide-Band
LTE/Cellular/CDMA
Ceramic PIFA

Electrical Data

Working Freq.	689-960MHz 1710-2170MHz
Radiation Pattern	Omni-Directional
VSWR	3.0 Max
Polarization	Linear
Impedance	50Ω
Return Loss	≤-16dB
Efficiency	≥ 56%

Mechanical Data

Dimensions	40*6*5mm
Mounting	SMT
Ground Plane	140*40mm
Op. Temp.	-40°C~+85°C

Model No

PCS.06.A
Havok
Low Profile
LTE/Cellular
2G/3G/4G
SMD Dielectric
Antenna

Electrical Data

Working Freq.	698-960MHz 1710-2690MHz
VSWR	3.0 Max
Polarization	Linear
Impedance	50Ω
Peak Gain	3 dBi typ.
Efficiency	> 65%

Mechanical Data

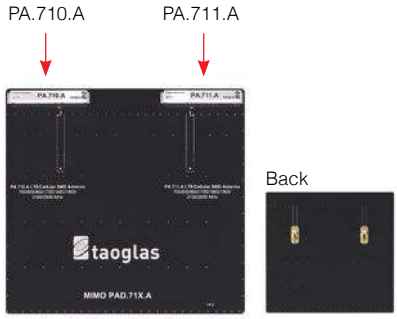
Dimensions	42*10*3mm
Mounting	SMT
Ground Plane	123*45mm
Op. Temp.	-40°C~+85°C

LTE Antenna Solutions (Embedded)

Ultra Wide-Band, Fourth Generation, (4G) Network Antenna Range

The Gemini PAD.71X.A LTE MIMO 2*2 Embedded Antenna is the only compact MIMO antenna solution for the world LTE M2M and Internet of Things (IOT) market of today.

The Gemini has two antenna elements, the existing PA.710 LTE MIMO ceramic antenna successfully used in many LTE MIMO devices today, along with its new brother the PA.711 LTE MIMO ceramic antenna. By altering the radiation pattern of the PA.711 to that of the PA.710 (similar to reflecting), Taoglas has created the world's first high efficiency MIMO embedded wide-band cellular antenna conforming to an envelope correlation co-efficient of below 0.3. This minimal self interference is critical to achieve high data rates in today's advanced LTE systems.



Model No

PA.710.A
Warrior
Ultra Wide-Band
LTE 2G/3G/4G
2G/3G/4G
Ceramic PIFA

Electrical Data

Working Freq.	689~960MHz 1710MHz to 2690MHz
Radiation Pattern	Omni-Directional
VSWR	3.0 Max
Polarization	Linear
Impedance	50Ω
Peak Gain	2 dBi typ.
Efficiency	> 60%

Mechanical Data

Dimensions	40*6*5mm
Mounting	SMT
Ground Plane	120*45mm
Op. Temp.	-40°C~+85°C

Model No

PA.711.A
Warrior II
Ultra Wide-Band
SMT Antenna
Ceramic PIFA

Electrical Data

Working Freq.	698~960MHz 1710MHz to 2690MHz
VSWR:	3.0 Max
Polarization	Linear
Impedance	50Ω
Peak Gain	2 dBi typ.
Efficiency	> 52%

Mechanical Data

Dimensions	40*6*5mm
Mounting	SMT
Ground Plane	120*125*6.8mm
Op. Temp.	-40°C~+85°C
Mounting	SMT
Ground Plane	140*40mm
Op. Temp.	-40°C~+85°C

Model No

PAD.71X.A
Gemini
Ultra Wide-Band
LTE/Cellular/CDMA
2G/3G/4G
Ceramic PIFA
MIMO 2*2 ANTENNA

Electrical Data

Working Freq.	689~960MHz 1710MHz to 2170MHz
Radiation Pattern	Omni-Directional
VSWR	3.0 Max
Polarization	Linear
Impedance	50Ω
Return Loss	≤-10 dB
Efficiency	> 40%

Mechanical Data

Dimensions	120*125mm
Op. Temp.	-40°C~+85°C
Connector	2*SMA (F)

* Cables and Connectors are Customizable.

Taoglas Antenna Diagnostics

AntD© Chip Resistor Antennas

Taoglas antennas can enhance your product reliability and customer satisfaction by giving you the designer a way to ensure you know that an external antenna is attached properly.

Model No

TG.10R
Triton
Cellular 2G/3G/4G
Assisted GPS
Hinged SMA(M)
Terminal Antenna
With AntD©
Chip Resistor

Electrical Data

Working Freq.	700~800/824~960/ 1574.42/1710~1880 1850~1990/1710~2170 /2400~2500MHz
Radiation Pattern	Omni-Directional
Polarization	Linear
Impedance	50Ω
Peak Gain	>-3dBi
Efficiency	>30%+ typ.
Input Power	50 W
Resistor	Shunt 10K Ohm (+/- 5%) to Ground

Mechanical Data

Dimensions	H: 168mm Ø 13mm
Housing	PU
Op. Temp.	-40°C~+85°C
Connector	Hinged SMA Male

Model No

FXP14R
Hepta-Band Cellular
1575MHz GPS
Flexible Polymer Antenna
Ground plane independent
With AntD©
Chip Resistor

Electrical Data

Working Freq.	850/900/1700/ 1800/1900/2100 MHz
Radiation Pattern	Omni-Directional
Polarization	Linear
Impedance	50Ω
Return Loss	<-7dBi
Efficiency	>42%+ typ.
Gain	>-3 dBi
Resistor	Shunt 10K Ohm (+/- 5%) to Ground

Mechanical Data

Dimensions	70*20*0.1mm
Mounting	Adhesive
Op. Temp.	-40°C~+85°C
Cable*	100mm Ø 1.13
Connector*	IPEX MHFI (U.FL comp)
Material	Flex Polymer
Adhesive Tape	3M 467

Taoglas Antenna Diagnostics

AntD© Chip Resistor Antennas

With the addition of very minor circuitry to your design you can sense if the proper Taoglas antenna is attached or not as well as damage to the antenna or coax cable.

Some radio modules even include this circuitry internally. The addition of the sensing resistor allows for DC sensing without interfering with the RF performance.

AntD antennas can be used on any radio product regardless if they have the sensing circuitry so you can buy and stock one part, even if not all your products have the diagnostic circuitry.

Model No

PC104R
Penta-Band Cellular
FR4 PCB Antenna
Adhesive Mount
With AntD©
Chip Resistor

Electrical Data

Working Freq.	850/900/1800/ 1900/2100MHz
Radiation Pattern	Omni-Directional
Peak Gain	2dBi avg.
Polarization	Linear
Impedance	50Ω
Return Loss	≤-7dB
Efficiency	>42%+
Resistor	Shunt 10K Ohm (+/- 5%) to Ground

Mechanical Data

Dimensions	80*20*1mm
Cable*	164.9mm Ø 1.37 Coaxial Cable
Connector*	IPEX MHFI (U.FL comp)
Material	FR4
Adhesive	3M 467

Model No

GSA.8827R
Phoenix I-Bar
2G/3G/4G
Ultra Wide-Band
Adhesive Mount
With AntD©
Chip Resistor

Electrical Data

Working Freq.	698-960/1575.42 1710-2700MHz
Radiation Pattern	Omni-Directional
Gain	2dBi avg.
Polarization	Linear
Impedance	50Ω
Return Loss	≤-5dB avg.
Efficiency	> 37% On non-metal
Resistor	Shunt 15K Ohm to Ground

Mechanical Data

Dimensions	105*30*7.7mm
Mounting	Adhesive
Cable*	1M RG174
Connector*	SMA(M)
Housing	UV Resistant PC/ABS
IP Rating	IP65
Adhesive	3M

GPS External Antenna Solutions

GPS External Antenna Range

Optimized in our unique test chambers, certified to the highest international standards, tuned and customized for M2M application – the Taoglas range of GPS and GLONASS antennas is peerless.

The AA.108 “Titan” is a first tier automotive approved IP67 antenna which has gone through stringent PPAP certification and is also a certified shipping part that is already in the global IMDS database system. The AA.108 is an adhesive mount antenna but we also offer the same performance in the AA.105 with a magnetic mount instead. Compatible with a wide range of integrated LNA modules, the AA.109 is a 1 stage LNA magnetic mount antenna. Like its sister AA series models, its compact form makes for a hassle free install.

Model No

AA.105
Titan
Magnetic Mount
High Gain (30dB)

Electrical Data

Centre Freq.	1575.42MHz
Gain	30dBic±2
Noise Figure	1.5dB Max
VSWR	1.92 Max.
Axial ratio	3.0dB Max
Polarization	RHCP
Impedance	50Ω
Input Voltage	1.8~5.5V
Power Consum.	@1.8V 2.3mA @2.7V 4.7mA @3.3V 6mA @5V 10.3mA

Mounting Data

Dimensions	44*33*14mm
Mounting	Magnetic Mount
Op. Temp.	-40°C~+85°C
Cable*	RG-174
Connector*	SMA(M)
IP Rating	IP67

Model No

AA.108
Titan
Adhesive Mount
High Gain (30dB)
First Tier Automotive
Approved - TS16949

Electrical Data

Centre Freq.	1575.42MHz
Gain	30dBic±2
Noise Figure	1.5dB Max
VSWR	1.92 Max.
Axial ratio	3.0dB Max
Polarization	RHCP
Impedance	50Ω
Input Voltage	1.8~3.3V
Power Consum.	@1.8V 4.5mA @2.5V 6.6mA @2.7V 7mA

Mounting Data

Dimensions	44*33*14mm
Mounting	Adhesive
Op. Temp.	-40°C~+85°C
Cable*	RG-174
Connector*	SMA(M)
IP Rating	IP67

Model No

AA.109
1 Stage LNA (20dB)
Magnetic Mount

Electrical Data

Centre Freq.	1575.42MHz
Gain	20dBic±2
Noise Figure	1.3dB Max
VSWR	2.0 Max.
Axial ratio	1.0dB Max
Polarization	RHCP
Impedance	50Ω
Input Voltage	2.4~5.5V
Power Consum.	@3V 7mA Max @5V 16mA Max.

Mounting Data

Dimensions	H:15mm, Ø 45mm
Mounting	Magnetic Mount
Op. Temp.	-40°C~+85°C
Cable*	RG-174
Connector*	SMA(M)
IP Rating	IP67

*Cable and Connectors are Customizable,
Standard Length is 3M please contact us at info@taoglas.com

GPS External Antenna Solutions

GPS External Antenna Range

The Hercules range has been designed for heavy duty applications in outdoor environments, featuring a low profile, extra thick steel threads, strong washers and durable UV resistant ABS. Our GNSS Hercules come in 2 Stage, 3 Stage and GPS/GLONASS combination.

Model No

A.01.C
Hercules
2 Stage 30dB
Screw Mount

Electrical Data

Centre Freq.	1575.42MHz
Gain	30dB typ. (@3V)
Noise Figure	3.0dB Max (@3V)
VSWR	2.0 Max.
Axial ratio	3.0dB Max
Polarization	RHCP
Impedance	50Ω
Input Voltage	1.8~5.5V
Power Consum.	@1.8V 10mA Max @3V 20mA Max @5V 40mA Max.

Mounting Data

Dimensions	H:29mm, Ø 49mm
Mounting	Thread Ø 18mm
Op. Temp.	-40°C~+85°C
Cable*	3M RG-174
Connector*	SMA(M)
IP Rating	IP67 & IP69K

Model No

A.03.C**
Hercules
3 Stage 40dB
Screw Mount

Electrical Data

Centre Freq.	1575.42MHz
Gain	40±2dB
Noise Figure	1.5dB Max
VSWR	2.0 Max.
Axial ratio	3.0dB Max
Polarization	RHCP
Impedance	50Ω
Input Voltage	1.8~5.5V
Power Consum.	@1.8V 8mA Max @3V 10mA Max @5V 12mA Max.

Mounting Data

Dimensions	H:29mm, Ø 49mm
Mounting	Thread Ø 18mm
Op. Temp.	-40°C~+85°C
Cable*	10M RG-174
Connector*	SMA(M)
IP Rating	IP67 & IP69K

** A.03 is a Three Stage version of Hercules for longer cable lengths of >5M.

GPS Active Embedded Antenna Modules

Embedded GPS Active Antenna Modules

Active GPS Patch Antenna Modules offer the best possible GPS performance for any device that needs to use internal antennas.

Our Active GPS Patch Antennas connect directly to your GPS module via a cable and connector or in some cases it can be soldered directly onto the edge of your board. Active antenna patches are already tuned for their own ground plane and LNA and have integrated front end SAW filters, meaning that they are more resistant to the detuning effects of surrounding components and different device ground planes. They are also much more resistant to device noise rather than passive antennas, allowing most cases device integration.

Model No

AP.10E.07.0039B
1 Stage 15dB
10mm Patch
Front End SAW Filter

Electrical

Frequency	1575.42MHz
LNA Gain(3.0V)	15dB Typ.
Antenna Gain	-10dBic
Axial Ratio	4.0dB Max
Noise Figure (3.0V)	2.5dB
Impedance	50Ω
Polarization	RHCP
VSWR	2.0 Max
Op. Temp	-40°C~+85°C
Rel. Humidity	40%~95%
Input Voltage	Min: 1.8V Typ: 3.0V Max: 5.5V
Power Cons.	@1.8V 3mA Max @3V 3mA Max @5.5V 3mA Max

Mounting Data

Dimensions	10*10*5.7mm
Cable*	39mm Ø 0.81mm
Connector*	IPEX MHFI (U.FL comp)

Model No

AP.10F.07.0039B
2 Stage 25dB
10mm Patch
Front End SAW Filter

Electrical

Frequency	1575.42MHz
LNA Gain(3.0V)	25dB Typ.
Antenna Gain	-10dBic
Axial Ratio	4.0dB Max
Noise Figure (3.0V)	2.5dB
Impedance	50Ω
Polarization	RHCP
VSWR	2.0 Max
Op. Temp	-40°C~+85°C
Rel. Humidity	40%~95%
Input Voltage	Min: 1.8V Typ: 3.0V Max: 5.5V
Power Cons.	@1.8V 5mA Max @3V 10mA Max @5.5V 23mA Max

Mounting Data

Dimensions	10*10*5.7mm
Cable*	39mm Ø 0.81mm
Connector*	IPEX MHFI (U.FL comp)

Model No

AP.12F.07.0045A
2 Stage 28dB
12mm Patch
Front End SAW Filter

Electrical

Frequency	1575.42MHz
LNA Gain(3.0V)	28dB Typ.
Antenna Gain	-5dBic
Axial Ratio	4.0dB Max
Noise Figure (3.0V)	2.0dB
Impedance	50Ω
Polarization	RHCP
VSWR	2.0 Max
Op. Temp	-40°C~+85°C
Rel. Humidity	40%~95%
Input Voltage	Min: 1.8V Typ: 3.0V Max: 5.5V
Power Cons.	@1.8V 4mA Max @3V 9mA Max @5.5V 20mA Max

Mounting Data

Dimensions	13.4*13.4*5.5mm
Cable*	45mm Ø 1.13mm
Connector*	IPEX MHFI (U.FL comp)

GPS Active Embedded Antenna Modules

Embedded GPS Active Antenna Modules

Taoglas Active GPS Patch Antenna Modules feature front End SAW Filters; this offers better protection from nearby radiated power surges, and the SAW Filter also reduces the radiated spurious emissions in devices.

Active antenna products simplify design and deliver the extra sensitivity required for accurate and reliable GPS performance.
Active antennas deliver the shortest cold start time and best accuracy when compared to any other internal GPS antenna.

Model No

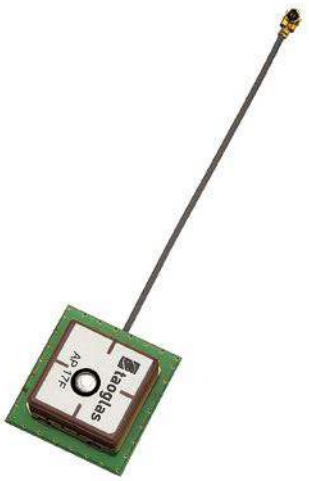
AP.17E.07.0064A
1 Stage 15dB
17mm Patch
Front End SAW Filter

Electrical

Frequency	1575.42MHz
LNA Gain(3.0V)	15dB Typ.
Antenna Gain	-1.0dBic
Axial Ratio	3.0dB Max
Noise Figure (3.0V)	2.5dB
Impedance	50Ω
Polarization	RHCP
VSWR	2.0 Max
Op. Temp	-40°C~+85°C
Rel. Humidity	40%~95%
Input Voltage	Min: 1.8V Typ: 3.0V Max: 5.5V
Power Cons.	@1.8V 1.6mA Max @3V 3.5mA Max @5.5V 7.6mA Max

Mounting Data

Dimensions	17*17*6.1mm
Cable*	64mm Ø 1.13mm
Connector*	IPEX MHFI (U.FL comp)



Model No

AP.17F.07.0064A
2 Stage 28dB
17mm Patch
Front End SAW Filter

Electrical

Frequency	1575.42MHz
LNA Gain(3.0V)	28dB Typ.
Antenna Gain	-1.5dBic
Axial Ratio	3.0dB Max
Noise Figure (3.0V)	2.5dB
Impedance	50Ω
Polarization	RHCP
VSWR	2.0 Max
Op. Temp	-40°C~+85°C
Rel. Humidity	40%~95%
Input Voltage	Min: 1.8V Typ: 3.0V Max: 5.5V
Power Cons.	@1.8V 3.3mA Max @3V 7.5mA Max @5.5V 15.5mA Max

Mounting Data

Dimensions	23.8*22.2*8mm
Cable*	64mm Ø 1.13mm
Connector*	IPEX MHFI (U.FL comp)

* Cables and Connectors are Customizable.

GPS Active Embedded Antenna Modules

Embedded GPS Active Antenna Modules

Experienced customers often prefer a high gain LNA due to its ability to deliver superior GPS locking in difficult environments.

Our active antennas are available most commonly in 1 stage or 2 stage versions. The general rule of thumb is the larger the antenna, the better the performance. The AP.35A is the most sensitive off the shelf GPS antenna in the M2M Telematics market. Combining high-zenith gain and low-axial ratio, it can pick up very weak signals at low elevation satellites. A SAW filter reduces noise entering from the device system, important when considering the close proximity of cellular transmitters and circuitry in today's miniature devices. These results combined lead to quicker cold starts and more accurate position and location information.

Model No	AP.25E.07.0054A 1 Stage 15dB 25mm Patch Front End SAW Filter
Electrical	
Frequency	1575.42MHz
LNA Gain(3.0V)	15dB Typ.
Antenna Gain	+1.5dBic
Axial Ratio	3dB Max
Noise Figure (3.0V)	2.5dB
Impedance	50Ω
Polarization	RHCP
VSWR	2.0 Max
Op. Temp	-40°C~+85°C
Rel. Humidity	40%~95%
Input Voltage	Min: 1.8V Typ: 3.0V Max: 5.5V
Power Cons.	@1.8V 3mA Max @3V 7.3mA Max @5.5V 3mA Max
Mounting Data	
Dimensions	35*35*4.5mm
Cable*	54mm Ø 1.13mm
Connector*	IPEX MHFI (U.FL comp)

Model No	AP.25F.07.0078A 2 Stage 28dB 25mm Patch Front End SAW Filter
Patch	
Frequency	1575.42MHz
LNA Gain(3.0V)	28dB
Antenna Gain	+2.0dBic
Axial Ratio	3dB Max
Noise Figure (3V)	3.0dB
Impedance	50Ω
Polarization	RHCP
VSWR	Max 2.0
Op. Temp	-40°C~+85°C
Rel. Humidity	40%~95%
Input Voltage	Min 1.8V Typ. 3.0V Max. 5.5V
Power Cons.	@1.8V 10mA Max @3V 20mA Max @5.5V 40mA Max
Mounting Data	
Dimensions	25*25*8mm
Cable*	78mm Ø 1.13
Connector*	IPEX (U.FL) (U.FL comp)

Model No	AP.35A.07.0054A 1 Stage 15dB 35mm Patch Back End SAW Filter
Patch	
Frequency	1575.42MHz
LNA Gain(3.0V)	15dB
Antenna Gain	+2.0dBic
Axial Ratio	3dB Max
Noise Figure (3V)	1.5dB
Impedance	50Ω
Polarization	RHCP
VSWR	Max 2.0
Op. Temp	-40°C~+85°C
Rel. Humidity	40%~95%
Input Voltage	Min 1.8V Typ. 3.0V Max. 5.5V
Power Cons.	@1.8V 3mA Max @3V 7.3mA Max @5.5V 3mA Max
Mounting Data	
Dimensions	35*35*5.5mm
Cable*	54mm Ø 1.13
Connector*	IPEX (U.FL) (U.FL comp)

GPS Active Embedded Antenna Modules

Embedded GPS Active Antenna Modules

AP.10G and AP.10H active GPS Patches are the smallest SMT GPS high performance embedded antenna currently available in the world.

Using extremely sensitive high dielectric constant powder formulation and tight process control the 10*10*4mm T Type patch antenna is accurately tuned to have its frequency band right at 1575.42MHz for GPS systems. A patented SMT structure gives high reliability in integration. With an ultra low power consumption one stage LNA with Saw Filter, this small active patch has the performance of an ordinary active patch, but at only a quarter of the size.

This product is suited to small form factor mobile devices such as GPS Smartphones, Personal Location, Medical devices, Telematics devices and Automotive navigation and tracking. Custom gain, connector and cable versions are available.

Model No	AP.10G.01
	1 Stage 14dB
	10mm Patch
	Front End SAW Filter
Electrical	
Frequency	1575.42MHz
LNA Gain (1.8V)	18dB
Antenna Gain	-10dBic typ.
Axial Ratio	4.0dB Max
Noise Figure	2.6dB
Impedance	50Ω
Polarization	RHCP
VSWR	2.0Max
Op. Temp	-40°C~+85°C
Rel. Humidity	40%~95%
Input Voltage	Min: 1.5V
	Typ: 3.0V
	Max: 3.3xV
Power Cons.	@1.8V 3.5mA Max
	@3V 7.3.5mA Max
	@5.5V 3.5mA Max
Mounting Data	
Dimensions	10*10*4mm
	7.3mm vertical PCB
Mount	SMT Mount via
	Solder Pads

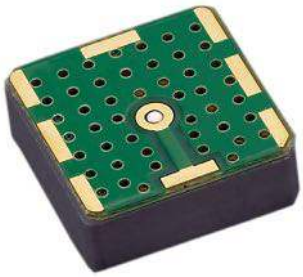
Model No	AP.10H.01
	2 Stage 25dB
	10mm Patch
	Front End SAW Filter
Electrical	
Frequency	1575.42MHz
LNA Gain (3.0)	25dB
Antenna Gain	-10dBic typ.
Axial Ratio	4.0dB Max
Noise Figure (3.0V)	2.5dB
Impedance	50Ω
Polarization	RHCP
VSWR	2.0Max
Op. Temp	-40°C~+85°C
Rel. Humidity	40%~95%
Input Voltage	Min: 1.8V
	Typ: 3.0V
	Max: 3.3V
Power Cons.	@1.8V 5mA Max
	@3V 10mA Max
	@3.3V 23mA Max
Mounting Data	
Dimensions	10*10*4mm
	7.3mm vertical PCB
Mount	SMT Mount via
	Solder Pads

* Cables and Connectors are Customizable.

GPS Embedded SMT Patch

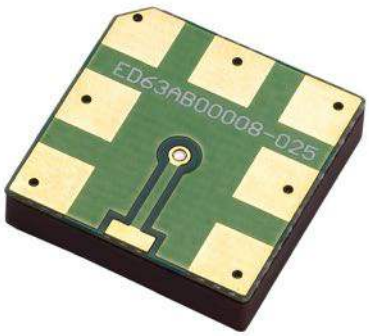
Surface mount GPS range

Taoglas unique patented SMT (Surface Mount Technology) GPS patches and Loop Antennas are designed to meet the requirements of high volume applications that need to avoid manual assembly processes.



Model No	SGP.12A 12mm Patch
Electrical Data	
Centre Freq.	1575.42 MHz
Bandwidth	8MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Gain at Zenith	-1.0dBic typ.
Axial Ratio	4dB Max
Polarization	RHCP
Impedance	50Ω
Mechanical Data	
Patch Dims.	12*12*4.5mm
Ground Plane	45*45mm
Mounting	SMT
Op. Temp.	-40°C~+85°C

Model No	SGP.15A 15mm Patch
Electrical Data	
Centre Freq.	1575.42 MHz
Bandwidth	10MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Gain at Zenith	1.0dBic typ.
Axial Ratio	3dB Max
Polarization	RHCP
Impedance	50Ω
Mechanical Data	
Patch Dims.	15*15*4.5mm
Ground Plane	45*45mm
Mounting	SMT
Op. Temp.	-40°C~+85°C

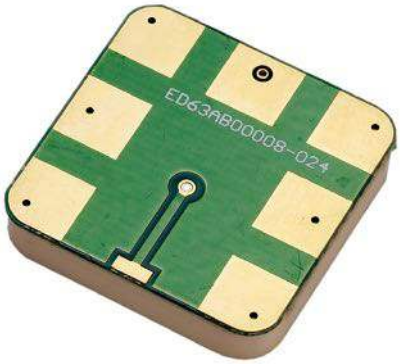


Model No	SGP.18C 18mm Patch
Electrical Data	
Centre Freq.	1575.42 MHz
Bandwidth	12MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Gain at Zenith	1.0dBic typ.
Axial Ratio	4dB Max
Polarization	RHCP
Impedance	50Ω
Mechanical Data	
Patch Dims.	18*18*4.5mm
Ground Plane	45*45mm
Mounting	SMT
Op. Temp.	-40°C~+85°C

GPS Embedded SMT Patch

Surface mount GPS range

Our SMT GPS antennas are not only exhaustively tested in our own state of the art facilities but also are put to task every day in real world applications. The high standards demanded by the automotive industry for environment resistances to temperature, shock, vibration and more are more than comfortably met by our SMT GPS antennas. The antennas are delivered on tape and reel and mounted directly onto the PCB via large mounting pads underneath. Connection is made during the standard reflow process and there is a pad present for soldering to the feed line.



Model No

SGP.25C
25mm Patch

Electrical Data

Centre Freq.	1575.42 MHz
Bandwidth	34MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Gain at Zenith	2.0dBic typ.
Axial Ratio	3dB Max
Polarization	RHCP
Impedance	50Ω

Mechanical Data

Patch Dims.	25*25*4.5mm
Ground Plane	45*45mm
Mounting	SMT
Op. Temp.	-40°C~+85°C

Note:

Centre frequencies can be shifted depending on ground plane size.
The aim is to have the antenna receiving at 1575MHz when it is on the PCB.

Tuning services are available if the off the shelf parts do not retain centre frequency inside the GPS device, tuning services are subject to MOQ's and/or NRE.

***These antennas come on Tape and Reel**

GPS Embedded PIN Patches

GPS Ceramic Passive Patch Range

GPS Patch Antenna Technology has been proven across the industry to be the best antenna technology for receiving GPS signals in compact mobile devices.

Model No

GP.1575.12.4.A.02
12mm Patch

Electrical Data

Centre Freq.	1575.42 MHz
Bandwidth	6MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Peak Gain	-0.5dBic typ.
Polarization	RHCP
Impedance	50Ω

Mechanical Data

Ground Plane	50*50mm
Patch Dims.	12*12*4mm
Op. Temp.	-40°C ~+85°C

Mounting

Pin	1.65±0.2mm
Adhesive	0.05mm thick
Adhesive Type	NITTO 5015

Model No

GP.1575.15.4.B.02
15mm Patch

Electrical Data

Centre Freq	1575.42 MHz
Bandwidth	8MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Peak Gain	1dBic typ.
Polarization	RHCP
Impedance	50Ω

Mechanical Data

Ground Plane	66*52.5mm
Patch Dims.	15*15*4mm
Op. Temp.	-40°C ~+85°C

Mounting

Pin	1.8±0.2mm
Adhesive	0.05mm thick
Adhesive Type	Tesa 4972

Model No

GP.1575.18.2.A.02
18mm Patch

Electrical Data

Centre Freq	1575.42 MHz
Bandwidth	6MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Peak Gain	-0.5dBic typ.
Polarization	RHCP
Impedance	50Ω

Mechanical Data

Ground Plane	50*50mm
Patch Dims.	18*18*2mm
Op. Temp.	-40°C ~+85°C

Mounting

Pin	2.25±0.3mm
Adhesive	0.12mm thick
Adhesive Type	NITTO 5015

GPS Embedded PIN Patches

GPS Ceramic Passive Patch Range

Taoglas embedded PIN Patch GPS antennas offer high gain, a narrow bandwidth and can be right hand circularly polarized thus matching the characteristics of the actual sign itself. Our XtremeGain™ technology means that these tiny antennas pack the performance of larger models.

Model No	GP.1575.18.4.A.02 18mm Patch
Electrical Data	
Centre Freq.	1575.42 MHz
Bandwidth	10MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Peak Gain	2.5dBic typ.
Polarization	RHCP
Impedance	50Ω
Mechanical Data	
Ground Plane	50*50mm
Patch Dims.	18*18*4mm
Op. Temp.	-40°C ~+85°C
Mounting	
Pin	2.4±0.2mm
Adhesive	0.12mm thick
Adhesive Type	NITTO 5015

Model No	GP.1575.25.2.A.02 25mm Patch
Electrical Data	
Centre Freq	1575.42 MHz
Bandwidth	8MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Peak Gain	2.0dBic typ.
Polarization	RHCP
Impedance	50Ω
Mechanical Data	
Ground Plane	35*35mm
Patch Dims.	25*25*2mm
Op. Temp.	-40°C ~+85°C
Mounting	
Pin	1.8±0.3mm
Adhesive	0.12mm thick
Adhesive Type	NITTO 5015

Model No	GP.1575.25.4.A.02 25mm Patch
Electrical Data	
Centre Freq	1575.42 MHz
Bandwidth	12MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Peak Gain	3.5dBic typ.
Polarization	RHCP
Impedance	50Ω
Mechanical Data	
Ground Plane	50*50mm
Patch Dims.	25*25*4mm
Op. Temp.	-40°C ~+85°C
Mounting	
Pin	2.4±0.2mm
Adhesive	0.12mm thick
Adhesive Type	NITTO 5015

GPS Embedded PIN Patches

GPS Ceramic Passive Patch Range

Applications

Transportation, Defence, Marine, Agriculture and Navigation applications globally choose patch antenna technology for reliable and accurate GPS performance.

Model No

	GP.1575.35.3.A.02
	35mm Patch

Electrical Data

Centre Freq	1575.42 MHz
Bandwidth	22MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Peak Gain	2.0dBic typ.
Polarization	RHCP
Impedance	50Ω

Mechanical Data

Ground Plane	50*50mm
Patch Dims.	35*35*3.5mm
Op. Temp.	-40°C ~+85°C

Mounting

Pin	1.65±0.2mm
Adhesive	0.12mm thick
Adhesive Type	NITTO 5015

Note: Please see our SGP series for surface mounted solutions.

Centre frequencies can be shifted depending on ground plane size, shape and surrounding device.

The aim is to have the antenna receiving at 1575MHz when it is on the PCB.

Tuning services are available if the off the shelf parts do not retain centre frequency inside the GPS device, tuning services are subject to MOQ's and/or NRE.

GPS Loop Antennas

Embedded GPS Passive and Active Loop Antenna Range

The Taoglas series of GPS Loop Antennas are miniature edge mounted antennas, designed for small space requirements.

Our GLA loop antenna series show at least three times the efficiency of traditional linear polarized 1575MHz antennas. Delivered on tape and reel they allow M2M customers to use an Omni-directional antenna in devices where the orientation of the product is unknown. We have also developed a Plug and Play Active version which makes integration extremely easy.

Model No

ALA.01
1 Stage 16dB
Front End SAW Filter

Antenna

Frequency	1575.42MHz
Bandwidth	70MHz
Return Loss	≤-10dB
LNA Gain(3.0V)	16±4dBi@90°
Peak Gain	3.1dBi Typ.
Noise Figure	1.3dB Max
Impedance	50Ω
Polarization	Linear
VSWR	Max 2.0
Rel. Humidity	10%~95%
Input Voltage	Min 2.7V
	Typ. 3.0V
	Max. 3.3V
Current(3.0V)	Typ.13mA

Mounting Data

Dimensions	45*10*2.3mm
Cable*	Ø1.13 95mm
Connector*	IPEX MHFI
	(U.FL comp)
Op. Temp	-40°C~+85°C

Model No

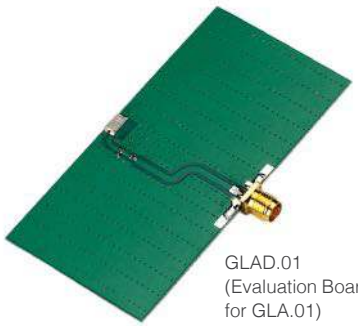
GLA.01
Sub-Miniature
Ceramic Loop

Electrical Data

Centre Freq.	1575.42 MHz
Bandwidth	50MHz
Return Loss	≤-10dB
VSWR	2.0 Max
Peak Gain	2.5dBi typ.
Polarization	Linear
Impedance	50Ω

Mechanical Data

Dimensions	5*3*0.5mm
Mounting	SMT
Ground Plane	80*40mm
Op. Temp.	-40°C~+85°C



GLAD.01
(Evaluation Board for GLA.01)

* Cables and Connectors are Customizable.

Internal GPS-GLONASS-COMPASS Flexible Loop Antenna

The Cloud

The FXP611 "Cloud" is a "peel and stick" flexible polymer antenna, designed for applications which require high positioning accuracy using GPS and GLONASS function on modern day GNSS systems alongside the new COMPASS standard that provides not only location and time information but also communication services.

The FXP611 "Cloud" is a multi-talented GNSS antenna. Covering the standard GPS standard, the "Cloud" also catches the Russian Global Navigation Satellite System (GLONASS) and the new Chinese COMPASS Navigation Satellite System (CNSS). The "Cloud" outperforms most active patch antennas with an efficiency of 80% and a peak gain of 3dBi. It also has a unique ability to resist external detuning effects due to dual resonance.

Model No

	FXP611
	The Cloud
	Flexible Polymer
	GPS-GLONASS-COMPASS
	Cloud Shape Antenna

Patch

Frequency	1559~1610MHz
Radiation Properties	Omni-Directional
Polarization	Linear
Impedance	50Ω
Max VSWR	1.2:1
Peak Gain	3dBi
Efficiency	80%
Average Gain	-1 dB
Max Input Power	5 W

Mounting Data

Dimensions	38*37*0.15mm
Mounting	Adhesive
Required Space	40*40*0.2mm
Material	Flexible Polymer
Adhesive Type	3M Tape
Cable	92mm Cable
Connector	IPEX MHFI (U.FL comp)

Front

Back

GPS-GLONASS Passive Antennas

Embedded Ceramic Passive Patch Antennas

Using a double resonance design, our extensive CGGP patch antenna range has comprehensive wide-band operation over all GPS and GLONASS bands from 1575MHz to 1610MHz.

Model No	CGGP.18.4.C.02 18mm Patch
Electrical Data	
Receiving Freq.	1575~1610MHz
VSWR	1.5 Max.
Return Loss	≤-7dB
VSWR	2.4 Max.
Peak Gain	3.0dBic typ.
Impedance	50Ω
Mechanical Data	
Patch Dims.	18*18*4mm
Ground Plane	70*70mm
Op. Temp.	-40°C ~+85°C
Mounting	
Pin	1.8±0.2mm
Adhesive	NITTO 5015

Model No	CGGP.25.4.A.02 25mm Patch
Electrical Data	
Receiving Freq.	1575~1610MHz
Bandwidth	15MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Peak Gain	5.0dBic typ.
Impedance	50Ω
Mechanical Data	
Patch Dims.	25.1*25.1*4mm
Ground Plane	70*70mm
Op. Temp.	-40°C ~+85°C
Mounting	
Pin	1.8±0.2mm
Adhesive	NITTO 5015

Model No	CGGP.35.3.A.02 35mm Patch
Electrical Data	
Receiving Freq.	1575~1610MHz
Bandwidth	26MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Peak Gain	1.5dBic typ.
Impedance	50Ω
Mechanical Data	
Patch Dims.	35*35*3.5mm
Ground Plane	70*70mm
Op. Temp.	-40°C ~+85°C
Mounting	
Pin	2.4±0.2mm
Adhesive	NITTO 5015

Note: These antennas have been tuned for a centre position on a 70mm*70mm ground plane. They are manufactured and tested in a TS16949 first tier automotive approved facility. For further optimization to customer specific device environments where positioning is off centre or on different ground plane sizes, custom tuned patch antennas can be supplied

GPS-GLONASS Embedded SMT Patch

Surface mount GPS-GLONASS range

These new SMT GPS-GLONASS patch solutions are unique in that they meet the environmental requirements of the automotive industry (temperature, shock, vibration etc).

This is because of the Taoglas design which keeps the feed-line of the SMT GPS patch antenna off the side of the ceramic and unexposed. It uses a separate PCB to connect to the GPS module feed-line.

Model No

	SGGP.18A
	18mm Patch
	Single Feed
	SMT Mount

Electrical Data

Centre Freq.	1592± 3MHz
Bandwidth	8MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Gain at Zenith	GPS: 0.26dBic typ.
	GLONASS: 1.25dBic typ.
Impedance	50Ω

Mechanical Data

Patch Dims.	18*18*4mm
Ground Plane	50*50mm
Mounting	SMT
Op. Temp.	-40°C~+85°C

Model No

	SGGP.25A
	25mm Patch
	Single Feed
	SMT Mount

Electrical Data

Centre Freq.	1592± 3MHz
Bandwidth	8MHz min
Return Loss	≤-10dB
VSWR	1.5 Max.
Gain at Zenith	GPS: -0.14dBic typ.
	GLONASS: 1.75dBic typ.
Impedance	50Ω

Mechanical Data

Patch Dims.	25*25*4.5mm
Ground Plane	50*50mm
Mounting	SMT
Op. Temp.	-40°C~+85°C

SGGP.18A Back

SGGP.25A Back

GPS–GLONASS Active Embedded Series

Embedded Active Antenna Modules

The AGGP series are the best choice for embedded antenna with the latest generation GPS GLONASS-GNSS receivers.

The AGGP series features advanced wide-band ceramic patch antennas with optimized gain, radiation patterns and axial ratios at GPS and GLONASS centre frequencies. They also include two stage LNA's combined with front-end SAW filters to reduce out of band noise, such as that emanating from nearby cellular transceivers and improve probability of the wireless device passing radiated spurious emissions certification. Designed and manufactured within stringent TS16949 guidelines and 100% tested for gain (S21), return loss (S11) to ensure total consistency of performance. Cable type, length and connectors can be customized and samples offered according to requirement, subject to minimum order quantities in production.

Model No	AGGP.25F
	2 Stage 28dB
	25mm Patch
	Front End SAW Filter

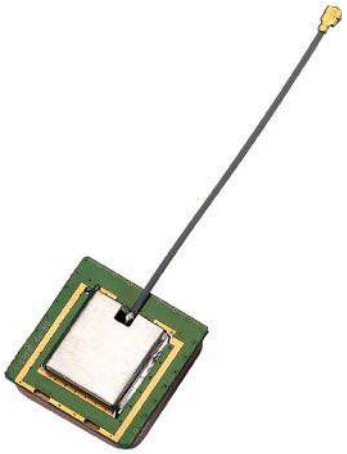
Patch	
Frequency	1574~1610MHz
LNA Gain(3.0V)	28dB
Patch Gain	1575.40MHz - 1.5dBic
@ Zenith	1602MHz - 0dBic
Noise Figure (3V)	2.6dB
Out Impedance	50Ω
Op. Temp	-40°C~+85°C
Rel. Humidity	40%~95%
Input Voltage	1.8V~5.5V
Power Cons (3V)	@1.8V 5mA Max
	@3V 10mA Max
	@5.5V 23mA Max

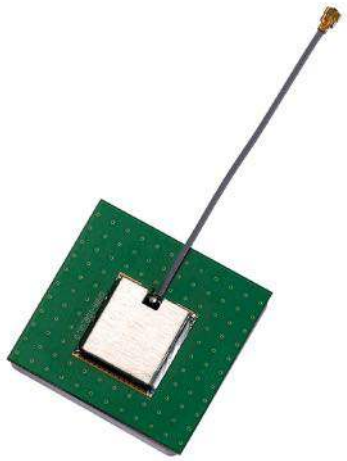
Mounting Data	
Dimensions	25.1*25.1*7.4mm
Cable*	60mm Ø 1.13
Connector*	IPEX MHFI (U.FL comp)

Model No	AGGP.35F
	2 Stage 28dB
	35mm Patch
	Front End SAW Filter

Patch	
Frequency	1574~1610MHz
LNA Gain(3.0V)	28dB
Patch Gain	1575.40MHz - 1dBic
@ Zenith	1602MHz - 0dBic
Noise Figure (3V)	2.6dB
Out Impedance	50Ω
Op. Temp	-40°C~+85°C
Rel. Humidity	40%~95%
Input Voltage	1.8V~5.5V
Power Cons (3V)	@1.8V 5mA Max
	@3V 10mA Max
	@5.5V 23mA Max

Mounting Data	
Dimensions	35*35*6.9mm
Cable*	60mm Ø 1.13
Connector*	IPEX MHFI (U.FL comp)





* Cables and Connectors are Customizable.

GPS–GLONASS External Solutions

Magnetic Mount Solution / Screw Mount

Optimized in our unique test chambers, certified to the highest international standards, tuned and customized for M2M application, the Taoglas range of GPS and GLONASS antennas is peerless.

The AA.162 “Ulysses” Ultra-Low Profile Miniature Magnetic Mount (only 10mm in height) GNSS antenna is designed for applications which require high positioning accuracy by combining signals from GPS and GLONASS systems. A high gain wide-band patch antenna on an integral ground delivers reliable performance. The Ulysses is fully IP67 waterproof and can survive wet outdoor environments. The AA.161 “Dominator” is the acknowledged performance leader in the GPS-GLONASS arena, incorporating unique high gain wide band 35mm patch antenna technology.

Model No	AA.161 **Dominator** Magnetic Mount GPS-GLONASS Antenna
Patch	
Frequency	1574~1610 MHz
LNA Gain(3.0V)	28dBic
Antenna Gain	26±3dBic@1575.42MHz 27±3dBic@1602MHz
Impedance	50Ω
VSWR	2.0 Max
Input Voltage	Min 1.8V Typ 3.0V Max 5.5V
Power Consum.	@1.8V 5mA Max @3V 10mA Max @5.5V 23mA Max
Mounting Data	
Dimensions	50*66*21mm
Housing	UV Resistant ABS
Cable*	3M RG-174
Connector*	SMA(M)
IP Rating	IP67
Op. Temp	-40°C~+85°C
Rel. Humidity	40~95%

Model No	AA.162 **Ulysses** Ultra-Low Profile Miniature Magnetic Mount GPS-GLONASS
Patch	
Frequency	1574~1610MHz
LNA Gain(3.0V)	28dBic
Antenna Gain	26±3dBic@1575.42MHz 27±3dBic@1602MHz
Impedance	50Ω
VSWR	2.0 Max
Input Voltage	1.8V (min.) 3.0V (typ.) 5.5V (Max.)
Power Consum.	@1.8V 5mA Max @3V 10mA Max @5.5V 23mA Max
Mounting Data	
Dimensions	37.8 x 40.4 x 10mm
Housing	UV Resistant ABS
Cable*	3M RG174
Connector*	SMA(M)
IP Rating	IP67
Op. Temp	-40°C~+85°C
Rel. Humidity	40~95%

* Cables and Connectors are Customizable.

GPS–GLONASS External Solutions

Adhesive Mount / Screw Mount

Our range of Adhesive and Screw mount external antennas are ideal for robust, covert installations where durability is paramount. They are ideal for telematics and M2M applications for commercial vehicle installations for fleet management etc.

The Stingray AA.107 is designed for covert installation and reliable reception and transmission crossing through different mobile networks. The A.30 “Ultima” and A.40 “Hercules” are screw mount antennas – that are waterproof and robust. The advantage of the Taoglas solution is the antenna inside is tuned for its housing giving your device maximum sensitivity. The antenna was designed based on market feedback - thick threads, waterproof, no fin, low profile etc.

Model No

AA.107
Stingray
Low Profile
Adhesive Mount
GPS-GLONASS

Electrical Data

Centre Freq.	
GPS:	1574.42MHz±3MHz
GLONASS:	1602MHz±0.5MHz
LNA Gain at 3.3V	28dB Typ.
VSWR	2.0:1
Impedance	50Ω
Return Loss	10dB Min.
Impedance	50Ω
DC power Input	3.3V
Noise Figure	2.2dB Typ.
Power Consum.	10mA Typ.

Mounting Data

Dimensions	55*51.7*10.8mm
Mounting	Adhesive Mount
Op. Temp.	-40°C~+85°C
Cable*	3M RG174
Connector*	SMA(M)
IP Rating	IP65

Model No

A.30.A
Ultima
Low Profile
Screw Mount
GPS/GLONASS

Electrical Data

Centre Freq.	1575.42MHz
Gain	27±2dB
Noise Figure	1.3dB
VSWR	2.0 Max.
Axial Ratio	3.0dB Max
Polarization	RHCP
Impedance	50Ω
Input Voltage	2.2~5V
Power Consum.	5~15mA

Mounting Data

Dimensions	H:19.6mm, Ø 55mm
Mounting	Thread Ø 10mm
Cable	1M SMA(M)
Connector	SMA(M)
Radome Material	PC
IP Rating	IP67 & IP69K

Model No

A.40.A
Hercules
GPS/GLONASS
Screw Mount

Electrical Data

Centre Freq.	1575.42MHz
Gain	28±2dB
Noise Figure	1.3dB
VSWR	1.5 Max.
Axial Ratio	3.0dB Max
Polarization	RHCP
Impedance	50Ω
Input Voltage	2.2~5V
Power Consum.	5~15mA

Mounting Data

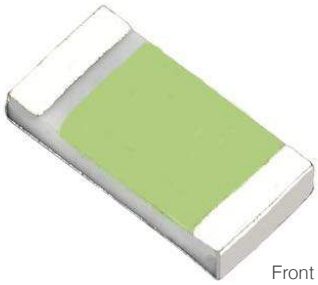
Dimensions	H:16.5mm, Ø 46mm
Mounting	Thread Ø 10mm
Cable	1M SMA(M)
Connector	SMA(M)
Radome Material	PC
IP Rating	IP67 & IP69K

Internal GPS-GLONASS-BEIDOU

Unifier Ceramic SMD Loop Antenna

Taoglas have developed a unique ceramic miniature loop antenna series for GPS-GLONASS-BEIDOU applications. At 3.2*1.6*0.5mm, the Unifier GGBLA.01.A Loop antenna is a miniature edge mounted SMD antenna, designed for small space requirements.

Typical applications are small sized automotive navigation or position tracking systems and hand-held devices when GNSS function is needed. The radiation pattern is more omni-directional than traditional patch antennas. The Unifier antenna series wide bandwidth allows high efficiency, stable reception on all three GPS, Glonass and BeiDou bands from 1555MHz to 1602MHz. Efficiencies of 64% to 85% are achievable. Peak gain of 3.3dBi places this antenna gain performance within the range of a much larger 15mm to 18mm patch antennas.



Front

Back

Model No

GGBLA.01.A
Unifier
GPS/GLONASS/BEIDOU Ceramic SMD Antenna

	GPS	GLONASS	BEIDOU
Electrical Data			
Frequency	1575.42MHz	1598~1608MHz	1561 MHz
VSWR	2.0 : 1 max	2.0 : 1 max	2.0 : 1 max
Polarization	Linear	Linear	Linear
Gain	Peak gain: 3.2 Typ.	Peak gain: 2.6 Typ.	Peak gain: 2.8 Typ.
Efficiency	>80%	>70%	>70%
Impedance	50Ω	50 Ω	50 Ω

Mechanical Data

Dimensions	3.2*1.6*0.5 mm
Material	Ceramic
Ground Plane	80*40mm

Environmental Data

Op. Temp.	-40°C to 85°C
Storage Temp.	-40°C to 85°C
Humidity	-20°C~+70°C

Internal GPS-GLONASS-BEIDOU

Ceramic Through Hole Patch Antenna

Taoglas' ceramic GPS/GLONASS/BEIDOU patch antenna's wide band of operation leads to excellent gain and radiation pattern stability on all three GNSS system bands.

Compared to using a smaller antenna, this will translate into the GNSS system having much higher location accuracy, improved reliability of lock in urban areas, better signal reception, with more satellites acquired and a quicker time to first fix. The patch is mounted via pin and double-sided adhesive.

Model No	CGGBP.18.4.A.02 GPS-GLONASS-BEIDOU 18mm Embedded Patch Antenna
Electrical Data	
Frequency	**BeiDou:** 1561.098 ± 2.046MHz **GPS:** 1575.42 ± 1.023MHz **GLONASS:** 1602 ± 5MHz
Centre Frequency	1583MHz ± 3MHz
VSWR	2.5 : 1 max
Zenith Gain	**BeiDou:** +3.0dBi typ. **GPS:** +2.0dBi typ. **GLONASS:** +4.0dBi typ.
Impedance	50 Ω
Mechanical Data	
Dimensions	18*18*4mm
Material	Ceramic
Pin Diameter	0.9mm
Pin Length	1.65mm
Mechanical Data	
Op. Temp.	-40°C to 85°C
Storage Temp.	-40°C to 105°C
Humidity	Non-condensing 65°C 95% RH

Model No	CGGBP.25.4.A.02 GPS-GLONASS-BEIDOU 25mm Embedded Patch Antenna
Electrical Data	
Frequency	**BeiDou:** 1561.098 ± 2.046MHz **GPS:** 1575.42 ± 1.023MHz **GLONASS:** 1602 ± 5MHz
Centre Frequency	1582MHz ± 3MHz
VSWR	2.5 : 1 max
Zenith Gain	**BeiDou:** +2.5dBi typ. **GPS:** +1.5dBi typ. **GLONASS:** +3.5dBi typ.
Impedance	50 Ω
Mechanical Data	
Dimensions	25*25*4mm
Material	Ceramic
Pin Diameter	0.9mm
Pin Length	1.65mm
Mechanical Data	
Op. Temp.	-40°C to 85°C
Storage Temp.	-40°C to 105°C
Humidity	Non-condensing 65°C 95% RH

Model No	CGGBP.35.6.A.02 GPS-GLONASS-BEIDOU 35mm Embedded Patch Antenna
Electrical Data	
Frequency	**BeiDou:** 1561.098 ± 2.046MHz **GPS:** 1575.42 ± 1.023MHz **GLONASS:** 1602 ± 5MHz
Centre Frequency	1594MHz ± 6MHz
VSWR	2.5 : 1 max
Zenith Gain	**BeiDou:** +4.5dBi typ. **GPS:** +3.0dBi typ. **GLONASS:** +4.5dBi typ.
Impedance	50 Ω
Mechanical Data	
Dimensions	35*35*6.5mm
Material	Ceramic
Pin Diameter	0.9mm
Pin Length	4.0mm
Mechanical Data	
Op. Temp.	-40°C to 85°C
Storage Temp.	-40°C to 105°C
Humidity	Non-condensing 65°C 95% RH

Embedded GPS-Cellular

Combination Antenna Board

The MAT.03A Reference GPS and Cellular Embedded Antenna board combines the 2G/3G PA.25 Hexa-Band Cellular SMT Antenna and the ASGP.1575.25B.4.A.0 SMT 28dB Active GPS Patch Antenna from Taoglas. It can be used as a reference board design or actual embedded antenna for telematics applications such as fleet management, asset tracking, road pricing, and security/surveillance.

The board comes with one SMA(F) connector for each antenna feed on the bottom side for easy connection via a cable assembly to a module or test equipment.

Model No

MAT.03A
Embedded Active GPS
and Cellular Antenna
Assembly and Reference Board
Board Dimensions 110.3*40.5*6.75mm

PA.25 Cellular Antenna

Electrical Data

Frequency	824 ~ 2170MHz
Peak Gain	< 2.54 dBi
Efficiency	>50%
Return Loss	<-5 dB
Impedance	50Ω
Polarization	Linear

Mechanical Data

Dimensions	36 * 6 * 5mm
Material	Ceramic
Connector	SMA(F)
Op. Temp.	-40°C to 85°C

ASGP.1575.25B.4.A.01 GPS Antenna

Electrical Data

Polarization	RHCP
Axial Ratio	Max 3.0dB@zenith
Return Loss	<-5 dB
Input Voltage	3.0V typ.
Gain	Typ. -1.5dBic @ Zenith

Mechanical Data

Dimensions	25 * 25 * 4mm
Material	Ceramic
Connector	SMT via solder pads
Op. Temp.	-40°C to 85°C

Screw Mount / Permanent Mount 2in1

Ultima Gen II Lowest Profile

The Ultima MA.111 GPS/GLONASS/Cellular Combination Antenna is an extremely low profile combination high performance GPS/GLONASS and penta-band cellular antenna solution for professional telematics applications.

At only 22 mm height it is the lowest profile antenna in the market, with a diameter of 55 mm. It is designed to be mounted and couple to the metal structures it attaches to radiate. Durable UV ABS housing, thread and nut is resistant to vandalism and direct attack.

The IP67 waterproof robust plastic body makes it extremely light, economical for shipping and minimum weight impact on vehicles. This also makes it ideal for use in humid environments such as water pits or marine applications as there are no external metal parts to corrode.

The closed cell foam with double-sided adhesive provides a permanent waterproof seal and can adjust to different curvatures, stopping water from leaking under the antenna into the mounting hole.
For applications that require mounting on non-metal structures we recommend the Hercules MA.104

Model No	
	MA.111 **Ultima 2in1** GPS-GLONASS/Cellular Screw Mount

Electrical Data	
GPS-GLONASS	2 Stage 27dB
Centre Frequency	1574~1606MHz
Total Gain @ Zenith	27dB typical at 3.0V
Noise Figure	1.3dB typical
VSWR	2.0 Max
Cellular	824~896, 880~960 1710~1880 1850~1990 1710~2170 MHz
Impedance	50Ω
VSWR	3.5 Max
Peak Gain	2dBi
Efficiency	> 35%

Mechanical Data	
Dimensions	H:19.6mm, Ø 55mm
Housing	UV Resistant ABS
Cable - Cellular	CFD200
Cable - GPS-GLONASS	RG174
Connector	SMA(M)
IP Rating	IP67

Also available in white

Screw Mount / Permanent Mount 2in1

Hercules Ground Independent

The Hercules was designed mainly for commercial vehicle and outdoor equipment installations, with extra thick threads, with unique lowest loss, high external noise rejection cables exiting through the bottom for ease of install.

The Hercules is a waterproof, high performance antenna that has been designed for heavy duty applications in outdoor environments. It features extra thick threads and strong washers for sturdy installation. Its outer housing is manufactured from durable UV resistant ABS, protecting it from vandalism and direct attack.
It also features convenient side slots so that the antenna cables can run easily from the side. It is designed for covert mounting as it is only 3cm high when mounted, thus complies with the latest EU directives for height restrictions.

Also available in white

Model No	
	MA104
	Hercules
	GPS/Cellular
	Screw-Hercules

Electrical Data	
GPS	2 Stage 30dB LNA
Centre Freq.	1575.42±1.023MHz
Gain	-4dB Passive Gain
	@ Zenith
Noise Figure	1.5 typical
Axial Ratio	3.0dB Max
Polarization	RHCP
Cellular	Penta-band 850/900
	/1800/1900/2100MHz
Polarization	Linear
Impedance	50Ω
VSWR	≤3.5
Peak Gain	1.6dBi@880-960Mhz
	0.1dBi@1710-1880MHz
Efficiency	> 20%

Mechanical Data	
Dimensions	H:29mm, Ø 49mm
Mounting	Thread Ø 18mm
Cable*	3M RG-174 - GPS
	3M RG-174 - Cellular
Connector*	SMA(M) - GPS
	SMA(M) - Cellular
IP Rating	IP67 & IP69
Op. Temp.	-40°C to 85°C

Model No	
	MA106
	Hercules
	GPS-GLONASS/Cellular
	Screw-Hercules

Electrical Data	
GPS-GLONASS	2 Stage 27dB LNA
Centre Freq.	1574~1610MHz
Total Gain	28dB typical at 3.0V
@ Zenith	
Noise Figure	2.6dB typical
VSWR	2.0 Max
Cellular	Penta-band 850/900
	/1800/1900/2100MHz
Polarization	Linear
Impedance	50Ω
VSWR	≤3.5
Peak Gain	2.0dBi@880-960Mhz
	3.6dBi@1710-1880MHz
Efficiency	> 20%

Mechanical Data	
Dimensions	H:29mm, Ø 49mm
Mounting	Thread Ø 18mm
Cable*	CFD200 - Cellular
	RG174 - GPS-GLONASS
Connector*	SMA(M) - GPS-GLONASS
	SMA(M) - Cellular
IP Rating	IP67 & IP69K
Op. Temp.	-40°C to 85°C

* Cables and connectors are customizable.

Screw Mount / Permanent Mount 2in1

Hercules Ground Independent

We have Hercules Combination antennas that incorporate ISM Bands and also combine GPS/GLONASS with 868Mhz and 915Mhz for external use with smart meters, gateways, mesh networks, vehicles and outdoor and indoor assets. It is designed for heavy duty work with extra thick threads. The UV resistant polycarbonate housing is resistant to vandalism and direct attack.

The MA120 combines ISM Bands 450Mhz and 868MHz for external use. The standard configuration is with 1M and RG-316 cable. The cable is very flexible and able to operate in high temperature environments and is corrosion resistant. The MA130 and MA131 combine GPS/GLONASS with 868MHz and 915MHz respectively. These antennas are suited to remote monitoring applications. The integrated metal thread-mount allows for external use on vehicles and outdoor assets worldwide.

Model No

MA120
Hercules GENII
450MHz & 868MHz
Screw-Hercules

Electrical Data

ISM450

Frequency	450~457MHz
Return Loss	-10dB
Peak Gain	3.91dBi
Impedance	50Ω
Polarization	Linear
Input Power	5W (max)

ISM868

Frequency	865~870MHz
Return Loss	-10dB
Peak Gain	1.11dBi
Impedance	50Ω
Polarization	Linear
Input Power	5W (max)

Mechanical Data

Dimensions	H:29mm, Ø 49mm
Mounting	Thread Ø 18mm
Cable*	1M RG316
Connector*	SMA(M)
IP Rating	IP67 *IP69K
Op. Temp.	-40°C to 85°C

Model No

MA130
Hercules
GPS/Glonass/868MHz
Screw-Hercules

Electrical Data

ISM868

Frequency	865~870MHz
Return Loss	-10dB (min.)
Peak Gain	3dBi
Efficiency	40% avg.
Impedance	50Ω
Polarization	Linear
Input Power	5W (max)

GPS-GLONASS

Frequency	1574~1606MHz
VSWR	2.0 (Max)
Total Gain	270dB Typ.
Impedance	50Ω
Polarization	Linear
Noise Figure	1.3dB Typ.

Mechanical Data

Dimensions	H:29mm, Ø 52mm
Mounting	Thread Ø 18mm
Cable*	1M RG316
Connector*	SMA(M)
IP Rating	IP67 & IP69K
Op. Temp.	-40°C to 85°C

Model No

MA131
Hercules
GPS/Glonass/915MHz
Screw-Hercules

Electrical Data

ISM915

Frequency	902~928MHz
Return Loss	-10dB (min.)
Peak Gain	3.52dBi
Efficiency	40% avg.
Impedance	50Ω
Polarization	Linear
Input Power	5W (max)

GPS-GLONASS

Frequency	1574~1606MHz
VSWR	2.0 (Max)
Total Gain	270dB Typ.
Impedance	50Ω
Polarization	Linear
Noise Figure	1.3dB Typ.

Mechanical Data

Dimensions	H:29mm, Ø 52mm
Mounting	Thread Ø 18mm
Cable*	1M RG316
Connector*	SMA(M)
IP Rating	IP67 & IP69K
Op. Temp.	-40°C to 85°C

Screw Mount / Permanent Mount 2in1

Hercules & Ultima Wi-Fi 2*2 MIMO

Model No

MA510
Hercules
Dual Band
2.5/5.8GHz MIMO
Screw-Hercules

Electrical Data

2.4 ~ 2.5GHz

Frequency	2400~2500MHz
Peak Gain	3dBi typ.
Efficiency	60% typ.
Polarization	Linear
Impedance	50Ω
VSWR	≤2.0
Mac Input Power	2W

4.8~5.8GHz

Frequency	4800~5800MHz
Peak Gain	3dBi typ.
Efficiency	40% typ.
Polarization	Linear
Impedance	50Ω
VSWR	≤2.0
Mac Input Power	2W

Mechanical Data

Dimensions	H:29mm, Ø 49mm
Mounting	Thread Ø 18mm
Cable*	1M RG-316
Connector*	RP-SMA(M)
IP Rating	IP67 & IP69K
Op. Temp.	-40°C to 85°C

Model No

MA515
Hercules
2.4GHz MIMO
Screw-Hercules

Electrical Data

MIMO 1 & 2

Frequency	2400~2500MHz
Peak Gain	3dBi typ.
Efficiency	56% typ.
Polarization	Linear
Impedance	Linear
VSWR	≤2.0
Mac Input Power	2W

Mechanical Data

Dimensions	H:29mm, Ø 49mm
Mounting	Thread Ø 18mm
Cable*	1M RG-316
Connector*	RP-SMA(M)
IP Rating	IP67 & IP69K
Op. Temp.	-40°C to 85°C

Model No

MA530
Ultima
Dual Band
2.4 / 5GHz MIMO
Screw-Ultima

Electrical Data

2.4 ~ 2.5GHz MIMO 1&2

Frequency	2400~2500MHz
Peak Gain	3.5~5.5dBi typ.
Efficiency	40% avg.
Polarization	Linear
Impedance	50Ω
VSWR	≤3.0
Mac Input Power	5W

5.15 ~ 5.85GHz MIMO 1&2

Frequency	5150~5850MHz
Peak Gain	1.6~2.3dBi typ
Efficiency	26% typ.
Polarization	Linear
Impedance	50Ω
VSWR	≤3.0
Mac Input Power	5W

Mechanical Data

Dimensions	H:19.6mm, Ø 55.2mm
Mounting	Thread Ø 24mm
Cable*	1M RG-174
Connector*	RP-SMA(M)
IP Rating	IP67 & IP69K
Op. Temp.	-40°C to 85°C

Screw Mount / Permanent Mount 2in1

Hercules Ground Independent

The MA501 is a GPS and Dual-Band WiFi Hercules antenna and the MA520 combines a Penta Band Cellular Antenna with Dual-Band 2.4/5.8GHz Antenna

Model No

MA501
Hercules
GPS & WiFi
Screw-Hercules

Electrical Data

GPS	2 Stage 30dB LNA
Centre Frequency	1575.42±2MHz
Gain	30dBic typ. (@3V)
Noise Figure	3.0dB Max (@3V)
Power Consump.	12mA(@3V)
Polarization	RHCP
WiFi	Dual Band 2.4~2.5GHz 4.9~6.0GHz
Polarization	Linear
Impedance	50Ω
VSWR	≤1.8
Peak Gain	3dBi@2.4-2.5GHz 4dBi@4.9-6.0GHz
Efficiency	> 40%

Mechanical Data

Dimensions	H:29mm, Ø 49mm
Mounting	Thread Ø 18mm
Cable*	3M RG-174 - GPS CFD-200 - WiFi
Connector*	SMA(M) - GPS RP-SMA(M) - WiFi
IP Rating	IP67 & IP69K
Op. Temp.	-40°C to 85°C

Model No

MA520
Hercules
Cellular & WiFi
Screw-Hercules

Electrical Data

Cellular	Penta-band 850/900 /1800/1900/2100Mhz
Polarisation	Linear
Impedance	50Ω
Return Loss	<-8dBi
Peak Gain	1.0dBi @ 824~960MHz 0dBi @ 1710~1880MHz
Efficiency	>20%
Dual Band	2.4~2.5GHz 5.0~5.8GHz
Polarisation	Linear
Impedance	50Ω
Return Loss	<-8dBi
Peak Gain	2.1dBi@2.4~2.5MHz -3.2dBi@5.0~5.8MHz
Efficiency	>18%

Mechanical Data

Dimensions	H:29mm, Ø 49mm
Mounting	Thread Ø 18mm
Cable*	2M RG316 - Cellular 2M RG316 - WiFi
Connector*	SMA(M) - Cellular RP-SMA(M) - WiFi
IP Rating	IP67 & IP69K
Op. Temp.	-40°C to 85°C

Screw Mount / Permanent Mount 2in1

Spartan GPS / GLONASS & Cellular 2G/3G

The Spartan MA.650 antenna is a low profile, heavy-duty, fully IP67 waterproof external M2M antenna for use in telematics, transportation and remote monitoring applications.

With a standard length of 10 meters of very low loss cable, the MA.650 is specially designed suitable for e-Bus or train telematics applications where long cable lengths are needed. For industries such as commercial vehicle telematics, remote monitoring, smart meter systems, construction equipment, at only 40mm high, the Spartan provides an unobtrusive, robust, rugged antenna that is durable even in extreme environments.

Model No

MA.650
Spartan - 2in1 with 10M cable length
GPS-GLONASS / Cellular Combination Antenna
Low Profile Screw Mount (Permanent Mount)

GPS-GLONASS

Electrical Data	
Frequency	1575~1602MHz
Efficiency	50% avg.
Peak Gain	4.0dBic typ.
VSWR	2:1 Max
Polarization	Linear
Impedance	50Ω

Mechanical Data	
Dimensions	H: 50mm Ø: 150mm
Housing	Wonderloy PC-540 PC
Thread	ø30mm
Base & Thread	Nickel Plated Zinc
Cable	3M RG174
Connector	SMA(M)
Waterproof	IP67
Op. Temp.	-40°C~+85°C

Cellular

Electrical Data	
Frequency	850/900/1700 /1800/2100MHz
Efficiency	28%
Peak Gain	-0.75 dBi
VSWR	3 Max
Polarization	Linear
Impedance	50Ω
Radiation Pattern	Omni-Directional

Mechanical Data	
Cable	CFD 200
Connector	SMA(M)

Screw Mount / Permanent Mount 3in1

Spartan 3in1 GPS / GLONASS, Cellular & WiFi

The Spartan MA.600 antenna is a heavy-duty, fully IP67 water-proof external M2M antenna for use in telematics, transportation and remote monitoring applications.

The Spartan is unique in the market because it combines a 3in1 GPS-GLONASS / Cellular (2G and 3G) and WiFi, heavy-duty antenna with high efficiency in a compact low profile format at only 35mm high.

The antenna screws down permanently onto a roof or metal panel and can be pole or wall-mounted with a metal bracket. The unique robust metal base serves as its own ground plane. The antenna has no need for an external ground plane to mount to. It comes with a waterproof 3M adhesive underlay to permanently prevent any water from leaking under the antenna into the mounting hole.

Also available in white

Model No

MA.600
Spartan - 3in1 Low Profile GPS-GLONASS/Cellular/WiFi
Screw Mount

Cellular

Electrical Data	
Frequency	Penta-band 850/900 /1800/1900/2100MHz
Peak Gain	2dBi typ.
Ave. Efficiency	37%
Polarization	Vertical
Impedance	50Ω

Mechanical Data	
Dimensions	H:35.1mm (1.38") Ø 145.6mm (5.73")
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M CFD-200
Connector*	SMA(M)
IP Rating	IP67

GPS-GLONASS

Electrical Data	
Frequency	1575~1606MHz
LNA	2 Stage 30dB LNA
Peak Gain	4.0dBic typ.
Ave. Efficiency	50%
Impedance	50Ω
VSWR	≤1.9

Mechanical Data	
Dimensions	H:35.1mm (1.38") Ø 145.6mm (5.73")
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M RG-174
Connector*	SMA(M)
IP Rating	IP67

WiFi

Electrical Data	
Frequency	2.4~2.5GHz 4.7~5.9GHz
Peak Gain	3.8dBi typ.
Ave. Efficiency	48%
Polarization	Vertical
Impedance	50Ω
VSWR	≤1.6

Mechanical Data	
Dimensions	H:35.1mm (1.38") Ø 145.6mm (5.73")
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M CFD-200
Connector*	SMA(M)
IP Rating	IP67

Screw Mount / Permanent Mount 3in1

Spartan Highest Performance

The Spartan MA.605 antenna is a low profile, heavy-duty, fully IP67 waterproof external M2M antenna for use in telematics, transportation and remote monitoring applications.

The Spartan MA.605 antenna is unique in the market because it combines 3in1 GPS/GLONASS, Cellular (2G and 3G) and Wi-Fi antennas in a heavy-duty structure with high efficiency in a low profile compact format. The antenna screws down permanently onto a roof or metal panel and can be pole or wall-mounted.

The Spartan MA603 antenna is a low profile, heavy-duty, fully IP67 waterproof external M2M antenna for use in telematics, transportation and remote monitoring applications.

Model No

MA.605
Spartan - 3in1 Isolation Gasket
GPS-GLONASS / Cellular / WiFi
2.4GHz ~ 5GHz
Low Profile Screw Mount
(Permanent Mount)

Electrical Data

GPS-GLONASS	1575~1606MHz
LNA	2-stage 30dB
Average Gain	34dBic typ.
Cellular	Penta-band 850/900/1800 1900/2100MHz
Avg.Efficiency	37%
Peak Gain	2dBi typ.
WiFi Dual Band	2.4GHz/ 5GHz
Avg. Efficiency	48%
Peak Gain	3.8dBi typ.

Mechanical Data

Dimensions	H:35.1mm (1.38"), Ø 145.6mm (5.73")
Housing	Wonderloy PC-540, PC/ABS Alloy
Base and thread	Nickel Plated Zinc
Cable	3M RG174 - GPS-GLONASS 2* 3M CFD-200
Connector	2* SMA(M), SMA(M) RP - WiFi
IP Rating	IP67

Model No

MA.603
Spartan - 3in1 Low Profile
GPS-GLONASS / Cellular / 915MHz
Screw Mount
(Permanent Mount)

Electrical Data

GPS-GLONASS	1575~1606MHz
	2 Stage 30dB LNA
Peak Gain	4.0dBic typ.
Cellular	Penta-band 850/900/1800/1900/2100MHz
Peak Gain	3.4dBi typ.
Avg.Efficiency	40%
Polarization	Vertical
915MHz	902~929MHz
Avg. Efficiency	45%
Peak Gain	2.3dBi typ.

Mechanical Data

Dimensions	H:35.1mm (1.38"), Ø 145.6mm (5.73")
Housing	UV resistant ABS
Base and thread	Zinc
Cable	3M RG-174 2*CFD200
Connector	3* SMA(M)
IP Rating	IP67

*Cable and Connectors are Customizable,
Standard Length is 3M please contact us at info@taoglas.com

Screw Mount / Permanent Mount 3in1 LTE MIMO 2*2

Pantheon Series

The MA.741 Pantheon LTE MIMO 2*2 antenna is an omnidirectional heavy-duty, fully IP67 waterproof external M2M antenna for use in telematics, transportation and remote monitoring applications.

It includes two LTE MIMO antennas, with the highest efficiency and peak gain possible. This is necessary for today's high speed data uplink and downlink systems in applications such as real time video, for maximum throughput and highest signal to noise ratio. The antenna elements operate at all common 2G, 3G and 4G LTE bands worldwide 698-960MHz, 1710-2170MHz, 2300~2700MHz, 2900-3500MHz.The housing is an extremely robust IP67 direct mount antenna package with excellent isolation (20dB+).

Also available in white

Model No

MA.741.B

Pantheon 2in1 Screw Mount Permanent Mount

2 x LTE Cellular (2G/3G/4G) Antennas (MIMO)

MIMO 1

LTE Cellular

2G/3G/4G

Electrical Data

Frequency	698-960, 1710~2170MHz 2300~2700, 2900~3500MHz
Peak Gain	2dBi typ.
Ave. Efficiency	50%
Impedance	50Ω
Return Loss	≤-6dBi

Mechanical Data

Dimensions	H:85.7mm Ø 145.6mm
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M CFD-200
Connector*	SMA(M)
IP Rating	IP67

MIMO 2

LTE Cellular

2G/3G/4G

Electrical Data

Frequency	698-960, 1710~2170MHz 2300~2700, 2900~3500MHz
Peak Gain	4dBi typ.
Ave. Efficiency	50%
Impedance	50Ω
Return Loss	≤-6dBi

Mechanical Data

Dimensions	H:85.7mm Ø 145.6mm
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M CFD-200
Connector*	SMA(M)
IP Rating	IP67

Screw Mount / Permanent Mount 3in1

Pantheon Series

The Pantheon MA.700 Series antennas are for RF professionals who want the best possible performance without compromise.

This 3 in1 MA.700 model antenna is a heavy-duty, omni-directional IP67 waterproof external M2M combination antenna for use in telematics, transportation and remote monitoring applications.

The MA.700 is unique in the market because it combines the highest efficiency and peak gain GPS-GLONASS, LTE Cellular (2G/3G/4G) and WiFi antennas together in a tough housing.

The antenna screws down permanently onto a roof or metal panel and can be pole or wall-mounted with a metal bracket.

Also available in white

Model No

MA.700.B

Pantheon 3in1 Screw Mount Permanent Mount

GPS-GLONASS / LTE Cellular (2G/3G/4G) / 2.4GHz/5GHz Combination Antenna

LTE/Cellular
Wide-Band
700-2170MHz

GPS-GLONASS
2 Stage 30dB LNA

WiFi
Dual Band

Electrical Data

Frequency	700/850/900 /1800/1900/2100MHz
Gain	2dBi avg.
Ave. Efficiency	58%
Impedance	50Ω
Return Loss	<-6.0dBi

Mechanical Data

Dimensions	H: 85.7mm Ø: 145.6mm
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M Low-loss CFD-200
Connector*	SMA(M)
IP Rating	IP67

Electrical Data

Frequency	1575~1602MHz
LNA	2 Stage 30dB LNA
Peak Gain	1.0dBic typ.
Ave. Efficiency	50%
Impedance	50Ω
VSWR	≤2.0

Mechanical Data

Dimensions	H: 85.7mm Ø 145.6mm
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M RG-174
Connector*	SMA(M)
IP Rating	IP67

Electrical Data

Frequency	2.4~2.5GHz 4.7~5.9GHz
Ave. Efficiency	45%
Polarization	Linear
Impedance	50Ω
Return Loss	<-10.0dBi

Mechanical Data

Dimensions	H: 85.7mm Ø 145.6mm
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M Low-loss CFD-200
Connector*	RP-SMA(M)
IP Rating	IP67

Screw Mount / Permanent Mount 3in1

Pantheon Series

The MA710 Pantheon antenna is an omni-directional heavy-duty, fully IP67 waterproof external M2M antenna for use in telematics, transportation and remote monitoring applications.

It includes two LTE MIMO antennas and one GPS/GLONASS antenna, in the highest efficiency and peak gain possible. This antenna particularly finds its application in mobile video, vehicle communications, location and fleet management, safety & security, remote industrial equipment monitoring.

The antenna consists of two LTE MIMO elements 698-960MHz, 1710-2170MHz, 2300~2700MHz, 2900-3500MHz.

Also available in white

Model No

MA.710.B

Pantheon 3in1 Screw Mount Permanent Mount

2 x 2G/3G/4G LTE MIMO Cellular Antenna / 1 x GPS/GLONASS Antenna

MIMO 1
LTE Cellular
2G/3G/4G

MIMO 2
LTE Cellular
2G/3G/4G

GPS/GLONASS

Electrical Data

Frequency	698~960 MHz 1710~2170 MHz 2300~2700 MHz 2900~3500 MHz
Peak Gain	2dBi typ.
Ave. Efficiency	50%
Impedance	50Ω
Return Loss	≤-6dBi

Electrical Data

Frequency	698~960 MHz 1710~2170 MHz 2300~2700 MHz 2900~3500 MHz
Peak Gain	1dBi typ.
Ave. Efficiency	40%
Impedance	50Ω
Return Loss	≤-6dBi

Electrical Data

Frequency	1574~1606 MHz
Peak Gain	4dBi typ.
Ave. Efficiency	50%
Impedance	50Ω
VSWR	<-2.0

Mechanical Data

Dimensions	H:85.7mm Ø 145.6mm
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M CFD-200
Connector*	SMA(M)
IP Rating	IP67

Mechanical Data

Dimensions	H:85.7mm Ø 145.6mm
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M CFD-200
Connector*	SMA(M)
IP Rating	IP67

Mechanical Data

Dimensions	H:85.7mm Ø 145.6mm
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M RG-174
Connector*	SMA(M)
IP Rating	IP67

Screw Mount / Permanent Mount 4in1

Pantheon Series

The MA.760 4in1 antenna is an omnidirectional heavy-duty, fully IP67 water proof external M2M antenna for use in telematics, transportation and remote monitoring applications. It is the first antenna on the market to combine 4in1 that includes two LTE MIMO elements, one 2.4GHz/5GHz antenna and GPS-GLONASS in the highest efficiency and peak gain possible.
This unique antenna delivers powerful MIMO antenna technology for LTE while also fully compatible with legacy 2G and 3G networks worldwide, plus GPS-GLONASS for next generation high bandwidth telematics systems.

New fleet management and mobile and fixed video technology allows for real-time video uplink and downlink. High efficiency, high gain MIMO antennas are necessary to achieve the high signal to noise ratio and throughput required to solve these challenges.

Model No

MA.760.B
Pantheon 4in1 Screw Mount (Permanent Mount)
2* 2G/3G/4G MIMO LTE, GPS-GLONASS, WiFi 2.4/5GHz

2G/3G/4G
Mimo 1 & Mimo 2

Electrical Data

Frequency	698~960 MHz
	1710~2170 MHz
	2300~2700 MHz
	2900~3500 MHz
Peak Gain	2dBi typ.
Ave. Efficiency	50%
Impedance	50Ω
Return Loss	≤-6dBi

Mechanical Data

Dimensions	H:85.7mm
	Ø 145.6mm
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540
	PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M CFD-200
Connector*	SMA(M)
IP Rating	IP67

GPS-GLONASS

Electrical Data

Frequency	1574~1606 MHz
Peak Gain	4dBi avg.
Ave. Efficiency	50%
Impedance	50Ω
VSWR	<2.0

Mechanical Data

Dimensions	H:85.7mm
	Ø 145.6mm
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540
	PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M RG-174
Connector*	SMA(M)
IP Rating	IP67

2.4/5GHz

Electrical Data

Frequency	2400~2500MHz
	5150~5850MHz
Peak Gain	3.0dBi avg.
Ave. Efficiency	45%
Impedance	50Ω
Return Loss	≤-10dBi

Mechanical Data

Dimensions	H:85.7mm
	Ø 145.6mm
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540
	PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M CFD-200
Connector*	SMA(M)
IP Rating	IP67

Screw Mount / Permanent Mount 5in1

Pantheon Series

The MA.750 Pantheon antenna is an omni-directional heavy-duty, fully IP67 waterproof external M2M antenna for use in telematics, transportation and remote monitoring applications. This unique antenna delivers powerful MIMO antenna technology for cellular/LTE and WiFi 802.11n and emerging 802.11ac, plus GPS-GLONASS for next generation multiple wireless technology systems, such as telematics. Examples are new fleet management and real time video applications that demand high speed video uplink and downlink. High efficiency and high gain MIMO antennas are necessary to achieve the required signal to noise ratio and throughput required to solve these challenges.

Also available in white

Model No

MA.750.B
Pantheon 5in1 Screw Mount (Permanent Mount)
2* 2G/3G/4G MIMO LTE, GPS-GLONASS, 2* WiFi 2.4/5GHz

2G/3G/4G
Mimo 1 & Mimo 2

GPS-GLONASS

2.4/5GHz

Electrical Data

Frequency	698~960 MHz 1710~2170 MHz 2300~2700 MHz 2900~3500 MHz
Peak Gain	2dBi typ.
Ave. Efficiency	50%
Impedance	50Ω
Return Loss	≤-6dBi

Mechanical Data

Dimensions	H:85.7mm Ø 145.6mm
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M CFD-200
Connector*	SMA(M)
IP Rating	IP67

Electrical Data

Frequency	1574~1606 MHz
Peak Gain	4dBi avg.
Ave. Efficiency	50%
Impedance	50Ω
VSWR	<2.0

Mechanical Data

Dimensions	H:85.7mm Ø 145.6mm
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M RG-174
Connector*	SMA(M)
IP Rating	IP67

Electrical Data

Frequency	2400~2500MHz 5150~5850MHz
Peak Gain	3.0dBi avg.
Ave. Efficiency	40%
Impedance	50Ω
Return Loss	≤-10dBi

Mechanical Data

Dimensions	H:85.7mm Ø 145.6mm
Mounting	Thread Ø 30mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Cable*	3M CFD-200
Connector*	RP-SMA(M)
IP Rating	IP67

Adhesive Mount 2in1

Stingray Series

Our adhesive mount external antennas offer ease of installation, high performance in compact form factors. They are supplied with high quality durable 3M tape to allow secure fixing onto any surface.

The Stingray MA.204 GPS/GLONASS & 2G/3G Cellular antenna is a powerful combination of a tuned two stage GLONASS active ceramic patch and a leading edge Penta-band cellular antenna, making it ideal for applications that require durability, small size and covert installation, with reliable reception and transmission crossing through different mobile networks.

Underside View
(this side faces
the passenger)

Top View
(this side faces
the sky)

Model No	MA.206 Stingray GPS & WiFi Adhesive-Puck
Electrical Data	
GPS	2 Stage Active LNA
Centre Frequency	1575.42±2MHz
Gain	30dBic typ. (@3V)
Noise Figure	1.5dB Max
Power Consump.	19±2mA(@3~5V)
Polarization	RHCP
WiFi	2.4~2.5GHz
Polarization	Linear
Impedance	50Ω
VSWR	≤1.92
Efficiency	> 20%
Mechanical Data	
Dimensions	H: 10.8mm, Ø 55mm
Mounting	3M 4612 Tape
Op. Temp.	-40°C~+85°C
Cable*	3M RG-174
Connector*	SMA(M) - GPS RP-SMA(M) - WiFi
IP Rating	IP65

Model No	MA.204 Stingray GPS-GLONASS & Cellular 2G/3G Adhesive-Puck
Electrical Data	
GPS-GLONASS	2 Stage Active LNA
Centre Frequency	1575-1602±2MHz
Gain	28dBic typ. (@3V)
Noise Figure	2.2dB Max (@3V)
Power Consump.	10mA(@3.5V)
Cellular	Penta-band 850/900 1800/1900/1900/2100MHz
Polarization	Linear
Impedance	50Ω
VSWR	≤2.5
Mechanical Data	
Dimensions	H: 10.8mm, Ø 55mm
Mounting	3M 4612 Tape
Op. Temp.	-40°C~+85°C
Cable*	2* 3M RG-174
Connector*	SMA(M) - GPS SMA(M) - Cellular
IP Rating:	IP65

Adhesive Mount 2in1

Optimus Series

The Optimus MA220 is a combination high performance GPS-GLONASS and 2G/3G/4G LTE (plus GSM /CDMA/PCS/DCS/UMTS/GPRS/EDGE/HSPA) antenna to simplify Automotive Telematics and Fleet management systems worldwide.

Top View
(this side faces
the sky)

Underside View
(this side faces
the passenger)

Separate 3M
Adhesive Pad

Model No

MA220

Optimus - 2in1 GPS-GLONASS / LTE Antenna

External Adhesive Antenna for Glass and Plastic Mount

LTE

Electrical Data

Frequency	698~960 MHz 1710~2170 MHz 2300~2700 MHz
Efficiency	25% avg.
Peak Gain	0dBi
VSWR	1.92:1 max
Impedance	50Ω

Mechanical Data

Dimensions	62.8*68*12mm
Housing	ABS
Cable	3M RG174
Connector	SMA(M)
Waterproof	IP67

GPS-GLONASS

Electrical Data

Frequency	GPS:1575.42±3 MHz GLONASS:1602±0.5 MHz
Gain	3 ±1 dBic typ.
VSWR	1.92:1 Max
Impedance	50Ω
Noise Figure	1.5dB typ.

Mechanical Data

Dimensions	62.8*68*12mm
Housing	ABS
Cable	3M RG174
Connector	SMA(M)
Waterproof	IP67

* Cable and Connectors are Customizable. Standard Length is 3M please contact us at info@taoglas.com

Adhesive Mount 2in1

Stream Adhesive Series

The Stream MA.208 GPS/LTE Cellular antenna is a low profile, heavy-duty, fully IP67 waterproof external M2M antenna for use by RF professionals in telematics, transportation and remote monitoring applications. The Genesis MA.241, this unique antenna delivers powerful MIMO antenna technology for worldwide 4G LTE bands at 700MHz/800MHz/1700MHz/1800MHz/2600MHz. It enables designers to use only one antenna that covers all common frequencies for LTE and 4G globally.

The Stream is unique in the market as it combines the highest possible efficiency and peak gain for GPS and all cellular bands in 2G/3G/4G in a low profile compact format for mounting via high quality first tier automotive approved 3M adhesive foam. The Stream Two MA.209 patent pending design incorporates internally a custom Taoglas 35mm patch antenna on an extended integral ground plane to deliver more than 3.5dBiC gain.

Model No

MA.208
Stream
GPS/LTE-GSM-UMTS
Adhesive Mount

Electrical Data

GPS	2 Stage Active LNA
Centre Freq.	1575.42±2MHz
Gain	30dBic typ.
Cellular	LTE 700MHz/824-960 MHz/1710-2170 MHz
Polarization	Linear
Impedance	50Ω
VSWR	≤3.6
Peak Gain	1.61dBi @ 700-960 MHz 0.03dBi @ 1710-2170 MHz
Efficiency	>50% typ.

Mechanical Data

Dimensions	200.5*66.5*9mm
Adhesive	3M 9448 B Tape
Op. Temp.	-40°C~+85°C
Cable*	3M RG-174/CFD-200
Connector*	2* SMA(M)
IP Rating	IP67

Model No

MA.209
Stream Two
GPS-GLONASS/Cellular
Adhesive Mount

Electrical Data

GPS-GLONASS	2 Stage Active LNA
Centre Freq.	1575MHz to 1610MHz
Gain	30dBic typ.
Cellular	LTE 700MHz/824~960 MHz/1710-2170 MHz
Polarization	Linear
Impedance	50Ω
VSWR	≤3.6
Peak Gain	2.16dBi @ 700~960MHz 0.42dBi @ 1710~2170MHz
Efficiency	>50% typ.

Mechanical Data

Dimensions	200.5*66.5*9mm
Adhesive	3M 9448 B Tape
Op. Temp.	-40°C~+85°C
Cable*	3M RG-174/CFD-200
Connector*	2* SMA(M)
IP Rating	IP67

Model No

MA.241
Genesis
LTE/2G/3G/4G MIMO 2*2
Adhesive Mount

Electrical Data

Frequency	698~960/1710~2170/ 2400~2700/3500MHz
Polarization	Linear
Impedance	50Ω
VSWR	≤3.6
Peak Gain	1.0dBi @ 700~960MHz 3.0dBi @ 1710~3500MHz
Efficiency	>50% typ.

Mechanical Data

Dimensions	200.5*66.5*9mm
Adhesive	3M 9448 B Tape
Op. Temp.	-40°C~+85°C
Cable*	3M RG-174/CFD-200
Connector*	2* SMA(M)
IP Rating	IP67

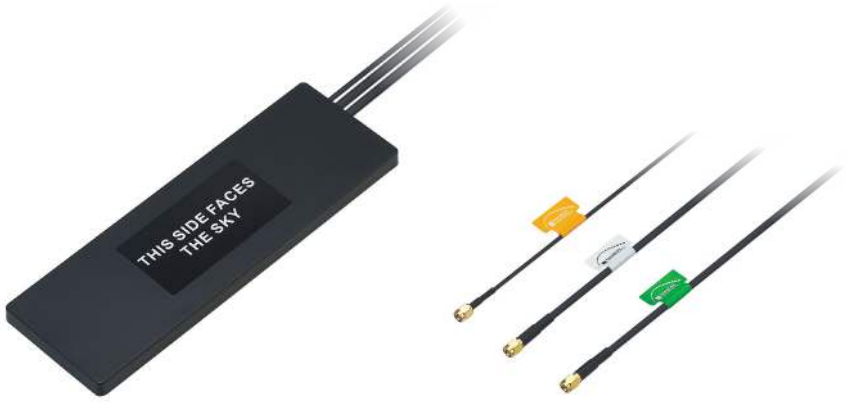
*Cable and Connectors are Customizable,
Standard Length is 3M please contact us at info@taoglas.com

Adhesive Mount 3in1

Stream Series

The Stream 3in1 MA.230 GPS/Glonass, LTE Cellular 2G/3G/4G and Wi-Fi 2.4/5GHz antenna is a low profile, heavy-duty, fully IP67 waterproof external M2M antenna for use by RF professionals in telematics, transportation and remote monitoring applications.

The Stream 3in1 is unique in the market as it combines the highest possible efficiency and peak gain for GPS/Glonass, Wi-Fi dual band 2.4/5GHz and all cellular bands in 2G/3G/4G in a low profile compact format for mounting via high quality first tier automotive approved 3M adhesive foam.



Model No

MA230

Stream 3in1 High Performance Adhesive Mount Combination Antenna

GNSS (GPS/Glonass) / Cellular (LTE/HSPA/GSM/CDMA/UMTS) / Wi-Fi (2.4/5 GHz)

2G/3G/4G
MIMO 1 & 2

Electrical Data

Frequency	698~960 MHz 1710~2170 MHz
Peak Gain	2.16dBi@700-960MHz 0.42dBi@1710-2170MHz
Ave. Efficiency	50%
Impedance	50Ω
VSWR	<3.6dBi

Mechanical Data

Dimensions	200.5*66.5*9mm
Mounting	3M 1600TB
Op. Temp.	-40°C~+85°C
Cable*	3M CFD-200
Connector*	SMA(M)
IP Rating	IP67

GPS/Glonass

Electrical Data

Frequency	1574~1606 MHz
Peak Gain	1.92dBi @ 1575.42MHz 3.19dBi @ 1602MHz
Impedance	50Ω
VSWR	<1.21 @ 1575.42MHz <1.55 @ 1602MHz

Mechanical Data

Dimensions	200.5*66.5*9mm
Mounting	3M 1600TB
Op. Temp.	-40°C~+85°C
Cable*	3M RG-174
Connector*	SMA(M)
IP Rating	IP67

2.4/5.0GHz
MIMO 1 & 2

Electrical Data

Frequency	2400~2500MHz 5150~5850MHz
Peak Gain	1.5dBi @ 2450MHz 2.0dBi @ 5000MHz
Ave. Efficiency	35%
Impedance	50Ω
VSWR	<2.3dBi @ 2450MHz <1.08dBi @ 5000MHz

Mechanical Data

Dimensions	200.5*66.5*9mm
Mounting	3M 1600TB
Op. Temp.	-40°C~+85°C
Cable*	3M CFD-200
Connector*	RP-SMA(M)
IP Rating	IP67

Adhesive Mount 3in1

Genesis

The MA.240 4G Genesis antenna is an omni-directional, fully IP67 waterproof external M2M antenna for use in telematics, transportation and remote monitoring applications worldwide. It is designed to be mounted directly on glass or plastic in the interior of vehicles.

This unique antenna delivers powerful MIMO antenna technology for worldwide 4G LTE bands at 700MHz/800MHz/1700MHz/1800 MHz/2600MHz, plus GPS-GLONASS for next generation location accuracy.

Typical applications

- HD Video over LTE
- First Responder and Emergency Services
- Automotive Vehicle Tracking and Telematics

Model No

MA240

Genesis 3in1 High Performance Adhesive Mount Combination Antenna

2 x 2G/3G/4G LTE MIMO Cellular Antenna / 1 x GPS/GLONASS Antenna

MIMO 1 **LTE Cellular** **2G/3G/4G**	**MIMO 2** **LTE Cellular** **2G/3G/4G**	**GPS/GLONASS** **2 Stage 30dB**

Electrical Data

Frequency	698~960 MHz 1710~2170 MHz 2300~2700MHz, 2900-3500MHz
Peak Gain	1.5dBi typ.
Ave. Efficiency	50%
Impedance	50Ω

Electrical Data

Frequency	698~960 MHz 1710~2170 MHz 2300~2700MHz, 2900-3500MHz
Peak Gain	2.0dBi typ.
Ave. Efficiency	50%
Impedance	50Ω

Electrical Data

Frequency	1574~1606MHz
Total	30dBi typ.
Noise Figure	1.7dB
Ave. Efficiency	50%
Impedance	50Ω
VSWR	<1.5

Mechanical Data

Dimensions	206*58*12.4mm
Housing	PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Mount	Adhesive foam with 3M Tape
Cable*	2M NFC-200
Connector*	SMA(M)
IP Rating	IP67

Mechanical Data

Dimensions	206*58*12.4mm
Housing	PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Mount	Adhesive foam with 3M Tape
Cable*	2M NFC-200
Connector*	SMA(M)
IP Rating	IP67

Mechanical Data

Dimensions	206*58*12.4mm
Housing	PC/ABS Alloy
Op. Temp.	-40°C~+85°C
Mount	Adhesive foam with 3M Tape
Cable*	2M RG-174
Connector*	SMA(M)
IP Rating	IP67

Magnetic Mount 2in1

GPS/Penta-Band Cellular

The MA.301 (GPS/Cellular) and the MA.303 (GPS/GLONASS/Cellular) are combination small form factor high performance GPSand/or GLONASS and Penta-band Cellular (GSM/GPRS/CDMA/PCS/DCS/WCDMA/UMTS) antennas to simplify AVL or Fleet management antenna systems worldwide.

They with Magnetic Mount as standard. An internal O-ring meets stringent IP65water-proof standards. With the strongest GPS/GLONASS and Cellular antenna design team in the industry and rigorous testing Taoglas offers guaranteed performance with your system and your environment. The standard version comes with 3 metres RG174 cable and SMA(M) connectors for both GPS/GLOANSS and Cellular feeds. Cables and connectors are customizable upon request.

Model No	MA.301
	GPS/Cellular
	Magnetic-Puck

Electrical Data	
GPS	2 Stage Active LNA
Centre Frequency	1575.42±2MHz
Gain	28dB typ. (@3V)
Noise Figure	1.5dB Max
Power Consump.	6±2mA(@2.7~3.3V)
VSWR	<1.92
Cellular	Penta-band 850/900 /1800/1900/2100MHz
Polarization	Linear
Impedance	50Ω
VSWR	≤2.5
Efficiency	> 20%

Mechanical Data	
Dimensions	H: 10.8mm, Ø 55.1mm
Mounting	Magnetic Mount
Op. Temp.	-40°C~+85°C
Cable*	3M RG-174
Connector*	2* SMA(M)
IP Rating	IP65
Magnetic Pull Force	1.58Kgf

Model No	MA.303
	GPS/Glonass & Cellular
	Magnetic-Puck

Electrical Data	
GPS	2 Stage Active LNA
Frequency	1575.42±2 / 1602MHz
Gain	31dB typ. (@3V)
Noise Figure	1.5dB Max
Power Consump.	6±2mA(@2.7~3.3V)
VSWR	<1.92
Cellular	Penta-band 850/900 /1800/1900/2100MHz
Polarization	Linear
Impedance	50Ω
VSWR	≤2.5
Efficiency	> 20%
Return Loss	<-5dBi

Mechanical Data	
Dimensions	H: 16.8mm, Ø 56.2mm
Mounting	Magnetic Mount
Op. Temp.	-40°C~+85°C
Cable*	1M RG-174
Connector*	2* SMA(M)
IP Rating	IP65
Magnetic Pull Force	1.58Kgf

*Cable and Connectors are Customizable,
Standard Length is 3M please contact us at info@taoglas.com

Public Safety 3in1

Spartan Public Safety Antennas

The Spartan MA671 Public Safety 3*MIMO antenna is a low profile, heavy-duty, fully IP67 waterproof external M2M antenna for use in remote monitoring and public safety applications.

The Spartan 3 x MIMO antenna is unique in the market because it combines three 4.5~4.9GHz antenna elements in a heavy-duty structure with high efficiency in a low profile compact format.

The Spartan MA.672 5.0~5.8GHz 3*MIMO antenna is a low profile, heavy-duty, fully IP67 waterproof external M2M antenna for use in remote monitoring and telematics applications.

The Spartan MA.673 2.4 / 4.9~5.8GHz 3*MIMO antenna is a low profile, heavy-duty, fully IP67 waterproof external M2M antenna for use in remote monitoring and telematics applications.

Model No

MA.671
Spartan - 3in1
3* MIMO 4.5 ~ 4.9GHz
Publlic Safety
Low Profile Screw Mount
(Permanent Mount)

Electrical Data

Frequency	4.9 ~ 5.8GHz
Peak Gain	3.0dBi
Efficiency	40% avg.
VSWR	2 Max
Polarization	2* Vertical 1 *Horizontal
Impedance	50Ω

Mechanical Data

Dimensions	H:35.1mm (1.38”) Ø 145.6mm (5.73”)
Housing	Wonderloy PC-540 PC/ABS Alloy
Base and thread	Nickel Plated Zinc
Cable	3* 3M CFD-200
Connector	3* RP SMA(M)
IP Rating	IP67
Op. Temp.	-40°C~+85°C

Model No

MA.672
Spartan - 3in1
3* MIMO 4.9 ~ 5.8GHz
WiFi
Low Profile Screw Mount
(Permanent Mount)

Electrical Data

Frequency	4.9 ~ 5.8GHz
Peak Gain	1.0dBi
Efficiency	40% avg.
VSWR	2 Max
Polarization	2* Vertical 1 *Horizontal
Impedance	50Ω

Mechanical Data

Dimensions	H:35.1mm (1.38”) Ø 145.6mm (5.73”)
Housing	Wonderloy PC-540 PC/ABS Alloy
Base and thread	Nickel Plated Zinc
Cable	3* 3M CFD-200
Connector	3* RP SMA(M)
IP Rating	IP67
Op. Temp.	-40°C~+85°C

Model No

MA.673
Spartan - 3in1
3* MIMO 2.4/4.9~5.8GHz
Dual WiFi
Low Profile Screw Mount
(Permanent Mount)

Electrical Data

Frequency	2.4 / 4.9~5.8GHz
Peak Gain	2.0dBi typ.
Efficiency	> 20%
VSWR	2 Max
Polarization	Linear
Impedance	50Ω

Mechanical Data

Dimensions	H:35.1mm (1.38”) Ø 145.6mm (5.73”)
Housing	Wonderloy PC-540 PC/ABS Alloy
Base and thread	Nickel Plated Zinc
Cable	3* 3M CFD-200
Connector	3* RP SMA(M)
IP Rating:	IP67
Op. Temp.	-40°C~+85°C

Public Safety 3in1

Pantheon Public Safety Antennas

The Pantheon MA.705 antenna is an omni-directional heavy-duty, fully IP67 waterproof external M2M antenna for use in telematics, transportation and remote monitoring applications.

The Pantheon series is designed for RF professionals who accept no performance compromises whatsoever. The MA.705 combines a 3in1 GPS-GLONASS, Cellular 700MHz to 2200MHz (2G/3G/4G) and 2.4GHz/5GHz antenna with the highest efficiency and peak gain possible. Unlike our competitors, who don't measure cable loss, the specification is measured at 3 meters (10ft) to show real performance in the field. The antenna has an Electrically Isolated Gasket to prevent surge currents shorting equipment attached to the antenna.

Model No

MA.705
Pantheon 3in1
Public Safety GPS-GLONASS / LTE Cellular / WIFI 2.4GHz ~ 5GHz
Screw Mount (Permanent Mount)

LTE Cellular	
Electrical Data	
Frequency	700/850/900/1700 1800/2100MHz
Ave. Efficiency	57%
Polarization	Linear
Impedance	50Ω
Radiation Pattern	Omni-Directional
Mechanical Data	
Dimensions	H:85.7mm Ø 145.6mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Base and thread	CAN10 Zinc Alloy
Thread diameter	M30 x 2 (30mm)
Nut	Nickel Plated Iron
Foam	3M 9448H
Cable	3M CFD200
Connector	SMA(M)
Waterproof	IP67
Op. Temp.	-40°C~+85°C

GPS-GLONASS	
Electrical Data	
Frequency	1575~1606MHz
LNA	2 Stage 30dB LNA
Peak Gain	4.0dBic typ.
Ave. Efficiency	50%
Impedance	50Ω
VSWR	≤1.9
Mechanical Data	
Dimensions	H:85.7mm Ø 145.6mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Base and thread	CAN10 Zinc Alloy
Thread diameter	M30 x 2 (30mm)
Nut	Nickel Plated Iron
Foam	3M 9448H
Cable	3M RG-174
Connector	SMA(M)
Waterproof	IP67
Op. Temp.	-40°C~+85°C

WIFI / Public Safety	
Electrical Data	
Frequency	2.4GHz~ 5GHz (4.9GHz ~ 6GHz)
Peak Gain	2.4GHz - 2dBi 4.9GHz - 4dBi 5GHz - 5dBi
Ave. Efficiency	45%
Polarization	Linear
Impedance	50Ω
VSWR	≤1.7
Mechanical Data	
Dimensions	H:85.7mm Ø 145.6mm
Housing	Wonderloy PC-540 PC/ABS Alloy
Base and thread	CAN10 Zinc Alloy
Thread diameter	M30 x 2 (30mm)
Nut	Nickel Plated Iron
Foam	3M 9448H
Cable	3M CFD200
Connector	SMA(M)
Waterproof	IP67
Op. Temp.	-40°C~+85°C

External ISM - Adhesive Mount

Adhesive Mount

The ISA.01 and ISA.06 are Omni-directional wide-band low profile 400MHz to 470MHz antennas for internal or external applications adhesive mounted on glass (ISA.01) or ABS (ISA.06)

The ISA.01 and ISA.06 are specifically tuned to perform on glass and ABS surfaces, with a semi-flexible build type and strong 3M automotive approved double-sided adhesive. Both find themselves being used in the automotive industry and in telematics. The ISA range offers superlative stable peak gain and efficiency across a very wide bandwidth.

Model No	ISA.01
	Wide-Band Low Profile
	Omni-Directional
	Glass Mount

Electrical Data	
Frequency	400~470MHz
Radiation Pattern	Omni-Directional
Peak Gain	1.5dBi
Efficiency	35%
Return Loss	-11dB avg.
Polarization	Linear
Impedance	50Ω

Mechanical Data	
Dimensions	239*42*10.5mm
Mounting	3M Adhesive
Cable	3M RG174
Connector	SMA(M)
Housing	TPR
Waterproof	Outside Housing - IP65
	Internal PCB - IP67
Op. Temp.	-40°C~+85°C

Model No	ISA.06
	Wide-Band Low Profile
	Omni-Directional
	Plastic Surfaces Mount

Electrical Data	
Frequency	400~470MHz
Radiation Pattern	Omni-Directional
Peak Gain	1.5dBi
Efficiency	37%
Return Loss	-11dB avg.
Polarization	Linear
Impedance	50Ω

Mechanical Data	
Dimensions	239*42*10.5mm
Mounting	3M Adhesive
Cable	3M RG174
Connector	SMA(M)
Housing	TPR
Waterproof	Outside Housing - IP65
	Internal PCB - IP67
Op. Temp.	-40°C~+85°C

*All measurements were conducted with 3M RG174 cable

External ISM - Screw Mount

Hercules Series

The Hercules series is based around being adaptable and reliable in any environment. The Hercules ISM line is especially suited to mesh networks, vehicles, indoor and outdoor assets.

The Hercules trademark design features are present on the IS.01, IS.04 and IS.05 with extra thick threads and durable UV resistant ABS housing.
The IS.01 antenna is for the 433MHz licensed band, the IS.04 for the 868MHz band and the IS.05 for the 915MHz band.

Model No	
	IS.01.B
	Hercules
	433MHz
	Screw Mount

Electrical Data	
Frequency	400-460MHz
Radiation Pattern	Omni-Directional
Peak Gain	1dBi
Efficiency	40% avg.
Return Loss	-16dB
Polarization	Linear
Impedance	50Ω
VSWR	≤ 2.0

Mechanical Data	
Dimensions	H:29mm, Ø 49mm
Mounting	Thread 18mm
Op. Temp.	-40°C~+85°C
Cable	3M NFC-200
Connector	SMA(M)
IP Rating	IP67 & IP69K

Model No	
	IS.04.B
	Hercules
	868MHz
	Screw Mount

Electrical Data	
Frequency	868-870MHz
Radiation Pattern	Omni-Directional
Peak Gain	1.98dBi
Efficiency	35% avg.
Return Loss	-13dB
Polarization	Linear
Impedance	50Ω
VSWR	≤ 2.5

Mechanical Data	
Dimensions	H:29mm, Ø 49mm
Mounting	Thread 18mm
Op. Temp.	-40°C~+85°C
Cable	3M RG-174
Connector	SMA(M)
IP Rating	P67 & IP69K

Model No	
	IS.05.B
	Hercules
	915MHz
	Screw Mount

Electrical Data	
Frequency	902-928MHz
Radiation Pattern	Omni-Directional
Peak Gain	2.2dBi typ.
Efficiency	35% avg.
Return Loss	-15dB
Polarization	Linear
Impedance	50Ω
VSWR	≤ 2.5

Mechanical Data	
Dimensions	H:29mm, Ø 49mm
Mounting	Thread 18mm
Op. Temp.	-40°C~+85°C
Cable	3M RG-174
Connector	SMA(M)
IP Rating	IP67 & IP69K

External ISM - Omni-Directional Outdoor

Barracuda Series

Taoglas range of omni-directional base station antennas are the starting point for any mesh network solution. Housed in Fibreglass they are safer than traditional antennas.

Model No	
	OMB.868
	Barracuda
	5dBi
	Omni-Directional
	Dipole Antenna

Electrical Data	
Frequency	800~870MHz
Radiation Pattern	Omni-Directional
Gain	5dBi
Efficiency	75% avg.
Polarization	Vertical
Impedance	50Ω
VSWR	≤ 1.5
Max Input Power	50W

Mechanical Data	
Dimensions	H:1093.5, Ø 26mm
Mounting	Wall/Pole
	Mount Bracket
Op. Temp.	-40°C~+85°C
Application	Indoor/Outdoor
Connector*	N Type Female
Wind Resistance	>150mph(>241km/h)

Model No	
	OMB.915
	Barracuda
	3dBi
	Omni-Directional
	Dipole Antenna

Electrical Data	
Frequency	902~928MHz
Radiation Pattern	Omni-Directional
Gain	3.5dBi typ.
Efficiency	63% avg.
Polarization	Vertical
Impedance	50Ω
VSWR	≤ 1.5
Max Input Power	50W

Mechanical Data	
Dimensions	H:1094, Ø 70*55mm
Mounting	Wall/Pole
	Mount Bracket
Op. Temp.	-40°C~+85°C
Application	Indoor/Outdoor
Connector*	N Type Female
Wind Resistance	>150mph(>241km/h)

External ISM - Omni-Directional Outdoor

Barracuda Series

In practice no antenna is truly 100% Omni-directional. The best one can achieve is an antenna which has a doughnut shaped radiation pattern all around the antenna housing itself such as these “Omnis”.

Omnis give the best value because they give maximum coverage range on the horizontal (azimuth) plane in 360 degrees thus minimizing the amount of nodes needed for a mesh network. They can be connected directly to the access point or telemetry unit or they can be fixed to a pole or wall and connected via any type of customer specified cable and connector.

Model No	
	OMB.242
	Barracuda
	8dBi
	Omni-Directional
	Dipole Antenna

Electrical Data	
Frequency	2400~2500MHz
Radiation Pattern	Omni-Directional
Gain	8.0dBi typ.
Efficiency	65% avg.
Polarization	Vertical
Impedance	50Ω
VSWR	≤ 1.3
Max Input Power	50W

Mechanical Data	
Dimensions	H:523, Ø 26mm
Mounting	Wall/Pole Mount Bracket
Op. Temp.	-40°C~+85°C
Application	Indoor/Outdoor
Connector*	N Type Female
Wind Resistance	>150mph(>241km/h)

Model No	
	OMB.445
	Barracuda
	7dBi
	Omni-Directional
	Collinear Antenna

Electrical Data	
Frequency	4.4~5.0 GHz
Radiation Pattern	Omni-Directional
Gain	7.0dBi typ.
Efficiency	75% avg.
Polarization	Vertical
Impedance	50Ω
VSWR	≤ 1.3
Max Input Power	100W

Mechanical Data	
Dimensions	H:270, Ø 26mm
Mounting	Wall/Pole Mount Bracket
Op. Temp.	-20°C~+60°C
Application	Indoor/Outdoor
Connector*	N Type Female
Wind Resistance	>150mph(>241km/h)

External ISM - Road Marker

Road Marker Antenna Kit

Our design team in the US has designed a special range of antennas which can be fitted inside US standard raised non-reflective roadmarkers. The antenna can be installed inside "Bott's dots" that can in turn be mounted directly on the pavement and on the road in the USA.

These antennas have been potted with the epoxy that is traditionally used to secure the roadmarker itself to the ground. There are no air gaps whatsoever inside the new type approved roadmarker with antenna in order to maintain the mechanical integrity. It is presumed that the standard black epoxy will also be used to install the roadmarker in its final resting place on the ground.

Road Marker
Top View

Road Marker
Underside View

Model No

RI.02.01
915MHz Road Marker Kit
Quad-Band Cellular Antenna RI.01
with CAB.826 Cable Assembly
Low Profile

Electrical Data

Band	915MHz
Frequency	902~928
Radiation Pattern	Omni-Directional
Peak Gain	3.2dBi
Polarization	Linear
Impedance	50Ω
Return Loss	-18dB
Efficiency	26%

Mechanical Data

Dimensions	H: 17.6mm, Ø 101.4mm
Casing	UV Resistant PP
Cable	***RG.01:*** 1.5M WY-100
	CAB.826: 1.5M WY-100
Connector	***RG.01:*** SMB(M) Jack
	CAB.826: SMB(F) to SMA(M)ST
Op. Temp.	-40°C~+85°C
IP Rating	IP67

Model No

RI.02.02
915MHz Road Marker Kit
Quad-Band Cellular Antenna RI.01
with CAB.820 Cable Assembly
Low Profile

Electrical Data

Band	915MHz
Frequency	902~928
Radiation Pattern	Omni-Directional
Peak Gain	3.2dBi
Polarization	Linear
Impedance	50Ω
Return Loss	-18dB
Efficiency	26%

Mechanical Data

Dimensions	H: 17.6mm, Ø 101.4mm
Casing	UV Resistant PP
Cable	***RG.01:*** 1.5M WY-100
	CAB.820: 1.5M WY-100
Connector	***RG.01:*** SMB(M) Jack
	CAB.820: SMB(F) to TNC(M)ST
Op. Temp.	-40°C~+85°C
IP Rating	IP67

External ISM - Terminal Antennas

Terminal Antenna Range

Taoglas ISM Band Terminal Antennas are designed for easy connection to ISM terminals and equipment. Our antennas cover the 135MHz, 169MHz, 433MHz, 868MHz and 915MHz ISM bands worldwide.

The Meteor FW.80 is a 0dBi 169MHz ISM band 1/4 wavelength monopole flexible whip antenna with omni-directional pattern optimized in the azimuth for wide coverage range in typical 169 MHz applications such as Wireless M- Bus metering. It also finds its usage in remote asset monitoring applications, alarms, paging systems and private mobile radio services.
The Meteor has a IP67 housing.
The antenna, like all low frequency monopole antennas, needs to be mounted to a metal plate to radiate.

Model No

	FW.80.SMA.M
	Meteor
	169MHz
	Flexible Whip

Electrical Data

Frequency	169MHz
Radiation Pattern	Omni-Directional
Peak Gain*	0dBi
Average Gain*	-3.9dBi
Efficiency*	40%
Polarization	Linear
Impedance	50Ω
Max Input Power	50W

Mechanical Data

Dimensions	H: 353mm, Ø 16mm
Base Diameter	Ø 16mm
Whip Diameter	Ø 4mm
Housing	ABS
Connector	SMA(M)

Model No

	FW.81.SMA.M
	Meteor
	135MHz
	Flexible Whip

Electrical Data

Frequency	135MHz
Radiation Pattern	Omni-Directional
Peak Gain*	0dBi
Average Gain*	-3.9dBi
Efficiency*	40%
Polarization	Linear
Impedance	50Ω
Max Input Power	50W

Mechanical Data

Dimensions	H: 353mm, Ø 16mm
Base Diameter	Ø 16mm
Whip Diameter	Ø 4mm
Housing	ABS
Connector	SMA(M)

Tuned for 30cm x 30cm ground plane

*For low frequency antennas these parameters can only be estimated using RF formula calculation, simulation or rough field test comparisons with large benchmark antennas.

External ISM - Wall Mount

Cyclops Series

The WM.80 "Cyclops" is a 169Mhz ISM band monopole flexible whip antenna. The whip itself is made up of a flexible inner steel core covered by TPU and stands up to collisions while maintaining its original shape and performance.

The "Cyclops" finds its usage in remote asset monitoring, alarms, paging systems, Wireless M-Bus metering and private mobile radio services. This antenna delivers wider coverage areas and more reliable connections for professional customers in the automotive, industrial industries. The whip and the connection internally to the bracket is completely IP67 waterproof. The bracket allows complete concealment of the cable for a more secure integration and cleaner installation. The cable can be routed out of the back wall of the bracket into the interior of the mounting wall for added security against vandalism.

Model No

	WM.80
	Cyclops
	169MHz 0dBi Wall Mount
	Flexible Whip Monopole Antenna

Electrical Data

Working Freq.	169MHz
Peak Gain	0dBi
Average Gain	-3.9dBi
Efficiency	40%
Impedance	50Ω
Polarization	Linear
Radiation Pattern	Omni-Directional
Input Power	50W

Mechanical Data

Whip Height	278mm
Base Diameter	Ø16mm
Whip Diameter	Ø4mm
Casing	ABS
Connector	SMA(M)
Op. Temp.	-40°C~+85°C
IP Rating	IP67

External ISM - Terminal Antennas

Terminal Antenna Range

The TI.10 series are high performance 433MHz omni-directional antennas. The TI.10 helical SMA plug mount antenna is ideal for mobile small form factor applications. At only 48mm in length omni-directional 0dBi gain ensures constant reception and transmission. The antenna structure is designed for robust handling and the housing is made with TPE giving reliable performance in tough environments. The TI.10 HT series are robust miniature 433MHz omni-directional antennas suitable for high temperature applications. The antenna housing is made of Dupont® Hytrel® TPEE material which is durable in high temperature application environments up to 150°C.

Model No

TI.10.0112
433MHz
Fixed R/A
Monopole Helical

Electrical Data

Frequency	433-435MHz
Radiation Pattern	Omni-Directional
Peak Gain	0dBi typ.
Return Loss	-15dB
Polarization	Linear
Impedance	50Ω
VSWR	≤ 2.0

Mechanical Data

Dimensions	H: 45mm Ø 7.8mm L: 17mm (connector)
Mounting	R/A Fixed
Op. Temp.	-40°C~+85°C
Connector	SMA(M)RA
IP Rating	IP65

Model No

TI.10.0111
433MHz Straight
Monopole Helical

Electrical Data

Frequency	433-435MHz
Radiation Pattern	Omni-Directional
Peak Gain	0dBi typ.
Return Loss	-17dB
Polarization	Linear
Impedance	50Ω
VSWR	≤ 2.2

Mechanical Data

Dimensions	H: 48mm Ø 7.8mm L: 7.8mm (connector)
Housing	TPE
Mounting	Straight Fixed
Op. Temp.	-40°C~+85°C
Connector	SMA(M)
IP Rating	IP65

* Also available, TI.10.0111.HT suitable up to 150°C

Model No

TI.08.C.0112
868MHz
Fixed R/A
Monopole Helical

Electrical Data

Frequency	853-883MHz
Radiation Pattern	Omni-Directional
Gain	0dBi typ.
Polarization	Linear
Impedance	50Ω
VSWR	≤ 2.3

Mechanical Data

Dimensions	H: 52.8mm Ø 9.6mm L: 17.1mm (connector)
Mounting	R/A Fixed
Op. Temp.	-40°C~+85°C
Connector	SMA(M)RA
IP Rating	IP65

External ISM - Terminal Antennas

868/915 MHz Terminal Antenna Range

The TI.08.A.0111 is high performance 868MHz ISM band dipole omni-directional antenna. The antenna features an SMA(M) connector as standard, the antenna has a high radiation efficiency of 35% in free space.

The antenna is fabricated using TPU which allows for robust handling, while remaining lightweight

TI.18 is high performance 868MHz ISM band dipole omni-directional antenna.

The SMA connector is for general purpose used and the hinged design enables the antenna to be positioned at its most suitable angle.

Model No	TI.08.A.0111
	868MHz
	Straight
	Dipole

Electrical Data	
Frequency	868~870MHz
Radiation Pattern	Omni-Directional
Peak Gain	0dBi typ.
Efficiency	35%
Polarization	Linear
Impedance	50Ω
VSWR	≤ 1.5
Max Input Power	10W

Mechanical Data	
Dimensions	L: 168mm
	Ø 12mm
Mounting	Straight Fixed
Op. Temp.	-40°C~+85°C
Connector	SMA(M)
IP Rating	IP65

Model No	TI.18
	868MHz
	Hinged 90°
	Dipole

Electrical Data	
Frequency	868~870MHz
Radiation Pattern	Omni-Directional
Peak Gain	3dBi typ.
Efficiency	92%
Polarization	Linear
Impedance	50Ω
VSWR	≤ 1.9
Max Input Power	10W

Mechanical Data	
Dimensions	H: 376mm
	Ø 13.1mm
Mounting	Hinged 90°
Op. Temp.	-40°C~+85°C
Connector	SMA(M)
IP Rating	IP65

Model No	TI.09.A.0111
	915MHz
	Straight
	Dipole

Electrical Data	
Frequency	902-928MHz
Radiation Pattern	Omni-Directional
Gain	0dBi typ.
Return Loss	-22dB
Polarization	Linear
Impedance	50Ω
VSWR	≤ 1.1
Max Input Power	10W

Mechanical Data	
Dimensions	L: 168mm
	Ø 12mm
Mounting	Straight Fixed
Op. Temp.	-40°C~+85°C
Connector	SMA(M)
IP Rating	IP65

* Tuned for ground plane

External ISM - Terminal Antennas

915MHz High Gain Terminal Antenna Range

TI.19 is a high performance 915MHz ISM band dipole omni-directional antenna. The hinged design enables the antenna to be positioned at its most suitable angle. This antenna features a SMA(M) Plug Connector. TI.16 is a 5dBi 915MHz ISM band (902MHz to 928MHz) Dipole Omni-directional antenna.

This robust whip is suitable for outdoor applications where wide coverage is required especially in the azimuth plane, including metering, remote monitoring.

Model No	TI.19
	915MHz
	2dBi
	Hinged 90°
	Dipole

Electrical Data	
Frequency	902~928MHz
Radiation Pattern	Omni-Directional
Peak Gain	2.5dBi
Efficiency	82%
Polarization	Linear
Impedance	50Ω
VSWR	≤ 1.9
Max Input Power	10W

Mechanical Data	
Dimensions	H: 379mm
	Ø 13mm
	L: 8.4mm (connector)
Mounting	Hinged 90°
Op. Temp.	-40°C~+85°C
Connector	SMA(M)
IP Rating	IP65

Model No	TI.16
	915MHz
	5dBi
	Rigid Whip
	Monopole Helical

Electrical Data	
Frequency	902~928MHz
Radiation Pattern	Omni-Directional
Peak Gain	5dBi
Efficiency	60%
Polarization	Linear
Impedance	50Ω
Max Input Power	50W

Mechanical Data	
Dimensions	H: 620mm
	Ø 25mm
	L: 33.7mm (connector)
Whip Material	Rigid Coated Brass
Connector	N Male Straight

Embedded ISM - Flexible Series

Flexible Circuit Antennas

Flexible circuit antennas have been used in many modern mobile phone antenna designs. The material performs very well at higher ISM band frequencies. The products from this range are used where there is no space on the device PCB for an on-board antenna, or there is a lot of metal present on the main PCB e.g. inside a meter system. The antenna can be stuck directly to the device plastic housing or glass by pulling off the 3M label and using the automotive grade 3M glue that is on one side of the antenna. Despite the extremely thin material the antennas are very robust and pass the required device temperature and vibration/shock tests. Cable and connector are fully customizable and IPEX MHF (U.FL compatible) and MMCX are standard. Custom surface mount flexible solutions have also been developed.

Model No	FXP280
	868MHz

Electrical Data	
Working Freq.	863~870MHz
Radiation Pattern	Omni-Directional
Peak Gain	1.5dBi
Polarization	Linear
Impedance	50Ω
Return Loss	-20dB
Efficiency	≥ 40%
VSWR	≤ 2.0

Mechanical Data	
Dimensions	75*45*0.1mm
Op. Temp.	-40°C~+85°C
Cable*	100mm, Ø 1.13
Connector*	IPEX MHFI (U.FL comp)
Material	Flex Polymer
Adhesive Tape	3M 467

Model No	FXP290
	915MHz

Electrical Data	
Working Freq.	902~928MHz
Radiation Pattern	Omni-Directional
Peak Gain	1.5dBi
Polarization	Linear
Impedance	50Ω
Return Loss	-20dB
Efficiency	≥ 40%
VSWR	≤ 2.0

Mechanical Data	
Dimensions	75*45*0.1mm
Op. Temp.	-40°C~+85°C
Cable*	100mm, Ø 1.13
Connector*	IPEX MHFI (U.FL comp)
Material	Flex Polymer
Adhesive Tape	3M 467

*Cable and Connectors are Customizable.

Embedded ISM - Ceramic Patch Antenna

ISM Ceramic Patch Range

Taoglas have 2 solutions available for 868MHz and 915MHz applications, ISPC.86A (868MHz)and the ISPC.91A (915MHz).

Coming as standard with a RG178 cable and MMCX male right angle connectors they are great solutions for the following typical applications - RFID Readers - Short range 868MHz or 915MHz mesh networks

The 5dBi ISPC.86A antenna is designed primarily for compact fixed wireless applications in the 865MHz to 870MHz frequency range where extra coverage range is required. The antenna functions best when the backside is placed on a metal panel. When placed on a reference 30cm square ground-plane, the antenna has excellent directional hemispherical radiation pattern up to 5dBi on the zenith, and an efficiency of 65%.

ISPC.86.A
Back

ISPC.91.A
Back

Model No

	ISPC.86.A
	5dBi, 868MHz
	Ceramic Patch

Electrical Data

Working Freq.	865~870Mhz
Radiation Pattern	Broadside to Zenith
Peak Gain	5dBi
Polarization	Linear
Impedance	50Ω
Return Loss	-6.3dB
Max Input Power	5W
Efficiency	60% Typ.

Mechanical Data

Dimensions	47.5*47.5*6.5mm
Op. Temp.	-40°C~+85°C
Cable	92mm RG178
Connector	MMCX Male (R/A)
Material	Ceramic

Model No

	ISPC.91.A
	5dBi, 915MHz
	Ceramic Patch

Electrical Data

Working Freq.	915MHz
Radiation Pattern	Broadside to Zenith
Peak Gain	5dBi
Polarization	Linear
Impedance	50Ω
Return Loss	-7dB
Max Input Power	5W
Efficiency	70% Typ.

Mechanical Data

Dimensions	47.5*47.5*6.5mm
Op. Temp.	-40°C~+85°C
Cable	92mm RG178
Connector	MMCX Male (R/A)
Material	Ceramic

Embedded ISM - Rigid PCB Series

FR4 PCB Antennas

The PC series are ground plane independent antennas which save on space, making them suitable for even smaller sized M2M devices in tracking, navigation, automotive and telemedical markets.

The PC31 dual band 868~915MHz PCB antenna, and the PC81 and PC91 for 868MHz and 915MHz respectively are FR4 PCB antennas designed especially for ISM applications. They have been designed to maximise gain and efficiency in an omni-directional pattern.

Model No	PC81 The Stripe™ 868MHz
Electrical Data	
Working Freq.	868-870Mhz
Radiation Pattern	Omni-Directional
Peak Gain	2.5dBi
Polarization	Linear
Impedance	50Ω
Return Loss	<-10dB
VSWR	≤ 2.0
Efficiency	> 50%
Mechanical Data	
Dimensions	34*7*0.8mm
Op. Temp.	-40°C~+85°C
Cable*	100mm, Ø 1.13
Connector*	IPEX MHFI (U.FL comp)
Adhesive	3M 9472 Tape
Foam	CR4305
Foam Dims	16*7*6.3mm

Model No	PC91 The Stripe™ 915MHz
Electrical Data	
Working Freq.	902-928Mhz
Radiation Pattern	Omni-Directional
Peak Gain	2.5dBi
Polarization	Linear
Impedance	50Ω
Return Loss	<-10dB
VSWR	≤ 2.0
Efficiency	> 50%
Mechanical Data	
Dimensions	34*7*0.8mm
Op. Temp.	-40°C~+85°C
Cable*	100mm, Ø 1.13
Connector*	IPEX MHFI (U.FL comp)
Adhesive	3M 9472 Tape
Foam	CR4305
Foam Dims	13*7*6.3mm

Model No	PC31 The Stripe™ 868/915MHz
Electrical Data	
Working Freq.	868-928Mhz
Radiation Pattern	Omni-Directional
Peak Gain	2.3dBi / 1.6dBi
Polarization	Linear
Impedance	50Ω
Return Loss	<-25dB
VSWR	≤ 2.0
Efficiency	> 75%
Mechanical Data	
Dimensions	90*55*0.8mm
Op. Temp.	-40°C~+85°C
Cable*	50mm, Ø 1.13
Connector*	IPEX MHFI (U.FL comp)

*Cable and Connectors are Customizable.

Embedded ISM - On Board Solutions

169MHz Ceramic Chip and Helical Antennas

The 169MHz ISM Band is increasingly being used for such applications as wireless M- Bus Metering, remote asset monitoring, alarms and paging systems.

The CA.69 Ceramic Chip antenna from Taoglas 169 MHz is specifically designed for VHF 169MHz band applications. It is a high efficiency miniature SMD edge mounted antenna with small footprint requirement. CA.69 antenna electrical properties are symmetrical therefore the antenna can be soldered to the board from either side. This antenna is delivered on tape and reel. The HA.10.A antenna is a quarter wave-length monopole helical. It is small and compact. The CA.69 and the HA.10.A are both available on EVBs.

CAD.A.69
(Evaluation Board for CA.69)

Model No

CA.69
169MHz
VHF Ceramic Chip

Electrical Data

Center Freq.	169MHz
Bandwidth	8MHz
Peak Gain	-7dBi (aprox. on EVB)
Polarization	Linear
Impedance	50Ω
VSWR	2 max.

Mechanical Data

Dimensions	25.2*5.1*0.8mm
Op. Temp.	-40°C~+85°C
Connector*	SMT
Material	Ceramic

HAD.A.10
(Evaluation Board for HA.10)

Model No

HA.10
169MHz
Helical Monopole

Electrical Data

Center Freq.	169MHz
Peak Gain	-7dBi (aprox. on EVB)
Polarization	Linear
Impedance	50Ω
VSWR	2 max.
Return Loss	<-10dB

Mechanical Data

Dimensions	L: 25.5* Ø 2.8mm
Op. Temp.	-40°C~+85°C
Material	Phosphor Bronze

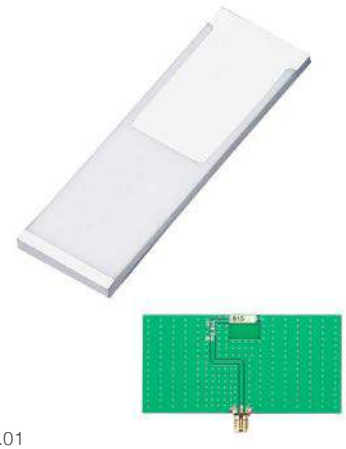
HAD.B.10
(Evaluation Board for HA.10)

Embedded ISM - On Board SMT Solutions

Ceramic SMT Loop & Chip Antennas

Taoglas have developed ceramic miniature loop antennas for ISM (Industrial Scientific Medical) wireless communications.

The ILA.01 for 915MHz and ILA.02 for 868MHz, have efficiencies of between 40-70%, these loop antennas show at least three times the efficiency of traditional chip antennas. The ILA series is delivered on tape and reel and will allow customers in Automated Meter Reading (AMR), remote monitoring and healthcare markets achieve better RF reception and transmission when connecting with stand-alone devices.



ILAD.01
(Evaluation Board for ILA.01)

Model No

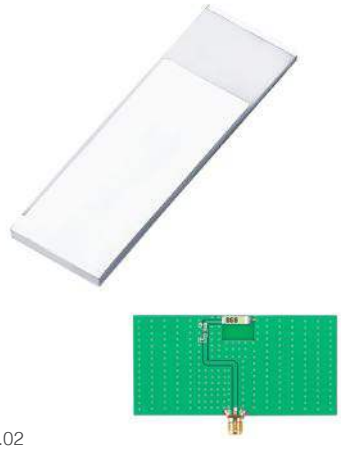
ILA.01
915MHz
Low Profile

Electrical Data

Working Freq.	902~928Mhz
Radiation Pattern	Omni-Directional
Peak Gain	1dBi
Polarization	Linear
Impedance	50Ω
Return Loss	<-10dB
VSWR	≤ 2.0
Efficiency	60% Typ.

Mechanical Data

Dimensions	10*3.2*0.5mm
Op. Temp.	-40°C~+85°C
Connector*	SMA (F)
Material	Ceramic



ILAD.02
(Evaluation Board for ILA.02)

Model No

ILA.02
868MHz
Low Profile

Electrical Data

Working Freq.	855~881Mhz
Radiation Pattern	Omni-Directional
Peak Gain	2.4dBi
Polarization	Linear
Impedance	50Ω
Return Loss	<-19dB
VSWR	≤ 2.0
Efficiency	65% Typ.

Mechanical Data

Dimensions	10*3.2*0.5mm
Op. Temp.	-40°C~+85°C
Connector*	SMT
Material	Ceramic

2.4GHz Screw Mount

Hercules Smallest Compact

The Taoglas Hercules series is focused on providing a solid foundation on which to build a network on. The Next Generation (Gen II) Hercules is supremely reliable while remaining a high performance machine.

The Hercules series, on top of its reliability and performance is multipurpose as well. We offer the Hercules solution for a wide variety of applications.

Model No	
	WS.02.B **Hercules GEN II** **2.4GHz** Wi-Fi/ISM Bands/ZigBee/ WLAN/ Bluetooth

Electrical Data	
Frequency	2.4GHz
Return Loss	<-10dB
Radiation	Omni-Directional
Gain	2.4dBi avg.
Impedance	50Ω
Polarization	Linear
Efficiency	>53%
Op. Temp.	-40°C~+85°C

Mounting Data	
Dimensions	H:28.5mm, Ø 47.8mm
Mounting	Screw Mount
Cable	2M CFD 200
Connector	SMA(M)
IP Rating	IP67 & IP69K
Op. Temp.	-40°C~+85°C

2.4GHz External (Terminal Mount)

External 2.4GHz Antenna Solutions Terminal Mount

Taoglas external terminal mount antennas are easy to integrate into any existing device configuration you have and still have that trademark Taoglas robustness and performance.

Available in black and white

Model No

GW.11
2.4GHz
Hinged
Dipole

Electrical Data

Frequency	2400~2500MHz
Gain	2.3dBi
Out. Impedance	50Ω
Polarization	Linear
Radiation	Omni-Directional
VSWR	Max 1.92

Mounting Data

Dimensions	H: 84mm Ø 7.8mm
Mounting	Hinged 90°
Connector*	RP-SMA(M)
IP Rating	IP65
Op. Temp.	-40°C~+85°C

Model No

GW.15
2.4GHz
Hinged
Dipole

Electrical Data

Frequency	2400~2500MHz
Gain	2dBi
Out. Impedance	50Ω
Polarization	Linear
Radiation	Omni-Directional
VSWR	Max 1.8

Mounting Data

Dimensions	H: 108mm Ø 7.8mm
Mounting	Hinged 90°
Connector*	SMA(M)
IP Rating	IP65
Op. Temp.	-40°C~+85°C

Model No

GW.17
2.4GHz 2dBi
Click-in Terminal
Dipole Antenna

Electrical Data

Frequency	2400~2500MHz
Gain	2dBi
Out. Impedance	50Ω
Polarization	Linear
Radiation	Omni-Directional
Efficiency	74%
Input Power	2W Max.

Mounting Data

Dimensions	H: 112.6mm Ø 9.3mm
Body Material	TPU
Cable	250mm RG178
Connector	IPEX MHFI (U.FL comp)
IP Rating	IP65
Op. Temp.	-40°C~+85°C

**Also available with RP-SMA Plug connectors
*Custom antenna connector and gain versions available for a purchase order for a minimum order quantity MOQ and/or NRE

2.4GHz External (Mini Terminal Mount)

External 2.4GHz Antenna Solutions Terminal Mount

Our external terminal mount antennas are designed for robust handling with housings made with TPE, which gives superior environmental resistances and a quality finished. The hinged versions, GW.11, GW.15, GW.58 and GW.71 antennas can be rotated 90 degrees on the base hinge for ease of placement. At Taoglas we have a total commitment to 100% accurate testing for all our products – these terminal mount antennas are tested for VSWR/Return loss and the results are reflected on their product specification.

Model No	
	GW.26.0111 2.4GHz Straight Monopole

Electrical Data	
Frequency	2400-2500MHz
Radiation Pattern	Omni-Directional
Gain	0dBi
Efficiency	>40%
Out. Impedance	50Ω
Polarization	Linear
VSWR	Max 2.0

Mounting Data	
Dimensions	H: 28.5mm, Ø 7.9mm
Mounting	Fixed Straight
Connector*	SMA(M)**
IP Rating	IP65
Op. Temp.	-40°C~+85°C

Model No	
	GW.26.0111.HT 2.4GHz Straight Monopole High Temperature

Electrical Data	
Frequency	2400-2500MHz
Radiation Pattern	Omni-Directional
Gain	0dBi
Efficiency	>40%
Out. Impedance	50Ω
Polarization	Linear
VSWR	Max 2.0

Mounting Data	
Dimensions	H: 30mm, Ø 7.8mm
Mounting	Fixed Straight
Connector*	SMA(M)**
Material	Dupont® Hytrel® TPEE
Op. Temp.	-40°C~+85°C

Model No	
	GW.26.0112.HT 2.4GHz Fixed R/A Monopole High Temperature

Electrical Data	
Frequency	2400~2500MHz
Radiation Pattern	Omni-Directional
Gain	0dBi
Efficiency	>40%
Out. Impedance	50Ω
Polarization	Linear
VSWR	Max 2.0

Mounting Data	
Dimensions	H: 28.1mm, Ø 7.9mm
Mounting	Fixed 90°
Connector*	SMA(M)**
Material	Dupont® Hytrel® TPEE
Op. Temp.	-40°C~+85°C

*Cable and Connectors are Customizable
** Also available with RP-SMA(M)

2.4GHz Embedded (Cable & Connector)

Embedded WiFi/ ZigBee / BT Flexible Antenna Solutions

Taoglas have developed high peak gain, high efficiency FXP technology Flexible Antennas for 2.4GHz, which boost coverage and data-speed performance of WiFi 802.11, ZigBee, Bluetooth and ISM applications. We have a range of sizes available and cable length and connectors are fully customizable.

Model No	
	FXP70
	Freedom
	2.4GHz
	General Solution

Electrical Data	
Frequency	2400~2500MHz
Peak Gain	5dBi
VSWR	1.5dB Max
Efficiency	80%
Return Loss	-20dB
Impedance	50Ω
Polarization	Linear
Op. Temp.	-40°C~+85°C

Mounting Data	
Dimensions	27*25*0.1mm
Mounting	Adhesive
Cable*	Ø1.13 53mm
Connector*	IPEX MHFI (U.FL comp)
Adhesive	3M 467 Tape

Model No	
	FXP72
	Freedom
	2.4GHz
	Ground Coupling
	Monopole

Electrical Data	
Frequency	2400~2500MHz
Peak Gain	4dBi
VSWR	2.0dB Max
Efficiency	70%
Return Loss	-14dB
Impedance	50Ω
Polarization	Linear
Op. Temp.	-40°C~+85°C

Mounting Data	
Dimensions	31*31*0.1mm
Mounting	3M 467 Tape
Cable*	Ø1.13 53mm
Connector*	IPEX MHFI (U.FL comp)
Adhesive	3M 467 Tape

Model No	
	FXP74
	Black Diamond
	2.4GHz

Electrical Data	
Frequency	2400~2483.5MHz
Peak Gain	4dBi
VSWR	< 2:1
Efficiency	50%
Return Loss	<-10dB
Impedance	50Ω
Polarization	Linear
Power Handled	5W

Mounting Data	
Dimensions	47*7*0.1mm
Mounting	Adhesive
Cable*	Ø1.13 100mm
Connector*	IPEX MHFI (U.FL comp)
Adhesive	3M 467 Tape

2.4GHz Embedded (Cable & Connector)

Embedded WiFi / ZigBee / BT PCB and Flexible Antenna Solutions

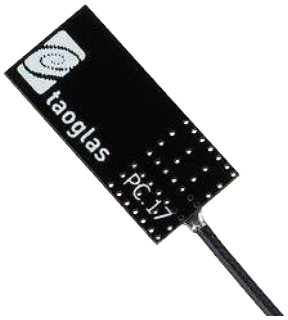
These antennas have been designed in a number of form factors and materials to work on different plastics and thickness. Cables and Connectors are customizable.

The FXP75 and also the PC17 have very small form factors, while still delivering excellent performance.

Model No	
	FXP75
	Freedom
	2.4GHz Series

Electrical Data	
Frequency	2400~2500 MHz
Peak Gain	2.5dBi
VSWR	< 2:1
Efficiency	45%
Return Loss	<-10dB
Impedance	50Ω
Polarization	Linear
Max Input Power	2W Max

Mounting Data	
Dimensions	5.8mm*3.7mm*0.1
Material	Polymer
Connector	IPEX MHFI (U.FL comp)
Cable	0.81 Coaxial Cable



Model No	
	PC17
	2.4GHz PCB Antenna

Electrical Data	
Frequency	2400~2500 MHz
Peak Gain	0.9dBi
VSWR	≤1.5:1
Efficiency	45%
Return Loss	<-12 dB
Impedance	50Ω
Polarization	Linear
Max Input Power	2W Max

Mounting Data	
Dimensions	24mm*11mm*0.8
Material	Polymer
Connector	IPEX MHFI (U.FL comp)
Cable	0.81 Coaxial Cable

2.4GHz Embedded

WiFi /Zigbee / BT Antenna Solutions

The SWLP.12 is a 2.4GHz patch antenna ideally suited for industrial application. The SWPL.12 has the highest gain in the XZ (azimuth) plane direction, most suitable for fixed wireless applications where transmission and reception is focused to one hemisphere of the device, for example a wireless meter on a reinforced concrete wall. It can also be placed anywhere on the device ground-plane, unlike most chip or loop antennas which need to be edge mounted.

Front

Back

Model No

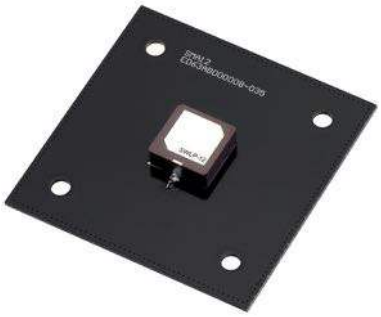
SWLP.12
2.4GHz
SMT Ceramic Patch

Electrical Data

Frequency	2400~2500MHz
Peak Gain	2dBi
Efficiency	>70%
Impedance	50Ω
Polarisation	Linear
Return Loss	-9dB

Mounting Data

Dimensions	12*12*4mm
Mounting	SMT Mount



SWLPD.12
(Evaluation Board
for SWLP.12)

Original Patch Specification measured on EVB 50*50mm, actual value depends on ground plane and housing.

Please check out our new high efficiency Embedded SMT and Cable Connection Dual band 2.4GHz/5GHz antennas if using 802.11n

2.4GHz Embedded

WiFi /Zigbee / BT Antenna Solutions

This WLP.25 patch antenna for ISM, Wi-Fi, Bluetooth and Zigbee is based on smart XtremeGain™ technology. It is mounted via pin and double-sided adhesive and is the clear solution for the 50*50mm ground plane. The WPC.25A 2.4GHz Ceramic Patch Antenna with cable works on Wi-Fi, Zigbee, Bluetooth and ISM band at 2.4GHz. This antenna comprises of a 2.4GHz 25*25*4mm embedded patch with mini-coax cable and connector for connectivity and a PCB carrier to mount the antenna. The WPC.25A is circularly polarized which is more suitable to avoid interference and phase cancellation from reflections. The antenna has its own ground PCB carrier and is therefore ground independent.

Model No	
	WLP.25 2.4GHz Ceramic Patch

Electrical Data	
Frequency	2400MHz~2500MHz
Peak Gain	5.0dBic
Efficiency	>80%
Impedance	50Ω
Polarisation	RHCP
Return Loss	-30dB

Mounting Data	
Dimensions	25*25*4.5mm
Mounting	Pin
Adhesive	NITTO 5015

Model No	
	WPC.25A 2.4GHz Ceramic Patch with Cable & Connector

Electrical Data	
Frequency	2400MHz~2500MHz
Peak Gain	>0.5dBic
Efficiency	>50%
Impedance	50Ω
Polarisation	RHCP
Input Power	10W

Mounting Data	
Dimensions	25*25*5.5mm
Cable Type	1.37 mini coaxial cable
Cable Length	150mm
Connector	IPEX MHFI (U.FL comp)

*Tested on 50*50mm ground plane

2.4GHz Embedded

Ceramic PIFA

The WLA.01 2.4GHz Loop antenna is a high efficiency miniature SMD edge mounted ceramic antenna for very small space requirements for Wi-Fi, WLAN, Zigbee, Bluetooth and 802.11 applications. The WLA.01 uses the main PCB as its ground plane, thereby increasing Antenna Efficiency. It is tuned for different PCB sizes by simply changing the value of the matching circuit.

At 3.2mm*1.6mm*0.5mm, the WLA.01 is one of the smallest antennas available worldwide.
This antenna is delivered on tape and Reel.

Model No

	WLA.01
	2.4GHz
	Ceramic PIFA
	Low Profile

Electrical Data

Frequency	2450MHz
Peak Gain	2.5dBi
Return Loss	-22dB
Efficiency	>80%
Impedance	50Ω
Polarisation	Linear
Op. Temp.	-40°C~+85°C

Mounting Data

Dimensions	3.2*1.6*0.6mm
Mounting	SMT Mount

WLAD.01
(Evaluation Board
for WLA.01)

Please check out our new high efficiency Embedded SMT and Cable Connection Dual band 2.4GHz/5GHz antennas if using 802.11n

5.8GHz Embedded

Passive Patch Antenna

The WLP.4958.12.04.A 6dBi high gain 4.9~5.8GHz patch pin fed antenna is ideally suited for high performance industrial and consumer applications in WiFi, ISM, Public Safety, and Zigbee bands.

The WLP.4958.12.04.A is easily adjustable and can be placed anywhere on the device ground plane, unlike most chip or loop antennas which need to be edge mounted. The antenna can be matched by a PI matching circuit or by creating a custom tuned part for a specific layout configuration on a board.

Back

Model No

	WLP.4958.12.04.A.02
	12mm*12mm*4mm 4.9~5.8GHz Patch
	Pin Fed
	Embedded High Gain Antenna

Electrical Data

Frequency	4900~5825MHz
Return Loss	≤-10dB
Efficiency	60% avg.
Polarization	RHCP
VSWR	1.5 Max
Peak Gain	+6.0dBic typ.
Impedance	50Ω

Mounting Data

Dimensions	12*12*4mm
Mounting	Pin and Adhesive Tape
Adhesive Type	Tesa 4972

5.8GHz SMT Antennas

Embedded

The CA.50 5150-5900 MHz ceramic chip antenna is a custom solution for WiFi/WHDMI/High Bandwidth 5GHz band applications. It is a miniature SMD edge mounted ceramic monopole antenna with small footprint requirement.

The CA.50 antenna uses the main PCB as its ground plane, thereby increasing antenna efficiency. It is tuned for different PCB sizes by simply changing the value of the matching circuit. CA.50 antenna electrical properties are symmetrical therefore the antenna can be soldered to the board from either side. With both WiFi/WHDMI onboard the HL.01 can give and take WiFi/WHDMI applications where high data throughput is needed. The CA.50 and HLA.01 at 3.2mm*1.6mm*0.5mm, are the smallest antennas available worldwide. These antennas are delivered on tape and reel.

Model No	
	CA.50 5150-5900 MHz Ceramic Chip Monopole

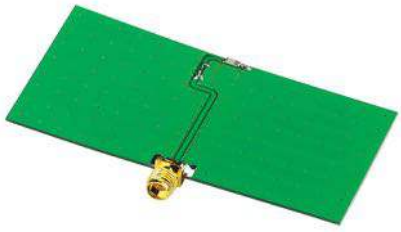
Electrical Data	
Frequency	5500MHz
Bandwidth	750MHz min.
Radiation Pattern	Omni-Directional
Peak Gain	3.4dBi (typical)
Efficiency	79%
VSWR	2 Max.
Impedance	50Ω
Polarization	Linear
Max Input Power	50W

Mounting Data	
Dimensions	3.2*1.6*0.5mm
Ground Plane	40*40mm

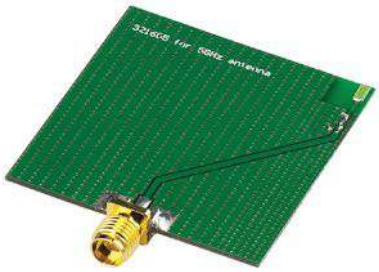
Model No	
	HLA.01 5150-5900 MHz Ceramic Loop Antenna

Electrical Data	
Frequency	5500MHz
Bandwidth	524MHz
Radiation Pattern	Omni-Directional
Peak Gain	2.1dBi (typical)
Efficiency	65%
VSWR	2 Max.
Impedance	50Ω
Polarization	Linear
Max Input Power	50W

Mounting Data	
Dimensions	3.2*1.6*0.5mm
Ground Plane	80*40mm



HLAD.01
(Evaluation Board
for HLA.01)



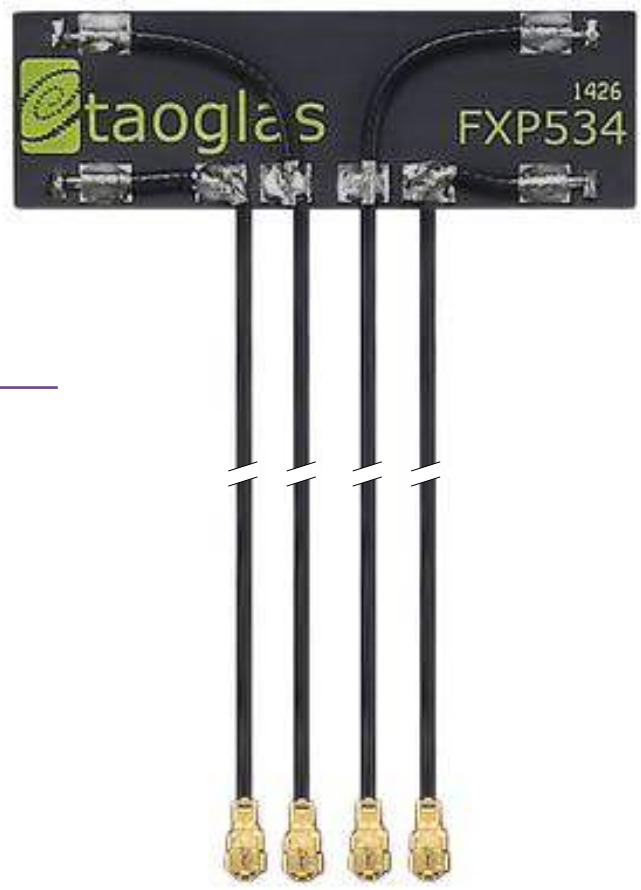
CAD.50
(Evaluation Board
for CA.50)

5.8GHz MIMO Antenna

Embedded Flexible PCB with Multiple Ports

The Venti FXP534 5.8GHz 802.11ac 4*4 MIMO antenna is an extremely compact, embedded 4-in-1 MIMO flexible polymer monopole type antenna designed specifically for 802.11ac Wi-Fi applications, that can be easily installed in your device, and takes up the minimum amount of space.

Typical Applications: High speed real-time HD video streaming; High capacity Wi-Fi networks for Mass Transit; Embedded kiosk Wi-Fi Hotspots.



Model No

	FXP534
	Venti
	Embedded 5.8GHz
	General Solution

Electrical Data

Frequency	5150~5850MHz
Peak Gain	≤5dBi
VSWR	1.5dB Max
Efficiency	≥45%
Return Loss	-14dB
Impedance	50Ω
Polarization	Linear
Op. Temp.	-40°C~+85°C

Mounting Data

Dimensions	48*15*0.15mm
Mounting	Adhesive
Cable*	Ø1.13 53mm
Connector*	IPEX MHFI (U.FL comp)
Adhesive	3M 467 Tape

2.4~5.8GHz Screw Mount

Hercules Smallest Compact

The Taoglas Hercules series is focused on providing a solid foundation on which to build a network on. The Next Generation (Gen II) Hercules is supremely reliable while remaining a high performance machine.

WS.01 Hercules is a high efficiency, high gain thread mount dual band wireless antenna for external use on vehicles and outdoor assets worldwide. Omni-directional gain across both bands ensures constant reception and transmission making the WS.01 an ideal solution for a Zigbee Wireless Mesh for remote applications e.g. – remote metering. It is the smallest high performance antenna in the market.

Model No

	WS.01.B **Hercules GEN II** **Dual Band WiFi** 2.4GHz/5.8GHz Screw Mount

Electrical Data

Frequency	2400~2500MHz 5150~5900MHz
Radiation	Omni-Directional
Gain	4dBi
Impedance	50Ω
Polarization	Linear
Efficiency	>60% @ 2.4~2.5GHz >40% @ 5.0~5.9GHz
VSWR	< 1.8.0:1
Op. Temp.	-40°C~+85°C

Mounting Data

Dimensions	H:29mm, Ø 49mm
Mounting	Screw Mount
Cable	3M CFD 200
Connector	RP-SMA(M)
IP Rating	IP67 & IP69K

2.4~5.8GHz External Adhesive Antennas (Dual Band)

Stingray

The WA.500w "Stingray" is a dual band WiFi 2.4GHz, 4.9 – 6.0GHz IP67 waterproof antenna. Its housing has been carefully designed to stand up to tough environments.

The WA.500w is designed for applications that require omni-directional gain across both bands to ensure wide coverage area and constant reception and transmission for WiFi and Zigbee applications.

Coupled with superior performance, and the ability to offer custom gain solutions and full test reports with your system, the quality design of the Stingray makes it a step beyond any competitor solution on the market.

Model No

	WA.500w
	Stingray Dual Band WiFi
	2.4/4.9-6.0GHz
	Adhesive

Electrical Data

Frequency	2400-2500MHz
	4900-6000MHz
Radiation Pattern	Omni-Directional
Gain	4dBi
Out. Impedance	50Ω
Polarization	Linear
VSWR	< 1.92:1
Op. Temp.	-40°C~+85°C

Mounting Data

Dimensions	H: 10.8mm, Ø 55mm
Mounting	Adhesive
Cable*	3M RG-174
Connector	RP-SMA(M)*
Adhesive Type	3M Tape
IP Rating	IP65

2.4~5.8GHz External (Terminal Mount)

External 2.4 / 5GHz Antenna Solutions Terminal Mount

Our external terminal mount antennas are designed for robust handling with housings made with TPE, which gives superior environmental resistances and a quality finished. The hinged versions, GW.59 and GW.71 antennas can be rotated 90 degrees on the base hinge for ease of placement. At Taoglas we have a total commitment to 100% accurate testing for all our products – these terminal mount antennas are tested for VSWR/Return loss and the results are reflected on their product specification. The GW.05 dual band WiFi Hinged Rotatable Antenna is a high efficiency monopole antenna. Compared to other much larger antennas on the market, it has superior wide-band high efficiency characteristics.

Model No	GW.59
	2.4GHz/5.8GHz
	Hinged
	Dipole

Electrical Data	
Frequency	2400/5100MHz ~5800MHz
Radiation Pattern	Omni-Directional
Gain	3dBi
Efficiency	70% (2.4~2.5GHz) 75% (5.15~5.8GHz)
Polarization	Linear
VSWR	< 2.0
Max Input Power	2W

Mechanical Data	
Dimensions	H: 155.7mm, Ø 12.5mm
Mounting	Hinged 90°
Connector	RP-SMA(M)
IP Rating	IP65
Op. Temp.	-40°C~+85°C

Model No	GW.71
	2.4GHz/5.8GHz
	Terminal-Hinged
	Dipole

Electrical Data	
Frequency	2400-2500MHz 5150-5900MHz
Radiation Pattern	Omni-Directional
Gain	5dBi
Efficiency	80% (2.4~2.5GHz) 80% (4.9~5.8GHz)
Polarization	Linear
VSWR	< 2.0
Max Input Power	2W

Mounting Data	
Dimensions	H: 194mm, Ø 13mm
Mounting	Hinged 90°
Connector	RP-SMA(M)
IP Rating	IP65
Op. Temp.	-40°C~+85°C

Model No	GW.05
	Dual-Band WiFi
	2.4~2.5GHzz /
	5.15~5.85GH
	Terminal Mount
	Monopole Antenna

Electrical Data	
Frequency	2400~5850MHz
Radiation Pattern	Omni-Directional
Peak Gain	≤5dBi
VSWR	1.5dB Max
Efficiency	≥50%
Return Loss	<-10dB
Impedance	50Ω
Polarization	Linear
Max Input Power	2W

Mounting Data	
Dimensions	62.3 * ø10mm
Connector	RP-SMA(M)
IP Rating	IP6
Op. Temp.	-40°C~+85°C

2.4~5.8GHz External MIMO Antennas

Trinity MIMO

With 3 individual high-gain elements, the WMA.01 "Trinity" has peerless performance yet tractable in the install process with desktop, mag-mount, wall-mount and adhesive mounting all being options.

Unsurprisingly the Trinity comfortably covers an enormous array of technologies, capable of dealing with Wi-fi, ISM Bands, ZigBee, WLAN and Bluetooth. The individual antennas can articulate horizontally and vertically for best signal reception depending on mounting conditions.

Model No	
	WMA.01
	Trinity
	2.4~2.5GHz
	3*3 MIMO Antenna

Electrical Data	
Frequency	2400~2500MHz
Radiation Pattern	Omni-Directional
Peak Gain	3dBi
Return Loss	≤-10dB
Impedance	50Ω
Polarization	Linear Vertical

Mounting Data	
Dimensions	H: 142mm
	Ø 7.2mm - Ø 13mm
	87*64mm (Base Dimensions)
Mounting	Desk/Wall/Magnet
Cable	3* RG-174
Connector	3* RP-SMA(M)
Op. Temp.	-40°C~+85°C

2.4~5.8GHz Dual Band PCB and Flexible Antennas

Cable & Connector

Responding to the demands of the latest 802.11n applications such as real-time video streaming, which need the highest data speeds, we are pleased to offer a wide range of PCB antennas that are sure to fit any needs you may have.

The PC.11 "StripeTM" is a dual band 2.4GHz/5.2GHz constructed with special FR4 PCB. The PC14 is a circular dual band 2.4GHz/5.2GHz antenna. It is designed for use internally in WiFi or WLAN equipment worldwide.The FXP810 is a dual band 2.4GHz, 4.9 to 6.0GHz monopole antenna. It comes with an IPEX MHFI connector as standard but both connector and cable are customizable on request.

Model No

PC11
The Stripe™
2.4GHz/5.2GHz
FR4 PCB
Dipole

Electrical Data

Frequency	2.4GHz/5.8GHz
Peak Gain	2dBi
VSWR	1.8dB Max
Efficiency	85%
Return Loss	-21dB
Impedance	50Ω
Polarization	Linear
Op. Temp.	-40°C~+85°C

Mounting Data

Dimensions	66*16*0.8mm
Material	FR4
Cable*	Ø1.13 100mm
Connector*	IPEX MHFI (U.FL comp)

Model No

PC14
Circular Dual Band
2.4-5.2Ghz PCB
with cable and
connector

Electrical Data

Frequency	2.4-5.2Ghz
Return Loss	-12dB
VSWR	1.5dB Max
Return Loss	≤-27dB
Impedance	50Ω
Radiation Pattern	Omni-Directional
Polarization	Horizontal

Mounting Data

Dimensions	Ø 42*0.8mm
Connector*	RP-SMA(M)
Cable*	RG-174

Model No

FXP810
Dual Band 2.4GHz
4.9-6.0Ghz
Monopole

Electrical Data

Frequency	2.4~2.5GHz	4.9~6GHz
Peak Gain	2.4dBi	5dBi
Efficiency	76%	84%
Return Loss	≤-27dB	≤-5dB
Impedance	50Ω	
Polarization	Linear	

Mounting Data

Dimensions	31*31*0.1mm
Mounting	3M 467 Tape
Cable*	Ø1.37 100mm
Connector*	IPEX MHFI (U.FL comp)

*Cables and Connectors Customizable

2.4~5.8GHz Dual Band Flexible Antennas (Cable & Connector)

PCB Antennas

The FXP.830 has a peak gain of 2.6dBi at 2.4GHz and efficiency of about 50%, increasing to 5dBi and efficiencies of over 80% along bands 4.9GHz to 6GHz.
The FXP.831 has a peak gain of 3.0dBi at 2.4GHz and efficiency of over 50%, and 5.5dBi and 75% efficiency along bands 4.9GHz to 6GHz.
The patent pending FXP.840 is a super small monopole ultra-low profile antenna for2.4/5 GHz bands that includes Bluetooth and WiFi dual-band application.
The FXP.840 has a peak gain of 2.0dBi at 2.4GHz and efficiencies of 40%, and 2.5dBi gain and over 50% efficiency along bands 4.9GHz to 6GHz.

Model No	
	FXP830 Dual-Band 2.4GHz 4.9-6.0Ghz Dipole

Electrical Data	
Frequency	2400~2500MHz 4900~6000MHz
Peak Gain	2.6dBi (2.4-2.5GHz) 5.0dBi(4.9-6.0GHz)
Efficiency	50%(2.4-2.5GHz) 84%(4.9-6.0GHz)
Return Loss	≤-26dB
Impedance	50Ω
Polarization	Linear
Op. Temp.	-40°C~+85°C

Mounting Data	
Dimensions	42*7*0.1mm
Mounting	Adhesive
Adhesive	3M 467 Tape
Cable*	Ø1.37 100mm
Connector*	IPEX MHFI (U.FL comp)

Model No	
	FXP831 Dual-Band 2.4GHz 4.9-6.0Ghz Monopole

Electrical Data	
Frequency	2400~2500MHz 4900~6000MHz
Peak Gain	3.0dBi (2.4-2.5GHz) 5.5dBi (4.9-5.8GHz)
Efficiency	56% (2.4-2.5GHz) 75% (4.9-5.8GHz)
Return Loss	≤-26dB
Impedance	50Ω
Polarization	Linear
Op. Temp.	-40°C~+85°C

Mounting Data	
Dimensions	45*7*0.1mm
Mounting	Adhesive
Adhesive	3M 467 Tape
Cable*	Ø1.37 100mm
Connector*	IPEX MHFI (U.FL comp)

Model No	
	FXP840 **Freedom Series** Super Small Monopole 2.4GHz-5GHz

Electrical Data	
Frequency	2410~2490MHz 4900~5800MHz
Peak Gain	2.0dBi (2.4-2.5GHz) 2.5dBi (4.9-5.8GHz)
Efficiency	40% (2.4-2.5GHz) 53% (4.9-5.8GHz)
Return Loss	≤-7dB @5.8GHz
Impedance	50Ω
Polarization	Linear
Max Input Power	2W

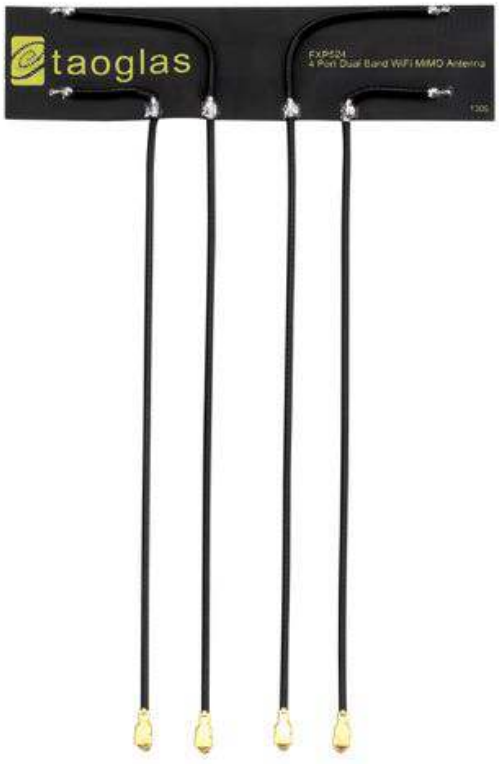
Mounting Data	
Dimensions	14*5.4*0.1mm
Mounting	Adhesive
Adhesive	3M 467 Tape
Cable*	Ø 0.81mm 55mm
Connector*	IPEX MHFI (U.FL comp)

2.4~5.8GHz MIMO Antenna

Embedded Flexible PCB with Multiple Ports

The Venti FXP524 antenna is a 4-in-1 MIMO flexible PCB monopole type antenna. The antenna has good efficiency and isolation performance for Wi-Fi applications. It has over 40% efficiency in 2.4GHz bands, and over 50% in 5GHz bands, and the isolation performance in each two ports is under -12dB in 2.4GHz, and -13dB in 5GHz bands.

The antenna has been designed in a flexible material with a rectangular form-factor and cable connection for an easy installation.



Model No

	FXP524.D.07.A.001
	Venti
	WLAN MIMO 2.4/5.0GHz
	Antenna with 4 ports
	Unity Flex PCB MIMO Antenna

Electrical Data

Frequency	2400MHz	5850MHz
Peak Gain	≤5dBi *	≤6.3dBi *
VSWR	1.5dB Max	1.5dB Max
Efficiency	≥55%	≥62%
Return Loss	≤-13dB	≤-13dB
Impedance	50Ω	50Ω
Polarization	Linear	Linear
Op. Temp.	-40°C~+85°C	-40°C~+85°C

Mounting Data

Dimensions	80*20*0.1mm
Adhesive	3M 467 Tape
Cable*	4* Black 1.13mm Coaxial Cable
Connector*	IPEX MHFI

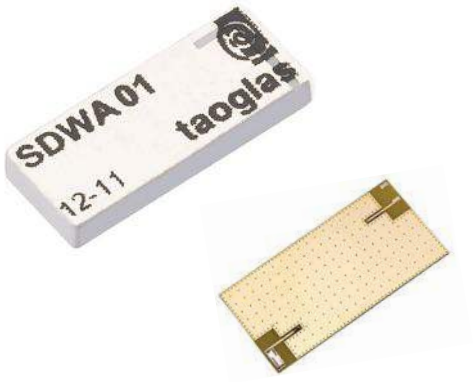
* Peak gain can be customised to fit with your FCC requirements

2.4~5.8GHz Dual Band Embedded

SMT Ceramic Antenna

The SDWA.01 dual-band SMT ceramic antenna and the WDP.2458 ceramic patch are embedded high efficiency, high peak gain solutions for professional WiFi 802.11n and other ISM band applications which require high data speed rates and wide coverage areas.

Typical Applications include: Access Points; Tablets; High definition high throughput video streaming routers; High data MIMO bandwidth routers; Automotive; Home and industrial in-wall Wi-Fi automation; Drones/Quad-copters: UAV; Long range Wi-Fi remote control applications.



SDWAD.01
(Evaluation Board for SDWA.01)

WDPD.25
(Evaluation Board for WDP.25)

Model No

SDWA.01
Dual Band 2.4GHz
4.9-5.8Ghz
Ceramic SMT Antenna

Electrical Data

Frequency	2400~2500MHz	4900~5850MHz
Peak Gain	3dBi	4.9dBi
Efficiency	60%	75%
Return Loss	≤-10.5dB	≤-17dB
Impedance	50Ω	
Polarization	Linear	
Op. Temp.	-40°C~+85°C	

Mounting Data

Dimensions	10*4*1.5mm
Mounting	SMT

Model No

WDP.25
Dual Band 2.4/5GHz
Embedded Ceramic
Patch Antenna

Electrical Data

Frequency	2400~2500MHz	5150~5850MHz
Peak Gain	6dBi	8dBi
Efficiency	60%+ avg.	60%+ avg
Return Loss	≤-19dB	≤-5dB
Impedance	50Ω	
Polarization	Linear	
Op. Temp.	-40°C~+85°C	

Mounting Data

Dimensions	25*25*4mm
Mounting	Pin and Adhesive Tape

Embedded Satellite - Iridium® Certified

IP.25A Ceramic Pin Patch

The Taoglas Iridium® IP.25A ceramic patch antenna is a low profile (4mm) small footprint antenna (25*25mm) designed for Iridium® devices. It has been specifically designed to provide excellent coverage in the 1616.0 to 1626.5 MHz range.

The Taoglas Iridium® IP.25A ceramic patch antenna is a low profile (4mm) small footprint antenna (25*25mm) designed for Iridium® devices. It has been specifically designed to provide excellent coverage in the 1616.0 to 1626.5 MHz range.

Iridium® Certified
IP.25A
Back

Model No

	IP.1621.25.4.A.02
	4mm thick Iridium®
	Patch Antenna
	1621MHz

Electrical Data

Frequency	1616~1626.5MHz
Peak Gain	2dBic
VSWR	1.5 Max
Return Loss	≤-21dB
Axial Ratio	3dB Max
Impedance	50Ω
Polarization	RHCP
Op. Temp.	-40°C~+85°C

Mounting Data

Dimensions	25*25*4mm
Mounting	Pin and Adhesive Tape
Ground Plane	50*50mm
Pin	1.65+/-0.2mm
Adhesive	NITTO 5015

External Satellite Iridium® Certified

Robust External Antennas

Taoglas have developed a range of external antennas for maritime, aeronautical, government/defence, public safety, utilities, oil/gas, mining, forestry, and transportation applications using the IridiumTM Satellite constellation. Iridium® has certified the IAA.01 and IMA.01 Antennas for commercial use in connection with the Iridium Communications System.

The IAA.01 is a Magnetic mount solution, which has been designed for land/mobile solutions. The magnetic mount allows for easy installation and removal between vehicles or assets. The IMA.01 is a Bracket Mount Antenna which delivers exceptional reception performance for permanent in-building or marine applications. This antenna is designed for free-air operation with no ground plane required.

Model No	
	IAA.01.121111 External Magnetic Mount IRIDIUM Antenna 1616~1626.5MHz

Electrical Data	
Frequency	1616~1626.5MHz
Peak Gain	3.7dBi
VSWR	1.5 Max
Return Loss	≤-21dB
Bandwidth	15MHz
Impedance	50Ω
Polarization	RHCP
Op. Temp.	-40°C~+85°C

Mounting Data	
Dimensions	40.5*38*12.3mm
Mounting	Magnetic
Cable	RG-174
Connector	SMA(M)
IP Rating	IP67

Model No	
	IMA.01 External Magnetic Mount IRIDIUM Antenna 1616~1626.5MHz

Electrical Data	
Frequency	1616~1626.5MHz
Peak Gain	2dBi
VSWR	1.5 Max
Return Loss	≤-21dB
Bandwidth	15MHz
Impedance	50Ω
Polarization	RHCP
Op. Temp.	-40°C~+85°C

Mechanical Data	
Dimensions	40.5*38*12.3mm
Mounting	Magnetic
Cable	RG-174
Connector	SMA(M)
IP Rating	IP67

External Satellite Iridium® Transceiver

Iridium External Antennas

The Iridium® satellite network offers truly global M2M service with the lowest latency in the industry — extending the value of intelligent data far beyond the 10% of the Earth serviced by terrestrial networks.

The Spartan STS.01 Iridium® Transceiver consists of an advanced Taoglas Iridium® certified patch antenna and Iridium 9602 transceiver with RS-232 interface, all enclosed in a robust, IP67 waterproof through-hole mount enclosure.

Certified by Iridium, the Spartan STS.01 supports short burst data with a maximum mobile originated message size of 340 bytes and a maximum mobile terminated message size of 270 bytes. There is no SIM card required.

*Available stripped or with M12 connector

Model No

	STS.01.A.0115FB Spartan Iridium® Transceiver Antenna System

Electrical Data

Transceiver	Integrated Iridium 9602
Interface	3-Wire RS-232
Power Regulation	Integrated 8-32V Input Voltage Range
Op. Temp.	-40°C~+85°C

Mechanical Data

Dimensions	ø145*35 mm
Housing	ABS-Polycarbonate Alloy
Mounting	Thread Ø 30mm
Cable	115mm Multi Conductor Cable
Connector	M12
IP Rating	IP67 and IP69K

*Cables and Connectors Customizable

Combination Iridium Antenna

Spartan 3in1 GPS/GLONASS/Cellular/Iridium

The Spartan MA602 antenna is a heavy-duty, fully IP67 waterproof external M2M antenna for use in telematics, transportation and remote monitoring applications.

The Spartan is unique in the market because it combines a 3in1 GPS/GLONASS, Cellular (2G and 3G) and IRIDIUM, heavy-duty antenna with high efficiency in a compact format. The antenna screws down permanently onto a roof or metal panel and can be pole or wall-mounted with a metal bracket.
For industries such as commercial vehicle telematics, remote monitoring, smart meter systems and construction equipment, the Spartan provides a robust, rugged antenna that is durable, even in extreme environments.

Model No

MA602
Spartan Screwmount 3in1
Combination Antenna

CELLULAR

Electrical Data

Frequency	824~2170MHz
Avg. Gain	≥-5 dBi
Efficiency	> 54%
VSWR	≤5.2
Polarisation	Linear
Impedance	50 Ω Nominal

Mechanical Data

Dimensions	H:39.5 * ø145 mm
Housing	UV Resistant PVC
Mounting	Thread ø 30mm
Cable	1M CFD200
Connector	SMA(M)
Op. Temp.	-40°C~+85°C
IP Rating	IP67

GPS/GLONASS

Electrical Data

Ctr. Frequency	1575.42/1602MHz
Gain @ Zenith	3 dBic/2dBic Min.
Efficiency	> 70%
VSWR	1.92 Max
Polarisation	Linear
Impedance	50 Ω Nominal
Return Loss	10 dB Min
Gain @ 3.3V	29 ~ 30 dB
DC Power Input	3~5V

Mechanical Data

Cable	1M RG-174
Connector	SMA(M)

IRIDIUM

Electrical Data

Frequency	1616~1626.5MHz
Gain @ Zenith	3.5dBic Min.
Efficiency	90%
VSWR	1.92 Max
Axial Ratio	4 dB Max.
Polarisation	PHCP
Impedance	50 Ω Nominal

Mechanical Data

Cable	1M CFD200
Connector	SMA(M)

Embedded Satellite - Globalstar Antenna

Ceramic Pin Patch Antenna

Globalstar is a low Earth orbit satellite constellation for satellite phone and low speed data communications. Globalstar can be used in remote areas beyond the reach of cellular and landline telephone services.

The SP.1615.25.4.A.02 is a miniaturized 25mm square ceramic patch antenna is mounted via pin and double-sided adhesive and is the optimal embedded antenna solution for mobile Globalstar applications.

Model No

	SP.1615.25.4.A.02
	Globalstar 25mm 1615Mhz
	3dBi Embedded
	Ceramic Patch Antenna

Electrical Data

Frequency	1615.68MHz
Peak Gain	4dBi
VSWR	1.5 Max
Bandwidth	26MHz min.
Impedance	50Ω
Polarization	LHCP
Op. Temp.	-40°C~+85°C

Mounting Data

Dimensions	25mm*25mm*4mm
Mounting	Double Coated Adhesive
Connector	SMA(F)

NFC Reader Antennas

NFC Antennas

Taoglas have developed a new range of NFC (Near Field Communications) antenna solutions. This year 1.4BN cellphones will ship and up to 40% will have a NFC antenna. This means any device implementing one of our NFC solutions can communicate to a cellphone using NFC. For this they will require a NFC antenna. By implementing NFC you open your device up as mobile payment terminal.

The FXR.01 operates at 13.56MHz and provides a well matched solution (50ohms) for NFC. The antenna measures approximately 54x37x0.1mm and provides an average NFC read distance of 5cm.

The FXR.05.A and FXR.07.A are circular flexible NFC (Near Field Communications) antennas for use in mobile devices and other applications. This design is matched for optimal performance with typical NFC chipsets. The design provides a flexible NFC antenna that can be adhered to the plastic enclosure of the device for ease of installation.

Model No	
	FXR.01.A Flexible Near - Field Communications Reader Antenna

Electrical Data	
Frequency	13.56MHz
Polarization	Linear
Impedance	50Ω

Mounting Data	
Dimensions	53.3*36.8mm
Mounting	Peel and Stick Adhesive
Connector	3M 467 Adhesive Tape
Cable	Mini-Coax. 1.13mm
Adhesive	3M 467

Model No	
	FXR.05.A Flexible Near - Field Communications Antenna

Electrical Data	
Frequency	13.56MHz
Polarization	Linear
Impedance	50Ω

Mounting Data	
Dimensions	ø26.4*0.24mm
Mounting	Peel and Stick Adhesive
Connector	3M 467 Adhesive Tape
Cable	Mini-Coax. 1.13mm
Adhesive	3M 467

Model No	
	FXR.07.A Flexible Near - Field Communications Reader Antenna

Electrical Data	
Frequency	13.56MHz
Polarization	Linear
Impedance	50Ω

Mounting Data	
Dimensions	ø45.5*0.24mm
Mounting	Peel and Stick Adhesive
Connector	3M 467 Adhesive Tape
Cable	Mini-Coax. 1.13mm
Adhesive	3M 467

NFC Reader Antennas

NFC Antennas

The FXP.06.A and FXP.08.A are different form factor options for NFC. The design provides a flexible NFC antenna that can be adhered to the plastic enclosure of the device for ease of installation.

Model No

FXR.06.A
Square Flexible
Near - Field Communications
Tag Antenna

Electrical Data

Frequency	13.56MHz
Polarization	Linear
Impedance	50Ω

Mounting Data

Dimensions	47*47*0.24mm
Mounting	Peel and Stick Adhesive
Connector	3M 467 Adhesive Tape
Cable	Mini-Coax. 1.13mm
Adhesive	3M 467
Op. Temp.	-40°C~+85°C

Model No

FXR.08.A
Rectangular Flexible
Near - Field Communications
Antenna

Electrical Data

Frequency	13.56MHz
Polarization	Linear
Impedance	50Ω

Mounting Data

Dimensions	53.3*37.3*0.24mm
Mounting	Peel and Stick Adhesive
Connector	3M 467 Adhesive Tape
Cable	Mini-Coax. 1.13mm
Adhesive	3M 467
Op. Temp.	-40°C~+85°C

Cable Assemblies

Custom Assemblies

Custom cable assemblies are a speciality of ours, each device/application is different, which calls for a unique solution. Please contact us any for requirements/advice you have/need.

Here's what we need from you to prepare a drawing, part number and quotation

1. The type of Coaxial cable required (sometimes this is determined by the connectors eg. Murata GSC – uses 0.81mm coaxial cable)
2. The RF connectors needed – or if you require a stripped end, the open/strip/tin dimensions
3. The length of cable needed - please mention if this length is to include the connectors or not (our drawing will reflect the length excluding the connectors)
4. The orientation of the connectors to each other.
5. The quantity needed

Ø 0.81

Ø 1.13

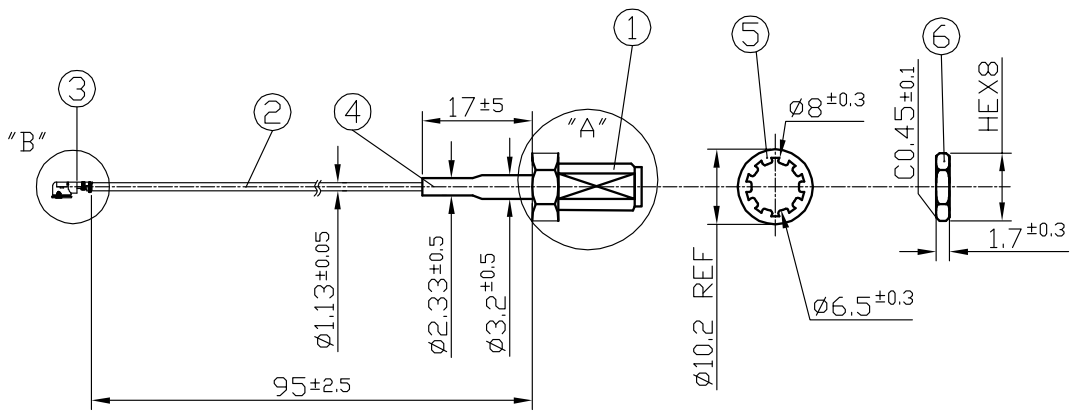
Ø 1.37

RG-178

RG-174

CFD-200

Our process involves you every step of the way. Once you have contacted us with your requirement our engineers prepare a Mechanical Drawing of Assembly and then send it on to you for approval. When you are happy with our proposal we can supply tested and approved custom samples within 2 weeks with our production lead-times being 3 to 4 weeks for most deliveries. Our products are put through rigorous QC testing procedures, ensuring that they are of the highest quality and within approved specifications.



Cable Assemblies

Standard Assemblies

Taoglas supply an extensive line of radio frequency (RF) coaxial cable assemblies, for use in wireless telecommunications applications including WiFi, PCS, radio, computer networks, test instruments and antenna devices.

Micro-Coaxial Cables

Description	Photo	Cable Length	Part Number
ø0.81 SMA(F) to...			
Murata GSC			
SMA(F) Bulkhead Straight to Murata GSC Orientation: R/A - Straight **Ø0.81 Cable**		95 mm 200 mm	**CAB.922** **CAB.940**
Murata HSC			
SMA(F) Bulkhead Straight to Murata HSC Orientation: Straight - R/A **Ø0.81 Cable**		100 mm 200 mm	**CAB.R01** **CAB.R02**
IPEX MHFIII			
SMA(F) Bulkhead Straight to IPEX MHFIII (W.FL comp) Orientation: R/A-Straight **Ø0.81 Cable**		96.4mm	**CAB.A02**
IPEX MHF4			
SMA(F) Bulkhead Straight to IPEX MHF4 (HSC comp) Orientation: Straight-R/A **Ø0.81 Cable**		100mm 200mm	**CAB.S01** **CAB.S02**
ø1.13 SMA(F) to...			
Hirose U.FL			
SMA(F) Bulkhead Straight to Hirose U.FL Orientation: Straight-R/A **Ø1.13 Cable**		100mm 200mm	**CAB.719** **CAB.718**
IPEX MHFI			
SMA(F) Bulkhead Straight to IPEX MHFI (U.FL comp) Orientation: Straight-R/A **Ø1.13 Cable**		95 mm 200 mm	**CAB.011** **CAB.618.C**
IPEX MHFI			
RP-SMA(F) Bulkhead Straight to IPEX MHFI (U.FL comp) Orientation: Straight-R/A **Ø1.13 Cable**		95mm 200mm	**CAB.628** **CAB.622**
ø1.32 SMA(F) to...			
Hirose U.FL			
SMA(F) Bulkhead Straight to Hirose U.FL Orientation: Straight-R/A **Ø1.32 Cable**		100mm 200mm	**CAB.721** **CAB.720**

Cable Assemblies

Standard Assemblies

Micro-Coaxial Cables

Description	Photo	Cable Length	Part Number
ø1.37 N Type to IPEX MHFI			
N type Jack with O-Ring to IPEX MHFI (U.FL comp Orientation: Straight - RA **1.37mm Coaxial Cable**		11.8in / 300 mm	**CAB.954**
RG-178 FME(F) to IPEX MHFI			
FME(F) Bulkhead Straight Jack to IPEX MHFI(U.FL comp) Orientation: Straight - R/A **RG-178 Cable**		3.93in / 100mm	**CAB.695**

Coaxial Cables

Description	Photo	Cable Length	Part Number
RG-174 SMA(F)...			
SMA(M)			
SMA(M) Straight to SMA(F) Bulkhead Straight Orientation: Straight-Straight **RG-174**		75 mm	**CAB.0114**
Straight Jack Fakra			
SMA(F) Bulkhead Straight Jack to Fakra Code C Blue Straight Plug Orientation: Straight - Straight **RG-174**		3.93in / 100mm	**CAB.D05**
SMA(F) Bulkhead Straight Jack to Fakra Code D Violet Straight Plu Orientation: Straight - Straight **RG-174**		3.93in / 100mm	**CAB.J05**
MCX(M)			
SMA(F) Bulkhead Straight to MCX(M) Straight Orientation: Straight-Straight **RG-174**		75mm	**CAB.130**
MMCX(M)			
SMA(F) Bulkhead Straight to MMCX(M) Right Angle Orientation: Straight-R/A **RG-174**		100 mm	**CAB.01402**
SMB(F)			
SMA(F) Bulkhead Straight with O-ring to SMB(F) Plug Straight Orientation: Straight-Straight **RG-174**		100 mm	**CAB.0101**
RG-174 SMA(F) to TS-9(M)			
SMA(F) Bulkhead Straight to TS-9(M) Plug Orientation: Straight - Straight **RG-174**		00 mm	**CAB.T01**

Cable Assemblies

Standard Assemblies

Coaxial Cables

Description	Photo	Cable Length	Part Number
RG-316 N Type Jack to ...			
RG-316 SMA(M)ST			
SMA(M)ST Plug to N type Jack with O-Ring Orientation: Straight-Straight **RG-316**		3.93in / 100mm 3.28ft / 1m 9.84ft / 3m	**CAB.955** **CAB.951** **CAB.952**
RG-316 MCX(M)ST			
MCX(M)ST Plug to N type Jack with O-Ring Orientation: Straight - Straight **RG-316 Cable**		3.93in / 100mm	**CAB.956**
RG-58 NMO Mount to ...			
SMA(M)			
NMO Direct Mount Cable Assembly Accessory **NMO Direct Mount - 3/4 inch Hole Brass Mount type to SMA(M) Straight Plug** Orientation: R/A - Straight **RG-58 cable**		3ft / .915m 9.8ft / 3 mm 14ft / 4.26m 17ft / 5.18m	**CAB.V08** **CAB.V05** **CAB.V09** **CAB.V10**
FME(F)			
NMO Direct Mount Cable Assembly Accessory **NMO Direct Mount - 3/4 inch Hole Brass Mount type to FME(F) Straight Jack** Orientation: R/A - Straight **RG-58 cable**		3ft / .915m 14ft / 4.26m 17ft / 5.18m	**CAB.V11** **CAB.V12** **CAB.V13**
RG-58 NMO Mag Mount to ...			
SMA(M)			
NMO Magnet Mount Cable Assembly Accessory **NMO Magnet Mount - 3/4 inch Hole Brass Mount type to SMA(M) Straight Plug** Orientation: R/A - Straight **RG-58 cable**		3ft / .915m 9.8ft / 3 mm 14ft / 4.26m 17ft / 5.18m	**CAB.W08** **CAB.W05** **CAB.W09** **CAB.W10**
FME (F)			
NMO Magnet Mount Cable Assembly Accessory **NMO Magnet Mount - 3/4 inch Hole Brass Mount type to FME(F) Straight Jack** Orientation: R/A - Straight **RG-58 cable**		3ft / .915m 14ft / 4.26m 17ft / 5.18m	**CAB.W11** **CAB.W12** **CAB.W13**

Cable Assemblies

Standard Assemblies

Low Loss Coaxial Cables

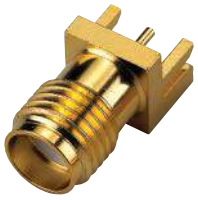
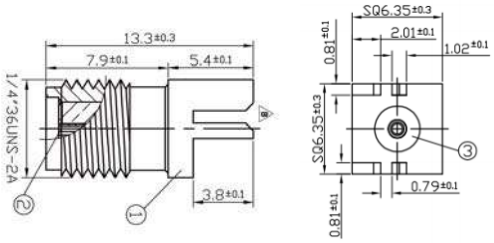
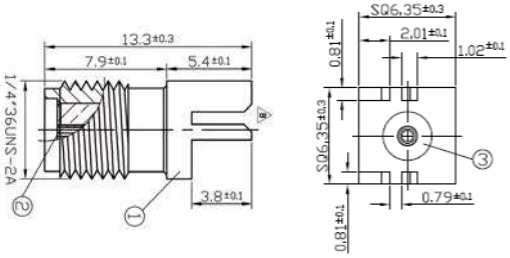
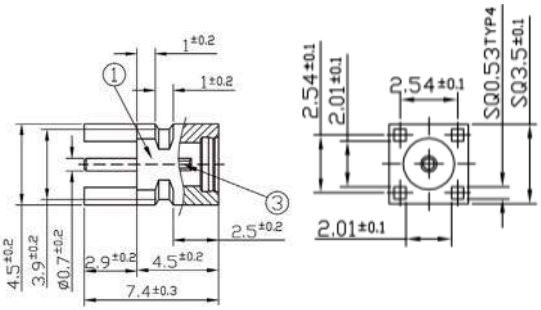
Description	Photo	Cable Length	Part Number
CFD 200 N Type Jack to...			
SMA(M)			
SMA(M)ST Plug to N type Jack with O-Ring Orientation: Straight-Straight **CFD-200 Cable (Low Loss)**		16.4ft / 5m 25ft / 7.6m	**CAB.953** **CAB.942**
N Type (M)			
N Type(M) Straight to N Type(F) Straight Orientation: Straight - Straight **CFD-200**		1m	**CAB.917**
CFD 200 N Type (M) to...			
N Type (M)			
N Type(M) Straight to N Type(M) Straight Orientation: Straight - Straight **CFD-200**		1m	**CAB.916**
CFD 200 SMA(F) Mag Mount to...			
SMA(M)			
Taoglas Magnet Mount Cable Assembly **SMA(F) Magnet Mount to SMA (M) Straight Plug** Orientation: R/A - Straight **CFD-200 cable**		1ft / .305m 3ft / 1m 9.8ft / 3m 16.4ft / 5m	**CAB.X04** **CAB.X05** **CAB.X06** **CAB.X07**

Taoglas supply on-board connectors for PCB mount, Edge Mount and also available PCB and Crimp Mount types. These connectors complement our receptacle range for integration on PCB boards. We stock the below common configurations for SMA/MMCX and MCX – if there is a configuration you need not on the list please feel free to contact us at your local area Sales office (see Page 11).

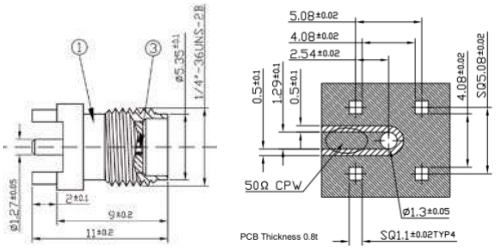
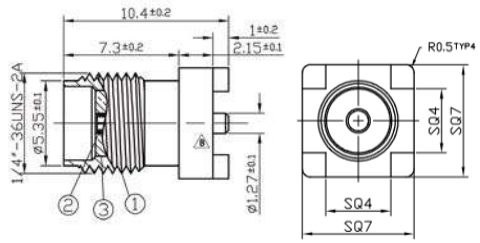
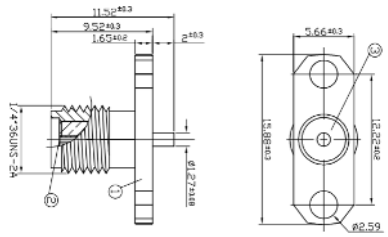
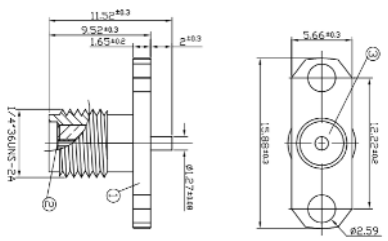
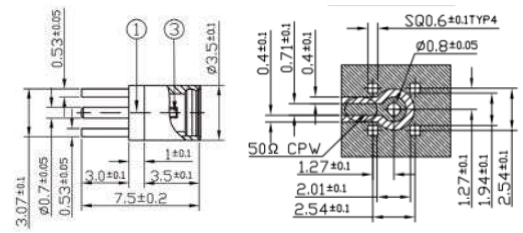
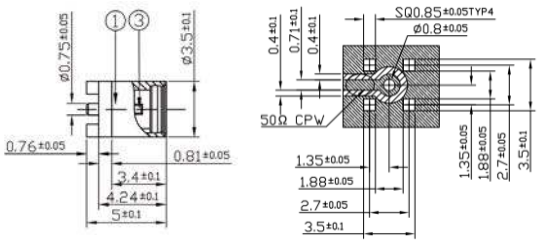
Receptacles

Part Number	Part Number	Part Number
MHF Receptacle	**MHF4 Receptacle**	**MHFIII Receptacle**
RECE.20279.001E.01	RECE.20449.001E.01	RECE.20369.001E.01
Description	**Description**	**Description**
IPEX MHF Receptacle Compatible with IPEX MHFI, MHFII, Hirose U.FL	IPEX MHF4 Receptacle Compatible with Murata HSC Mating Height: 1.2mm	IPEX MHFIII Receptacle Compatible with Hirose W.FL Mating Height: 1.6mm
		

Edge Mount Connectors

Description	Part Number	Photo	Drawing
SMA straight Edge Mount PCB JACK GOLD	**EMPCB.SMAFSTJ.B.HT**		
SMA straight Edge Mount PCB JACK NICKEL	**EMPCB.SMAFSTJ.C.HT**		
MMCX straight Edge Mount PCB JACK GOLD	**EMPCB.MMCXFSTJ.A.HT**		

PCB Mount

Description	Part Number	Photo	Drawings
SMA straight PCB Mount JACK Leg Length 2mm GOLD	**PCB.SMAFSTJ.A.HT**		
SMA straight SMT PCB Mount JACK Leg Length 1mm GOLD	**PCB.SMAFSTJ.B.HT**		
SMA straight 2 Hole PCB Mount receptacle JACK GOLD	**PCB.SMAFST.2H.A.HT**		
SMA straight 2 Hole PCB Mount receptacle JACK Nickel	**PCB.SMAFST.2H.B.HT**		
MMCX straight PCB Mount JACK Leg Length 3mm GOLD	**PCB.MMCXFSTJ.HT**		
MMCX straight SMT PCB Mount JACK Leg Length 0.76mm GOLD	**PCB.MMCXFSTJ.SMT.HT**		

GENERAL SUPPORT AGREEMENT
ISA Service Packages

Code: ISA.10

Title: Initial System Review & Analysis

Deliverables: Report and interactive technical support

Item:
- High level system review
- Antenna performance requirements analysis
- Antenna selection options
- Antenna Integration Plan

Time: 2 days

Code: ISA.12

Title: Transmission Line Design & Gerber Design Review

Deliverables: PCB Transmission line Design

Item:
- PCB transmission line design
- Gerber file review

Time: 2 days

Code: ISA.20

Title: Detailed Performance and Certification Readiness Review

Deliverables: Report and interactive technical support

Item:
- Detailed analysis of design documents including schematic, PCB layout, BOM & mechanical models.
- Specific recommendations from the component level up to the system architecture level in order to minimize the risk of performance and certification problems for all radios in the system.
- Schematic recommendations
- PCB layout recommendations
- BOM recommendations
- Mechanical recommendations
- High level design verification test plan, what kind of testing will be needed to prove the design works
- High level certification test plan, what certification tests will be needed and what order to do them in

Time: 3 weeks

Code: ISA.21

Title: Detailed RF Performance Optimization Review

Deliverables: Report and interactive technical support

Item:
- Detailed analysis of design documents including schematic, PCB layout, BOM & mechanical models.
- Specific recommendations from the component level up to the system architecture level in order to minimize the risk of performance and certification problems for all radios in the system.
- Schematic recommendations
- PCB layout recommendations
- BOM recommendations
- Mechanical recommendations

Time: 3 weeks

Code: ISA.30

Title: Radio Product Manufacturing Test Plan

Deliverables: Report and interactive technical support

Item:
- Detailed analysis of test requirements for all radios in the system.
- List of what specifically needs to be tested in manufacturing for each radio in the system, descriptions of the tests, what equipment is required, passing test metrics, data management recommendations and labelling recommendations.

Time: 2 weeks

* Please check services on website as they are subject to change.

CELLULAR SUPPORT AGREEMENT
CSA Service Packages

Code: CSA.10

Title: Cellular Antenna Feasibility Study

Deliverables: Report and interactive technical support

Item:
- Test and/or simulate different antenna technologies, topologies and material
- Antennas will be tested in different locations / positions
- Selection of the best solution will be based on overall performance and project targets (price, certification, performance etc)

Time: 3 weeks

Code: CSA.20

Title: Cellular Device Passive Mode Antenna Testing

Deliverables: Report

Item:
- Antenna installed on a customer device prototype board, with extra antenna prototypes
- Matching Circuit Diagram and documentation of values if relevant (or cable routing diagram, antenna position/ mounting etc.)
- Final antenna position and integration method
- Return Loss, VSWR, Average Gain, Efficiency, Peak Gain, Radiation Patterns
- Documented performance measurements

Time: 2 days

Code: CSA.30

Title: Cellular Device Active Mode Testing - TRP

Deliverables: Report

Item:
- Test in Taoglas 3D anechoic chamber – Full CTIA/PTCRB TRP (850/1900MHz) USA channel analysis.
- EU channels optional.
- If fail consult with sales for custom solution

Time: 2 days

Code: CSA.30L

Title: LTE Device Active Mode Device Testing - TRP

Deliverables: Report

Item:
- Test in Taoglas 3D anechoic chamber - Full CTIA/PTCRB TRP 2 Cellular & 2 LTE Bands (by Carrier) USA channel analysis.
- EU channels optional.
- If fail consult with sales for custom solution

Time: 1 Week

* Please check services on website as they are subject to change.

CELLULAR SUPPORT AGREEMENT
CSA Service Packages

Code: CSA.31

Title: Cellular Device Active Mode Testing - TIS

Deliverables: Report

Item:
- Test in Taoglas 3D anechoic chamber - Full CTIA/PTCRB TIS (850/1900MHz) USA channel analysis
- EU channels optional
- If fail consult with Noise Control Division

Time: 2 days

Code: CSA.31L

Title: LTE Device Active Mode Device Testing - TIS

Deliverables: Report

Item:
- Test in Taoglas 3D anechoic chamber - Full CTIA/PTCRB TIS 2 Cellular & 2 LTE Bands (by Carrier) USA channel analysis
- EU channels optional
- If fail consult with Noise Control Division

Time: 1 week

Code: CSA.32

Title: Cellular Device Radiated Spurious Emissions Testing for PTCRB

Deliverables: Report

Item:
- Test in 3D RSE anechoic chamber Full CTIA/PTCRB RSE-Traffic Mode Analysis (Global frequencies required)
- Test in 3D RSE anechoic chamber Full CTIA/PTCRB RSE-Idle Mode Analysis (Global frequencies required).
- If fail consult with Noise Control Division

Time: 1 week

Code: CSA.32L

Title: LTE Device Radiated Spurious Emissions Testing for PTCRB

Deliverables: Report

Item:
- Test in 3D RSE anechoic chamber Full CTIA/PTCRB RSE-Traffic Mode Analysis (Global frequencies required)
- Test in 3D RSE anechoic chamber Full CTIA/PTCRB RSE-Idle Mode Analysis (Global frequencies required).
- If fail consult with Noise Control Division

Time: 2 weeks

* Please check services on website as they are subject to change.

CELLULAR SUPPORT AGREEMENT
CSA Service Packages

Code: CSA.33

Title: Cellular Device Radiated Spurious Emissions Testing for Europe

Deliverables: Report

Item:
- Test in 3D RSE anechoic chamber Full RSE-Traffic Mode Analysis per EN301511 compliant to R&TTE.
- Test in 3D RSE anechoic chamber Full RSE-Idle Mode Analysis per EN301511 compliant to R&TTE.
- If fail consult with Noise Control Division

Time: 1 week

Code: CSA.33L

Title: LTE Radiated Spurious Emissions Testing for Europe

Deliverables: RSE Compliance Report

Item:
- Test in anechoic chamber Active-mode RSE test per EN 301 511
- Test in anechoic chamber Idle-mode RSE test per EN 301 511
- If fail consult with Noise Control Division

Time: 2-3 weeks

Code: CSA.34

Title: Cellular Device Radiated Spurious Emissions Pre-Testing for Europe

Deliverables: RSE Compliance Report

Item:
- Test in anechoic chamber Active-mode RSE test per EN 301 511
- If fail consult with Noise Control Division

Time: 1 week

Code: CSA.40

Title: Existing Cellular Antenna Product Implementation Optimization/Matching

Deliverables: Report and prototypes

Item:
- Optimization of antenna in customer's product including location, orientation & arrangement of system elements
- 1 tuned customer device board with extra antenna prototypes
- Matching circuit diagram and values if relevant (or cable routing diagram, antenna position/mounting etc.)
- Final antenna position and integration method Return Loss, VSWR, Average Gain, Efficiency, Peak Gain, Radiation Patterns

Time: 1 week

* Please check services on website as they are subject to change.

CELLULAR SUPPORT AGREEMENT
CSA Service Packages

Code: CSA.50

Title: Custom Cellular Antenna Design

Deliverables: Report and prototypes

Item:
- Test and/or simulate different antenna technologies, topologies and material
- Antennas will be tested in different locations / positions Selection of the best solution will be based on overall performance and project targets (price, certification, performance etc)
- Device transmit strength optimization in 3d anechoic RF test chamber
- Active device impedance mismatch-check and correction if required
- 5 custom antenna prototypes
- Mechanical Drawing
- Final antenna position and integration method Return Loss, VSWR, Average Gain, Efficiency, Peak Gain, Radiation Patterns, TRP measurements

Time: 6-8 weeks

Code: CSA.60

Title: Existing Cellular Antenna Product Customization

Deliverables: 5 customized antenna samples
1 antenna mounted on customer board if provided
Unique part number
Performance and integration report

Item:
- Modification of an existing Taoglas standard product
- Matching circuit diagram and values if relevant (or cable routing diagram, antenna position/mounting etc.)
- Final antenna position and integration method
- Return Loss, VSWR, Average Gain, Efficiency, Peak Gain, Radiation Patterns

Time: 4-6 weeks

Code: CSA.70

Title: Cellular RSE and TIS Mitigation Analysis

Deliverables: Report of Tests Done
Modified Copy of Hardware if possible

Item:
- Detailed analysis of implemented hardware and all design files
- Reproduce problem with callbox and anechoic chamber
- Interference Frequency Analysis
- Interactive mitigation experiments to existing hardware
- Report of experiments, results and recommended changes

Time: 3-9 weeks

* **Please check services on website as they are subject to change.**

ISM SUPPORT AGREEMENT
ISM Service Packages

Code: ISM.10

Title: Existing ISM Device Passive Mode Antenna Testing

Deliverables: Report

Item:
- Test existing antenna passive performance in 3D test chamber
- Return Loss, Average Gain, Efficiency, Peak Gain, Radiation Patterns

Time: 3 days

Code: ISM.20

Title: Custom ISM Antenna Design

Deliverables: Report and prototypes

Item:
- 5 custom antenna prototypes
- Mechanical Drawing
- Final antenna position and integration method
- Return Loss, VSWR, Average Gain, Efficiency, Peak Gain, Radiation Patterns

Time: 6-8 weeks

Code: ISM.30

Title: Existing ISM Antenna Product Customization

Deliverables: 5 customized antenna samples
1 antenna mounted on customer board if provided
Unique part number
Performance and integration report

Item:
- Modification of an existing Taoglas standard product
- Matching circuit diagram and values if relevant (or cable routing diagram, antenna position/mounting etc.)
- Final antenna position and integration method
- Return Loss, VSWR, Average Gain, Efficiency, Peak Gain, Radiation Patterns

Time: 4-6 weeks

* Please check services on website as they are subject to change.

SATELLITE SUPPORT AGREEMENT
GSA Service Packages

Code: GSA.10

Title: Existing Satellite Device Passive Mode Antenna Testing

Deliverables: Report

Item:
- Test existing antenna passive performance in 3D test chamber
- Test existing antenna active gain and noise figure Return Loss, Axial Ratio, Average Gain, Efficiency, Peak Gain, Radiation Patterns

Time: 3 days

Code: GSA.20

Title: Existing GPS Antenna Product Customization

Deliverables: Report and prototypes

Item:
- 5 tuned antenna prototypes
- Device with retuned antenna on board
- Matching circuit optimized for board
- Optimized for Return Loss, Average Gain, Efficiency, Peak Gain

Time: 4-6 weeks

Code: GSA.30

Title: GPS Device Active Mode Radiated Receive Sensitivity Testing

Deliverables: Report

Item:
- Measurement of conducted receive sensitivity
- Measurement of radiated receive sensitivity
- A high sensitivity spectrum analyzer sweep of the GPS band and surrounding frequencies from the antenna
- Comparison of radiated receive sensitivity to reference devices
- Recommendations to maximize performance

Time: 2 weeks

Code: GSA.50

Title: Custom GPS/GLONASS Antenna Design

Deliverables: Report and prototypes

Item:
- Test and/or simulate different antenna technologies, topologies and material
- Antennas will be tested in different locations / positions Selection of the best solution will be based on overall performance and project targets (price, performance etc)
- Active device impedance mismatch-check and correction if required
- 5 custom antenna prototypes
- Mechanical Drawing
- Final antenna position and integration method Return Loss, VSWR, Average Gain, Efficiency, Peak Gain, Radiation Patterns

Time: 6 - 8 weeks

* Please check services on website as they are subject to change.

Noise Control Division (NCD)
Location: Taoglas USA Inc (San Diego)

Introduction
As winning antenna providers, Taoglas have been involved in the success of many different M2M devices over the past ten years. We have learned a lot about M2M applications and how to design RF systems and hardware that works.

Everyday we actually share that knowledge with you and help you make your design a success, quickly. We want to extend our value, by not just offering an antenna solution, but a fast track to high volume device production so we can all benefit.

What does the Noise Control Division (NCD) do?
In addition to our comprehensive range of antenna products and services Taoglas also offers additional solutions in the RF, and more specifically, noise control area. This means eliminating (or suppresssing) noise or more importantly “in band” noise that may cause a performance compromise, or certification challenges.

When would I need the Taoglas NCD?
When you have challenges getting your device to market from a wireless functionality standpoint.
Maybe you have reception, TIS or RSE issues.
Taoglas NCD is required when you know the antenna is good and the module is certified, but you can not find the reason why your device is not passing certification, or is not doing what it is supposed to do.
The problem is often inband noise, meaning you have emissions at the cellular frequencies being reradiated back into the cellular module. Obviously a great antenna makes the problem worse!

How can Taoglas NCD help?
Let’s not make the antenna worse, let’s make the device better! We have the equipment and experience to identify where the noise may be originating from and either eliminate the noise or prevent the noise from getting to the antenna. Identifying the source of the problem is the biggest challenge.
Taoglas NCD has the equipment, expertise and experience to help you design your product better and quicker.

What next?
Please consult with Taoglas NCD to see how we can help design your product better and get to production quicker!

Tel: +1 858 450 0888 and ask for NCD or Dermot O’Shea

Email: ncd@taoglas.com

Screw Mounts on ground plane

From high to lowest profile

No	Part No.	Description	pg
1	**MA.700**	**Pantheon** 3in1 GPS-GLONASS / LTE / WiFi Screw Mount	62
2	**MA.600**	**Spartan** 3in1 GPS-GLONASS / Cellular / WiFi Screw Mount	58
3	**MA.104**	**Hercules** 2in1 GPS / Cellular Screw Mount	57
4	**MA.110**	**Ultima** 2in1 GPS / Cellular Screw Mount	56
5	**A.10**	**Atlas** GPS Low Profile Screw Mount	41

taoglas
antenna solutions

Ireland
Unit 5 Kilcannon Business Park
Old Dublin Road
Enniscorthy, Co. Wexford
Ireland
+353 53 9169500
eusales@taoglas.com

United States - CA
8375 Camino Santa Fe, Suite A
San Diego, CA 92121
USA
+1 858 450 0888
nasales@taoglas.com

Taiwan
No.2-2, Ln. 66, ZhongShan 1st Rd.
Bade City, Taoyuan County 33454
Taiwan, ROC
+886 3 3681223
asiasales@taoglas.com

United States - MN
530 N 3rd St. Suite B10
Minneapolis, MN 55401-1256
USA
+1 858 450 0888
nasales@taoglas.com

Contact us: **info@taoglas.com**

Visit our website: **www.taoglas.com**