A.40.A.301111
on ground-plane

Top View

Hercules

A.40.A.301111

Specification

Part No.	**A.40.A.301111**
Product Name	**Hercules** GPS/GLONASS Heavy Duty Screw Mount
Feature	Height 28.5mm Diameter 47.8mm Heavy Duty Screw Mount IP67 & IP69K Compliance GPS/GLONASS - 3M RG174 SMA(M) Customizable ROHS Compliant

1. Introduction

The A.40 Hercules is a high performance thread mount GPS-GLONASS antenna designed for external use on vehicles and outdoor assets. Designed for heavy duty work with one piece C&C machined nickel plated steel base and threads, there are also convenient side slots for running cables laterally. Durable UV resistant PC housing is resistant to vandalism and direct attack. At only 29mm high it complies with the latest EU directives for height restrictions, whilst also enabling covert operation with a diameter of only 49mm. The antenna is completely waterproof with an IP67 & IP69K rating, plus an additional IP69K rating for waterproof resistance against high pressure water jets used in cleaning.

An advanced front end SAW circuit noise filtering design is used to reduce potential interference common in such applications from other nearby high power radio transmitters.

Cable lengths, types and connectors are fully customizable.

2. Specification

Electrical GPS/GLONASS

Frequency (MHz)	1574~1606MHz
Impedance(Ohm)	50Ω
GPS Patch Gain@ Zenith	-1.4dB Passive Gain @ Zenith
GLONASS Patch Gain@ Zenith	-1.3dBi Gain @ Zenith
VSWR	2.0 max
Axial Ratio	3.0dB max
Polarization	RHCP
Out Band Rejection	fo = 1575.42MHz
	fo ± 30 MHz 5dB Min.
	fo ± 50 MHz 20dB Min.
	fo ± 100 MHz 25dB Min.
Input Voltage(V)	Typ. 2.5~5.5V
Total Gain @ Zenith	27dB typical at 3.0V
Current consumption(mA)	10mA typical at 3.0V
Noise figure	1.3dB typical

Mechanical

Dimensions	Ø49mm , Height 29mm
Cable type	RG174
Cable length	3000±30mm
Casing	UV Resistant PC
Connector	SMA Male
Recommended Mounting Torque	24.5Nm
Max Mounting Torque	29.4Nm

Environmental

Temperature Range	-40°C to 85°C
Waterproof	IP67 and IP69K
Thermal Shock	100 cycles -40°C to +85°C
Shock (drop test)	1m drop on concrete 6 axes
Humidity	Non-condensing 65°C 95% RH

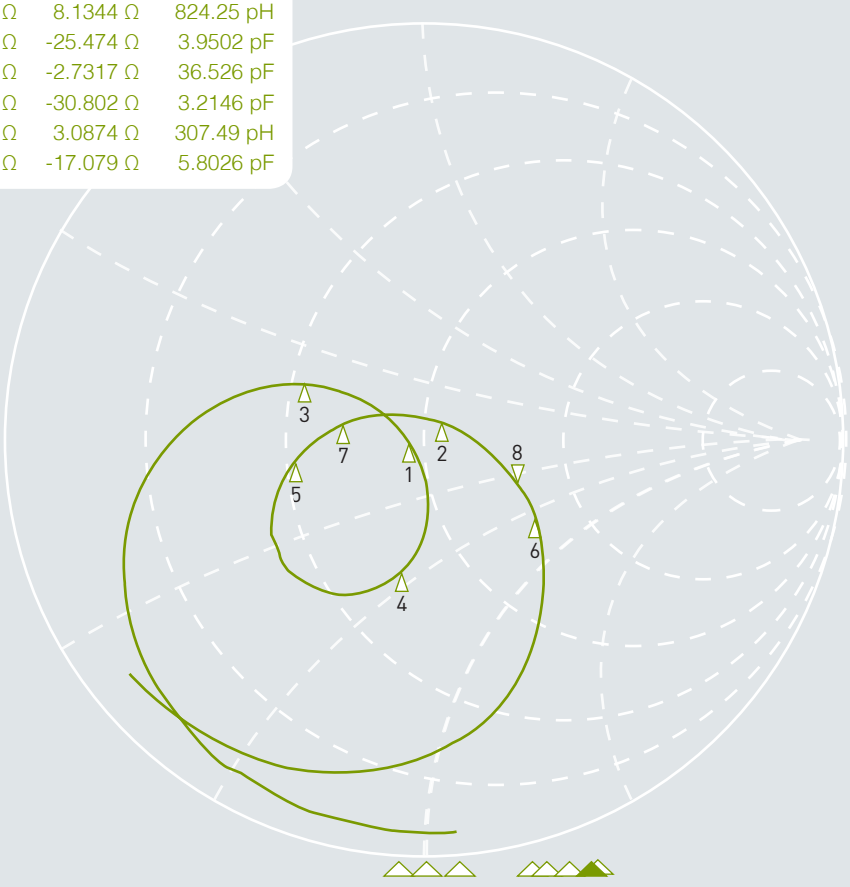
3. Antenna Characteristics

3.1 Return Loss

3.2 Smith Chart - Impedance

Tr1 S22 Smith (R + j) (Scale 1.000U [F1]

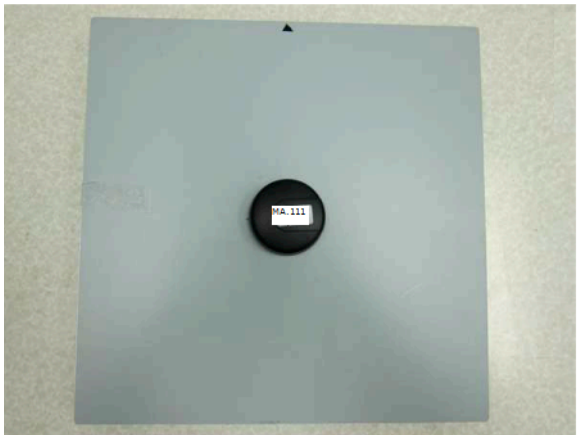
1	1.5754200 GHz	46.108 Ω	273.62 mΩ	27.642 pH
2	1.6020000 GHz	53.552 Ω	5.0781 mΩ	504.50 pH
3	1.5706687 GHz	26.929 Ω	8.1344 Ω	824.25 pH
4	1.5816559 GHz	36.911 Ω	-25.474 Ω	3.9502 pF
5	1.5950873 GHz	26.081 Ω	-2.7317 Ω	36.526 pF
6	1.6073702 GHz	78.017 Ω	-30.802 Ω	3.2146 pF
7	1.5980000 GHz	33.612 Ω	3.0874 Ω	307.49 pH
>8	1.6060000 GHz	76.653 Ω	-17.079 Ω	5.8026 pF



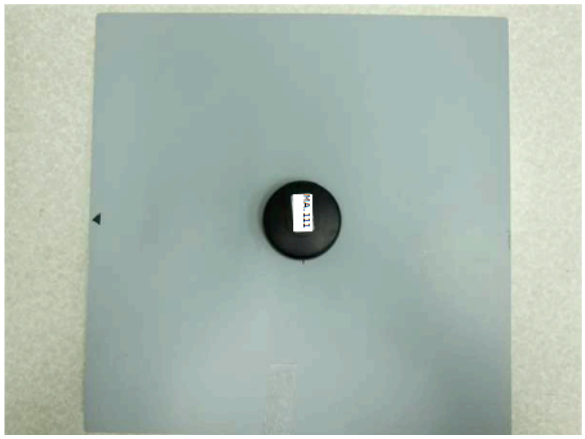
2 Center 1.57542 GHz IFBW 70 kHz SPAN 200 MHz

4. Antenna Radiation Pattern – GPS-GLONASS

H-Plane

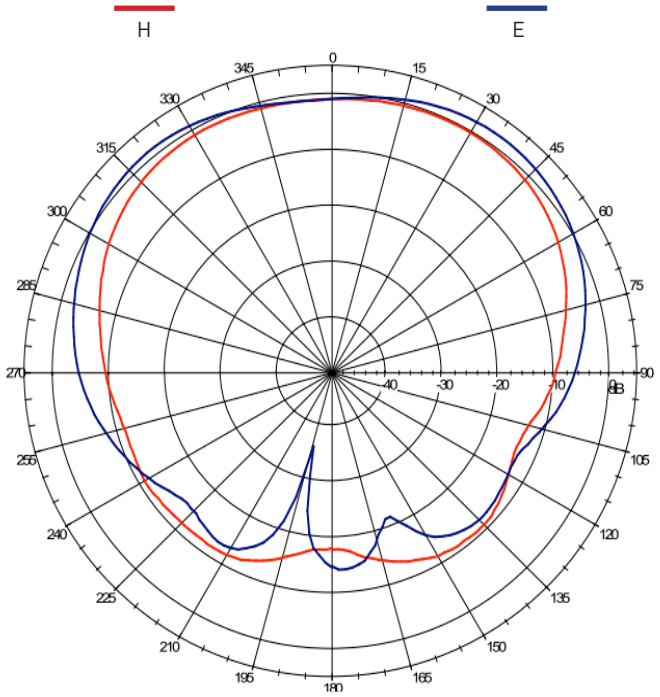


E-Plane



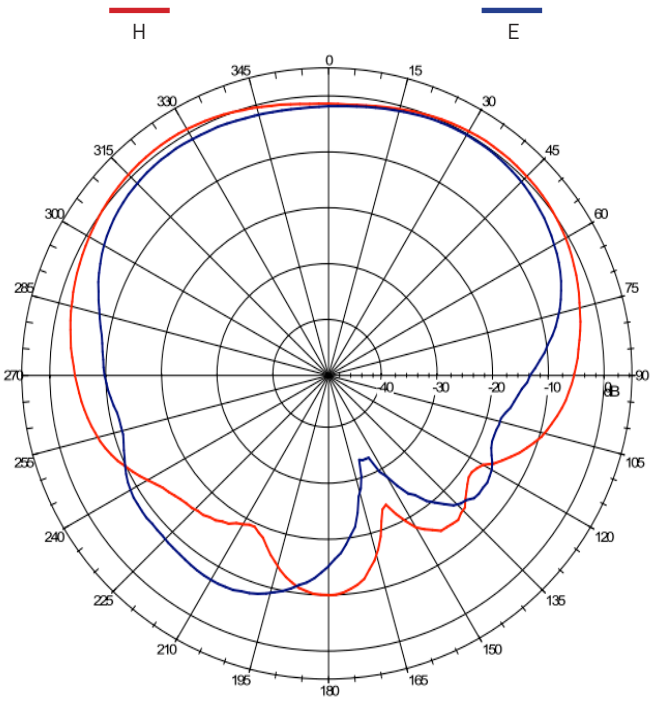
4.1 1575.42MHz

Far-field amplitude of H.nsi



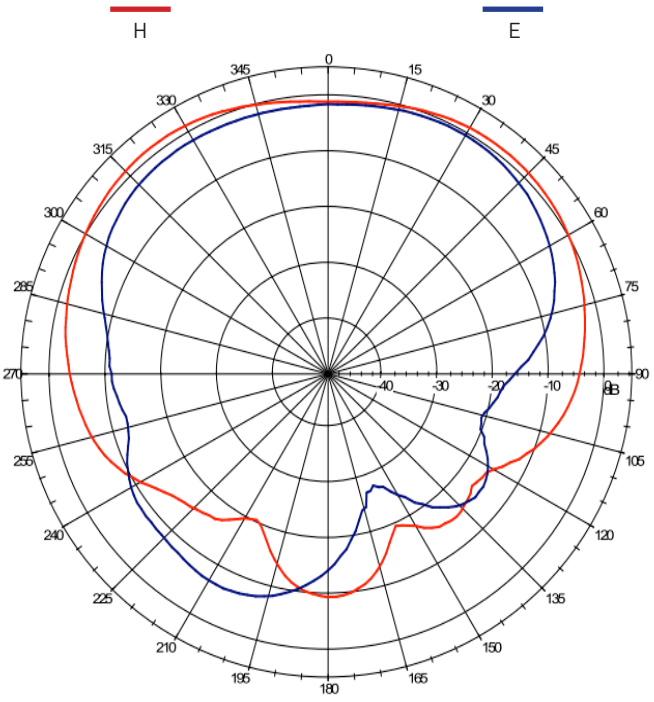
4.2 1598MHz

Far-field amplitude of H.nsi



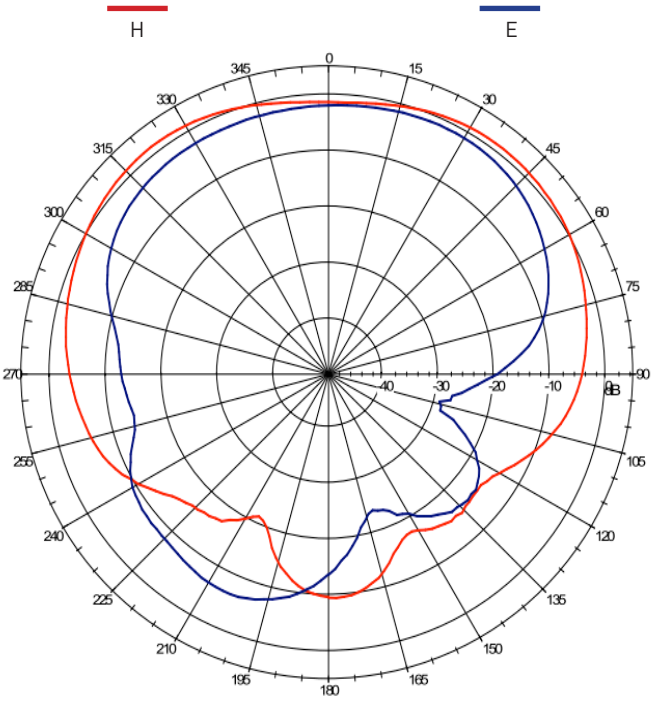
4.3 1602MHz

Far-field amplitude of H.nsi



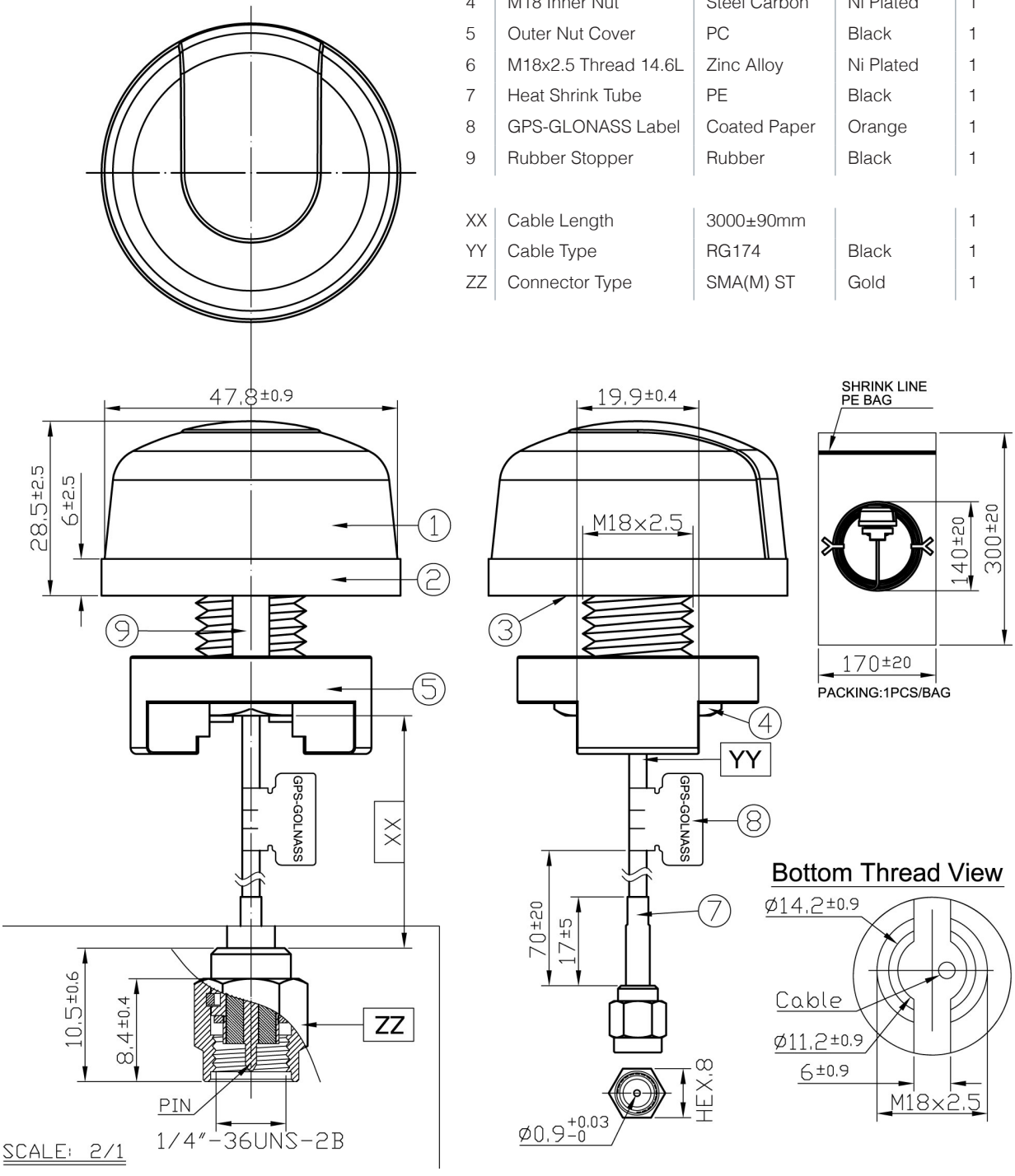
4.4 1606MHz

Far-field amplitude of H.nsi

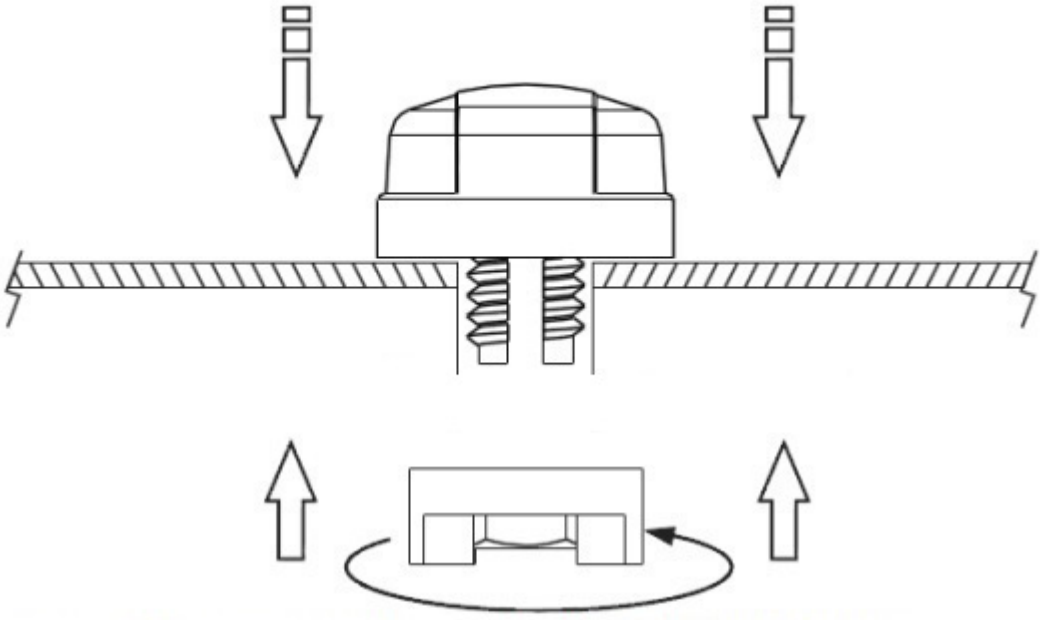


5. Drawing

	Name	Material	Finish	QTY
1	Housing	PC	Black	1
2	Closed Cell Foam	CR 4305	Black	1
3	3M Double Adhesive	3M 9448 HK	White Liner	1
4	M18 Inner Nut	Steel Carbon	Ni Plated	1
5	Outer Nut Cover	PC	Black	1
6	M18x2.5 Thread 14.6L	Zinc Alloy	Ni Plated	1
7	Heat Shrink Tube	PE	Black	1
8	GPS-GLONASS Label	Coated Paper	Orange	1
9	Rubber Stopper	Rubber	Black	1
XX	Cable Length	3000±90mm		1
YY	Cable Type	RG174	Black	1
ZZ	Connector Type	SMA(M) ST	Gold	1



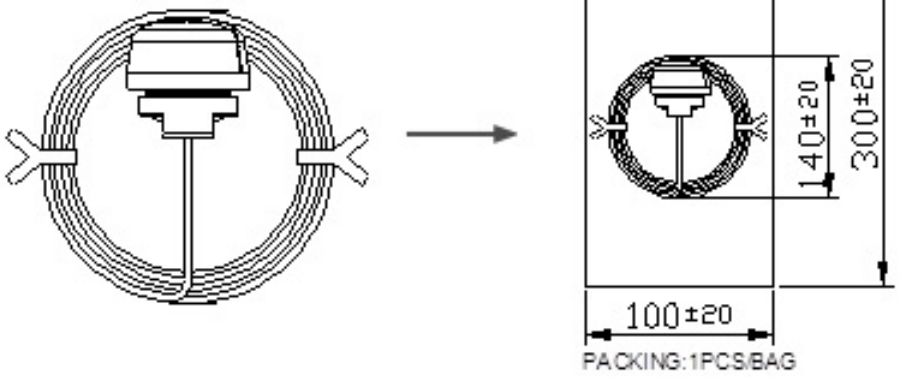
6. Istallation



Recommended torque for Mounting is 24.5N·m
Maximum torque for mounting is 29.4 N·m

7. Packaging

1 piece A.40 per PE Bag



60 pieces per carton