

SPECIFICATION

- Part No. : **GRS.01.A.024KSSX1**
- Product Name : Maverick GPS/GNSS/Beidou Smart Antenna Receiver System
- Features : Covers GPS, GLONASS, GALILEO, Beidou, and QZSS
Combines low power consumption and high sensitivity
Integrates u-blox new M8 semiconductor platform
Easy integration on UAV with APM 2.x platform
1° to 2° Compass heading accuracy
Uses a High IIP3, High Gain, and Low Noise Amplifier
Includes ESD protection 15KV (Air)
Compass I2C Interface
Wide Magnetic Field Range (+/-8 Oe)
Fast 160 Hz Maximum Output Rate for Compass
Dimensions: 64.5mm*60.0mm*178.1mm
RoHS Compliant



1. Introduction

The Maverick GRS.01 GPS/Glonass/Beidou smart antenna receiver system is a complete receiver and antenna. It is the most advanced small form factor smart antenna receiver system on the market today.

Featuring the u-blox M8 multi-GNSS (GPS, GLONASS, Beidou, QZSS and SBAS) engine, the MAX-8 series delivers high sensitivity and minimal acquisition times in the industry proven MAX form factor. A wide-band, specially tuned, advanced 35mm dielectric ceramic patch antenna is integrated directly with the receiver for best receive sensitivity.

In addition, an electronic compass function is included for direction finding.

This system allows continuous position coverage in most application environments. Furthermore, it's very easy to operate this antenna via I2C serial bus, since the protocols and commands support APM version 2.x, which is popular in the drone UAV application field.

Typical Applications

- Navigation-Automotive/Pedestrian/Marine
- Positioning-Geotagging/Journey/LBS
- Tracking-Security/Safety
- Asset Tracking
- First Person View applications
- Other location-aware consumer devices

If you have any questions, please [Contact your regional Taoglas office for support](#)

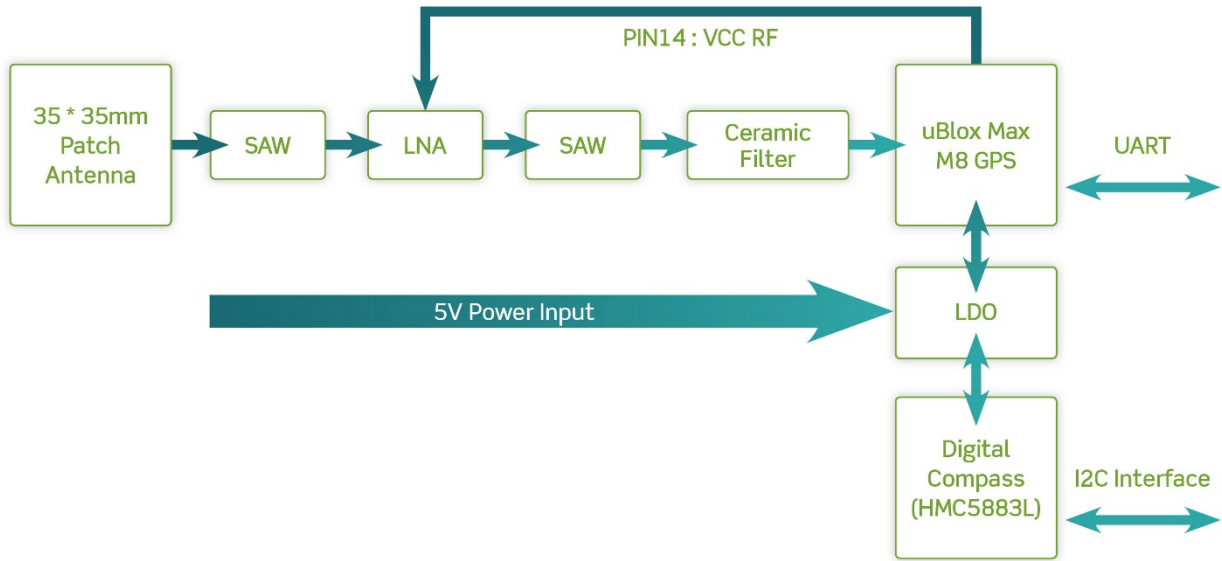
1. Specification Table

ELECTRICAL		
Receiver Type	72-channel u-blox M8 concurrent GNSS receiver GPS/QZSS L1 C/A, GLONASS L10F, BeiDou B1, SBAS L1 C/A: WAAS, EGNOS, MSAS	
	GPS	
Sensitivity (Antenna+Receiver)	Tracking & Navigation	-158 dBm
	Acquisition	-146 dBm
Horizontal position accuracy	Autonomous :2.5m SBAS :2.0m	
Accuracy of time pulse signal	RMS:30ns 99%:60ns	
Frequency of time pulse signal	Configurable 0.25 Hz to 10 MHz (config)	
Max navigation update rate	Single GNSS: up to 18 Hz Concurrent GNSS: up to 10 Hz	
Velocity accuracy	0.05 m/s	
Heading accuracy	0.3 degrees	
Schmitt trigger input SCL & SDA	Fall 0.2*VDDIO (VDDIO = 1.8V)	
	Rise 0.8*VDDIO (VDDIO = 1.8V)	
Digital IO Low level input	0 ~ 0.2*VCC_IO (VCC = 5.0V typical)	
Digital IO High level input	0.7*VCC_IO ~ VCC_IO+0.5 (VCC = 5.0V typical)	
Digital IO Low level output	0.4 V (I _{ol} = 4mA)	
Digital IO High level output	VCC_IO-0.4 V (I _{ol} = 4mA)	
Max. Input Power at RF_IN	15 dBm	
Power Consumption	DC 4V-6V (5V Typical)	
	DC 30mA-50mA (40mA Typical)	

MECHANICAL	
Housing Material	ABS
Cable	UART TTL serial bus (GPS/GLONASS/BEIDOU) UART I2C serial bus (COMPASS)
Connector	1.25mm Wafer Horizontal SMT Single Row 04 & 05 contacts
Stand	164mm*39mm
Weight	55g
ENVIRONMENTAL	
Operation Temperature	-40°C ~ +85°C
Storage Temperature	-40°C ~ +90°C

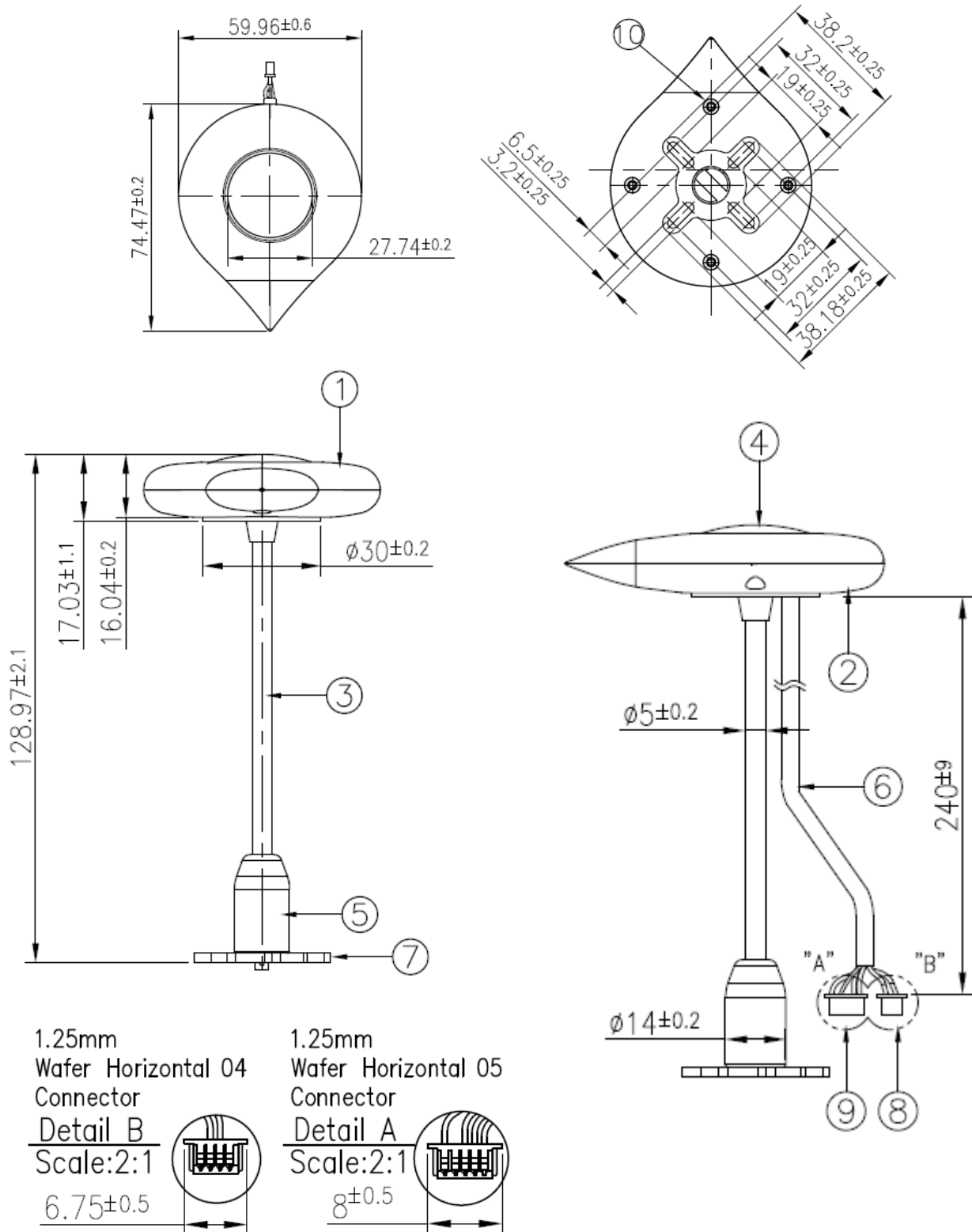
2. Electrical Specifications

3.1. System Block Diagram



Mechanical Specifications

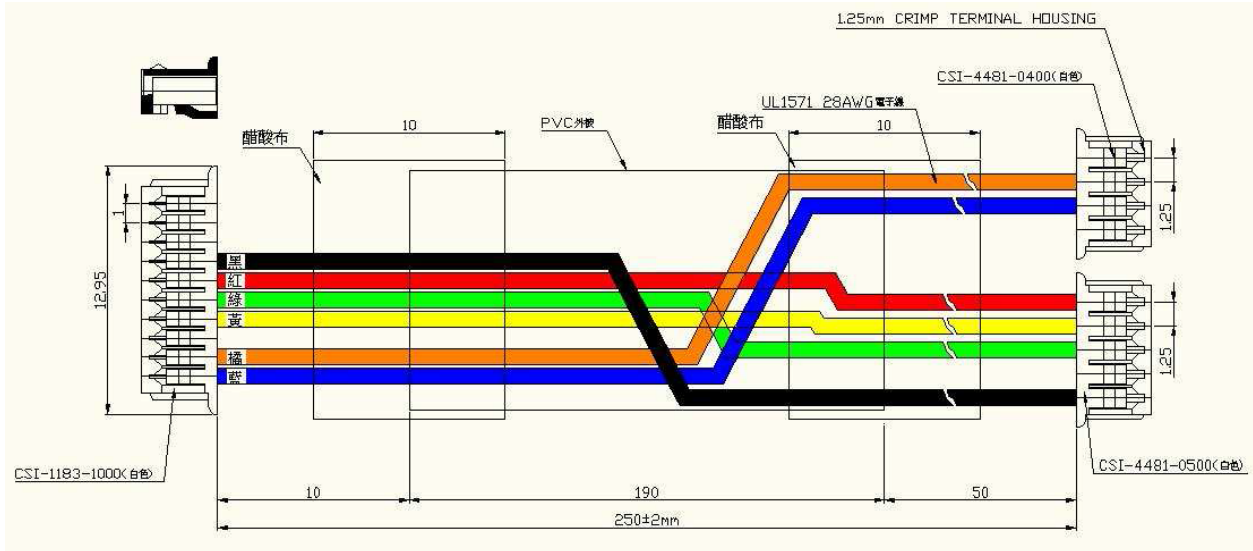
4.1. Enclosure Dimensions (74.47*59.96*128.97 mm)





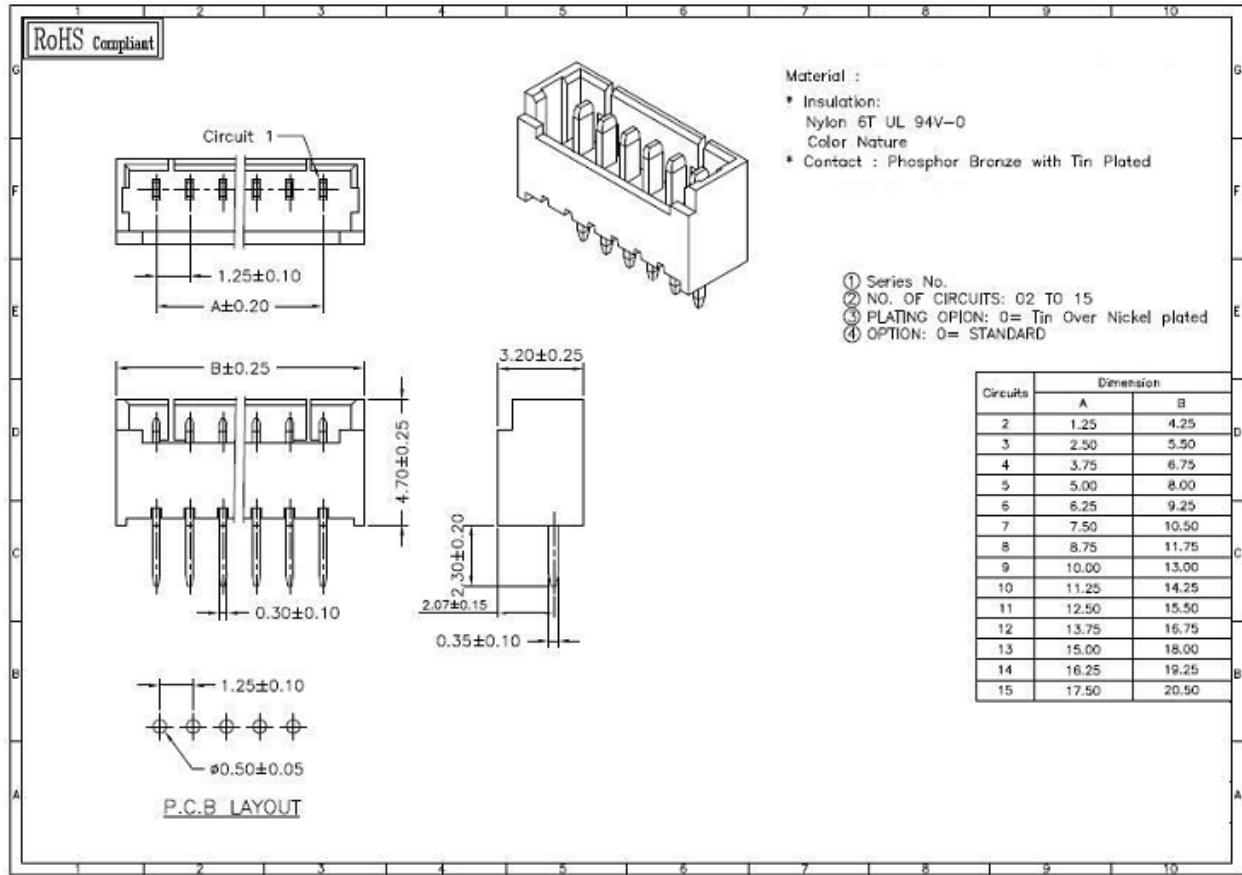
	Name	P/N	Material	Finish	QTY
1	Housing Top	000115J00002BA	PC945	White	1
2	Housing Bottom	000115J01002BA	PC945	White	1
3	Stick	001215J00002BA	AL	White	1
4	Lens	000615J00002BA	PC945	Black	1
5	Holder Bottom	000615J01002BA	AL	White	1
6	UART Cable	304615J00002BA	PVC/AWG28	Black	1
7	Base	001015J00002BA	AL	White	1
8	1.25mm Wafer Horizontal 04	208215J00002BA	PBT	White	1
9	1.25mm Wafer Horizontal 05	208215J01002BA	PBT	White	1
10	Screw	000415J02002BA	Steel	CR CONTING	4

4.2. Cable Definition



Color	Description
Blue	SDA (Compass I2C)
Orange	SCL (Compass I2C)
Black	GND
Red	VCC (+4 to +6V)
Green	TX (Input)
Yellow	RX (Output)

4.3. Mating Connector



3. Protocol

GPS Receiver

Please refer to the latest u-blox Max-M8 documentation for protocol specifications.

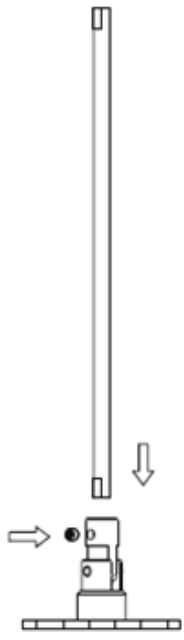
<http://www.u-blox.com/en/gps-modules/pvt-modules/max-m8-series-concurrent-gnss-modules.html>

Digital Compass

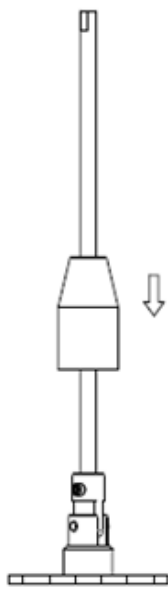
Please refer to the latest documentation for the Honeywell HMC5883L digital compass.

http://www51.honeywell.com/aero/common/documents/myaerospacecatalog-documents/Delfense_Brochures-documents/HMC5883L_3-Axis_Digital_Compass_IC.pdf

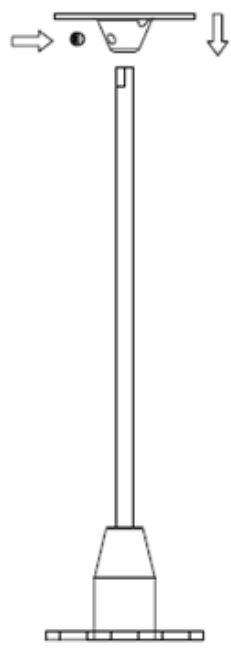
4. Installation Guide



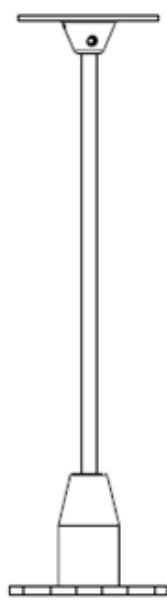
1. Screw locking
Torque: 3kgf-cm



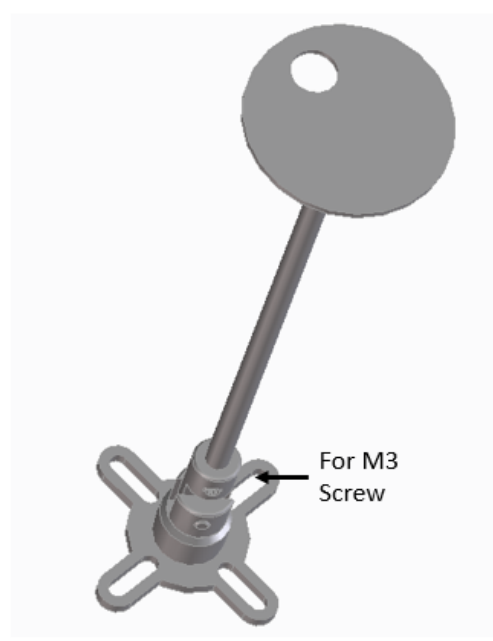
2. Cover locking



3. Screw locking
Torque: 3kgf-cm

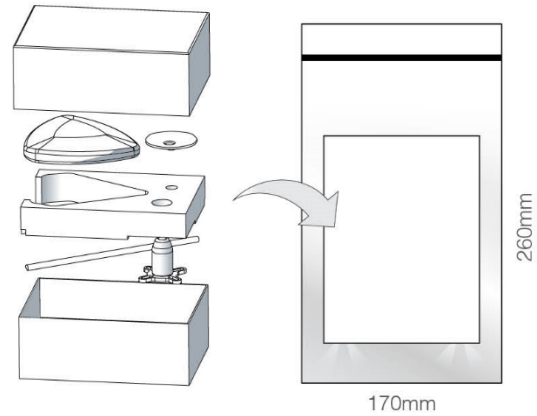


4. Assembly is completed

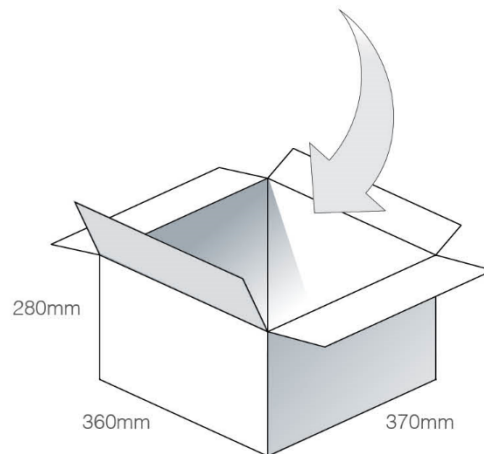


5. Packaging

1 GRS.01.A.024KSSX1 per PE bag
 Box Dimensions - 130*50*100mm
 1 box per PE bag
 Bag Dimensions - 260cm*170cm
 Total Weight - 260g



42 boxes per carton
 Carton Dimensions - 360*370*280mm
 Weight - 11.8Kg



Pallet Dimensions 1100*1120*1250mm
 36 Cartons per Pallet
 9 Cartons per layer
 4 Layers

