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

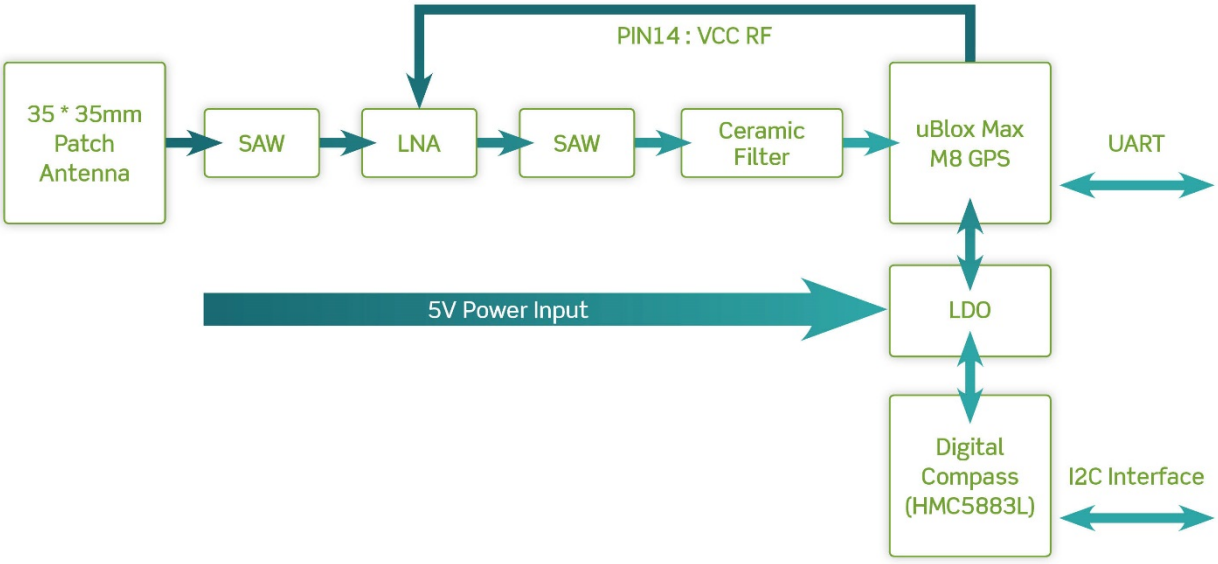
2. Specifications

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 (Iol = 4mA)	
Digital IO High level output	VCC_IO–0.4 V (Iol = 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

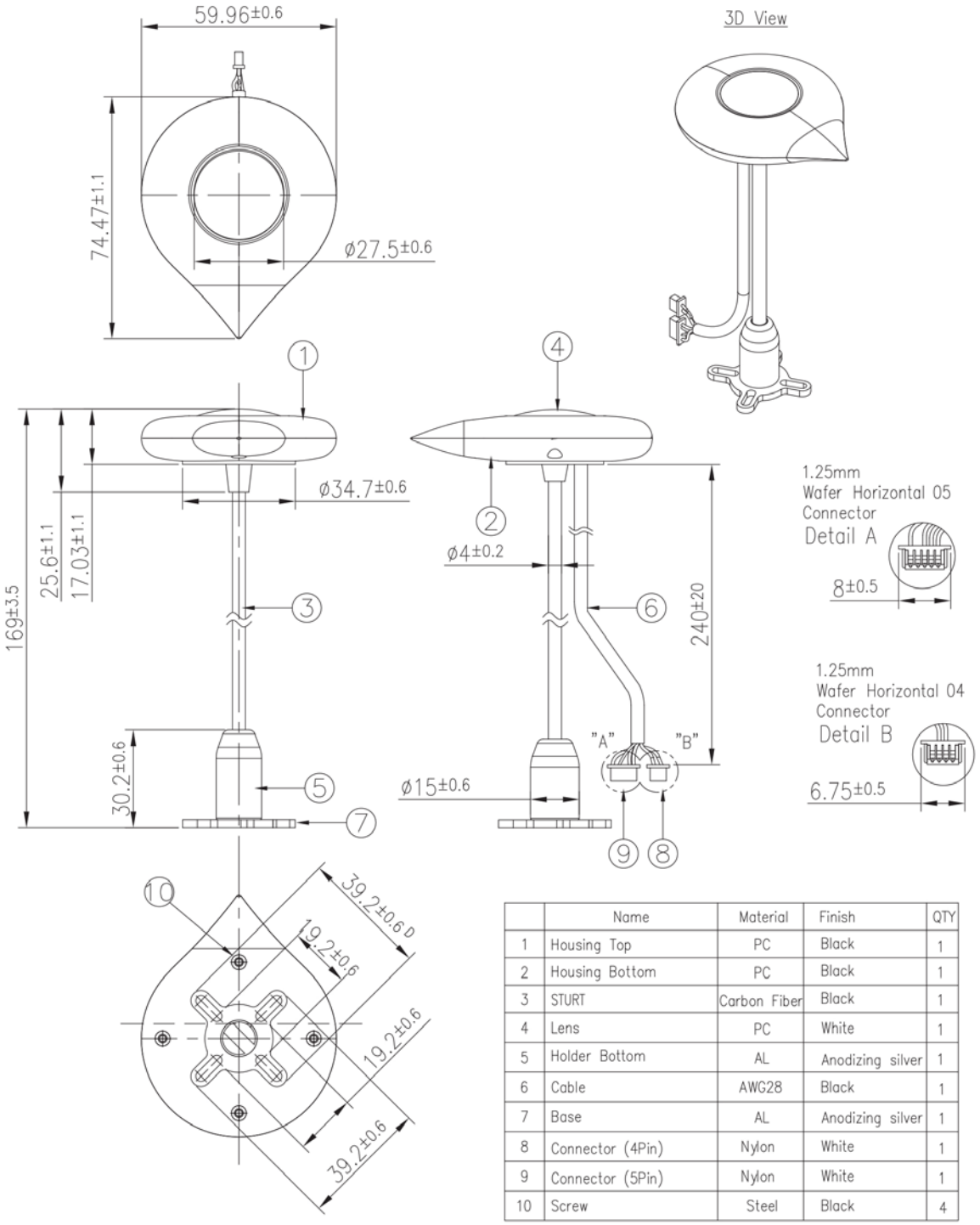
2. Electrical Specifications

2.1. System Block Diagram



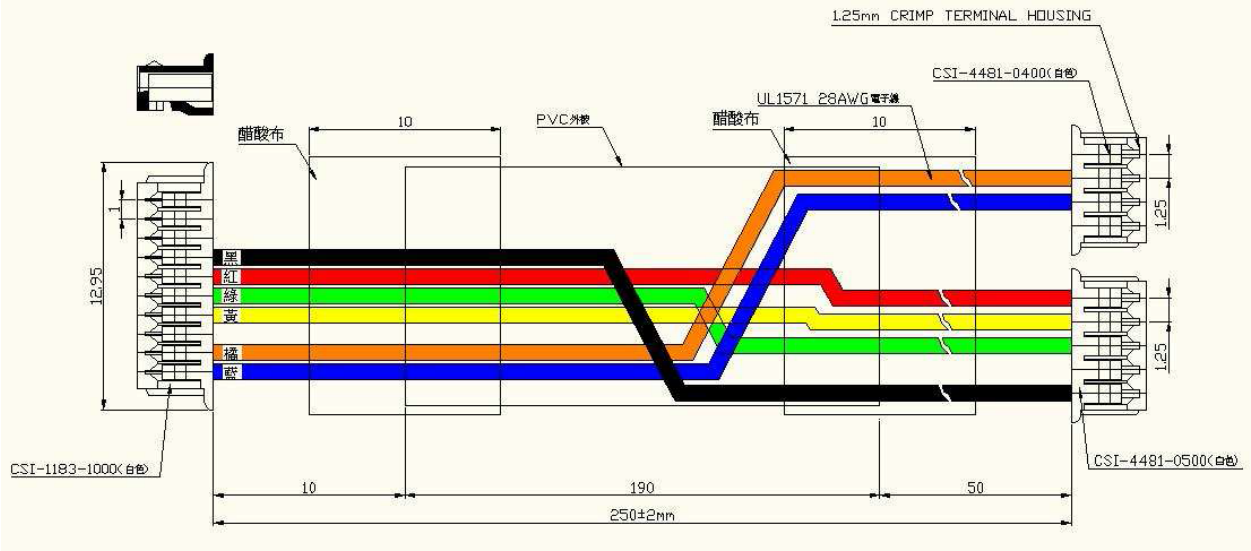
3. Mechanical Specifications

3.1. Enclosure Dimensions



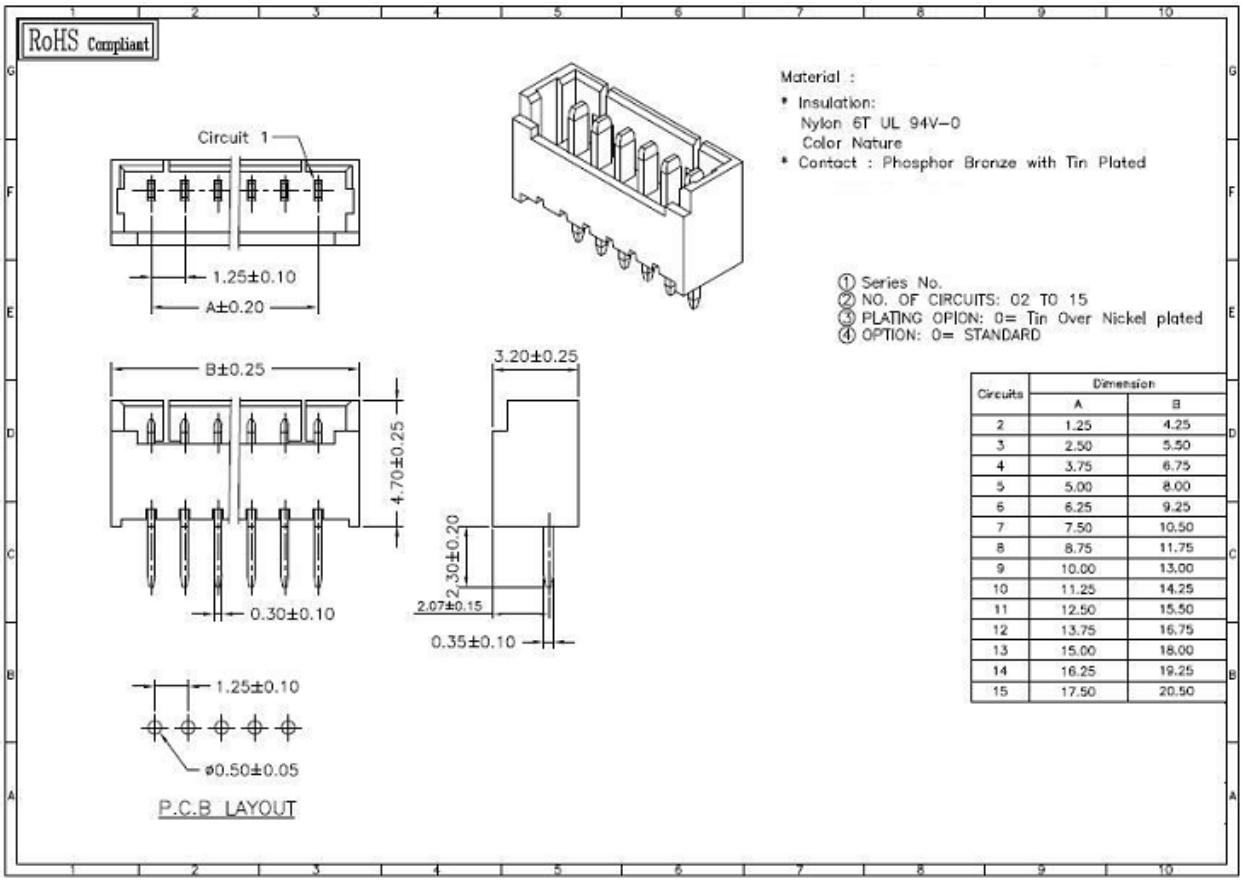
	Name	Material	Finish	QTY
1	Housing Top	PC	Black	1
2	Housing Bottom	PC	Black	1
3	STURT	Carbon Fiber	Black	1
4	Lens	PC	White	1
5	Holder Bottom	AL	Anodizing silver	1
6	Cable	AWG28	Black	1
7	Base	AL	Anodizing silver	1
8	Connector (4Pin)	Nylon	White	1
9	Connector (5Pin)	Nylon	White	1
10	Screw	Steel	Black	4

3.2. 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)

3.3. Mating Connector



Circuits	Dimension	
	A	B
2	1.25	4.25
3	2.50	5.50
4	3.75	6.75
5	5.00	8.00
6	6.25	9.25
7	7.50	10.50
8	8.75	11.75
9	10.00	13.00
10	11.25	14.25
11	12.50	15.50
12	13.75	16.75
13	15.00	18.00
14	16.25	19.25
15	17.50	20.50

4. Protocol

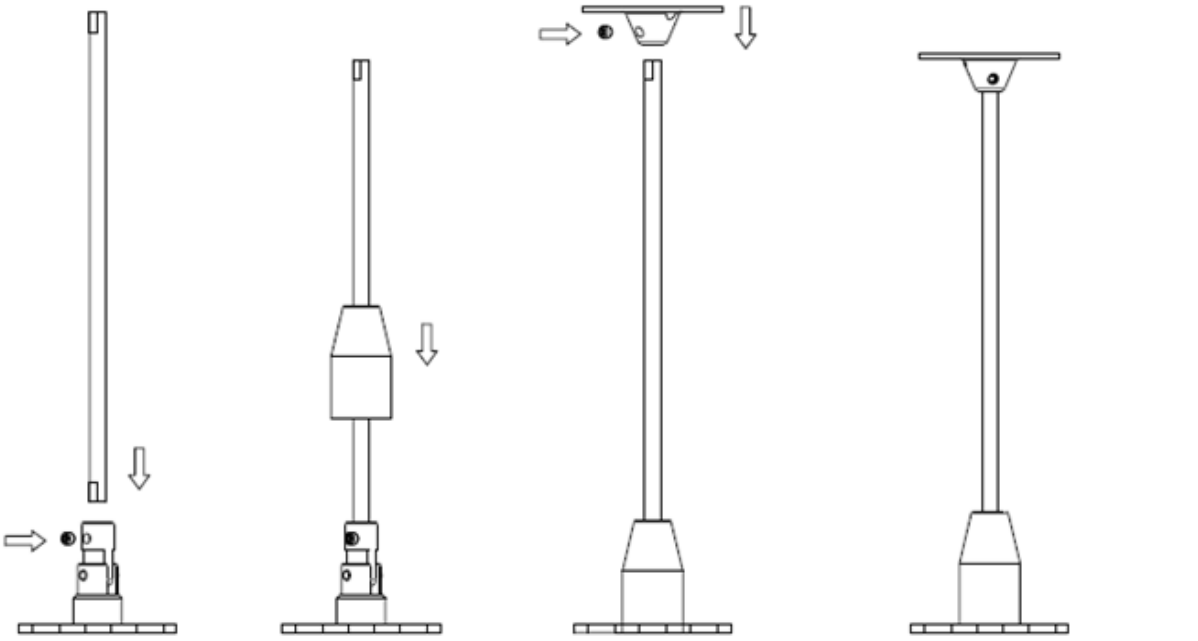
GPS Receiver

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/Defense_Brochures-documents/HMC5883L_3-Axis_Digital_Compass_IC.pdf

5. Installation Guide

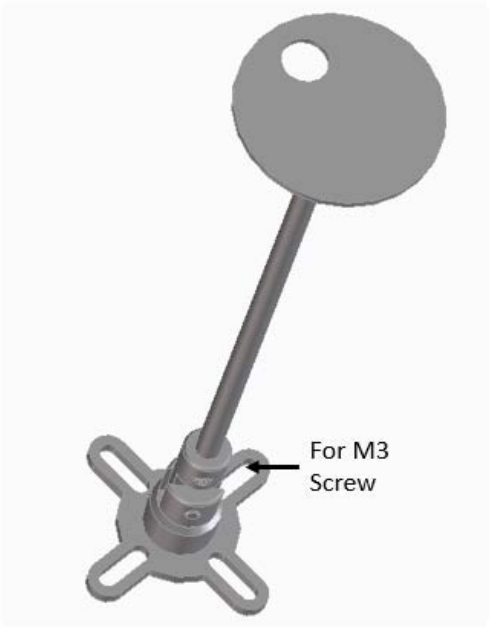


1. Screw locking
Torque: 3kgf-cm

2. Cover locking

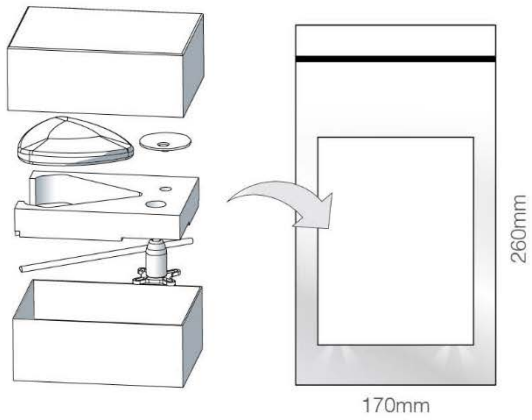
3. Screw locking
Torque: 3kgf-cm

4. Assembly is completed

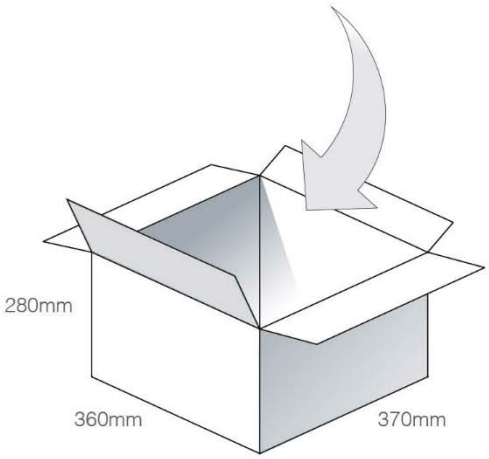

For M3
Screw

6. Packaging

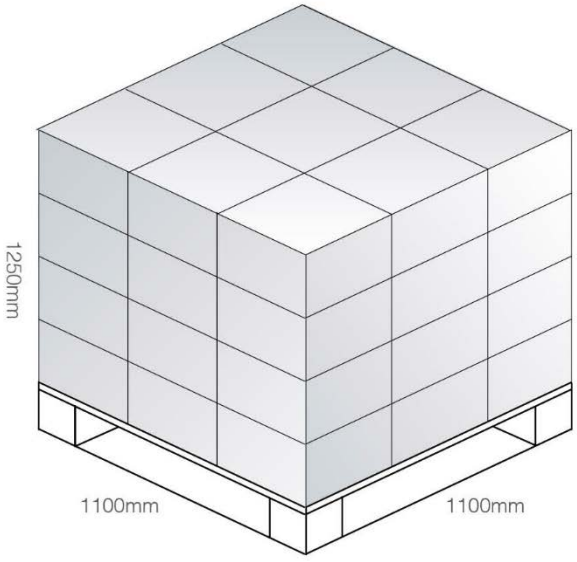
1 GRS.01.A.024KSSX1 per PE bag
Box Dimensions - 130*50*100mm
1 box per PE bag
Bag Dimensions - 260cm*170cm
Total Weight - 260g



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



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