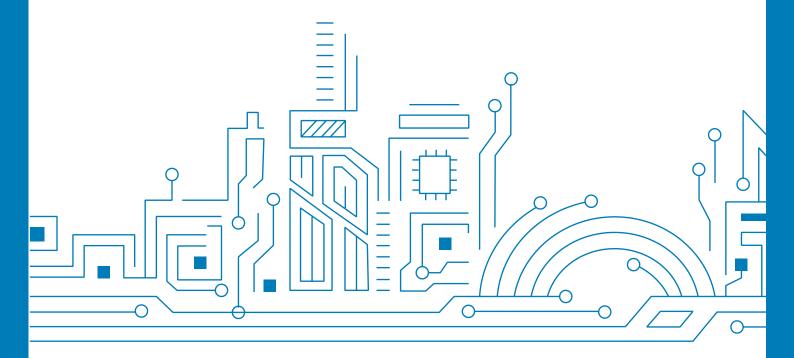


# High Precision Multi-frequency Active Antenna AGR6302 AGR6303

Datasheet V1.3



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#### 1 PRODUCT OVERVIEW

#### **1.1** General description

With the demands for high precision position, it increases the needs of received GNSS satellites' number, making the trend of receiving multi-frequency GNSS system. Choosing a correct antenna is hugely important since antennas are the main interface between the GNSS space segment and the user, especially on multi-frequency system.

ALLYSTAR Active Antenna AGR6302/AGR6303 is designed by unique technology, covering GPS, BDS, Galileo, GLONASS, IRNSS and QZSS system, details please refer to table 1. The antenna features stable signal quality and more angle receiver on the practical conditions. It employs the stack four feeds antenna architecture with hybrid to achieve the multi-frequency operation/ lower axial ratio/wider half power beam width and excellent right hand circular polarization.

With the newly architecture, the active part has two stages, two level LNA, and also one filter for lower band, the other for higher band. And then, the combiner and the third level LNA output the RF gain to receiver. It provides excellent noise figure/ RF linear and LNA gain and out band rejection, resulting in good signal/noise ratio and anti-interference.

It is housed in a compact, industrial-grade waterproof and magnet mount enclosure. Using internal magnets, the antenna can be installed almost anywhere allowing for greater flexibility.

#### **1.2** Features

- Multi-frequency GNSS reception
- LNA gain: 27 dB typ.
- High rejection SAW filter
- Low noise figure
- Waterproof enclosure (IP67)
- Great axial ratio: over full bandwidth
- Magnetic mounting supported
- Wide 3dB beam-width
- Supports dual band RTK/RTD
- Supports Allystar HD9311/HD8040D/HD8041D



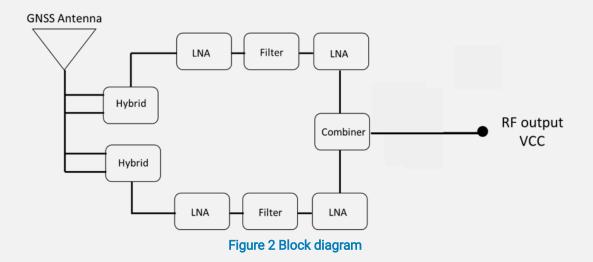
#### V1.3

# 1.3 Product image



Figure 1 Product image

## 1.4 Block diagram





# 2 SPECIFICATIONS

#### 2.1 Antenna performance

#### Table 1 Antenna performance

Parameter	Specification				
		GPS: L1, L2C			
		BDS: B1I, B1C, B2I			
	AGR6302	Galileo: E1, E5b			
		GLONASS: L1			
		QZSS: L1-C, L2C			
Support system		GPS: L1, L1C, L5C			
		BDS: B1I, B1C, B2a			
	AGR6303	Galileo E1, E5a			
		GLONASS: L1			
		QZSS: L5			
		IRNSS: S-L5			
Antenna architecture	Stack four feed				
Antenna dimension	41x41x4mm for higher band				
	47x47x7mm for lower band				
Polarization	RHCP				
Axial ratio	<2dB				
Antenna peak gain	0~2dBi for higher band (with 100x100mm GND)				
Antenna peak gain	3~5dBi for lower band (with 100x100mm GND)				
	122° on X-Z plane for higher band				
3dB beam width	122° on Y-Z plane for higher band				
	100° on X-Z plane for lower band				
	104° on Y-Z plane for lower band				



## 2.2 RF performance

#### Table 2 RF performance

Parameter	Specification			
LNA gain	27 dB typ. at all operation band on 3.3V			
Noise figure	≤2dB			
Output SWR	<2.5			
Output impedance	50 Ohm			
	Higher band	In-band ±80MHz>35dB		
Out-band rejection	lower band	In-band ±80MHz>35dB		
Support voltage	3.0~5.0V / 3.3V typ.			
Power consumption	<20mA at 3.3V			
<b>FSD</b> protection	10kv air discharge			
ESD protection	4kv contact			

#### 2.3 Mechanicals and environment

#### Table 3 Mechanicals and environment

Parameter	Specification			
Dimension	Diameter 79mm x Height 24mm			
RF cable	RG174 3M SMA(M) 180° (customization)			
Operation temperature	-40℃ to +85℃			
Relative humidity	40% to 95%			
Mounting	Magnet mount			
Water proof	IP67			
Environment	ROHS and REACH			



#### V1.3

## **3 MECHANICAL SPECIFICATION**

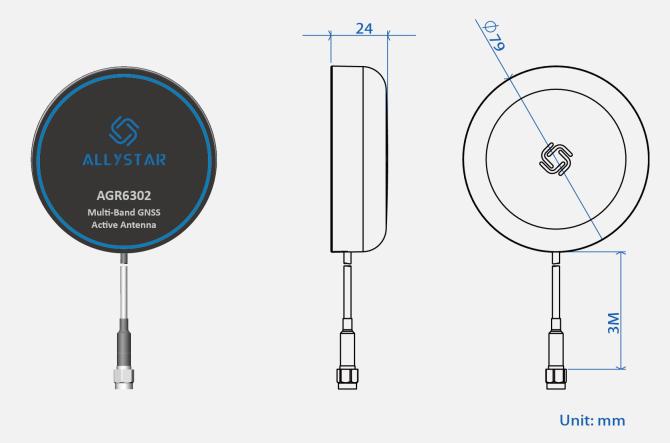


Figure 3 Mechanical specification





# 4 PRODUCT HANDLING

#### 4.1 Disposal information

This device must not be treated as household waste.

For more detailed information about recycling electronic components contact your local waste management authority.



## 5 ORDERING CODES

Table 4 Ordering codes

		GNSS					
Ordering Number	Category	GPS/QZS	BDS	GLONASS	Galileo	IRNSS	Features
AGR6302-D079AA0	Active antenna	✓	✓	$\checkmark$	✓		L1 + L2 band
AGR6303-D079AA0	Active antenna	✓	✓	✓	✓	$\checkmark$	L1 + L5 band



# 6 **REVISION HISTORY**

Revision	Date	Reviser	Status / Comments
V1.0	2018-12-03	Daisy	Start version, first released
V1.1	2019-01-09	Taylor	page 5 / 1.3; Page 6.7; product image
V1.2	2020-10	Vita Wu	Localization.
V1.3	2020-12	Vita Wu	Add IC supported in <i>Section 1.2 Features.</i> Updates voltage.
			Updates LNA gain typ.





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