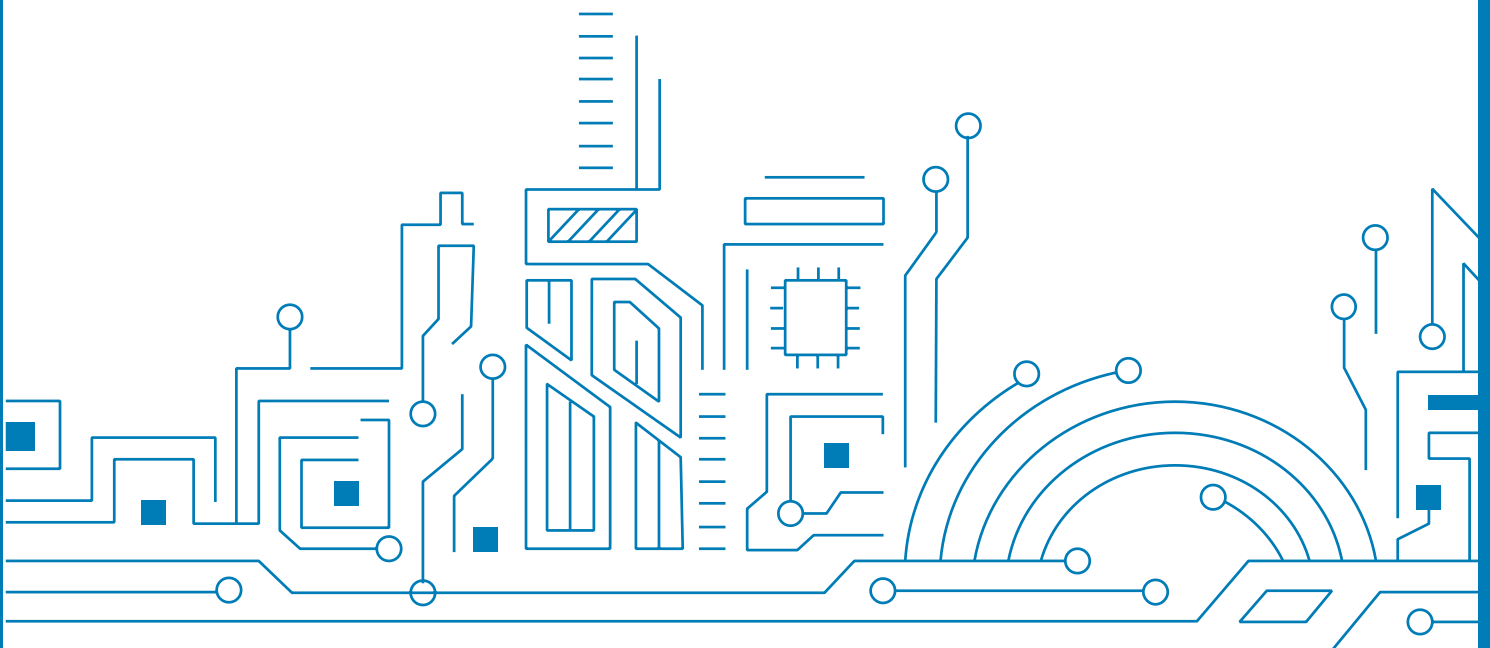


High Precision Multi-frequency Active Antenna AGR6302 AGR6303

Datasheet V1.3



Notice, Statement and Copyright

ALLYSTAR Technology offers this document as a service to its customers, to support application and engineering efforts that use the products designed by ALLYSTAR Technology. Products and specifications discussed herein are for reference purposes only. Performance characteristics listed in this document do not constitute a warranty or guarantee of product performance.

ALLYSTAR Technology assumes no liability or responsibility for any claims or damages arising out of the use of this document, or from the use of integrated circuits based on this document, including, but not limited to claims or damages based on infringement of patents, copyrights or other intellectual property rights.

This document contains proprietary technical information which is the property of ALLYSTAR Technology, copying of this document and giving it to others and using or communication of the contents thereof, are forbidden without express authority. Offenders are liable to the payment of damages. ALLYSTAR Technology reserves the right to make changes in its products, specifications and other information at any time without notice.

For more recent documents, please visit www.allystar.com.

Copyright © Allystar Technology (Shenzhen) Co., Ltd. 2020. All rights reserved.

TABLE OF CONTENT

TABLE OF CONTENT	3
1 PRODUCT OVERVIEW	4
1.1 General description	4
1.2 Features	4
1.3 Product image	5
1.4 Block diagram	5
2 SPECIFICATIONS	6
2.1 Antenna performance	6
2.2 RF performance	7
2.3 Mechanicals and environment	7
3 MECHANICAL SPECIFICATION	8
4 PRODUCT HANDLING	9
4.1 Disposal information	9
5 ORDERING CODES	9
6 REVISION HISTORY	10

List of tables

Table 1 Antenna performance	6
Table 2 RF performance	7
Table 3 Mechanicals and environment	7
Table 4 Ordering codes	9

List of figures

Figure 1 Product image	5
Figure 2 Block diagram	5
Figure 3 Mechanical specification	8

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

1.3 Product image



Figure 1 Product image

1.4 Block diagram

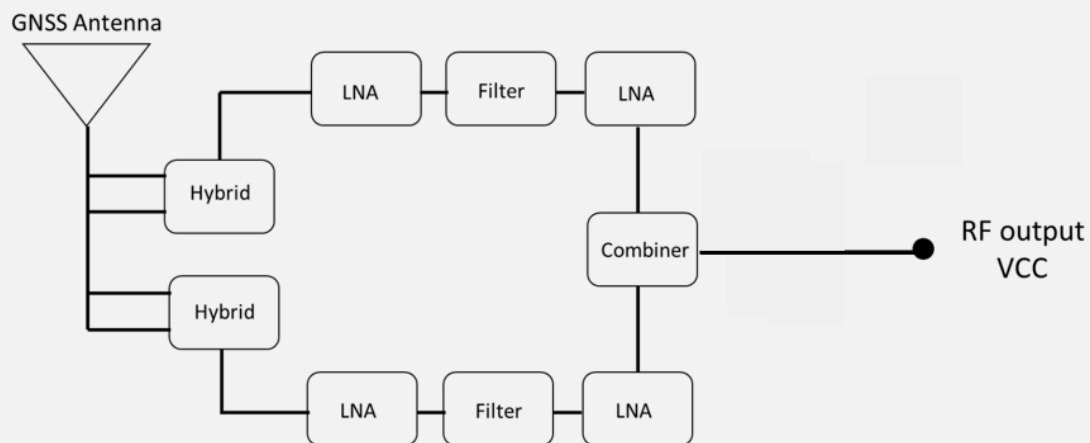


Figure 2 Block diagram

2 SPECIFICATIONS

2.1 Antenna performance

Table 1 Antenna performance

Parameter	Specification	
Support system	AGR6302	GPS: L1, L2C BDS: B1I, B1C, B2I Galileo: E1, E5b GLONASS: L1 QZSS: L1-C, L2C
	AGR6303	GPS: L1, L1C, L5C BDS: B1I, B1C, B2a 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) 3~5dBi for lower band (with 100x100mm GND)	
3dB beam width	122° on X-Z plane for higher band 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	
Out-band rejection	Higher band	In-band ±80MHz>35dB
	lower band	In-band ±80MHz>35dB
Support voltage	3.0~5.0V / 3.3V typ.	
Power consumption	<20mA at 3.3V	
ESD protection	10kv air discharge	
	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°C to +85°C
Relative humidity	40% to 95%
Mounting	Magnet mount
Water proof	IP67
Environment	ROHS and REACH

3 MECHANICAL SPECIFICATION

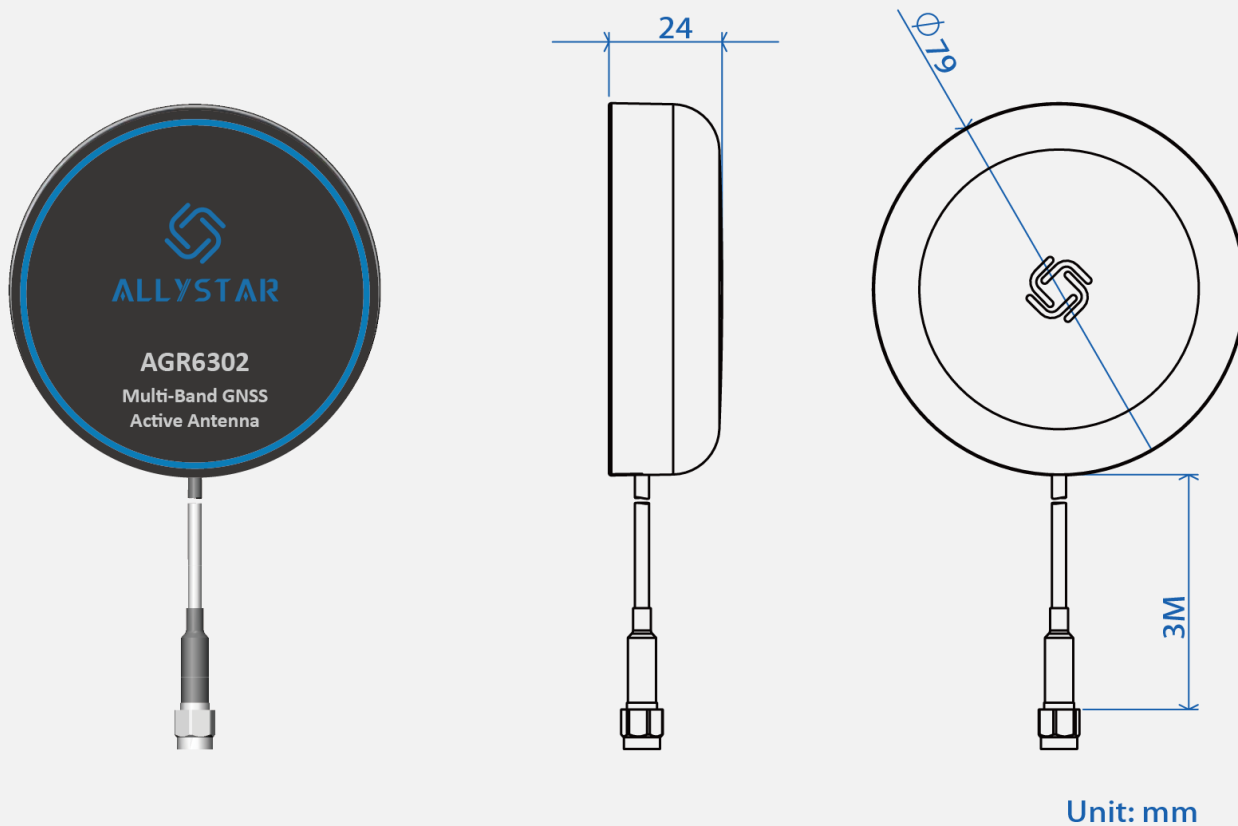


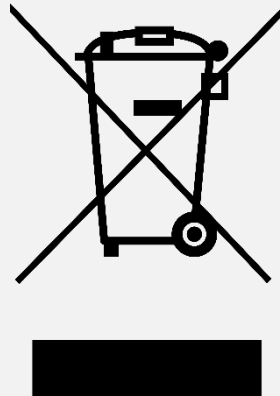
Figure 3 Mechanical specification

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

Ordering Number	Category	GNSS					Features
		GPS/QZS	BDS	GLONASS	Galileo	IRNSS	
AGR6302-D079AA0	Active antenna	✓	✓	✓	✓	–	L1 + L2 band
AGR6303-D079AA0	Active antenna	✓	✓	✓	✓	✓	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.



www.allystar.com



info.gnss@allystar.com



Headquarters

Allystar Technology (Shenzhen) Co., Ltd.

Address: 5F, Building No.4, Winlead Intelligent Park, No.3, FaDa road (middle), Bantian Subdistrict, LongGang District, Shenzhen City, Guangdong Province, China.

Calgary Office

Allystar Technology (Canada) Ltd.

Address: Unit 288, 3553 31 Street NW Calgary, Alberta, Canada T2L 2K7

