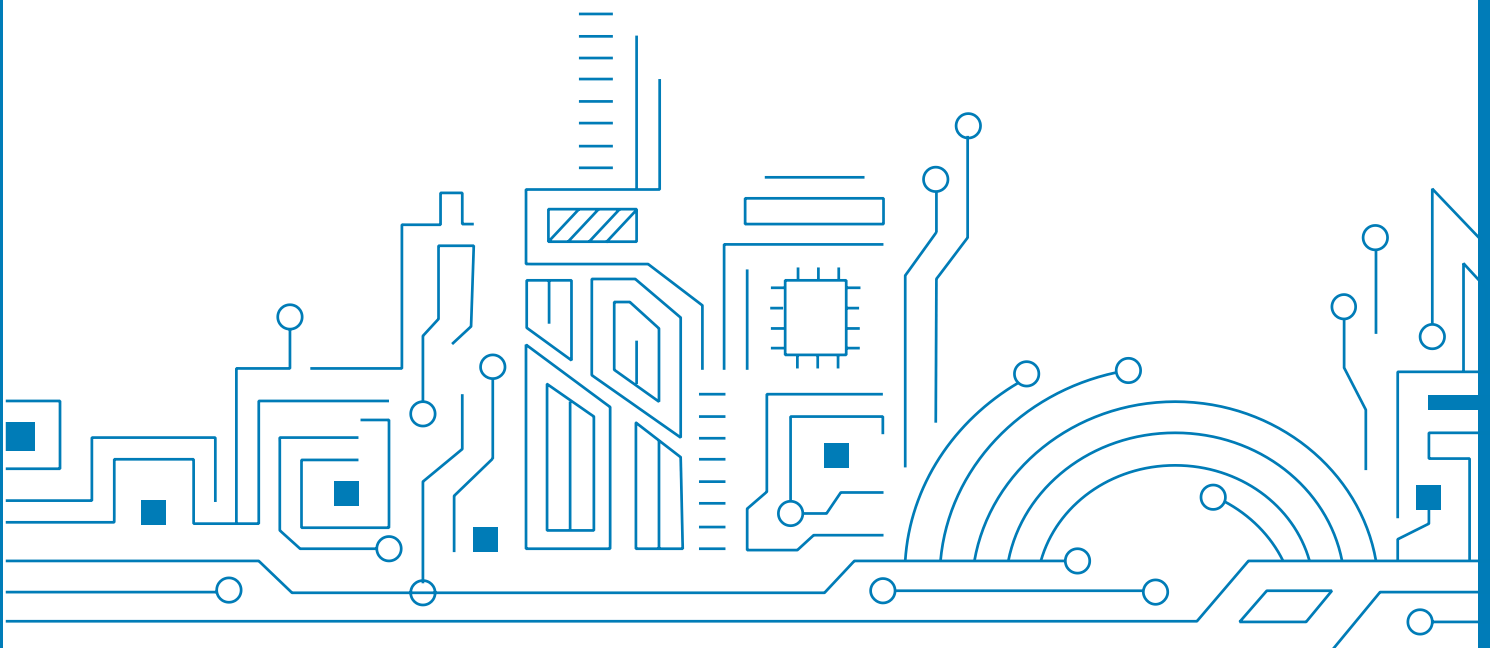


Dual-frequency External Active Antenna

AGR6116

Datasheet V1.1



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1 PRODUCT OVERVIEW

1.1 General description

With the demand change of GNSS band from single band to dual band, the tradition single band antenna is unable to satisfy, therefore, support dual band system and good performance antenna are necessary. The antennas are a critical but often overlooked part of a receiver setup, choosing a correct antenna is hugely important since antennas are the main interface between the GNSS space segment and the user. Choosing the optimal GNSS antenna for the application will maximize GNSS receiver's positioning performance.

The AGR6116 active antenna are use Allystar's unique technology to achieved GNSS dual band system operation, that can covering the GPS L1, BeiDou B1 and GPS L5 frequency band. In order to meet dual band system operation and low cost demand, Allystar use stack with one feed pin of antenna to generate two frequency mode, which are still shows the wide 3dB beam-width and right hand circular polarization (RHCP) radiation performance.

In order to increase GNSS radio frequency sensitivity and signal noise ratio, AGR6116 uses a LNA+ Dual SAW+PD+LNA diagram, which provides excellent noise figure and high gain that is constant across the full frequency band. The final output are RF cable with RF connector, it's easy to fit together with IC evaluation kit of Allystar.

The AGR6116 active antenna has portable and dual band features, which can use on tracker, navigation device and autonomous vehicles.

1.2 Features

- One pin feed in
- Supports dual band system
- Multi-frequency GNSS reception
- LNA gain: 28 dB typ.
- High rejection SAW filter
- Low noise figure ≤ 2 dB
- IP67 water proof
- Supports dual band Single point position technology
- Supports Allystar HD8040D/HD8041D

1.3 Product image



Figure 1 Product image

1.4 Block diagram

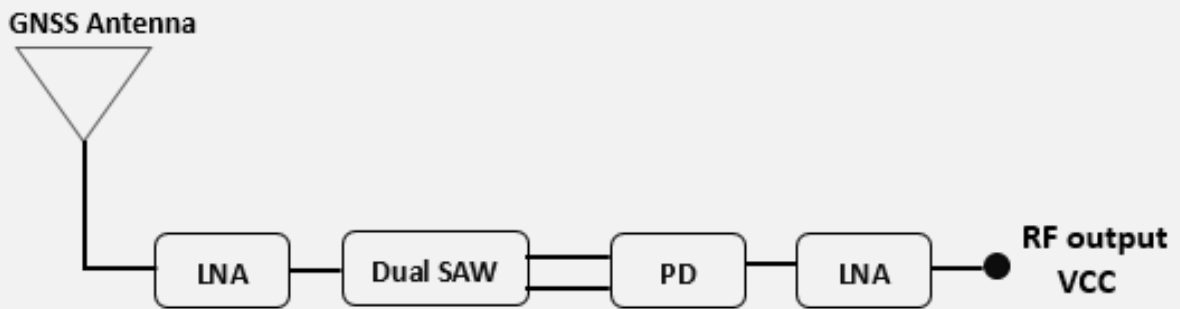


Figure 2 Block diagram

2 SPECIFICATIONS

2.1 Antenna performance

Table 1 Antenna performance

Parameter	Specification
Support system	GPS: L1, L1C, L5C BDS: B1I, B1C, B2a Galileo E1, E5a QZSS: L5 IRNSS: S-L5
Antenna architecture	One pin feed
Antenna dimension	25x25x4mm for higher band 35x35x4mm for lower band
Polarization	RHCP
Axial ratio	<3.0dB@zenith
Antenna peak gain	2.68dBi for higher band (with35x35mm GND) 1.98dBi for lower band (with35x35mm GND)

2.2 RF performance

Table 2 RF performance

Parameter	Specification	
LNA gain	28 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 ±50MHz>30dB
	lower band	In-band ±50MHz>30dB
Support voltage	3.0~5.0V / 3.3V typ.	
Power consumption	<15mA at 3.3V	
ESD protection	10kv air discharge	
	4kv contact	

2.3 Mechanicals and environment

Table 3 Mechanicals and environment

Parameter	Specification
Dimension	56.5mm x 56.5mmx Height 21mm
Operation temperature	-40°C to +85°C
Relative humidity	40% to 95%
Environment	ROHS and REACH

3 MECHANICAL SPECIFICATION

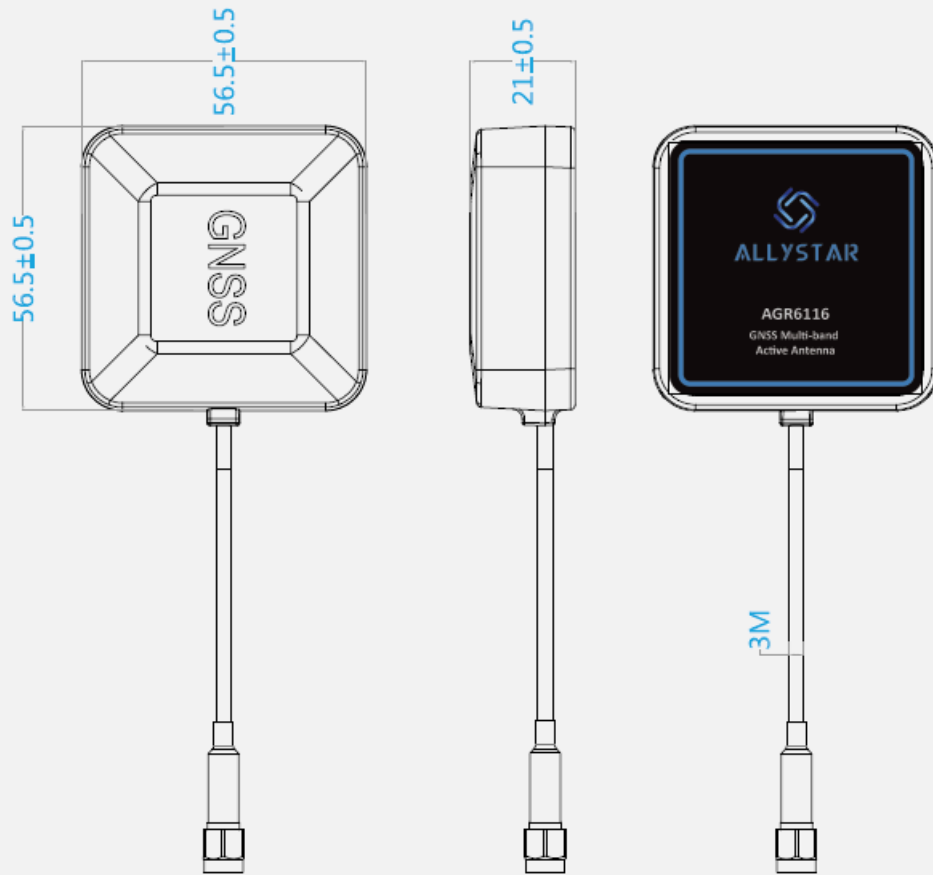


Figure 3 Mechanical specification (Unit: mm)

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/QZSS	BDS	Galileo	IRNSS	
AGR6116-3540AA0-A	Active antenna with housing	✓	✓	✓	✓	L1 + L5 band
AGR6116-3540AA0-B	Active antenna without housing	✓	✓	✓	✓	L1 + L5 band

6 REVISION HISTORY

Revision	Date	Author	Status / Comments
V1.0	2020-10	Toby	Start version, first released
V1.1	2020-12	Vita Wu	Localization Updates voltage.



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