SYNZEN

DATASHEET

AQUILA | SZA-N-5G49 | Quadrifilar Helical GNSS Antenna | GNSS RTK

Features:

GNSS: 1164-1278; 1525-1615MHz

>2.0dBi Peak Gain
33dBm LNA Gain

Dimensions: 55.6 x 27.5Ø mm
Connector: SMA
RoHs Compliant

Contents

Introduction

AQUILA is a high-performance active Quadrifilar Helical Antenna (QHA) designed for applications that require reliable, multi band precision. Its compact 55.6 mm form integrates a tightly engineered RHCP helix, providing stable phase characteristics and dependable gain across all major global navigation satellite systems. AQUILA supports GPS L1 L2 L5, GLONASS L1 L2 L3, BDS B1 B2 B3, and Galileo E1 E5 E6, ensuring robust performance in environments where signal conditions vary.

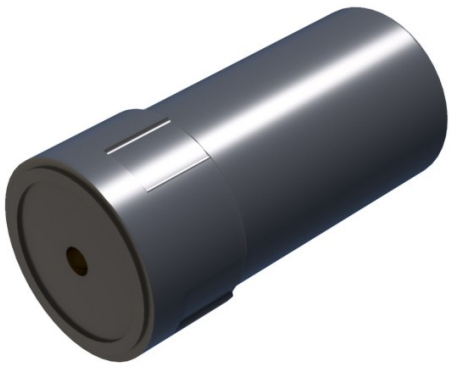
An integrated low noise amplifier enhances sensitivity and improves signal acquisition, delivering consistent results where weaker antennas may lose lock. The durable ABS plus PC enclosure and IP67 sealing protect the antenna in outdoor and industrial use cases. When compared with competing helical GNSS designs from established brands, AQUILA demonstrates wideband capability, strong RHCP purity, and stable electrical performance across all supported bands.

FEATURES

- Multi constellation reception for GPS, GLONASS, BDS, and Galileo
- Wideband support for L1 L2 L5, E1 E5 E6, B1 B2 B3
- RHCP polarization with low axial ratio
- Integrated low noise amplifier with 33 dB typical gain
- DC input range from 3 to 15 V
- Compact helix structure for stable phase center performance
- SMA male connector
- ABS plus PC radome with IP67 protection
- Operating temperature from minus 45°C to plus 85°C

APPLICATIONS

- High precision GNSS receivers
- Survey and mapping equipment
- Precision agriculture systems
- Industrial timing and synchronization
- UAV, robotics, and autonomous platforms
- Asset tracking and fleet positioning



Mechanical Specifications

Parameter	
Part Number	SZA-N-5G49
Name	AQUILA
Dimensions (mm)	55.6 x 27.5 Ø
Weight (g)	<32
Antenna Type	Quadrifilar Helical GNSS Antenna
Connector Type	SMA Male
Housing Material	ABS + PC

Electrical / RF Specifications

Antenna

Band	Frequency Range (MHz)	Peak Gain (dBi)	Out-of-band Rejection	Impedance	Axial Ratio
L5, E5a, E5b, E5, B2a, B2b, B2, L2, L2, E6	1164-1278	>2.00	>35	50 Ω	≤1.5
L1, E1, B1, G1, L band (SBAS), B1C, E2-L1-E	1525-1615	>2.00	>40		

Phase Centre Characteristics

Phase Centre Reference	Mechanical axis (see drawing on page 5
Phase Centre Variation (PCV)	Typical ≤ ±3mm

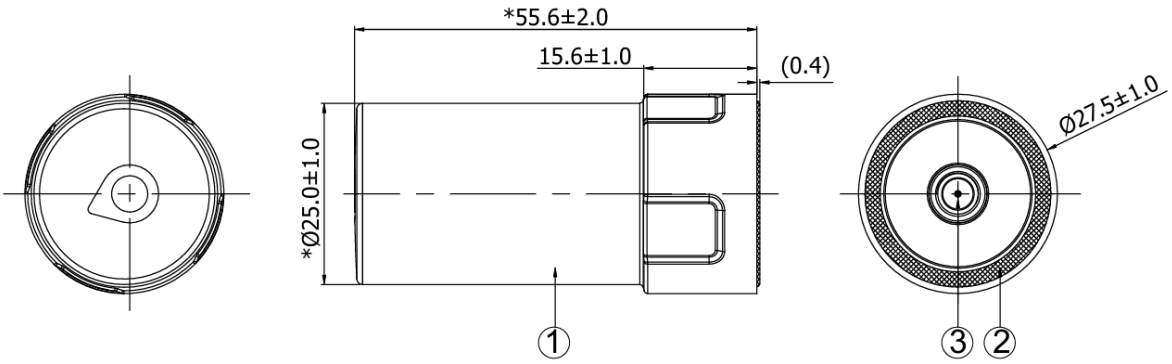
LNA

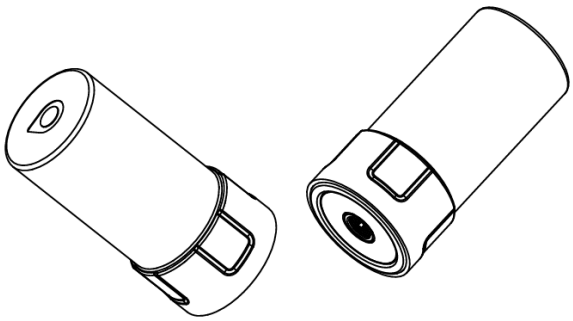
Frequency Range (MHz)	Gain (dB) Typical	Noise Figure	DC Voltage (V)	Current Consumption Typ. (mA)	VSWR
1164-1278	33	≤2.00	3 - 15	20	≤2.00
1525-1615	33	≤2.00			

Environmental

Parameter	
Operational Temperature	-45 to +85°C
Storage Temperature	-45 to +85°C
Relative Humidity (Storage)	65±20% RH
IP Rating	IP67
RoHs and REACH compliant	Yes

Mechanical Drawing





Note:

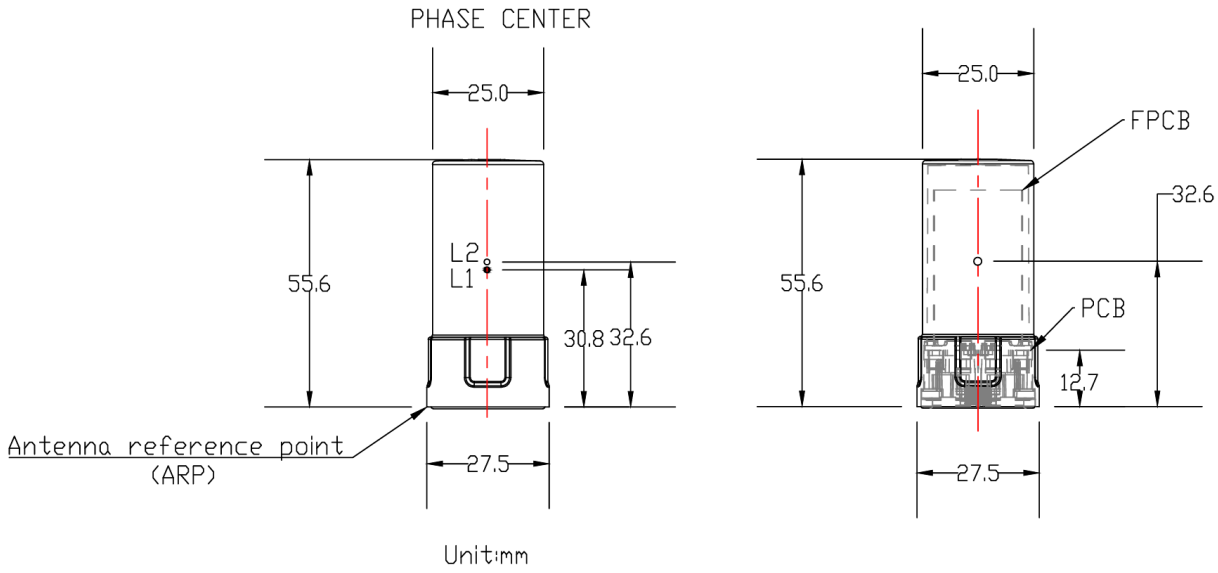
1.Frequency Range:1525-1615MHz&1164-1278MHz;
GPS: L1/L2/L5 ;
GLONASS: L1/L2/L3 ;
BDS: B1/B2/B3 ;
Galileo: E1/E5/E6 ;
Impendance:50Ω
LNA Gain:33±2 dB
VSWR≤2.0
DC Voltage:3~15V
2.Working temperature:-35°C~+75°C
3.Waterproof :IP67
4.These Products are in conformity with ROHS 2.0
5.Strict sizes are marked with "*",and "()" for reference

UNIT
mm

NO	DESCRIPTION		Q'TY
3	Connector	SMA, Male ;Gold Plated	1
2	O-Ring	Rubber, Black	1
1	Antenna-Cover	PC+ABS, Black	1

Phase Centre Reference

The antenna phase centre is located on the mechanical axis as defined in the associated mechanical drawing. Due to the quadrifilar helical structure, the phase centre behaviour is inherently stable across elevation angles.



Packaging

Antennas packed in PE bag (1 per bag)

Bulk (units individually bagged and boxed; standard carton quantity: 50

Material Regulation

The antenna has been assessed to conform to RoHS requirements. A certificate of conformance is available upon request.