



# **PRODUCT DESCRIPTION**

GEM1301 is a high-performance dual-band high precision GNSS positioning module with antenna built-in, which is based on the state of the art CYNOSURE III GNSS SoC chip. It supports BDS-3 signals, along with global civil navigation satellite systems, including GPS, BDS, GLONASS, Galileo, QZSS and SBAS.





# HIGHLIGHTS

- Supports GPS, BDS, GLONASS, Galileo, QZSS and SBAS
- Integrates RTK technology
- With the latest low-power consumption architecture design
- Supports multi-system multi-band high precision raw data output for the third party integration
- Being the cost-effective position solution integrated with antenna

				GΝ	ISS							Feat	ture				In	terfa	ce	Ad	cura	cy
Product	Band (S/D/T)	GPS	BDS	GLONASS	Galileo	NaviC	QZSS	SBAS	Built-in LNA	Programmable (flash)	Data Logging	D-GNSS	Raw data	RTK	Oscillator	Built-in inductor	UART	USB	SPI	Meter	Sub-meter	Centimeter
GEM1301	D	٠	٠	*	٠		٠	٠	•		٠	٠	٠	٠	Т		•					•
T = TCXO	*	= Sup	porte	ed up	on sp	ecific	firmv	vare.														

### Product Selector:

# **GENERAL SPECIFICATIONS**

#### **GNSS** Reception

GPS/QZSS: L1C/A, L5 BDS: B1I, B2a GLONASS: G1 Galileo: E1, E5a SBAS: L1

#### GNSS Channels

40 GNSS tracking channels

#### Update Rate

PVT	5 Hz
RTK	1 Hz

#### **Position Accuracy**

GNSS	1.0m CEP
D-GNSS	< 1.0m CEP
RTK	1.0 cm + 1 ppm (H)
	3.0 cm + 1 ppm (V)

#### Time to First Fix (TTFF)

Hot start	<	2s
Cold start	<	30s
RTK convergence	<	10s

#### Sensitivity

-148 dBm
-155 dBm
-158 dBm
-162 dBm

#### Velocity & Time Accuracy

GNSS	0.1 m/s CEP
1PPS	20 ns

#### Interfaces

RS232/T	TL*
---------	-----

\*GEM1301-3838A01 supports RS232 level GEM1301-3838A02 supports TTL level

### Protocols

NMEA 0183 V4.11 (Default)/V4.10 Cynosure GNSS receiver protocol RTCM 3.0/3.2

#### **Operation Limit**

Velocity	515 m/s
Altitude	18,000m

#### **Operating Condition**

Main voltage	3.3-12 V
Digital I/O voltage	3.0-3.6 V
Backup voltage	1.8-3.6 V

#### **Power Consumption**

Operating	Acquisition	55 mA @ 3.3V		
Operating	Tracking	51 mA @ 3.3V		
Standby	12 uA			

#### ESD

Contact	±8 kV
Air discharge	±12 kV

### **ENVIRONMENT DATA**

Operation temperature	-40°C to +85°C
Storage temperature	-40°C to +85°C
Certification	RoHS 2.0 & REACH

# PACKAGE

Dimensions

38\*38\*13.2 mm



Website: www.allystar.com

Email: info.gnss@allystar.com

Headquarters: 201-2, 2F, Tower F, Xinghe World, No.1, Yaobao Road, LongGang District, Shenzhen City, Guangdong Province, China.

1

Calgary office: Unit 288, 3553 31 Street NW Calgary, Albert, Canada T2L 2K7

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 documents, please visit <u>www.allystar.com</u>.