



SPK-GPSSM622, u-blox6

Compact, High Performance,

GPS Smart Antenna



Overview

SPK-GPSSM622 is an easy to use, high performance GPS smart antenna module with patch antenna for AVL applications. Our experienced design provides fast acquisitions and excellent tracking performance. Its 5Hz update rate is useful for high-speed racing car and plane applications

Applications

- Automatic vehicle location
- Tracking
- Navigation
- Fleet management
- GPS clock and digital camera Child/elderly/personal locator and security system Racing car
- Plane

Features

- Based on u-blox6 low power single chip
- High performance: -160dBm⁺ tracking sensitivity
- Low power: 56mA at continuous tracking
- SBAS (WAAS, EGNOS, MSAS, GAGAN) support
- A-GPS support, OMA SUPL/3GPP TS25.171 (GSM/UMTS) compliant
- Easy to use with built-in patch antenna and 7-pin I/O interface or 6-pin wire to board connector.
- Up to 5Hz update rate
- Fully EMI shielded
- Industrial operating temperature range: -40 ~ 85°C

Technical Specifications

Receiver Performance Data⁺

Receiver Type	50-channel, L1 frequency, C/A code
Horizontal Position Accuracy	< 2.5m (Autonomous) < 2.0m (WAAS) (CEP, 50% 24hr static, -130dBm)
Velocity Accuracy	<0.1 m/s (speed) <0.5° (heading) (50%@30m/s)
Time Pulse Signal Accuracy	30ns (RMS) <60ns (99%)
Time To First Fix Hot start Warm start Cold start	Autonomous <1sec <32sec <32sec (50% -130dBm)
Sensitivity (Autonomous)	-146dBm (acquisition) -160dBm (tracking)
Max. Update Rate	5Hz
Max. Altitude	50,000 m
Max. Velocity	<1,852 km/hr
Protocol Support	NMEA 0183 v2.3(compatible to 3.0) UART: 9600 bps N,8,1; GGA, GLL, GSA, GSV, RMC, VTG, TXT
SBAS Support	WAAS, EGNOS, MSAS, GAGAN
Dynamics	<4g



SPK ELECTRONICS CO., LTD.

u-blox6 GPS Smart Antenna Module / SPK-GPSSM622

according to GPS IC spec

Electrical Data

Power Supply	3.3 ~ 5.5 V
Power Consumption	56mA/average tracking
Backup power	1.4 ~ 3.6 V
TTL I/O	V _{IH} : 2.31~3.3V, V _{IL} : 0~0.66V V _{OH} : >2.8V, V _{OL} < 0.4V
Protocols	NMEA, u-blox Binary

Environmental Data

Operating temperature	-40 ~ 85°C
Storage temperature	-40 ~ 85°C
Vibration	5Hz to 500Hz, 5g
Shock	Half sine 30g/11ms

Mechanical Data

Dimension	22 (W) x 22 (L) x 8.2 (H) mm
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7-pin Through-hole Interface (SPK-GPSSM622S/Q)



Pin	Name	Function	I/O
1	RXD/D-	TTL serial data input or USB D-	Input
2	TXD/D+	TTL serial data output or USB D+	Output
3	GND	Ground	Input
4	VCC	Power supply (3.3~5.5VDC)	Input
5	VBAT	Backup battery, 1.4~3.6VDC	Input
6	1PPS	One pulse per second	Output
7	PWR_CTRL	Power saving control high/floating: ON, low: OFF	Input

6-pin Connector Interface (SPK-GPSSM622T/U)



Pin	Name	Function	I/O
1	GND	Ground	Input
2	VCC	Power supply (3.3~5.5VDC)	Input
3	TXD/D+	TTL serial data output or USB D+	Output
4	RXD/D-	TTL serial data input or USB D-	Input
5	VBAT	Backup battery, 1.4~3.6VDC	Input
6	PWR_CTRL	Power saving control high/floating: ON, low: OFF	Input

Ordering Information

SPK-GPSSM622

Q	USB, 1 Hz; w/ 7-pin through-hole GGA, GLL, GSA, GSV, RMC, VTG, TXT
S	TTL, 9600bps, N-8-1, 1 Hz; w/ 7-pin through-hole GGA, GLL, GSA, GSV, RMC, VTG, TXT
T	TTL, 9600bps, N-8-1, 1 Hz; w/ 6-pin connector GGA, GLL, GSA, GSV, RMC, VTG, TXT
U	USB, 1 Hz; w/ 6-pin connector GGA, GLL, GSA, GSV, RMC, VTG, TXT

*This document is subject to change without notice.