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RoHS Compliant   **Harmonized Tariff Schedule (HTS Code) Number 8526.91.0020**

CE

SynPaQ/E Ruggedized, GPS Sensor with Serial Data Output
For High Performance Precision Navigation & Timing Applications

CAN ICES-3 (B)/NMB-3(B)

Introduction:

The SynPaQ/E GPS Sensor is small, light-weight and suitable for stand-alone operation or integrated into OEM products. Shipping since 2011, SynPaQ/E embeds Synergy's state-of-the-art u-Blox 72-channel, SBAS* enabled LEA-6Tf GPS navigation and precision timing module.

Features:

- **Designed for applications requiring operation in high shock and vibration applications**
- **Selectable NMEA & UBX binary messages (u-Blox Mode)**
- **User Selectable Motorola binary messages (Motorola Mode)**
- **Super-Fast TTFF and State-of-the-Art Sensitivity**
- **Precision 1PPS Output included**
- **Anti-Jamming Performance in EMI Environments**
- **Jamming Signal Indicator (optional in u-Blox mode only)**
- **Position and Time based on NAVSTAR GPS constellation**
- **IP 65 Rated Enclosure**
- **GPS Receiver only, no transmitting function included**

Physical Characteristics:

The powder coated, gasketed, IP 65 rated Aluminum housing protects internal electronics from hostile environments including dust, water, shock and vibration. Six mounting hole locations are provided to assure a solid installation and are positioned for backward compatibility with previous versions back to 1996.

Electrical Characteristics:

The wide 9 VDC to 32 VDC power input range is reverse voltage and over-voltage protected. Internal power conditioning removes power transients and provides a regulated voltage for internal components and an external, 5 VDC GPS antenna.

The SynPaQ/E Serial output product incorporates a robust Antenna Power Management System providing antenna status: Not Connected, Under-Current and Over-Current protection for 5 volt antenna systems drawing up to 95 mA.

Note: For Export/Import control, this product is a receive only device. It does not contain a wireless RF Analog/SSB or digital transmitter or transceiver using ESN, IMEI or MEID technology.

When Supplied with 6Tf GPS

PHYSICAL CONSTRUCTION	Specification
Dimensions with mounting plate	L 145 mm (5.7 in.) x W 107 mm (4.20 in) x H 38 mm (1.5 in)
Dimensions w/o mounting plate	L 145 mm (5.7 in.) x W 86.4 mm (3.40 in) x H 34.8 mm (1.37 in)
Weight	14 Oz with mounting plate. 12 OZ without mounting plate
Power Connector	EN3 or DB-9 (User Specified)
Antenna Connector	BNC Jack to TNC Jack (User Specified)

GPS Receiver	Summary Specification
Architecture	50 channels with over 2 million correlators
Acquisition Channels	32 channels
Tracking Channels	16 channels (12 channels for Motorola M12x compatibility)
GNSS Constellation Selections	GPS L1C/A, SBAS L1C/A,
Acquisition Time (TTFF):	
Hot Start	1s
Cold Start	< 26 seconds typical (25s - 48s GNSS Dependent)
SBAS*	Supports RTCM-104 DGPS, WAAS, EGNOS, MSAS
Position Accuracy (GPS)	<2.5m CEP Autonomous, <2.0m SBAS, <2.0m RTCM-104
Sensitivity	-148 dBm at cold start
	-157 dBm Hot Start
	-162 dBm while tracking (-160 dBm Reacquisition)

Environmental	Summary
Power Supply	9 VDC - 32 VDC - 100 mA Max
Temperature Range	-40 Degrees to + 85 Degrees (-20/+60 with battery)
Storage Temperature	-40 Degrees to + 85 Degrees (-20/+60 with battery)
Humidity	95% over dry bulb range of +38°C to +85°C
Water\Dust Proof Rating	IP 65 with mating connectors

1PPS Timing Pulse	Specification
Accuracy of 1PPS to UTC	< 25 ns Position Hold Mode, <15 ns Compensated

COMMUNICATIONS INTERFACE	NMEA Default Messages	Update Rate
Motorola Legacy Mode	9600 baud, N81	1 Hz
U-Blox Mode	4800, 9600, 38400, 57600, 115200, N81	1 Hz or 2 Hz

SynTAC, TAC32Plus or GPStime or WinOncore12 test and diagnostic software recommended for user interface in Motorola Mode. U-Center for u-Blox Mode

Ordering Information for SynPaQ/E GPS Sensor with Serial Data Output

Part Number	Description
170122G3-P3	SynPaQ/E with Mounting Plate, EN3 and TNC Antenna Connector
170112G3-P3	SynPaQ/E with Mounting Plate, DB-9 and BNC Antenna Connector

* SBAS = Satellite Based Augmentation System

For configuration assistance, order placement and technical support call or Email:

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