Revised: March 6, 2026

RoHS Compliant

Harmonized Tariff Schedule (HTS Code) Number 8526.91.0020 - ECCN 7A994

SynPaQ®/E-Sync* Ruggedized GPS Sensor for Precision PPS output

For Synchronizing Applications Requiring RS-422, RS-232 or 5 Volt Logic Level Pulse Per Second

Provisions for Position Determination reported in NMEA output messages

Introduction:

The SynPaQ®/E-Sync GNSS Sensor is small, light-weight and suitable for stand-alone operation or integrated into OEM products. The SynPaQ/E-Sync embeds Synergy's state-of-the-art, u-Blox based 72-channel, SBAS** enabled SSR-M8T++ Multi-GNSS navigation and precision timing receiver.



Features:

- **Designed for Radio Synchronization applications**
- **u-Blox NMEA & UBX binary messages at user selectable baud rates**
- **Super-Fast TTFF and State-of-the-Art Sensitivity**
- **Precision 1PPS Output at +/- 5 Volt RS-422; 0 to +5 Volt RS-232 and 0 to +5 Volt Logic Levels**
- **Anti-Jamming Performance in EMI Environments**
- **Jamming Signal Indicator (accessed through u-Center)**
- **Position and Time based on NAVSTAR GPS constellation**
- **User selectable GPS or Multi-GNSS Modes (GPS default)**
- **Message output configurable with u-Blox u-Center app**
- **IP 65 Rated Enclosure**

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 30 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. A robust Antenna Power Management System provides over-current protection for 5 Volt antenna systems drawing up to 95 mA.

* Replaces SynPaQ®/E-RS-422 Model Name

** SBAS = Satellite Based Augmentation System

When Supplied with SSR-M8T+ or SSR-M8T++

PHYSICAL CONSTRUCTION	Specification
Overall Dims, Mtg Plate & Conns.	L 145 mm (5.7 in.) x W 107 mm (4.21 in) x H 38 mm (1.5 in)
Dimensions w/o mounting plate	L 132 mm (5.21 in.) x W 86.4 mm (3.40 in) x H 34.8 mm (1.37 in)
Weight	16 Oz with mounting plate. 12 OZ without mounting plate
Power/Data Connector	HD-15 Male
Antenna Connector	BNC Jack (TNC optional)

OPERATIONAL CHARACTERISTICS - u-Blox Native Mode	
GNSS Constellation Selections	GPS L1C/A, SBAS L1C/A (other GNSS user selectable)
Architecture	72 channels with over 2 million correlators
Acquisition Channels	32 channels
Tracking Channels	16 channels
Acquisition Time:	
Hot Start	2 second for GPS, 8 seconds for GLONASS
Warm Start	3 second for GPS, 8 seconds for GLONASS
Cold Start	< 36 seconds typical for longest (BeiDou)
SBAS*	WAAS, EGNOS, MSAS, GAGAN
Position Accuracy	<2.5m Autonomous - <2.0m SBAS
Sensitivity	-148 dBm at cold start
	-167 dBm while tracking (-160 dBm Reacquisition)

Environmental	Summary
Power Supply	9 VDC - 30 VDC - 100 mA Max
Temperature Range	-40 Degrees to + 85 Degrees (-20/+60 with embedded battery)
Storage Temperature	-40 Degrees to + 85 Degrees (-20/+60 with embedded battery)
Humidity	95% over dry bulb range of +38°C to +85°C
Water\Dust Proof Rating	IP 65

1PPS Timing Pulse	Specification
Accuracy of 1PPS to UTC	< 25 ns Position Hold Mode, <200 ns Mobile (160 Kph)

COMMUNICATIONS INTERFACE	NMEA Default Messages Update Rate
RS-422, RS-232, 5 Volt Logic Level	GGA from GPS Satellites at 57600 baud, 1Hz (Default)
	Baud rates and NMEA messages user selectable

Ordering Information: SynPaQ®/E-Sync GPS Sensor with Serial Data Output

Part Number	Description
EOL 170112M3G-0	With embedded SSR-M8T+, Mounting Plate, HD-15 and BNC Antenna Connectors
EOL 170113M3G-0	With embedded SSR-M8T+, Mounting Plate, HD-15 and TNC Antenna Connectors
170114M3G-0	With embedded SSR-M8T++, Mounting Plate, HD-15 and BNC Antenna Connectors
170115M3G-0	With embedded SSR-M8T++, Mounting Plate, HD-15 and TNC Antenna Connectors
Type 1 - 10055323G-3	Cable ass'y, HD-15 Male for Power and 1PPS Sync, 3 ft. length
Type 2 - 10055324G-6	Cable ass'y, HD-15 for Power, 1PPS Sync and DB-9 for Computer, 6 ft. length
Type 3 - 10055325G	Cable ass'y, HD-15 for Power, 1PPS Sync and DB 25 for Radio. Includes RJ45 for GE 220, or other Radio network connection, 5 and 6 ft. lengths

1. See page 2 for cable details
2. SSR-M8T+ 128K embedded receiver EOL 7/30/26 replaced by SSR-M8T++ 256K receiver
3. 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. It does not use ESN, IMEI or MEID technology.

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

SYNERGY SYSTEMS, LLC
Time Proven Products and Support®

Phone: (858) 566-0666
E-Mail: oeminfo@synergy-gps.com
Web: www.synergy-gps.com

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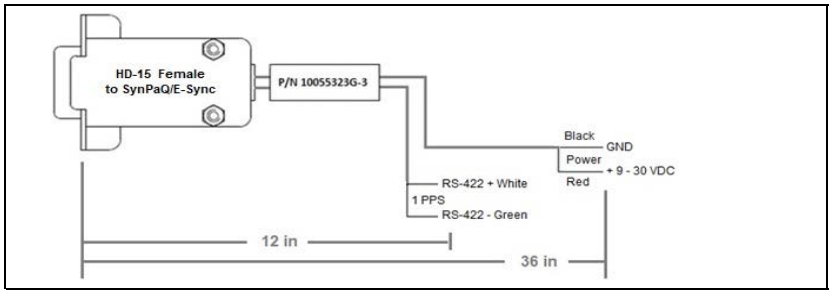
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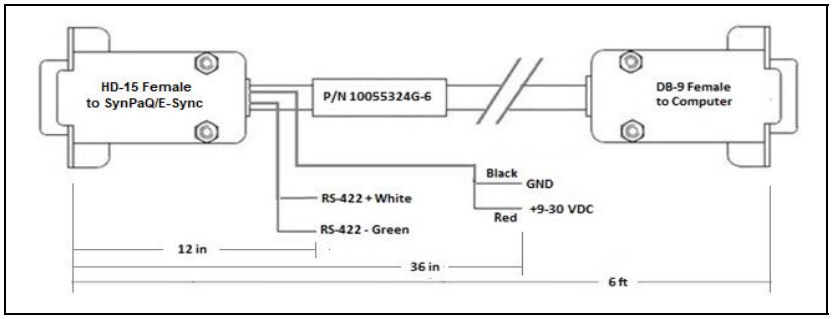
SynPaQ®/E-Sync Ruggedized GPS Sensor for Precision PPS output

Standard Cable Assembly Options

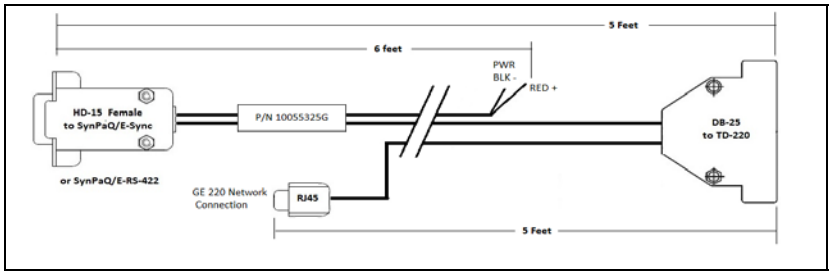
Cable Type 1



Cable Type 2



Cable Type 3



Note: The SynPaQ®/E-Sync was originally named "SynPaQ®/E-RS-422"

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SYNERGY SYSTEMS, LLC
Time Proven Products and Support®

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