

RoHS Compliant

SSR-Pico-T

Drop-In GPS receiver for Lucent CTU-II CDMA units Populated with NavMan Pico-T<sup>®</sup> Receivers

High Performance, GPS Precision Timing Receiver  
Tested to demanding Telecom Industry Standards

Introduction:

The SSR-Pico is based on Synergy's field proven SSR-6Tf OEM GPS receiver board shipping since 2011 for telecom and other precision timing applications. This model includes hardware and firmware additions specifically designed to replace the NavMan Pico-T<sup>®</sup> Installed in the following Lucent CTU-II products:

Assembly	App Code	Series
CTU-II - L1	44ww63	1:1+
CTU-II - L2	44ww27b	1:1+



Features:

- Designed specifically for replacing legacy, NavMan Pico-T<sup>®</sup> GPS receivers in Lucent CTU-II products
- Motorola M12+ binary message emulation at 9600 baud for backward compatibility
- Super-Fast TTFF and State-of-the-Art Sensitivity
- Compatible with existing antenna systems used at CDMA, and other, cell sites. No changes required
- SSR-Pico installation kit includes a more robust MMCX RF connector than the UFL connector on the Pico-T<sup>®</sup>

Physical Characteristics:

The SSR-Pico is based on the Motorola industry standard, 60 mm x 40 mm form factor. Although the NavMan Pico-T<sup>®</sup> receiver is smaller, the SSR-Pico mounting hole locations match an alternate set of mounting holes of the CTU/II mother boards. The companion installation kit includes the necessary mounting hardware to assure the bottom mounted 20 pin I/O connector is seated properly. A replacement coax cable completes the kit.

Electrical Characteristics:

The high performance Flash based SSR-Pico Clone is based on the popular u-Blox LEA-6 Series GPS modules - Details here: <https://www.u-blox.com>. SSR-Pico Clone receivers incorporate antenna under current and over current protection for both 3V and 5V antenna systems.

PHYSICAL CONSTRUCTION	
Dimensions	40mm x 60mm x 4.5mm
Weight	12 grams
Data/Power Header	10 Pin, 2x5 header, 1.27mm pitch
Antenna Connector	MMCX end-Launch jack

OPERATIONAL CHARACTERISTICS - u-Blox Mode	
Architecture	50 channels with over 2 million correlators
Acquisition Channels	32 channels
Tracking Channels	12 channels for Motorola M12+ compatibility
Frequency	1575.42 MHz, C/A code
Acquisition Time:	
Hot Start	< 1s
Cold Start	26 seconds typical
SBAS*	Supports RTCM-104 DGPS, WAAS, EGNOS, MSAS
Position Accuracy	<2.5m Autonomous - <2.0m SBAS - <2.0m RTCM-104
Sensitivity	-148 dBm at cold start -162 dBm while tracking (-160 dBm Reacquisition)
Power Supply	2.7-3.6 VDC 123 mW @ 3.0 V
Backup Power	+1.4 to +3.6V at 22 uA Max
Temperature Range	-40 Degrees to + 85 Degrees (-20/+60 with optional battery)
Storage Temperature	-40 Degrees to + 85 Degrees (-20/+60 with optional battery)
Humidity	95% over dry bulb range of +38°C to +85°C

\* SBAS - Satellite Based Augmentation System

1PPS Timing Pulse	
Accuracy of 1PPS	30 ns RMS, <60 ns 99%
Granularity	21 ns
Compensated	<15 ns (Quantization Error Applied)

COMMUNICATIONS INTERFACE	
Default Protocol	12 Channel Motorola binary command/reply messages
Motorola Protocol	Motorola 12 channel Binary emulation at 9600 baud
Update Rate	1Hz default for NavMan Pico-T <sup>®</sup> (and M12+) compatibility


Note: Refer to Synergy's SSR Integration Guide and u-Blox LEA-6T User's Guide for full module technical and performance specifications. Refer to Motorola's M12x User's Guide for Motorola binary message details and use SynTAC, WinOnCore or SiRF OnCore available here: <http://www.synergy-gps.com>.

Nokia M12+ Drop-In Board Ordering Information:

Part Number	Configuration Description
16554423G-2	SSR-Pico - receiver only - 12 Channel Motorola binary messages
165K4423G	SSR-Pico receiver, Installation Kit with coax cable and mounting hardware

COVID-19 Note: Component lead times have extended to 10 - 14 weeks ARO in 2020. Contact Synergy for most recent product delivery information.

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



**SYNERGY SYSTEMS, LLC**  
Time proven products and support<sup>®</sup>

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SSR-Pico Drop-In GPS Receiver for Lucnet CTU-II

SSR Series board layout and connector position detail

Component Layout - Top

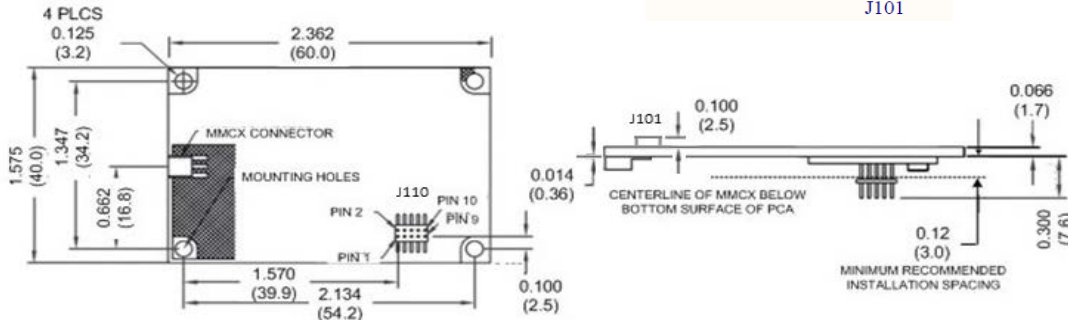
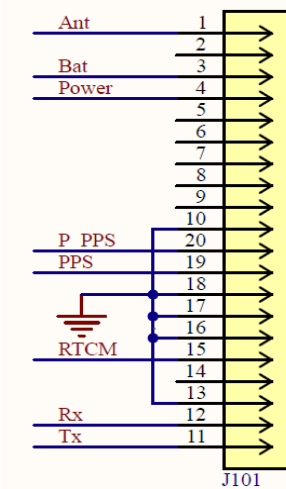
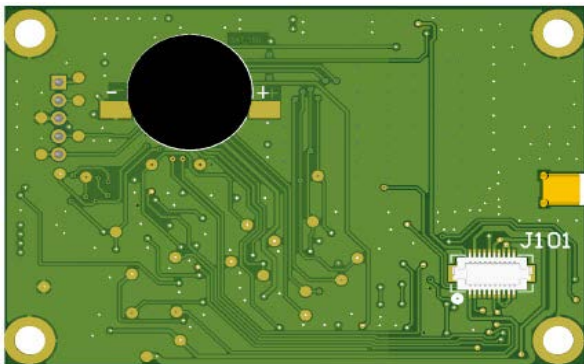


J110 Pin-Out Detail

Pin #	Signal Name	Description
1	TxD	Transmit Data
2	Rxd	Receive Commands
3	Power	Regulated 3.0-3.3 volts
4	1PPS	1PPS Output
5	Ground	Signal/Power Ground
6	Battery	Backup Battery Input
7	No Connect	No Connect
8	RTCM In *	RTCM Data Input
9	Ant. Bias	3.0-5.0 Ant. Bias Voltage
10	1PPS-2	.25Hz to 10MHz

\* RTCM Correction Input Special Order as of 1 January 2018

Component Layout - Bottom



**Note: 1. PC Board** - This SSR PC Board P/N 160080P4G outlined above is manufactured specifically for the SSR-Pico dual I/O replacement GPS receiver for the NavMan Pico-T<sup>®</sup> GPS receiver. The SSR-Pico Drop-In Clone produces emulated Motorola Motorola binary messages at 9600 Baud.

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



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