

## StarMAX 6080

### GPS Synchronization Module



StarMAX 6080 GPS Synchronisation Module

#### PRODUCT FEATURES

- Integrated GPS receiver
- 4 front and backplane accessible synchronization outputs
- 3 different reference clock inputs; GPS antenna, GPS receiver (1PPS) and 10MHz clock
- 8 or 24 hour holdover with less than 7  $\mu$ S phase shift

#### OVERVIEW

The StarMAX product portfolio provides all the necessary equipment for network synchronization. Regardless of the size of the network, the type of services delivered – either fixed or mobile – and the level of redundancy, EION Wireless offers a StarMAX solution that is reliable and and cost effective.

#### GPS BASED SYNCHRONIZATION

The StarMAX 6080 Synchronization board is a fundamental building block of a StarMAX base station. The 6080 ensures synchronization of your WiMAX network from different synchronization sources.

In the event the GPS signal is lost, the 6080 operates in hold over mode allowing the base station to stay synchronized either 8, or 24 hours depending on the version selected.

The board can be installed in StarMAX 6400 or StarMAX 6100 base station chassis. The unit can select between a 1PPS signal or 10MHz reference clock as the input reference synchronization signal. As the most cost-effective solution, the GPS satellite network can be used as the source of 1PPS signal source for the StarMAX 6080.

StarMAX 6080 has a built-in GPS receiver and requires only an external GPS antenna, such as the StarMAX 4931, to be full function operation. An optional External GPS receiver, such as the StarMAX 4930 can be used, or even in parallel with the StarMAX 4931 antenna for reference signal redundancy. For network providers, which are already using network synchronization, 10MHz reference clock is the optimal solution.

#### TIMING SPECIFICATIONS

PPS Stability	6080-00-00-01 (24h holdover)	6080-02-01-00 (8h holdover)
Tracked mode, during position averaging	200 ns max, peak to peak	
Tracked mode, fixed position mode	$\pm 30$ ns typical, peak to peak	
10 MHz stability		
Tracked mode, fixed position mode	ADEV $\leq 1 \times 10^{-12}$ @ 20.000s	
Frequency stability in holdover mode, at constant temperature	$1 \times 10^{-10}$ / Day after 30 days of continuous operation	$5 \times 10^{-10}$ / Day after 30 days of continuous operation
Phase drift in holdover mode at constant temperature	Phase variation: $< 7$ $\mu$ S after 24 hours	Phase variation: $< 7$ $\mu$ S after 10 hours

DATASHEET

**STARMAX 6080 GPS SYNCHRONIZATION MODULE**

<b>Antenna input</b>	
Frequency	1575.42 MHz
Impedance	50 Ohm
Acquisition sensitivity	-144 dBm (cold start)
Tracking sensitivity	-160 dBm (Fixed position)
Preamplifier gain	Min: 15 dB, max: 35 dB
Preamplifier noise figure	Typical: 2 dB, max: 3 dB
Antenna open drain current	0 – 10 mA (4.5 – 5V)
Antenna short detection current	Min: 40 mA
TVS protection	5 kV
<b>Management</b>	
RS-232 port	Baud Rate 115200, 8 data bits, Parity None, stop Bit 1
Ethernet	RJ4 on frontpanel
IPMI	I2C port on backplane
<b>Front interfaces</b>	
GPS antenna input	TNC(f) – 50Ω RF & + 4.5 power
10 MHz clock reference input	TNC(f) – TTL input
1 PPS pulse reference input	TNC(f) – TTL input
GPS receiver (StarMAX 4930-60) input	GPS Receiver (RJ-45) – PPS – TTL, power – 12V (11.4-14.6V)
4 x Base station (IDU) sync. outputs	4xRJ-45.TTL output for PPS signal
Serial management port	RJ-45, RS232
Ethernet management port	RJ-45, Ethernet
Ethernet synchronization port	RJ-45, Ethernet (IEEE1588 – PTP) – Not available, future release feature
<b>Backplane interfaces</b>	
1 PPS pulse distribution	TTL
10 MHz clock distribution	MLVDS
Ethernet management	Ethernet (2x)
IPMI communication	I2C
Power Supply	-48V (2x)
<b>Mechanical &amp; Electrical</b>	
Dimensions (H x W x D)	20 x 380 x 210 [mm] (fit in 19 rack)
Weight	1.0kg
Power Supply Voltage	36V - 57V DC, 400mA
Power Consumption, max.	15W
<b>Environmental</b>	
Operating Temperature Range	-5° C to +40°C
Operating Humidity Range	10% to 90%
EN 300 019 reference	class 3.2
Storage Temperature Range	-45°C to +85°C
Storage Humidity Range	8% to 100%
EN 300 019 reference	class 1.3E
Transportation	EN 300 019 class 2.3
EMC	EN 301 489-1, EN 301 489-4
Safety	EN 60 950



StarMAX 6080 board in a StarMAX 6400 chassis

**ORDERING INFO**

Product Code	Description
6080-00-00-01	StarMAX 6080, GPS Receiver Blade, 24hr Holdover
6080-02-00-01	StarMAX 6080, GPS Receiver Blade, 8hr Holdover
4930-60-10-01	Ext.GPS Synchronization unit GPS Time Receiver
4930-60-1X-01	Cable Kit for 4930-60-10 External GPS Receiver, 15m
4930-60-11-01	Cable Kit for 4930-60-10 External GPS Receiver, 40m
4931-60-00-01	Ext.GPS Antenna (for use with 6080 GPS Receiver Blades)
8921-15-00-01	Cable Kit for 4930-60-10 External GPS Receiver, 15m
8921-40-00-01	Cable Kit for 4930-60-10 External GPS Receiver, 40m

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