12-channel SUPERSTAR II GPS Receiver OEM Module

WAAS/EGNOS DGPS option

Precise Timing option

Sub-meter DGPS accuracy

On-board Supercap for warm start

(Actual size)

SUPERSTAR II

BAE SYSTEMS CANADA introduces the ***SUPERSTAR II:*** another breakthrough in low-cost, small-size and superior quality GPS receivers for embedded applications.

The ***SUPERSTAR II*** was designed for applications requiring low-cost high-reliability positioning performance with lower power requirements. The module provides high reliability, outstanding performance under severe conditions (foliage, urban canyons) and ease of integration as an embedded receiver; it will soon be available with built-in WAAS or EGNOS DGPS.

The ***SUPERSTAR II*** is similar to the highly popular ***SUPERSTAR I*** and ***ALLSTAR*** high-end OEM receiver, offering the same robust signal tracking and unsurpassed tracking capability under foliage.

The ***SUPERSTAR II*** is the only low-cost GPS OEM receiver on the market offering sub-meter DGPS capability. It is designed to operate with either an active or a passive GPS antenna, at the lowest system cost.

Optional features include carrier phase measurements at 1 Hz and selection of straight or right angle connectors for I/O and RF. The GPS OEM module also features a timing option, which provides an accurate 1PPS timing pulse aligned with UTC for use in precise network synchronization applications.

The ***SUPERSTAR II*** also provides spare memory: up to 128K SRAM, 768K FEROM and a minimum of 30% ARM-7 CPU power embedded into the correlator chip to enable the incorporation of a user-specific functionality within the receiver. The intent is to enable system integrators to embed part or all of their functionality requirements within the GPS OEM module and reduce overall system cost, size and power consumption. Application Programming Interfaces (API) have been implemented in the ***SUPERSTAR II*** firmware.

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SUPERSTAR II 12-CHANNEL GPS RECEIVER OEM MODULE - SPECIFICATIONS

GENERAL

12 PARALLEL TRACKING CHANNELS, "ALL-IN-VIEW" RECEIVER MODULE

L1 Frequency	1,575.42 MHz
Coarse Acquisition	C/A code (1.023 MHz chip rate), code and carrier phase tracking
Minimum Tracking Sensitivity	-135 dBm (antenna input level)
DGPS	Standard RTCM-104 or optional WAAS/ EGNOS

PERFORMANCE

Velocity	1852 km/h (514 m/sec) (limited by U.S. and Canadian export laws)
Acceleration	4 Gs (39.2 m/sec^2) Jerk: 2 m/sec^3
Position Accuracy	<1 m circular error probability (CEP), DGPS RTCM-104
	<1 m circular error probability (CEP) WAAS/ EGNOS DGPS
	< 5 m circular error probability (CEP), stand-alone mode without S/A imposed
	<25 m circular error probability (CEP), stand-alone mode with S/A imposed
Altitude	60,000 ft (18 km)
Time to First Fix	Hot start: 15 sec. typical, with current almanac, position, time and ephemeris
	Warm start: 45 sec. typical, with current almanac, position and time
	Cold start: 2 min. typical, no almanac, no position and no time
Re-acquisition Time	<1 sec. typical to re-acquire (5 sec. obscuration)
	<3 sec. typical to re-acquire (60 min. obscuration)

INTERFACES

Prime Power	5.0 VDC (+ 0.5/- 0.25) INPUT (50 mV p-p ripple max) or optional 3.3 VDC INPUT
	0.8 W at 5 VDC or 0.5 W at 3.3 VDC with passive antenna
	"Time-Keeping" Power: Supercap on-board for warm start operation 3 days minimum
	or 2.5 to 4.5 VDC external input: <1 µA (5V) or <0.3µA (3V)
Serial Communications	2 x RS-232 (TTL level) Optional through RS-232 output asynchronous data ports; TX1-RX1, TX2-RX2
	9,600 baud standard (user-selectable from 300 to 19,200 bauds)
Input Messages	
Rx 1: NMEA/Binary	Set altitude, position, date and time selectable output messages and rates
Rx 2: RTCM SC-104	Message types 1, 2, 9
Output Messages	
Tx 1: NMEA	GGA, GSA, GSV, RMC, VTG, ZDA, GLL plus proprietary messages
or Binary	All data available on NMEA messages plus ephemeris, channel assignments, self-test
	result (BIT), others (integrated carrier phase data optional 1 Hz)
Tx 2:	Spare
Time Mark Output	1 pulse/sec., aligned with GPS time (± 200 ns, typ. in absolute mode)
	(± 50 ns typical, in relative mode), with SA imposed
Discrete	3 general purpose input/output lines

PHYSICAL

Dimensions	1.8 in. W x 2.8 in. L x 0.51 in. H; (46 x 71 x 13 mm)
Weight	0.05 lb (22 g)
Operating Temperature	-30 to +75°C
Storage Temperature	-55 to +90°C
Humidity	5% to 95% relative humidity, non-condensing to +60°C

For a list of part numbers refer to the latest GPS OEM price list

BAE SYSTEMS

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