

MSI PC/104 Embedded PC Series

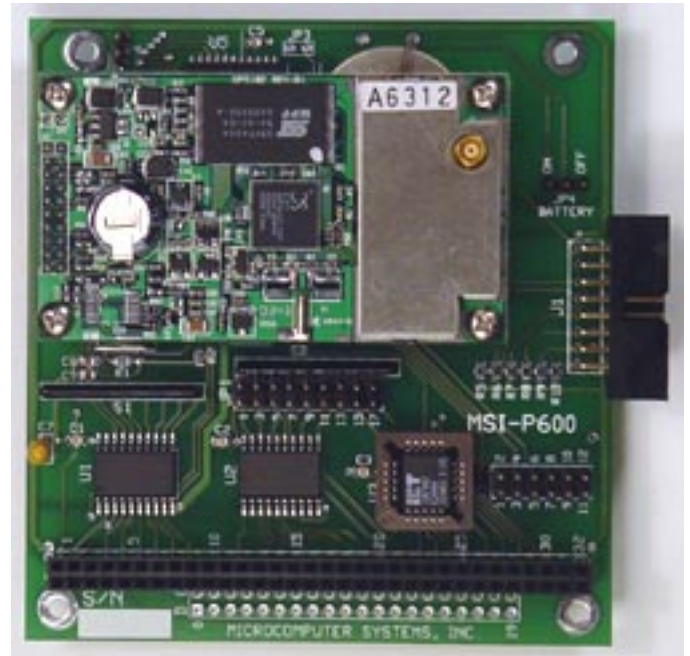
MSI-P600 GPS and Digital I/O Card

FEATURES

- ◆ SiRF GPS Architecture providing Star II high performance and low power chip set.
- ◆ Supports standard NMEA 0183 protocol.
- ◆ All in-view 12-channel parallel processing.
- ◆ SnapLock 100ms re-acquisition time.
- ◆ Average cold start under 45 seconds.
- ◆ Superior urban canyon performance.
- ◆ Full-duplex serial port for navigation and control.
- ◆ Differential GPS capability through secondary serial port.
- ◆ Active antenna with 5 meter (16.5 ft.) cable.
- ◆ TTL digital I/O port with 4 inputs and 4 outputs.
- ◆ Jumper selectable address and interrupt options.
- ◆ Operating temperature range -40° C to 80° C.
- ◆ One-year warranty from date of shipment.

DESCRIPTION

The MSI-P600 is a low cost, high performance global positioning system with NMEA 0183 and SiRF binary protocols. Software selectable NMEA protocols using the primary serial port are GGA, GSA, GSV and RMC with optional VTG and GLL. GPS data is selectable at programmable repetitive

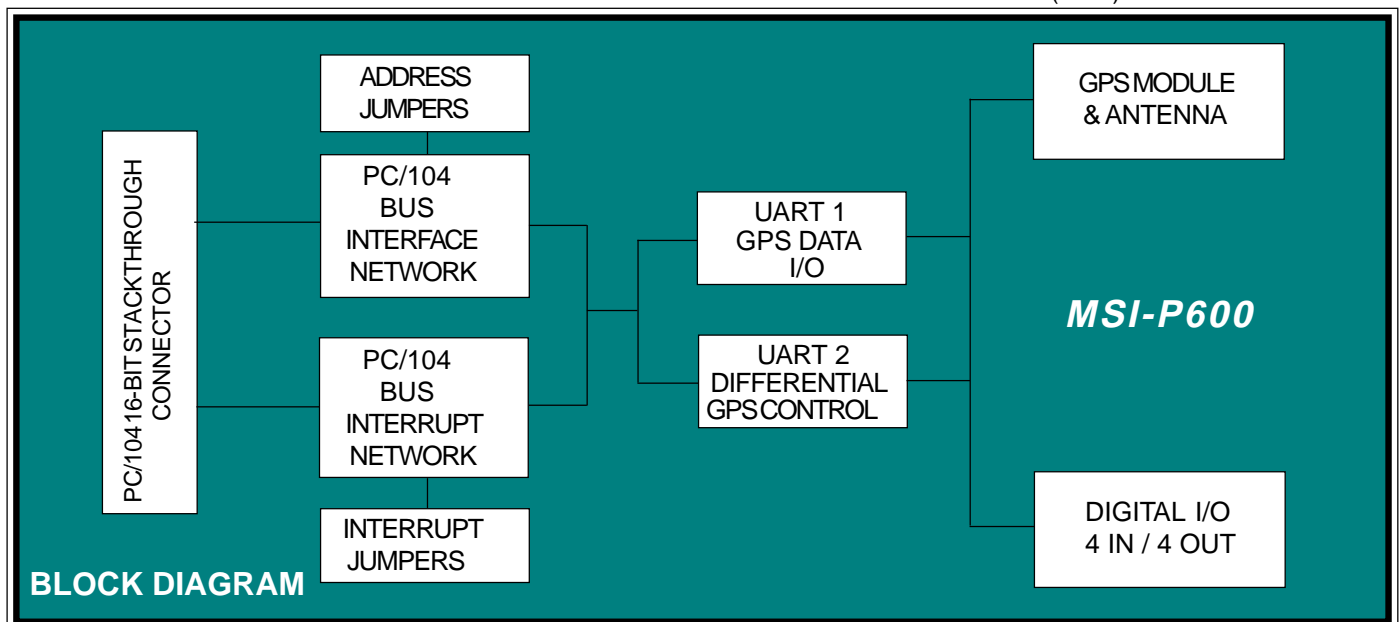


rates from 1 to 255 seconds, or on demand only. Baud rates are selectable from 1200 to 38,400 with a default rate of 4800.

The DGPS protocol is RTCM SC-104, version 2.00, types 1, 2 and 4. DPGS control data is entered through the secondary serial port.

The serial ports are standard IBM PC compatible UARTs. The primary port is jumper selectable for COM1, COM3 or an offset address. Similarly,

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the secondary port is selectable at COM2, COM4 or an offset address.

A time mark of 1 PPS is available as an interrupt or as input into modem status line DCD of the secondary UART for synchronizing events. The primary UART interrupt is also provided for allowing interrupt processing of GPS data. Interrupts are jumper selectable for IRQ3 thru IRQ7 and IRQ9.

Four TTL level digital inputs are provided by status lines CTS and DSR of the primary and secondary UARTs. Four TTL level outputs are provided by OUT1 and OUT2 of these UARTs.

The card is supplied with an active antenna having a 5 meter (16.5 ft.) cable and a spacer kit. A sample BASIC test program is supplied that illustrates programming of the UARTs for various NMEA protocols. A BASIC interpreter for running this program is available at no charge.

SPECIFICATIONS

PC/104 8-bit, stackthrough

GPS Receiver

Frequency	L1, 1575.42 MHz
C/A Code	1.023 MHz rate
Channels	12
Sensitivity	-170 bBW

GPS Accuracy

Position	15m 2d RMS (SA off) 10m 2d RMS, WAAS (SA off) 1~5m, DGPS corrected
Velocity	0.1m/sec 95% (SA off)
Time	1 usec sync'ed to GPS time

GPS Datum

WGS-84

GPS Acquisition Rate

Re-acquisition	0.1 sec., average (recovery time for being interrupted)
Hot Start	8 sec., average (with ephemeris and almanac valid)
Warm Start	38 sec., average (with almanac but not ephemeris)

Cold Start	48 sec., average (neither almanac nor ephemeris)
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GPS Dynamic Condition

Altitude	18,000 m (60,000 ft.) max
Velocity	515 m/sec (1000 knots) max

GPS Code Type

ASCII

GPS Protocol

NMEA0183	GGA, GSA, GSV, RMC (VGT and GLL optional)
SiRFBinary	Position, velocity, altitude, status and control

DGPS Protocol

RTCM SC-01, Ver. 2.00, types 1, 2 and 9

GPS Time Mark (1 PPS)

Pulse Duration	100ms
Time Reference	Positive Transition Edge
Synchronization	To GPS seconds, +/- 1us

GPS Antenna

Active	with 5m (16.5 ft) cable
Model	Connector Type
MSI-P600	MCX
MSI-P600-SMA	SMA

Digital I/O Port

4 Input	TTL level (Inverted)
4 Output	TTL level (Inverted)

Serial Ports

Primary	NMEA 0183 I/O data (jumper selectable as COM1, COM3 or offset)
Secondary	DGPS control data (jumper selectable as COM2, COM4 or offset)

Option Jumpers .025" square posts, 0.1" grid

Digital I/O Connector 3M 30316-5002

Electrical & Environmental

+5V @ 70 mA typical, continuous mode
+5V @ 45 mA typical, power save mode
-40° to 80° C



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