MSI PC/104
Embedded PC Series

MSI-P700 IEEE 802.15.4 Wireless Card with Analog and Digital I/O

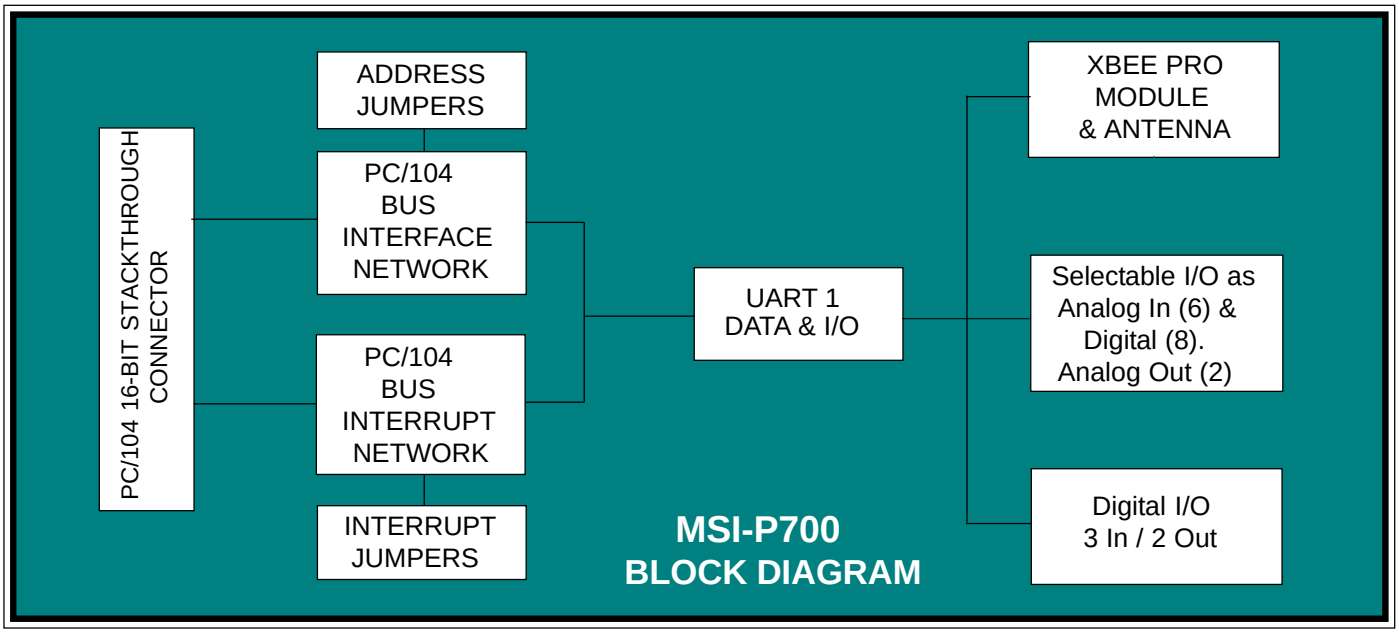
FEATURES

- Indoor/urban Range: Up to 300' (100 m).
- Outdoor line-of-sight Range: Up to 1 mile (1.6 km).
- Transmit Power Output: 60 mW (18 dBm).
- Operating Frequency: 2.4 GHz.
- RF Data Rate: 250,000 bps.
- Receiver Sensitivity: -100 dBm (1% PER).
- Serial Port: Selectable for COM1 thru COM4 with optional 16-bit offset address.
- XBee Analog Inputs: 6 selectable 10-bit channels.
- XBee Analog Outputs: 2 channels.
- XBee TTL digital I/O: 1 input and 6 selectable as input or output.
- UART TTL digital I/O: 3 inputs and 2 outputs.
- Antenna Connection: RPSMA connector
- Address and interrupt options: Jumper selectable.
- Operating temperature range: -40° C to 85° C.
- Warranty: One-year warranty from date of shipment.

DESCRIPTION

The MSI-P700 is a low cost, high performance wireless card providing IEEE 802.15.4 protocol using the XBee PRO module operating at an rf frequency of 2.4 GHz. The module is configured to support NonBeacon communications that operate in a Peer-to-Peer network topology not dependent upon the Master/Slave relationships. Modules remain synchronized without use of master/server configurations for rapid synchronization times and fast cold start times. It can also be programmed for NonBeacon mode as either a Coordinator or End Device. The Coordinator mode can be configured to use either direct or indirect transmissions. It will also support Unicast or Broadcast communications.

A 16C550 UART interfaces the XBee module to the PC/104 bus. The UART provides a 16 byte transmit and receive FIFO and baud rates are programmable



from 1200 to 115,200 bits/s. Automatic hardware RTS and CTS flow control is used to prevent overflow of the local receiver and remote receiver FIFOs. The card I/O address is jumper selectable for COM1 thru COM4 with an optional 16-bit offset address. Interrupts are jumper selectable for IRQ3 thru IRQ5 and IRQ9 thru IRQ15.

The XBee I/O provides 6 lines individually selectable as either an analog input (0-5V range, 10-bit resolution) or a TTL input or output, and 1 TTL input. Two XBee analog outputs (0-5V range, 10-bit resolution) are also provided. Unused UART control lines provide 3 input and 2 output TTL lines. All I/O lines have varistor suppressors for surge voltage (lightning, etc.) protection.

The antenna connection to the card is provided by a SMA bulkhead connector. A 6" cable attaches this connector to the rf module which permits its removal from the card bracket for mounting into the user enclosure as an option.

A sample BASIC test program is supplied that illustrates programming of the card for various XBee PRO commands. A BASIC interpreter for running this program is available at no charge.

SPECIFICATIONS

PC/104 Bus 16-bit, stackthrough

XBee PRO Module

Indoor/urban Range:	Up to 300' (100 m).
Outdoor Range:	Up to 1 mile (1.6 km) line-of-sight.
Transmit Power Output:	60 mW (18 dBm) 100mW (20 dBm) EIRP.
Operating Frequency:	2.4 GHz.
RF Data Rate:	250,000 bps.
Receiver Sensitivity:	-100 dBm (1% PER).
XBee Analog Inputs:	6 selectable 10-bit channels, 0-5V range.
XBee Analog Outputs:	2 channels 10-bit, 0-5V.
XBee TTL digital I/O:	1 TTL input and 6 selectable as TTL input or output if not assigned as an analog input.

Serial Port

UART:	16C550
I/O Address:	Jumper selectable as COM1 thru COM4 with an optional 16-bit offset.
Interrupts:	Jumper selectable for IRQ3 thru IRQ5 and IRQ9 thru IRQ15. Selectable 1K pull-down resistor.
Digital I/O:	3 TTL Input. 2 TTL Output.

I/O Connectors

XBee Analog I/O:	3M 30316-5002
XBee Digital I/O:	3M 30316-5002
UART Digital I/O:	3M 30310-5002

Option Jumpers .025" square posts, 0.1" grid

Electrical & Environmental

+5V @ 70 mA typical, idle/receive mode

+5V @ 205 mA typical, transmit mode (10 dBm)

+5V @ 285 mA typical, transmit mode (18 dBm)

+5V @ 45 mA typical, power save mode

Operating Temperature: -40° to 85° C

Ordering Information

MSI-P700	AIO & DIO w/RPSMA bulkhead
MSI-P700-X	Excludes I/O w/RPSMA bulkhead

Accessories

MSI-WiPort-Ant

Omni-directional "Rubber Duck" antenna, 2.4 GHz, 3 dBi, Reverse Polarity SMA.

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