



# RF INNOVATIONS

## Introducing the **PICCOLO SERIES**

### *433MHz Licence-Free High Speed Radio Modem*

*The Piccolo 433MHz radio modem is a licence-free high performance data radio capable of functioning in difficult RF environments with raw air data rate of up to 38.4kbit/s. This low current consumption and versatile radio is the affordable wireless communications solution for short to medium distance data applications such as remote solar powered sites.*

#### **Features**

- OEM version available
- Up to 5km line of sight\*
- Dual RS232 ports (RJ45)
- Interface speeds up to 38.4kbit/s
- CRC with software selectable ARQ
- RF power up to 25mW software selectable
- Can be commissioned without test equipment
- Easy network configuration and management
- Low power consumption with power saving modes
- Front LED indicators for signal strength and status



#### **Applications**

*The Piccolo 433MHz radio modem is capable of interfacing with virtually any standard RS232 device, such as PLC, data loggers or desktop computers.*

*With flow control, the Piccolo transparently moves data from end to end at speeds of up to 38.4kbit/s, transparently moving data between each end. Supporting time division duplex data applications, the Piccolo 433MHz radio modem is suited for applications ranging from small point-to-point links through to large broadcast point-to-multipoint data communication networks.*

*Depending upon the geography and terrain, the Piccolo 433MHz radio is capable of communicating reliably up to 5km line of sight\*. This low cost radio modem can perform as a store and forward repeater to extend the range and also be used with other RF Innovations' radio modems and I/O modules.*

*\*Maximum practical point-to-point distance with suitable antennas.*



Available from:  
Esis Pty Ltd  
PO Box 450, Pennant Hills NSW 1715 Australia  
Ph 02 9481 7420 Fax 02 9481 7267 [www.esis.com.au](http://www.esis.com.au)

Low Cost Radio Modem

**Variable Data Rate**

The Piccolo features selectable over the air data rate to accommodate for path and background noise/interference. Users are able select higher rates for shorter distances or lower rates for more reliable signal propagation in difficult environments.

**Frequency Hopping Spread Spectrum**

Users can select a particular channel or hop between frequencies in order to avoid jammed or occupied channels.

**Diagnostics at a Glance**

The front panel LEDs display diagnostic information indication such as Receive Signal Strength (RSSI), transmit power, radio temperature and RS232 port status.

**Low Power Consumption**

With three different power saving modes, the Piccolo 433MHz radio modem is ideal for solar applications with current draw of down to 1mA.

**Data Integrity**

User selectable Automatic Repeat Request (ARQ) offers a high level of data integrity. The immediate re-transmission of data ensures that the user will not encounter end to end errors or data loss even in hostile environments.

**Network Expansion**

The Piccolo can be configured for store and forward operation, increasing distances between communication points.

**Easy Network Configuration**

The Piccolo's Java-based network management framework allows the user to configure, save and upload radio configuration settings. The load and save functions allow numerous radios to be configured more efficiently by uploading a generic configuration template to each radio.

**Easy Network Management**

The user is able to view diagnostics and change the settings of other remote radios within a network from a single point.

# SPECIFICATIONS

PHYSICAL		CONNECTORS	
Dimensions	L: 130mm x W: 80mm x H: 45mm	Antenna	SMA Female
Weight	300g	Serial	2 x RJ45 Female
- With housing	70g	Power	Phoenix MSTB2.5/2-GF-5.08
- OEM board only			
Construction	Powder-coated aluminium chassis and cover		
MODEM		RADIO	
Serial Data	RS232 Asynchronous with handshaking	Frequency Range	433.05MHz to 434.79MHz Frequency Hopping
Interface Speed	300, 600, 1200, 2400, 4800, 9600, 19200, 38400bps software selectable duplex mode	Mode of Operation	Point-to-Point, Point-to-Multipoint, Broadcast, Hayes AT Command
GENERAL		RF Data Latency (end to end)	Minimum 20ms
Operating Voltage	8V to 35V DC	Air Data Rate	9600, 19200, 38400bps software selectable
Operating Current	50mA nominal @ 25mW	Transmit Power	25mW / +14dBm
- Transmit (@ 12.5V)	30mA nominal	Channel Bandwidth	20, 40, 200kHz software selectable
- Receive (@ 12.5V)		Modulation	2-Level FSK
Operating temperature range	-10 to +60°C	Receiver Sensitivity	-107dBm @ BER 10 <sup>-6</sup> @ 9600bps (reference sensitivity)
Operating humidity range	Up to 95% non condensing relative humidity		
Approvals	ACA approval for licence-free use, ETSI LIPD Class Licence ready		

**Typical Applications:**

