

STAMPER™ 900MHz RF Data Modem

optimized for

Wireless PBASIC Programming & Debugging

Full-duplex, 9600 bps transparent communication

Ewave, Inc.

www.electrowave.com

Revision 1.0

Ewave's STAMPER™ RF Data Modem is a member of Ewave's family of *application specific* data radios. It is an *intelligent* wireless link optimized for *wireless* programming and debugging of the Parallax BASIC Stamp (PBASIC) processor. This product is a true "drop-in" replacement for a serial cable. The STAMPER allows wireless real-time debugging or monitoring of your PBASIC code. The STAMPER can also be used as a general-purpose, highly reliable full-duplex 9600 bps wireless data link between a Stamp and PC or two Stamps using simple BASIC "print" statements.

Wireless communication couldn't be easier: The STAMPER's on-board protocol CPU frees your application of low-level communication details by buffering and packetizing your data, calculating and checking error detecting codes (CRC), and implementing an automatic acknowledge/retry protocol. All this while providing *sustained* bi-directional data streams at 9600 bps!

Our high performance design employs a matched pair of transceivers for true "full-duplex" operation. The radio transceiver allows simultaneous transmission of data on one radio frequency while receiving data on a second radio frequency offset by 25MHz. Ewave refers to these pairs of transceivers as "base" (long, rigid antenna) and "mobile" (short rubber antenna) units.



FEATURES & BENEFITS

Wireless Debugging/Programming

- Drop in serial cable replacement for BASIC Stamp Programming and Debugging.
- Automatic protection from errors and interference via 16-bit CRC and automatic Retry/Acknowledge.
- Works with all Parallax BASIC Stamps including BS2, BS2e, BS2sx and BS2p modules.

General Modem Features

- Uses Ewave's proprietary **RF10K DualDSP™** modem core.
- 100 to 300 feet range.
- **FCC certified 900 MHz** (no user license required.)
- Connect via standard serial RS232 DB-9 (consult factory for other interface options.)
- Full duplex, allowing simultaneous transmission and reception of data.

- Transparent, simple operation: Looks like a serial cable to your application.
- Dynamic packetization of data for *maximum* throughput with *minimum* latency.
- Integrated antenna.
- Operation from regulated 5VDC or unregulated ~7.2-10VDC (in which case the modem can supply 5V, 40mA to another device); 3.3V version also available.
- Status LEDs indicating Transmit and Receive Activity, Transmitter Power On/Off and Command/Data Mode.
- 9600 bps sustained data throughput.
- 5 user-selectable channels (consult factory for other channel options.)
- High data reliability via transparent, automatic Retry/Acknowledge.
- Support for RS232 "Break" conditions and RTS/CTS control signals.

SPECIFICATIONS

Performance

Burst Data Rate	38.4 Kbps
Sustained Data Rate	9600 bps or 1071 bytes/sec
Latency (minimum.) *1	6 milliseconds
Range (typical)	100 to 300 feet

- Other Ewave modem models specifically optimized for latency achieve lower values. Contact Ewave.

Protocol

Packet Size	Dynamic (1-28 bytes)
Error Detection	16-bit CRC
Redundancy	Acknowledge/Retransmit

Radio

FCC ID	ORXRF10K
Frequency	902-928 MHz
Available Channels *3	4, 13, 22, 31, 40
TX Power (Watts)	1.0 mW
Modulation type	Manchester encoded MSK
Transmission	Narrow band FM +/- 8kHz

Interfacing

Data/Control Port	RS232, DB9, female
Power Port *2	2.1mm, ground outside

- Regulated 5V can be supplied through DB9 connector; see pin-out.
- Additional channel capability available. Contact Ewave.

Power

Voltage (VDC) *4,5	5.0 reg. or 7.2-10 unreg.
Current (A)	140 mA (TX pwr on)
Current (A)	100 mA (TX pwr off)

- Operation from higher unregulated voltage is possible, but increases heat dissipation. Contact Ewave.
- 3.3V version also available. Contact Ewave.

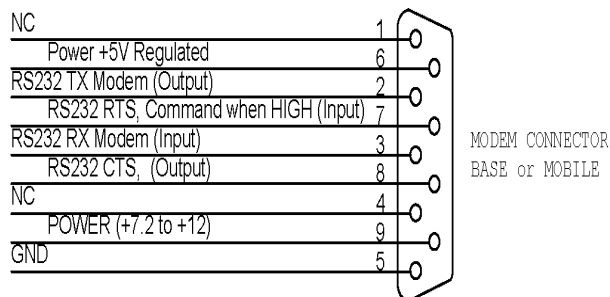
Environmental

Temperature (operating)	50°-110°F	10°-43°C
Temperature (storage)	-40°-176°F	-40°-80°C
Humidity (maximum)	90%, non-condensing	

Mechanical

Dimensions	1.07" x 2.02" x 4.70"
Antenna Length	1.80"(mobile) 5.90"(base)
Shock & Vibration Resistance	very robust (10' drop to concrete)
Packaging	high-impact ABS plastic

PIN-OUT



CONNECTOR DB9, FEMALE

Consult the Reference Manual for 9 pin PBASIC Stamp adapters included with the Professional Package.

ORDERING

Ewave P/N	Description
STA-PRO	Professional pkg, includes DB9 adapters for connection to BASIC Stamp programming port (Parallax BASIC Stamp not included).
STA-PAIR	pair of STAMPER (base, mobile)
STA-MOBL	single STAMPER (mobile-type)
STA-BASE	single STAMPER (base-type)

MORE INFORMATION

Additional information is available on Ewave's **Web Site:** <http://www.electrowave.com> including the **Modem Technical Reference Manual**, sales literature, and the latest product news.

CONTACTING EWAVE

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