



## L-Band/Beacon Receiver



L-Band/Beacon Receiver comprises two radio sections: L-Band receiver (1518 MHz to 1559 MHz) and Marine Radiobeacon receiver (283.5 to 325 kHz).

L-Band receiver complies with INMARSAT SDM Technical Specification for narrow band point-to-multipoint receivers as defined in INMARSAT-A Mobile Earth Station Technical Bulletin, SESTB 28A, August 1993. L-Band receiver is designed for multiple applications including particularly geostationary satellite communication networks satellite services.

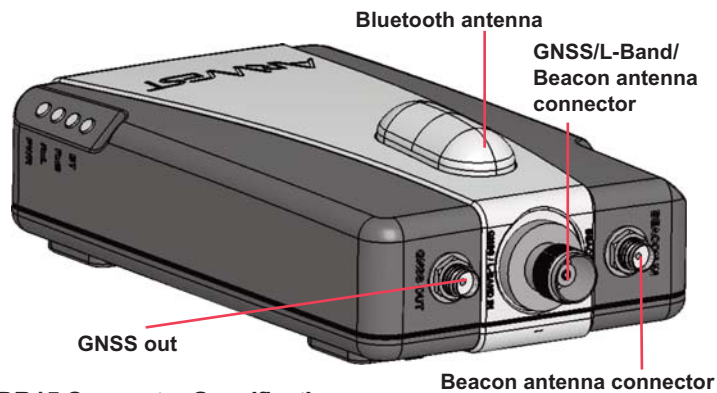
Potential applications are differential GPS correction parameter distribution, financial data distribution, news, weather and sport information distribution, store and forward audio distribution, facsimile and image distribution, control of remote equipment.

Marine Radiobeacon receiver (283.5 to 325 kHz) or Beacon receiver complies with Broadcast Standard for the USCG DGPS Navigation Service COMDTINST M16577.1. Beacon receiver is designed to receive pseudorange corrections transmitting by Radiobeacon stations. Maritime Radiobeacon DGNSS systems according to RTCM SC-104 version 2.3 are usually capable of broadcasting the following RTCM messages: 1, 2, 3, 5, 6, 7, 9, 15 (seldom), and 16. Radiobeacons are widely used throughout the world. DGNSS Radiobeacon transmissions meet stringent integrity and reliability requirements mandated by the International Association of Lighthouse Authorities. The flash memory is re-programmable through an RS-232 interface, USB, and Bluetooth.

# L-Band/Beacon Receiver

## Radio Technical Specifications

Component	Details
Frequency Range	1518 - 1559 MHz
Frequency Offset	± 3.0 kHz (~ 2 ppm)
Channel Spacing	6.25kHz, 12.5kHz, 25kHz
User Data Rates	300, 600, 1200, 2400, 4800 bps
High Power Channels	User defined
Low Power Channels	User defined
Service Identifier	User defined
Scrambler Vector	User defined
Tuning Mode	manual/automatical
Sensitivity	-120 dBm for <math>10^{-3}</math> BER@1200bps
Dynamic Range	80 dB
Adjacent Channel Rejection	60 dB
Start Time	<1 min
Output Data Format	Raw Data
Input/Output	Serial (RS-232) up to 115200 bps Serial port configurable as RS-232 or RS-422, or RS-485
USB	USB 2.0 device port
Bluetooth	Bluetooth V2.0 Class 2 supporting SPP Slave and Master Profiles
Bluetooth Antenna	Embedded



## DB15 Connector Specification

Pin #	Signal Name	I/O	Description
1	DCD_OUT	O	Data Carrier Detect (RS-232)
2	DTR_OUT	O	Data Terminal Ready (RS-232)
3	RX+/CTS_IN	I	Receive Data positive line (RS-422)/ Clear to Send (RS-232)
4	RX-/RX_IN	I	Receive Data negative line (RS-422)/ Receive Data (RS-232)
5	PWR_IN	I	+9 to +36 VDC Power Input
6	USB_PWR	I	Power Input line (USB)
7	Ground	-	Power Ground
8	PWR_IN	I	+9 to +36 VDC Power Input
9	DSR_IN	I	Data Set Ready (RS-232)
10	TX+/RTS_OUT	O	Transmit Data positive line (RS-422) / Request to Send (RS-232)
11	TX-/TX_OUT	O	Transmit Data negative line (RS-422) / Transmit Data (RS-232)
12	Ground	-	Power Ground
13	USB_D+	I/O	Positive line (USB)
14	USB_D-	I/O	Negative line (USB)
15	Ground	-	Power Ground

## Environmental Specifications

Parameter	Specification
Temperature	Operating -40°C to +70°C Storage -40°C to +85°C
Environmental	IP 66
Dimensions (H x W x D)	146 mm x75 mm x44 mm
Weight	488 g
Power Supply Voltage	+9 to +36 VDC nominal
Power Consumption	1.4 W
Housing/Color	Aluminum / Two-tone Silver / Gray
GNSS /L-Band/ Beacon Antenna Connector	TNC, 50Ω ANT_PWR* On/Off
Beacon Antenna Connector	SMA, 50Ω ANT_PWR* On/Off
GNSS Out Connector	SMA, 50Ω

\*ANT\_PWR - user configurable voltage 6V, 12V and <200mA current.

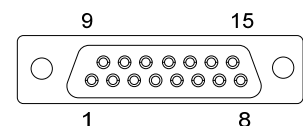
## Beacon Receiver Specification

Component	Details
Frequency Range	283.5- 325 kHz
Channel Spacing	500 Hz
Bit Rates	50, 100, 200 bps (manual or Auto selection)
Channels	2-channel, parallel operating
Operation Mode	manual/automatic
Adjacent Channel Rejection	65 dB ± 1 dB @ for ± 400 Hz
Cold Start Time	<1 min
Warm Start Time	<2 seconds
Modulation	Minimum Shift Keying (MSK)
Sensitivity	1.5 μV/m for 6 dB SNR (200 bps)
Dynamic Range	100 dB
Frequency Offset	± 0.5 Hz (~ 1.5 ppm)
Correction Output Protocol	RTCM SC-104

## L-Band Receiver Specification

Component	Details
Input Impedance	50 Ohms
Max Overload Input Signal of Normal Power Level	+ 0 dBm
Satellite Symbol Ratio	609.5, 1219.05, 2438.1, 4878.2, 9752.4 symbol/second
Assigned Bandwidth	1.25, 2.5, 5.0, 7.5, 15.0 kHz
Modulation Type	filtered BPSK
Filtering	40% square-root raised cosine
Channel Coding	Rate 1/2 convolutional Constant K=7
Decoding Algorithm	Viterbi
Channel Scrambling	√35 prior to FEC as defined in Inmarsat-M (Scrambler vector related to Service identifier)
Frame Length	8192 symbols
Unique Word Length	2 x 32 bits (not encoded or scrambled)
Spare Byte	8 bits (encoded but not scrambled)
Eb/N0 for BER = 10 <sup>-5</sup>	5.5 dB

## DB15 Female



This connector provides DB15 connectivity for the L-Band-Beacon receiver with DTE.

About using and configuration RS-485 and RS-422 please contact support@arwestcom.com

Specifications are typical and subject to change without prior notice