



## Blue Water Design LLC

### Model R2011LP ALERT2 Repeater



#### Description

The R2011LP is a low power, high performance rack mounted receiver, demodulator and decoder and encoder, modulator and transmitter for an ALERT2 network . It is designed for unattended remote operations using reliable operating systems and hardware. The R2011LP is highly configurable and allows users to remotely access data. The R2011LP meets the NHWC ALERT2 AirLink v1.1, MANT v1.1 and all Mandatory, most Recommended and Optional API v1.0 Protocol specifications. (Refer to software release notes for specific supported API commands.)

#### ALERT2 Receiver - Demodulation – Decoding features

- Integral Ritron DTX-145 VHF or DTX-445 UHF transceiver for receiving; radio channel switch selectable (under the top cover); and external Ritron programming connector.
- High performance Digital Signal Processor ALERT2 demodulation and Forward Error Correction decoding.
- Configurable TCP/IP streaming of received ALERT2 messages and error messages; configurable for multiple client connections; multiple server connections supported.
- TCP/IP data connections are individually configurable as either ASCII or binary ALERT2 API output.
- RS232 serial port streaming of received ALERT2 messages and error messages; configurable serial port parameters.
- microSD card stores all decoded ALERT2 messages and error messages.
- remote access via TCP/IP (SSH & SCP) to logged data and decoder configuration.
- RS232 serial ASCII console port for configuration of the decoder.
- Front panel LED display indicating ALERT2 message “Bit Synchronization” and “Frame Synchronization” and “Power” (heartbeat).
- Optional external receiving radio connection.

#### ALERT2 Encoding – Modulation – Transmitter features

- Integral Ritron DTX-145 VHF or DTX-445 UHF 5 Watt transceiver for transmissions.
- Adjustable audio level output for alternative transmitting radios.
- RS232 serial ASCII console port for configuration of ALERT2 Encoding, Modulation and Transmission parameters, encoder board port configuration and activity & error serial output.
- One additional RS232 serial input for ALERT binary (concentration) input or API input and output; optional second RS232 serial input for ALERT binary (concentration) input.
- Inputs are configurable for separate ALERT2 Source Addresses, unique from the Repeater (IND) Source Address.
- Integral GPS module for maintaining ALERT2 TDMA transmission timing; encoder sources 3.3 V DC for GPS antenna with integrated LNA.
- Very high stability clock oscillator minimizes GPS timing synchronization activity and power consumption.
- Front panel LED display of “Radio On (powered)”, “(Radio) transmitting”, “GPS On”, “GPS Locked (on last attempt)”, “Serial 0 (input)” and “Serial 1 (input)”.

(physical) 3131 75th Street, Suite 260, Boulder CO 80301; (mailing) PO Box 879, Niwot, CO 80544-0879; (phone) (720) - 775-7109



### Connections/Interfaces (rear panel)

Label	Connector	Notes
Power	2 pin 3.81 mm header	DC, 12.0 Volts nominal
GPS	SMA, female	RF input, 50 ohm, and 3.3V DC source for GPS antenna with LNA
TX RF	BNC, female	RF output, VHF/UHF TX transceiver, 50 ohm, 5 W nominal (VHF)
RX RF	BNC, female	RF input, VHF/UHF Receiver transceiver, 50 ohm
RX DTX Prg	DB25, female	I/O for Ritron DTX programming cable; R2011 must be powered, RX transceiver must be Ritron Inc.
Decoder, Serial Out	NOT USED	
Decoder, Console	DB9, male	RS232, DTE, ALERT2 decoder serial console input/output; 115200 baud, 8N1 (typically)
Ethernet 0	RJ45	Ethernet IP connector, 10/100, (TCP, UDP, DHCP, NTP, SSH, etc.)
Ethernet 1	NOT USED	
Encoder, Serial in	DB9, female	RS232, DCE, ALERT2 encoder serial input (API or ALERT binary); serial parameters set in encoder configuration
Encoder, Console	DB9, female	RS232, DCE, ALERT2 encoder console input/output; 56200 baud, 8N1 (typically)

Specifications					
	Min	Typical	Max		Notes
Power Supply	9		17	Volts DC	Not Reverse Polarity Protected
Power		1.8		Watts	receiving only
Power		4.25		Watts	5W TX, 33% duty cycle
Temperature Range	-10		60	deg C	operating (specifications)
Size	2U high 19" rack				
	17" (W) x 13" (D) x 3.5" (H)			inches	cabinet size (w/o side flanges)
		0.75" (D)		inches	max connector protrusion, rear panel
		0.125" (D)		inches	max (LEDs) protrusion, front panel
	1" (W) x 3.5" (H)			inches	rack mount side flanges
Weight		8.5		pounds	

September 2015 Preliminary.

Specifications subject to change .