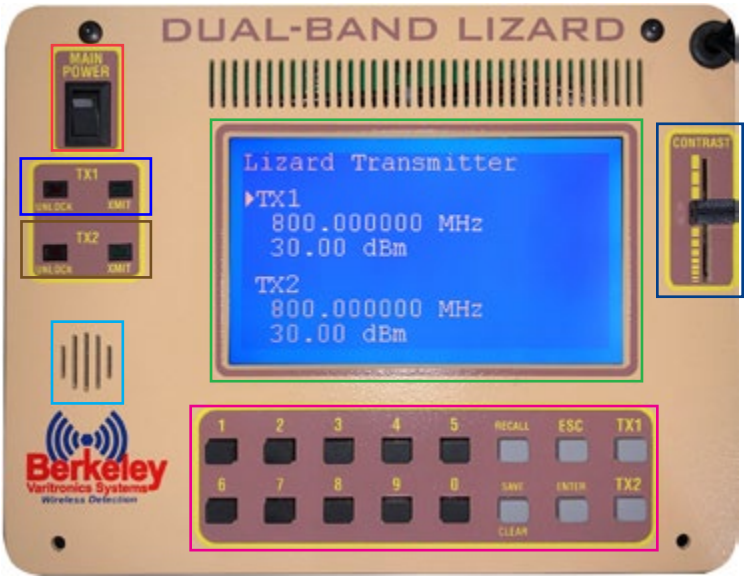
DUAL-BAND LIZARD

manual version 1.3

Contents

Dual-Band Lizard TOP PANEL



TX1:
XMIT(Green)- Lit when the associated transmitter is on.
UNLOCK(Red)- is lit if the associated transmitter has an RF problem - contact factory.

TX2:
same as TX1

CONTRAST SLIDE CONTROL:
Adjusts the contrast of the LCD display.

AUDIO SPEAKER:
Outputs tones that indicate Dual-Band Lizard functions.

640 x 240 (12/ VGA) LCD DISPLAY

KEYPAD:
1-9,0 are used for frequency and channel entry.

ENTER is used to initiate parameter entry in the main screen and to display unit information in the main menu.

ESC is used to exit entry and to enter the main menu. It is also used to exit menus to return to the main screen.

TX1 is used to turn on and off transmitter 1.

TX2 is used to turn on and off transmitter 2.

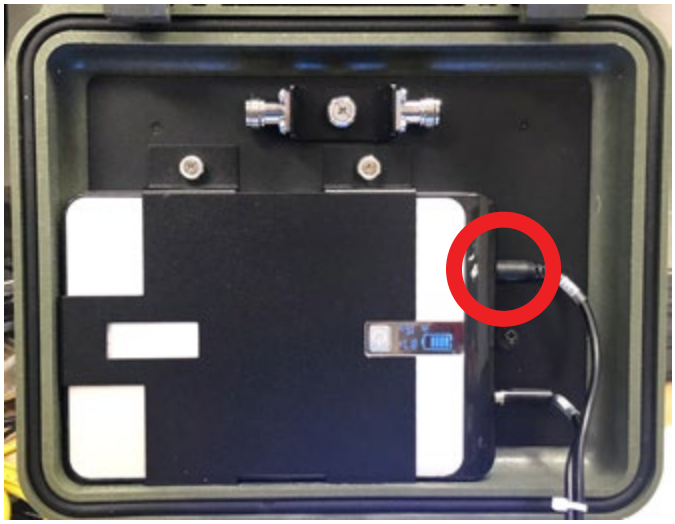
RECALL is used to enter the frequency/power recall menu as well as an UP arrow for navigation.

SAVE/CLEAR is used to enter the frequency/power save menu as well as an DOWN arrow for navigation.

MAIN POWER ON/OFF SWITCH

Dual-Band Lizard BATTERY & CHARGING

Lizard includes a removable battery mounted under the case lid to provide up to 2 hours of DC power while running both Tx modules simultaneously. This battery can be charged by connecting the external power supply to the 19 V input on the rear of the Lizard using the provided power supply. You can confirm battery charging status by checking the blue LEDs dirctly on the battery mounted inside the case lid. Blinking LEDs indicate charging still in progress while solid LEDs indicate battery is fully charged. If no LEDs are on when external power is applied, check battery for faulty connection.

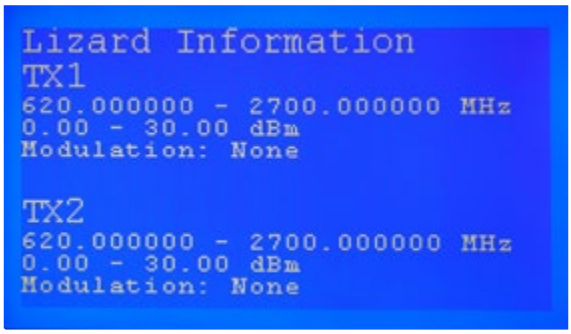


NOTE: Be sure to unplug the top power connector from the battery when you are not using your Lizard or else battery power will deplete over time.

Dual-Band Lizard STARTUP SCREEN

Upon powering up the Dual-Band Lizard unit, the user will first see a startup screen with the unit's serial number (blank here), firmware version number and each installed TX version as well.

Dual-Band Lizard INFO SCREEN



Dual-Band Lizard TRANSMITTER
Version 1.01

TX1
620 - 2700 MHz
Power: 00.0 to 30.0 dBm
Modulation: None

TX2
620 - 2700 MHz
Power: 00.0 to 30.0 dBm
Modulation: None

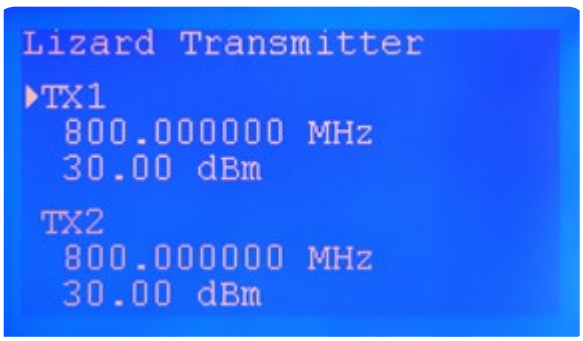
The UNIT INFORMATION SCREEN displays information pertaining to the Dual-Band Lizard UNIT (Version, Serial Number, Calibration Date and Owner) and to each installed transmitter.

Frequency Range: displays the base to the top (maximum) frequency.

Power: displays the minimum to the maximum output power of the transmitter. If the displayed dBm have a decimal point, the transmitter power step is .5 db. If there is not a decimal point displayed in the min/max dBm, the transmitter power step is 1 db.

Modulation: Dual-Band Lizard allows optional modulation schemes to be installed. Check with your BVS sales team for options and pricing at sales@bvsystems.com

Dual-Band Lizard MAIN SCREEN



Lizard Transmitter

TX1
800.000000 MHz
30.00 dBm
TX2
800.000000 MHz
30.00 dBm

The MAIN SCREEN displays the current Dual-Band Lizard status and is also used for parameter entry. After changes are made, scroll down to Accept and press ENTER to save changes made to the TX (TX1 or TX2) shown at the top. Press ESC at anytime to leave this menu without saving any changes.

Dual-Band Lizard CHANGE TX

Change TX2

2310.000000 MHz
-30.89 dBm
Modulation: ON
Accept

The MAIN SCREEN displays the current Dual-Band Lizard status and is also used for parameter entry. After changes are made, scroll down to Accept and press ENTER to save changes made to the TX (TX1 or TX2) shown at the top. Press ESC at anytime to leave this menu without saving any changes.

TURNING ON A TRANSMITTER

To turn on a transmitter, first set the desired output frequency and power level. Press TX1 to turn on transmitter 1, TX2 to turn on transmitter 2.

While either transmitter is on, the output power is continually monitored and adjusted so that the output is held to the displayed dBm level. While a transmitter is on, NO parameter change is allowed. Pressing the following keys will cause the transmitter output to turn off:

ENTER, ESC, RECALL, SAVE, TX1, TX2

NORMAL TRANSMITTER TURN OFF

To turn off either transmitter, press TX1 or TX2.

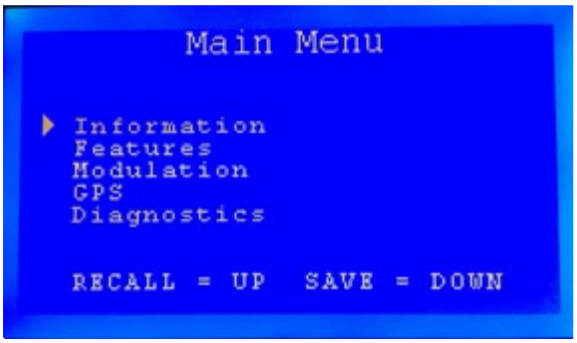
CHANGING MAIN SCREEN PARAMETERS USING THE KEYPAD

To change any parameter on the MAIN SCREEN, press the ENTER key. Note that if a transmitter is on, pressing ENTER causes the transmitter to be shut off. The left most digit of TX1 frequency is highlighed. Change the highlighed digit using the digit keys or the knob. Press enter to move right 1 digit, press the CLEAR key to move back (left) 1 digit. When ENTER is pressed on the rightmost

digit of a parameter, the highlight moves to the leftmost digit of the next parameter. To leave the current parameter unchanged, press the ESC key. The highlight will move to the leftmost digit of the next parameter.

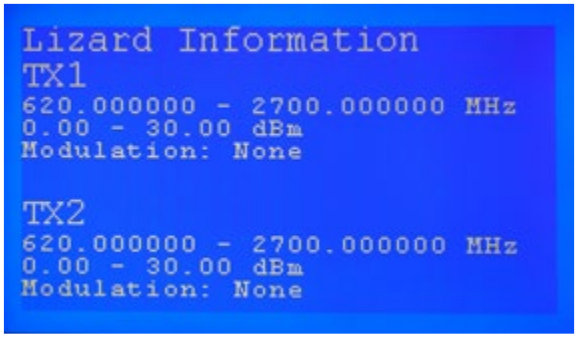
Dual-Band Lizard MAIN MENU SCREEN

Press ESC to enter this MAIN MENU. Users may select and view Information, Features, Modulation, GPS and Diagnostics using the KEYPAD buttons RECALL (UP) and SAVE (DOWN) as arrow keys. Press ENTER to make a selection or ESC to go back to MAIN PARAMETERS screen.



Dual-Band Lizard INFORMATION SCREEN

The INFORMATION screen displays the currently installed TX modules and their respective frequency ranges (MHz or GHz), power output ranges (in dBm) and optional modulation schemes (UMTS, LTE, CDMA, WiMAX, etc.)



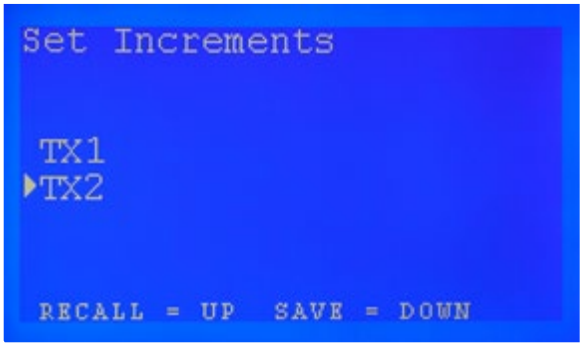
Dual-Band Lizard FEATURES SCREEN

The FEATURES menu allows the user to set increments or step sizes in output frequency and power levels. Use the KEYPAD buttons RECALL (UP) and SAVE (DOWN) as arrow keys. Press ENTER to make a selection.

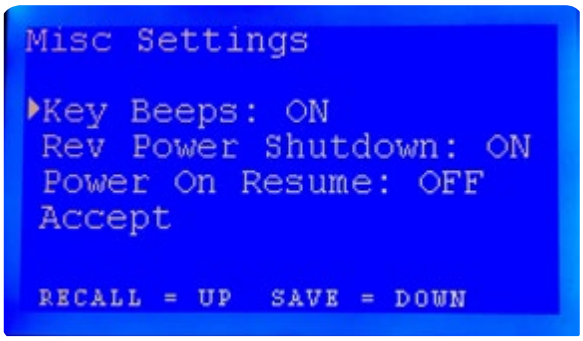
SET INCREMENTS

Within the SET INCREMENTS menu, choose your TX first. Use the KEYPAD buttons RECALL (UP) and SAVE (DOWN) as arrow keys. Press ENTER to make a selection.

Once in the EDIT INCREMENTS menu, use the KNOB or KEYPAD buttons RECALL (UP) and SAVE (DOWN) as arrow keys. Once you have made the changes, scroll down to ACCEPT and press ENTER to make save settings.



MISC SETTINGS



MISC SETTINGS contains ON / OFF toggles for audible keypad "beeps", Rev Power Shutdown and Power On Resume.

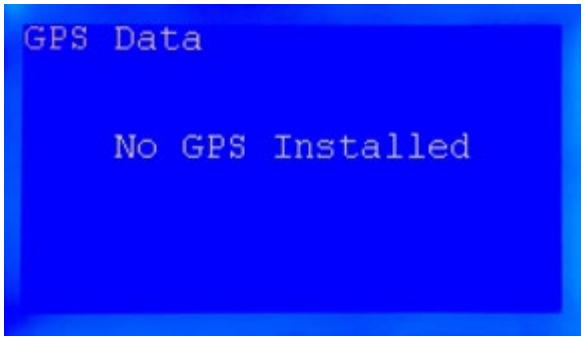
The Key Beeps are just audible indicators for keypad entry using the Tortoise's built-in speaker.

Rev (Reverse) Power Shutdown monitors the power being reflected by the antenna. If it exceed a certain threshold, the power amplifier is shut down to protect it from overheating. The threshold can be exceeded if the Tortoise is transmitting at high power into an unmatched load, such as a damaged (or missing) antenna. This setting is set to ON by default.

Note: Users should consult with BVS technical support before turning this setting OFF as it could damage the unit.

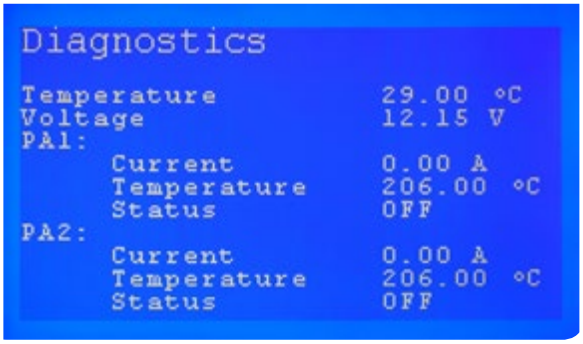
The Power On Resume toggle is for unexpected power outages. If either or both transmitters is ON when the unit loses power (or is manually turned off) and TX Resume is ON, the transmitter(s) that were on when power is restored will resume transmitting.

GPS DATA



If a GPS receiver is installed in your Dual-Band Lizard and has synced, you will see GPS details including date, time, satellites, status, latitude, longitude and height. The GPS receiver is optional so contact sales@bvsystems.com or call 732-548-3737 if you require GPS data.

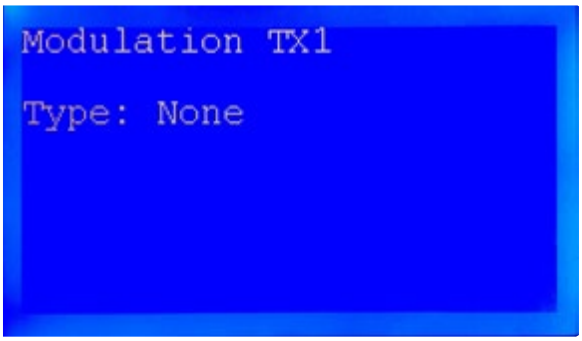
DIAGNOSTICS



The Dual-Band Lizard DIAGNOSTICS screen displays the current temperature, power (watts and amps) and ON / OFF status of each TX amplifier. Press ESC to return to the previous menu screen.
GPS DATA

Once the GPS receiver has synced to satellites, you should receive GPS details including date, time, satellites, status, latitude, longitude and height. The GPS receiver is optional so contact sales@bvsystems.com or call 732-548-3737 if you require GPS data.

MODULATION



The MODULATION menu displays all installed TX modules and allows the user to choose one for more information. All modulation is optional so if you need a CDMA, LTE, WiMAX, UMTS or custom scheme, contact sales@bvsystems.com or call 732-548-3737.

Glossary of Acronyms

AC	Alternating Current
A/D	Analog to Digital converter
AGC	Automatic Gain Control
Applet	a small Application
BER	Bit Error Rate
BPSK	Binary Phase Shift Keying
BW	Band Width
CDMA	Code Division Multiple Access (spread spectrum modulation)
DC	Direct Current
D/A	Digital to Analog
dB	decibel
dBm	decibels referenced to 1 milliwatt
DOS	Digital Operating System
DSP	Digital Signal Processing
FIR	Finite Impulse Response
GHz	GigaHertz
GPS	Global Positioning System (satellite based)
GPS diff.	GPS error correction signal which enhances GPS accuracy
IF	intermediate frequency
I and Q	In phase and Quadrature
kHz	kiloHertz
LCD	Liquid Crystal Display
LO	Local Oscillator
Mbits	Megabits
MHz	MegaHertz
modem	modulator/demodulator
PC	Personal Computer
PCS	Personal Communications Service (1.8 to 2.1 GHz frequency band)
PN	Pseudo Noise
QPSK	Quaternary Phase Shift Keying, 4-level PSK
RF	Radio Frequency
RSSI	Receiver Signal Strength Indicator
UCT	Universal Coordinated Time
VAC	Volts Alternating Current
VGA	Video graphic