Palstar products are designed by Hams for Hams carrying on the Palstar tradition for high-quality products designed and manufactured in Ohio, USA.

LA-1K RF SENSING 1000W DUAL HF LDMOS AMPLIFIER

Specifications Summary

- **1000 watts PEP CW ICAS (160 m to 6m)**
- **RF Sensing Auto Band Switcing**
- **Color touch screen**
- **Variable speed fans**
- **12.75" x 6.25" x 16.5"**

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LA-1K RF SENSING 1000W DUAL HF LDMOS AMPLIFIER Technical Manual

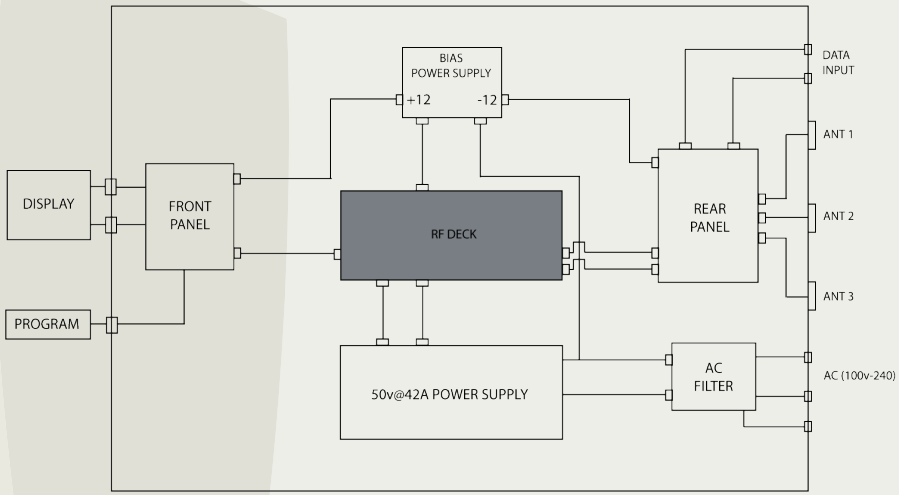
Designed and Manufactured in the USA

LA-1K SPECIFICATIONS

- **OUPUT POWER:** 1000 Watts PEP CW ICAS
- **CW MODE:** Operates close to 50% of average power. It is suggested that with power levels up to 850W transmissions may be 5 minutes on, 1 minute off.
- **FM/RTTY:** 275 watts approx.
- **FREQUENCY RANGE:** 1.8 TO 54 MHz
- **DISPLAY:** Color touch screen
- **OUTPUT:** 3 RF SO-239 connectors
- **ALC:** Exciter power control
- **GAIN:** 13+/-1dB (NOMINAL)
- **RF SENSING:** Auto band switching
- **RF OUTPUT:** Vacuum RELAY R/T Switching
- **POWER SUPPLY:** Internal Medical grade
- **DC SUPPLY:** 100VAC - 260 AC 50V@42A
- **POWER DEVICES:** 2 x 5600H 600W (LDMOS)
- **INTERMOD:** Low IMD Distortion >-35dB
- **PURE SIGNAL:** Sample@+10dBm (Rear Panel)
- **COOLING:** Variable Speed Fans (3 speed)
- **CHASSIS:** .090 ga. aluminium
- **TOP COVER:** .090 ga. aluminium, powder coated
- **DIMENSIONS:** 12.75" W x 6.25" H x 16.5" D
- **WEIGHT:** 27 LBS, 12.25 Kg
- **DESIGN CONCEPT:** Full compatibility with Palstar HF-AUTO autotuner
- **WARRANTY:** Two year

LA-1K BLOCK DIAGRAM

LA-1K BLOCK DIAGRAM



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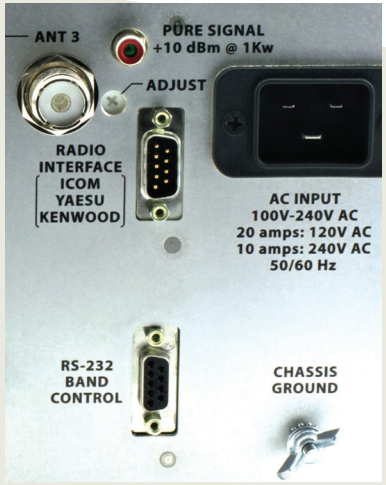
EXTERNAL DATA CONNECTORS

The LA-1K automatically selects bands and it is normally not necessary to connect band data cables between your transceiver and the LA-1K amplifier.

RADIO INTERFACE CONNECTOR:

This connector is designed to be pin for pin compatible with other amplifiers. The required cables are widely available. They can be used to connect to ICOM and YAESU transceivers.



XCVR Interface
[Radio Interface Pin Out]

Pin	*Function*
1	BCD B IN
2	BCD A IN
3	Kenwood RX (data in) [Null modem required]
4	Kenwood TX (data out)
5	Icom Band Data
6	GND
7	Amp-Key IN
8	BCD D IN
9	BCD C IN

RS232 BAND CONTROL CONNECTOR:

This connector is designed to be used with Kenwood transceivers for band selection using a null modem adapter. It is also designed to control the amplifier from a computer.

THEORY OF OPERATION

The LA-1K RF Sensing Dual HF LDMOS amplifier is a complete stand-alone amateur radio amplifier.

It is completely independent of data from an external source to determine frequency for tracking from Band to Band. As a result of this feature, the LA-1K will function with any transmitting device without interconnecting data cable attachments.

The power output of the LA-1K is 1000 Watts PEP CW ICAS (Intermittent Commercial and Amateur Service). Under the ICAS classification, the use of the LA-1K is designed for transmissions that are of an intermittent nature.

Intermittent operation of the LA-1K implies that no operating or "ON" period of 1000W of Continuous Carrier Power will exceed 1(ONE) minute.

On Single Side Band (SSB) voice duty there is no limit on transmit time at full power of 1000W PEP.

Every "on" period must be followed by an "off" or standby period of at least the same or longer duration.

The LA-1K provides a +10dBm@1kW RF tap feed at the rear panel to provide provisions for "pure signal" operation provided by compatible transceivers. The level adjustment is calibrated at the factory.

The LA-1K was designed to be fully compatible with the Palstar HF-AUTO automatic antenna tuner.

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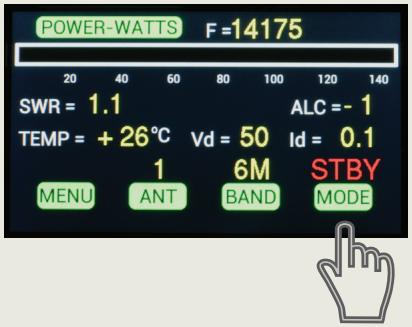
SCREEN DISPLAY ON POWER-UP

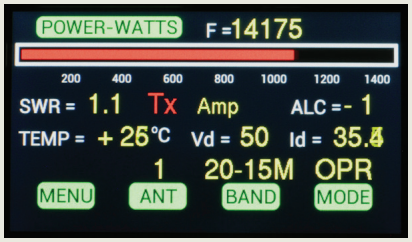
ON INITIAL POWER-UP

Display will indicate STBY mode (stand-by). To switch mode press the "MODE" button on the tourchscreen display to switch into "OPR" mode (operational).

STAND-BY MODE



OPERATIONAL MODE TRANSMITTING



NOTE: Wattmeter only shows RED power bar graphical indicator when the LA-1K is transmitting.

HOW-TO UPDATE FIRMWARE

DOWNLOADING LA-1K FIRMWARE

- CREATE a folder on your computer's hard drive
- NAME the folder LA_1KFIRMWARE
- DOWNLOAD the Firmware file (Zip format) from the Palstar website, http://www.palstar.com/en/la-1k/. The download link is near the bottom of the page. The link to the file is named "LA-1K Firmware x.x"
- SAVE the file to the folder you created in Step 1
- OPEN the folder by right-clicking on the Zip file and select "Extract All" - follow the steps in the Extraction wizard
- CONNECT one end of the USB cable to a USB port on your computer.
- DOUBLE-CLICK "LOAD_LA-1K" within your LA_1KFIRMWARE folder that you created in Step 2.
- Follow the instructions on the opened computer window and use the "Browse" button to select the firmware version to be loaded.
- Depress and hold down the GREY button to the right of the USB port labeled "PROGRAM UPDATES" during the next two steps.
- CONNECT the other end of the USB cable to a USB cable to the LA-1K front panel.
- TURN-ON the LA-1K. A "Found 1 device" message will appear on the right side of the opened computer window.
- Release the GREY button on the LA-1K front panel.
- Click on the "Update Firmware" button that is on the opened computer window. Wait until the green bar in the middle of the computer window shows that the programming completes by filling from left to right. The firmware version number on the LA-1K is on the bottom line of the start up screen.

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LA-1K FIRMWARE SUMMARY

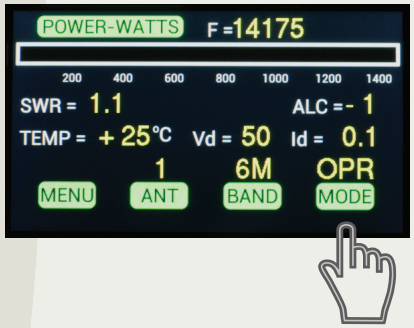
1.00H: As shipped from factory.

OPERATIONAL MODE

OPERATIONAL MODE

To switch into Operational mode “OPR” press the “MODE” button on the touchscreen display. The touchscreen menu will display “OPR” mode (operational). The red power bar graphical indicator will only be visible when transmitting.

OPERATIONAL MODE



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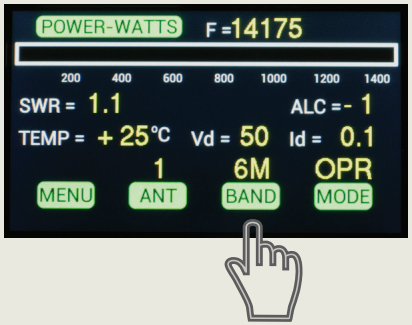
OPERATIONAL MODE

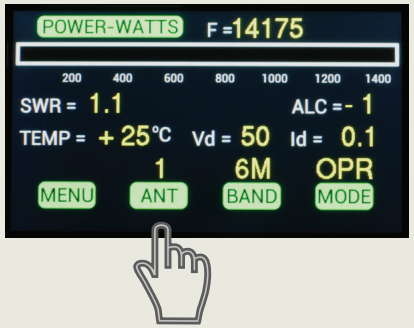
BAND SELECT

To switch bands, 160M-80M-40-30M-20-15M-12-10M-6M, press the "BAND" button on the touchscreen display, then select desired band. The LA-1K selects the proper band automatically when transmit is activated.

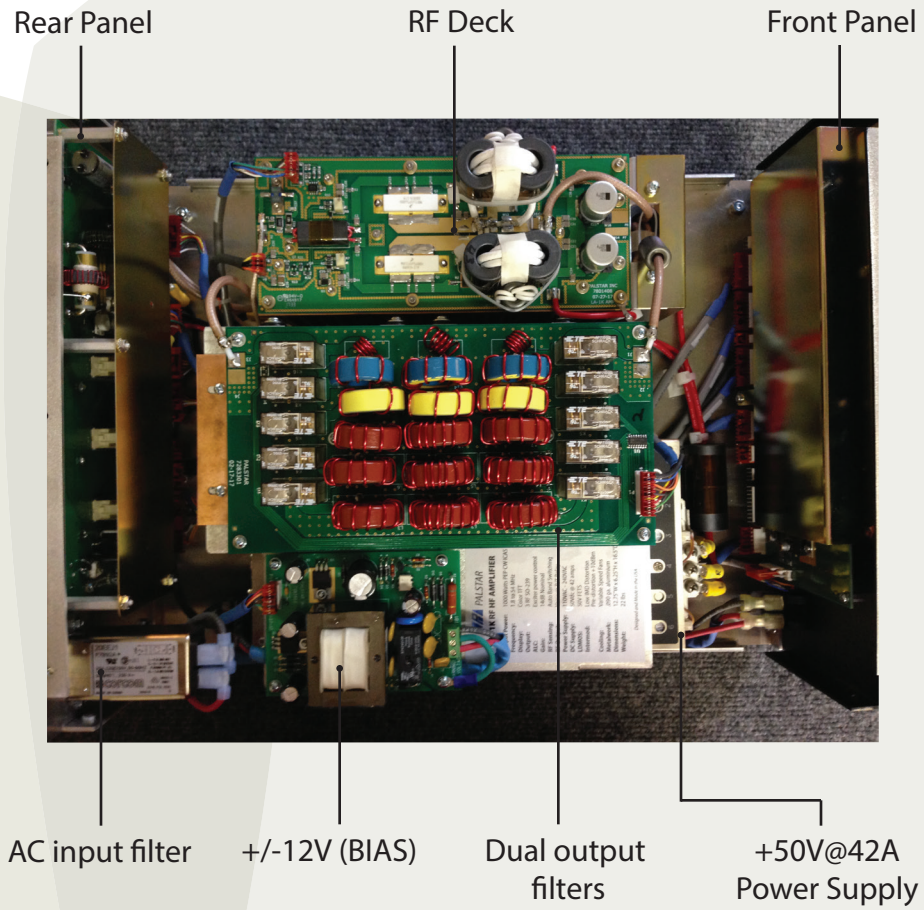


ANTENNA SELECT

To switch antennas between ANT 1(Coax 1), ANT 2 (Coax 2), and ANT 3 (Coax 3), press the "ANT" button on the touchscreen display, then select desired antenna ouput. This setting will automatically select when changing bands to the last one used on any particular band. **The default value is ANT 1.**



INTERIOR PHOTO



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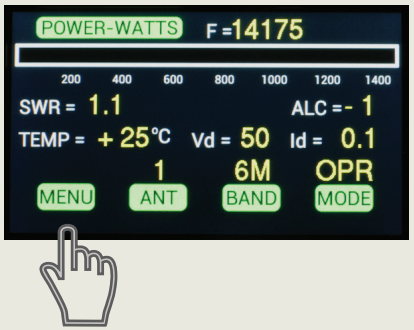
OTHER MENU OPTIONS

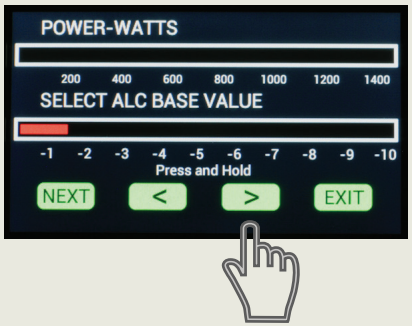
SELECT ALC BASE VALUE

To adjust ALC base value select menu on the touchscreen display.



Press and hold the < or > arrows to increase or decrease ALC BASE VALUE. If using ALC this should be adjusted carefully to match your transceiver's requirements (usually -1.5V approximately).

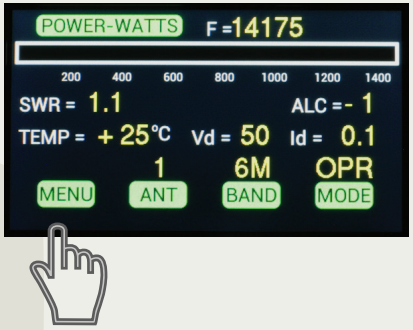
ALC BASE VALUE



OTHER MENU OPTIONS

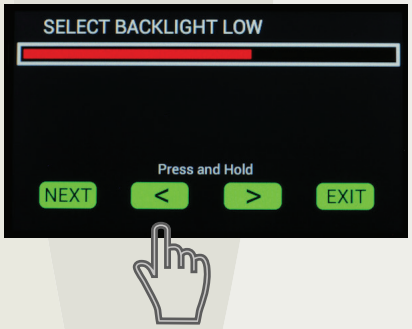
SELECT BACKLIGHT

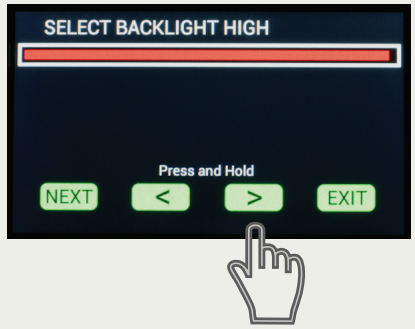
To adjust the backlight on the touchscreen display press MENU.



Press and hold the < or > arrows to adjust BACKLIGHT LOW (screen intensity when no buttons are pressed) and select NEXT and then < or > arrows to adjust BACKLIGHT HIGH (screen intensity when buttons are being pressed).

SELECT BACKLIGHT LOW/HIGH





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LA-1K Front & Rear Panel

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