Instruction Manual

LNR FX-4a
QRP 17/20/30/40 Meter
CW/SSB Transceiver

**Thank you for purchasing the LNR FX-4a
17/20/30/40 Meter CW/SSB Transceiver.
This unit is designed as a small and lightweight transceiver
perfect for portable use.**

**We hope you find this transceiver as fun to use as we do.
Please follow the instructions carefully and you will find this
transceiver to be a powerful, yet user-friendly unit.**

FX-4A Specifications Sheet

Transceiver Weight		**15.5 oz.**
Current drain on Receive		**250-270ma**
Current drain on Transmit		**1200ma**
Receive/Transmit Bands		**40M: 7.000.00-7.300.00 MHz** **20M:14.000.00-12.350.00 MHz** **30M:9.999.99-10.155.00 MHz** **17M:18.068-18.168.00MHz**
Display Type		**LCD: 128 x 64**
Transmitter Max Output Power		**5 Watts CW & SSB**
Spurious Emissions		**-43dB at 5 Watts**
Side Tone Pitch **Independent Side Tone Adjust**		**550Hz to 1.5KHz Adjustable**
Receiver Sensitivity		**0.3uV**
Selectivity		**-3dB/2.6K-40dB/4.5K**
Audio Output		**1 Watt with 8ohm speaker**
Keyer		**Iambic A&B Adjustable speed from 5 to 50 wpm**
Memory Storage		**10 per each band; 40 total**
CW Filtering: **SSB Filtering:**		**(CW via Hi-Per-Mite)** **2.6KHz**
VFO Drift		**<5Hz after 5 minute warm up at 30c(<10Hz after minute operation @40c)**

Important Instructions

Note: All command functions in the manual will be indicated as "Press and Hold [PH]" and "TAP". Several switches have dual-functions which are entered by pressing and holding [PH].

Before Initial Use: Please Read

- The power requirements for the FX-4A are 12VDC to 13.8 VDC. The power plug (provided) is marked with a white line on the positive connection to power supply (see below).
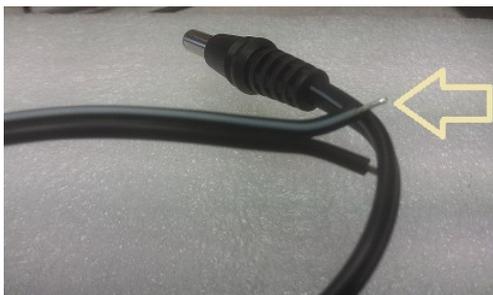
- 50 Ohm antenna connection using BNC connector is required.
- 8 Ohm speaker (standard or amplified) or headphone with 1/8" stereo plug is required.
- For CW Mode: Either straight key or paddle key will work with FX-4A using 1/8" stereo type plug.
- Microphone connection requires 1/8" stereo plug (Your FX-4A purchase includes a microphone for SSB).

Initial Set-Up

1. To Power UP, plug power cord to FX-4A. Center conductor is + Positive.
2. Slide power selector switch to ON. Display will signify version 3.6 and then normal VFO display.
3. To power off, slide power selector switch to OFF.
4. Plug in speaker into port labeled PHONE.

Configuration

- [PH] BAND button to access menu. Cursor is at the top/left of CW Delay (Default).
- While in Menu Mode, TAP MODE button until cursor is on CW Mode. Turn VFO knob to select Auto (Paddle) or Manual (Straight-Key).
- Tap MODE button to CW Fre. Turn VFO knob to set side tone adjustment (normal 0700 Hz).
- Tap MODE button to CW Vol. Turn VFO knob to adjust volume.
- Tap MODE button to CW Delay. Turn VFO knob to 0.2S (best operation).
- Advance thru menu pages by tapping MODE button until CW Key. Turn VFO knob to change to Paddle reverse (1 Dash on Left, 2 Dits on Left)
- Tap MODE button to reach second page of Menu.
- **Make NO adjustments on items "R BFO" - "REF 2".**
- Tap MODE button to CW Key. Use VFO to change between "mode 1" and "mode 2". This is for Key Reverse.
- Tap M/V button to exit menu mode.

Memory Storage

- The FX-4A has 10 memory stores per each of the 4 bands. To access, TAP the M/V button. "CH 00" and Mode will be displayed in the top left corner of the display. Rotate VFO knob to change memory storage location number. The setting begins at CH00 and goes through CH09 and then will roll to next band.
- To Store Frequency, [PH] M/V button and an * (asterisk) will appear right of "Mode". Select Frequency to be stored then tap M/V to exit and save.

Basic Operation

- Connect antenna to your radio or dummy load.
- Plug in your desired HAM key into port labeled KEY.
- Opt. for SSB: Plug in microphone into port labeled MIC.
- Before you plug in Straight key or Paddle, you may want to get familiar with the screens and functions.
- Rotate the VFO knob and notice the frequency change.
- Volume control can be increased by turning knob clockwise. Volume will show on display as a value between 0-63. Volume control has an additional feature which is covered later in the manual.
- Tap BAND button to desired frequency (ex. 40M, 30M, 20M, 17M). FX-4A has a VFO A and a VFO B. To toggle between VFO A and VFO B, Tap the A/B Button. Tap MODE button to toggle between CW, LSB, USB.
- To toggle CW/A to CW/B mode, tap the A/B button.
- For SSB mode, tap MODE button until USB/LSB (upper sideband/lower sideband) is displayed.
- To activate RIT feature, [PH] RIT button until RIT is displayed. Adjustments can be made by VFO knob. To exit RIT, [PH] RIT button.
- Tap Volume knob to advance tuning rate. The rate is 1Hz - 10 Hz.
- To increase to 100 Hz tuning rate, tap RIT button and "TS" will display. To return to VFO, tap RIT again.
- The FX-4A has TWO VFOs although they cannot be used as split operation. The TWO VFOs are good to use for CW Mode or USB/LSB operations.
- S-Meter Function: The S-Meter reads signal strength, output power, and reflective power.

NOTES

- The FX-4A has an RIT function; and is accessed by [PH] RIT button. RIT will be display left of screen above filter settings., Once in RIT mode there is two frequency's displayed. Bottom is Original VFO setting while the Top (Large) numbers is the RIT setting. It is adjustable by rotating the VFO knob. To exit RIT [PH] the RIT button.
- If FX-4A has a good match with antenna and power supply voltage of 13.8 VDC, you should have 5 watts output on CW and SSB operation.

CALL with CQ CQ CQ

- Note: make sure you have configured FX-4a with your Call. To do this, enter menu, by [PH] Band button. Cursor down to CALL. Rotate VFO knob to select characters. Tap Vol knob to set characters.
- Cq Cq Cq can be used with your programmed call by tap of CALL button knob.
- Note: Verify H-SWR-P is set to 20 in configuration if unit doesn't exit TX mode.

FX-4a Reset

- To initiate FX-4a reset (to factory settings):
- POWER OFF unit
- [PH] MODE button and A/B button simultaneously while powering up the unit.
- Release after units powers up and displays "Init-OK".

SSB Operation

- FX-4A has Side Band or voice capability with a 2.6KHz filter built in. This is non-adjustable.
- The included clip-on microphone has a built-in speaker mic.

CW Operation

- FX-4A has Iambic A and B functionality. To change from A to B mode, TAP Mode switch and observe the CW/A or CW/B at top center of display. [PH] the A/B button to toggle between settings.
- CW speed is set by [PH] Volume button and rotating VFO knob. Speed can be adjusted between 5 to 50 WPM. Exit speed change by TAP of Volume knob. Note: speed is not programmed until you exit the speed set point screen.

CW in Auto Mode

- On Power-up, the CW Mode defaults to AUTO which is paddle mode. If operator wishes to operate in manual, [PH] BAND, Tap MODE button until CW Mode is displayed. Use VFO knob to adjust between Auto and "Manu" for manual. Tap M/V to exit and save.
- [PH] Volume Knob to display paddle speed. Turning the VFO knob will then allow you to adjust the speed between 5 and 50 WPM. Tap Volume knob again to store setting.

Menu Features

[PH] BAND button until menu display appears.

*CW Delay:		**0.1Sec to 1.5Sec**
*CW Vol (Sidetone):		**01 to 10**
*CW Fre (Pitch):		**0550Hz** **1500 Hz**
*CW Mode:		**Auto = Paddle** **Manu= Straight/Bug**
*H-VWR-P:		**20**
*Light: **(Backlit Timer)**		**Delay 1Sec - 9Sec/** **Always Open**
*IF:		**Default - 0-0.700Hz**
*Call: (Your Callsign)		**(Rotate VFO knob** **and TAP Vol. to move** **to next char) Leave** **one space after call for** **letter K**
R BFO:		**8.998.600 Hz**
T BFO:		**8.999.300 Hz**
USB BFO:		**9.000.800 Hz**
LSB BFO:		**8.997.800 Hz**
REF1:		**30.000.000Hz**
REF2:		**50.000.000Hz**
*CW KEY: (Paddle reverse)		**Mode 1 / 2**

*Indicates menu feature is adjustable.
Note: only * indicated items should be adjusted. Other
items should not be adjusted beyond their stated values.

Menu Notes

All settings are adjustable however certain settings are for informational use only should not be changed as this will affect selective and off frequency operation.

The following settings should NOT be changed. No Set Point Change Required.

R BFO: 8.999.300Hz
T BFO: 9.000.000Hz
USB BFO: 9.001.500Hz
LSB BFO: 8.998.500Hz
REF1: 30.000.000Hz
REF2: 50.000.000Hz

CW External Filtering

If operating in CW mode, filtering is handled by the included Hi-Per-Mite external filter kit. The Hi-Per-Mite is an active audio CW filter designed by David Cripe, NM0S. Please visit http://www.4sqrp.com/HiPerMite.php for detailed instructions and documentation on the Hi-Per-Mite.

As stated on their webpage, "the HI-PER-MITE is a HIgh-PERformance SMALL audio filter. It is designed to be very versatile, have low parts count, be inexpensive, yet provide outstanding performance."

"This is a flexible design that can be used as a stand-alone unit driving headphones, earbuds, or speakers, or it can be easily integrated into an existing receiver needing additional CW filtering (see manual for details). "

Hi-Per-Mite Specifications (4 States QRP)
Bandwidth: 200 cycles at the -3 DB bandwith points.
Center Frequency: The center frequency in the passband is 700 HZ
Signal Gain: 0 dB to 50 dB, user selectable
No Ringing or Buzz: Nice, smooth audio - care has been taken in the design to eliminate ringing.
Versatile: Drives speaker, earbuds, or headphones. Use standalone or install inside rig.
Audio Power: 500 mW into 8 ohms, from 9v supply
DC Power: 5 to 13 VDC at less than 15 mA

We hope you enjoy your new
LNR FX-4A 17/20/30/40 Meter
QRP Transceiver.
For technical assistance, please
contact us at information below:

LNR Precision, Inc.
Randleman, NC 27317
www.LNRprecision.com
E-Mail Ldraughn@LNRprecision.com