TARGETuner

Antenna Management System for Screwdriver Antennas

WEST MOUNTAIN RADIO

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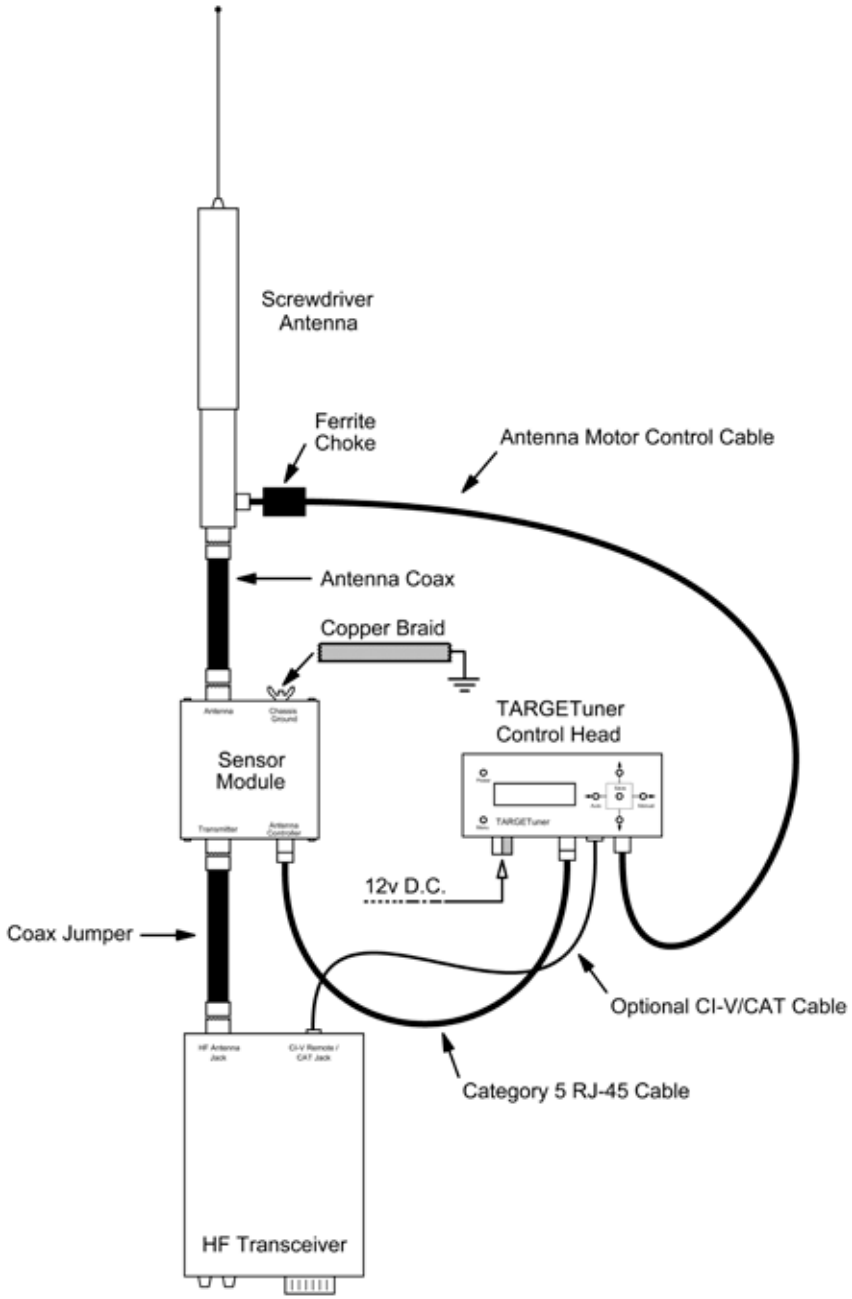

Screwdriver
Antenna
Ferrite
Choke
Antenna Motor Control Cable
Antenna Coax
Copper Braid
TARGETuner
Control Head
Sensor
Module
12v D.C.
Coax Jumper
Optional CI-V/CAT Cable
Category 5 RJ-45 Cable
HF Transceiver

We understand you have a choice when buying Amateur Radio products and we would like to take a moment to thank you for choosing West Mountain Radio.The TARGETuner is a state-of-the-art screwdriver antenna management system which includes a controller unit with back-lit LCD display and a remote sensor unit for frequency and SWR measurement. The unit provides motor control for a wide variety of popular two or four-wire Amateur HF screwdriver antennas.

The TARGETuner will work with any HF transceiver and does not depend on special connections to the radio. In addition to the basic method of operation the TARGETuner is capable of interfacing to the CI-V/CAT jack of many radios which enables unique features not found on other controllers.

The motor control uses a bi-polar transistor direct switch that incorporates pulse width modulation for control of motor speed and direction. Stall current sensing is programmable and a range of choices are available for current limit settings.

The TARGETuner sensor module is remote from the control head which limits the RF exposure to the controller circuitry and helps ensure reliable operation. An industry standard shielded Category 5 cable (RJ-45) serves as an interconnect between the two units.

Power is supplied through Anderson Powerpole® connectors for ease of connection and fusing. If using a RIGrunner, it is recommended to use a fuse value of 2 or 3 amps. Note that there is an internal ATC blade fuse in the TARGETuner control head rated at 2 amps.

Theory Of Automatic Tuning - Basic Mode:
TARGETuner senses a transmitted carrier and makes frequency and SWR measurements using the remote sensor. The controller will move the antenna coil automatically for the best SWR match. The LCD will display basic frequency and measured SWR during this process then indicate “SWR Locked” when the match has been found.

Theory Of Automatic Tuning - CI-V/CAT Enhanced Mode:
TARGETuner senses a transmitted carrier and makes SWR measurements using the remote sensor. Precise frequency information is supplied via the CI-V/CAT interface. The controller will move the antenna coil automatically for the best SWR match. The LCD will display precise frequency and measured SWR during this process then indicate “SWR Locked” when the match has been found. In addition to transmit tuning, the TARGETuner is capable of tuning the antenna during reception (e.g., pressing the band switch or using the VFO on the radio will cause the antenna to tune without having to transmit.)

If using a 4-wire screwdriver antenna (i.e., an antenna with a position encoder) the TARGETuner can store a frequency & position in one of the 35 memories for easy recall and receive tuning. TARGETuner also provides manual tuning control options which may be used to manually adjust the antenna if desired.

Product Contents

- **TARGETuner Controller Unit**
- **TARGETuner RF Sensing Module**
- **Shielded RJ-45 Cable**
- **Power Cable with standard Powerpole connectors**
- **PL-259 Coaxial Jumper Cable**

Installation

Antenna Installation:
Follow the antenna manufacturer's installation instructions outlining Antenna Placement, Grounding, Control Cable preparation and Ferrite Choke Placement. Proper installation is very important with mobile antennas. Poor bonding or inadequate choking can prevent the TARGETuner from performing properly.

If possible, it is recommended to use an antenna analyzer. A few checks before connecting the TARGETuner will help verify whether it is possible to achieve resonance on the frequencies that plan to be used.

TARGETuner Sensor Module Installation:
Refer to the hookup diagram

1. Select a convenient location for the sensor module.
2. Connect a short ground braid from the grounding stud to a metal body panel or the vehicle frame. Be sure to scrape off a patch of paint to ensure a good RF ground. Copper anti-seize compound should be used on bolts.
3. Install the supplied coax jumper between the sensor module's "Transmitter" SO-239 jack and the HF transceiver.
4. Connect an antenna coax cable from the sensor module's "Antenna" SO-239 jack to the antenna.

TARGETuner Controller Unit Installation:

1. Select a convenient location for the TARGETuner controller unit. Mounting options include Velcro® pads for a simple non-destructive solution for mounting to a vehicle dashboard or center console. Metal mounting brackets are also available (part #58426-1539).
2. Connect the antenna manufacturer's motor control cable between the antenna and the "Antenna Control" Molex® jack. If you are making your own control cable refer to the diagram of the Molex® jack for correct pin out.
3. Ensure the antenna manufacturer's ferrite RF choke is placed on the motor control cable as close to the antenna and as many turns through the choke as possible.
4. Connect the RJ-45 Category 5 cable between the TARGETuner sensor module and the TARGETuner controller unit.
5. Connect the Anderson Powerpole® cable from the TARGETuner to the 12V power source.
6. Optional: Connect the CI-V/CAT cable from the RIG CTL jack to the transceiver's REMOTE or CAT jack.

Initial Configuration:

1. Press the POWER button on the TARGETuner to apply power. The back-lit LCD will illuminate and briefly show the firmware version.

The TARGETuner will work with popular two-wire and four-wire screwdriver antennas. Four-wire antennas incorporate a pulse count mechanism (usually a magnet & reed-switch arrangement) to report relative coil position. Two-wire antennas have no pulse count output.

When first powered up the TARGETuner defaults to factory settings which are preset for a four-wire antenna and the display will show "PLEASE SET ANTENNA RANGE!".

If you are using a four-wire antenna (e.g., Tarheel) proceed to step 10.

If your antenna is a two-wire model then follow these steps first:

2. Press the MENU button and the "Menu Select" prompt will appear on the LCD display.
3. Tap the DOWN button until "Encoder Wheel" is shown on the display.
4. Press the SAVE button.
5. The display will look like this:

```
Encoder Wheel
Yes
```

6. Press the DOWN button and the display will read:

```
Encoder Wheel
No
```

7. Press the SAVE button.
8. Notice the message "ARE YOU SURE? Menu to cancel / Press SAVE 3 times to verify".
9. Press the SAVE button three times. Display will read "SETTING CHANGED!". The TARGETuner is now correctly configured for a two-wire antenna.

Because a two-wire antenna has no coil position output it will not be possible to store or recall memories or use the "Auto Memory" mode. Use either the "Auto SWR Tuning" or "Manual Control" modes only.

Initial setup of the TARGETuner with a two-wire antenna is now complete and steps 10 through 19 are not necessary.

10. Press the MENU button and the "Menu Select" prompt will appear on the LCD display.
11. Tap the DOWN button until "Antenna Range" is shown on the display
12. Press the SAVE button.

13. The display will change to “Press DOWN to limit then SAVE / Finding Range”
14. Press and hold the DOWN button and notice the screwdriver antenna coil moving. If the coil does not actually moves up, a later step will correct the antenna direction. It is important to hold the DOWN button until the antenna stops moving.

    When the antenna coil has reached its physical limit, tap the UP button a few times so that the TARGETuner’s stored limit will be just before the coil comes to a complete stop. This will help preserve turns count accuracy and prevent motor damage.

15. Press the SAVE button. This will store the “lower” limit of the antenna range in memory.
16. The display will change to “Press UP to limit then SAVE / Finding Range”.
17. Press and hold the UP button and until the screwdriver antenna coil is moving in the opposite direction than before. Again, it is important to hold the UP button until the antenna has traveled through its full range and has come to a stop at its limit.

    As before, when the antenna coil has reached its physical limit, tap the DOWN button a few times so that the TARGETuner’s stored limit will be just before the coil comes to a complete stop.

18. Press the SAVE button. This will store the “upper” limit of the antenna range in memory.

19. The display will briefly show “Antenna Range Saved”. Both limits of antenna travel have now been stored and the TARGETuner is aware of the complete range of the antenna.

    Pressing the MANUAL button will display a turns count and read similar to:

    ```
    Manual Control
    Pos: 0712
    ```

Initial set-up of the TARGETuner with a four-wire antenna is now complete.

Optional Step: Changing the Direction of Antenna Travel
The UP and DOWN buttons on the TARGETuner may be used to manually position the antenna coil. Depending on the antenna model or user reference, the UP and DOWN buttons may appear "reversed" from the point of view of the operator.

Change the default behavior:
1. Press the MENU and use UP or DOWN until "Motor Direction" is shown on the display.
2. Press the SAVE button.
3. The display will read:
   ```
   Motor Direction
   Normal
   ```
4. Pressing the DOWN button will change the direction to "Reverse".
5. Press the SAVE button to confirm the change in direction of travel. To revert to the default setting, repeat the above procedure and select "Normal" on the display. Changing the direction of travel will not affect any memories or the stored antenna range.

Recommended Step For All Antennas: Setting The "Fuse Current".
To help protect the antenna motor, a stall current "fuse" value can be set in the TARGETuner.
1. Press the MENU button and use UP or DOWN until "Fuse Current" is shown on the display.
2. Press the SAVE button.
3. The display will read:
   ```
   Fuse Current
   2.0 Amps
   ```
4. Pressing the DOWN button will cycle through the following fuse values:
   2.0A, 1.5A, 1.0A, 0.9A, 0.8A, 0.7A, 0.6A,
   0.5A, 0.4A, 0.3A, 0.2A 0.1A, Ignore.
5. Choose the value most appropriate for your antenna and situation.

Tip: When in manual control the TARGETuner LCD will display the current being used to move the motor. If the fuse current is exceeded the motor will be stopped and an error shown on the display.

Recommended Step For 2-Wire Antennas: Setting the "Stall Current".
In order for the TARGETuner to know when the antenna has come up against a limit of travel during Auto-SWR mode, the "Stall Current" option must be set appropriately.
1. Press the MENU button and use UP or DOWN until "Stall Current" is shown on the display.
2. Press the SAVE button.
3. The display will now show the following:
   ```
   Stall Current
   2.0 Amps
   ```

4. Pressing the DOWN button will cycle through the following fuse values:
   2.0A, 1.5A, 1.0A, 0.9A, 0.8A, 0.7A, 0.6A,
   0.5A, 0.4A, 0.3A, 0.2A 0.1A, Ignore.
5. Use the SAVE button to Choose the value most appropriate for your antenna and situation.

Tip: The value chosen must be less than the "Fuse Current" and experimentation should be used to determine a reliable value for your particular antenna.

Optional Step: Rig Control data link - Icom CI-V/Yaesu/Elecraft Kenwood CAT.

If you have a suitable transceiver and the optional CI-V/CAT cable then follow these steps to enable the data link between the TARGETuner and the radio.

1. Ensure the CI-V/CAT cable is connected between the RIG CTL jack on the TARGETuner control head and the radio's REMOTE or CAT jack.

   If using an Icom (CI-V) cable observe both ends of the cable. One side is a "stereo" (3 conductor) plug and the other is a "mono" (2 conductor) plug. The "stereo" side plugs into the TARGETuner and the "mono" side plugs into the Icom's REMOTE jack. If this cable is connected backwards, CI-V rig control will not be functional.

2. Check the radio's menu and enable CAT control (if necessary). Although the TARGETuner will work at all common Baud rates it is recommended to use 9600 or lower which will give some immunity if RFI is an issue.
3. For Icom radios the TARGETuner will also need to know the radio's CI-V address. Make a note of it while in the radio's menu.
4. On some Yaesu radios the CAT jack is a multifunction port which can be used for CAT, a linear amplifier or an auto-tuner. Ensure that it is configured for CAT.
5. Press the TARGETuner MENU button and the "Menu Select" prompt will appear on the LCD display.
6. Tap the DOWN button until "Rig CTL Protocol" is shown on the display
7. Press the SAVE button.
8. The display will read:
   ```
   Rig CTL Protocol
   Disabled
   ```
9. Press the DOWN button. The display will change to read:
   ```
   Rig CTL Protocol
   Elecraft K3/KX3
   ```
10. If you are using an Elecraft radio then press the SAVE button. The display will indicate that your selection has been saved

You can skip to step 24.

11. Press the DOWN button. The display will change to this::

```
Rig CTL Protocol
Kenwood TS480
```

12. If you are using a Kenwood TS-480 radio then press the SAVE button. The display will indicate that your selection has been saved.

You can skip to step 24.

13. Press the DOWN button. The display will change to this:

```
Rig CTL Protocol
Yaesu FT857
```

14. If you are using a Yaesu FT-817, FT-857 or FT-897 then press the SAVE button. The display will indicate that your selection has been saved. ***You can skip to step 24.***
15. If you are using an Icom radio then press the DOWN button. The display will change to this:

```
Rig CTL Protocol
Icom CI-V
```

16. Press the SAVE button and the display will indicate that your selection has been saved
17. After a short period the display should return to:

```
Menu Select
Rig CTL Protocol
```

18. Press the DOWN button and the display should now show the following:

```
Menu Select
CI-V CTL Address
```

19. Press the SAVE button and the display will change to this:

```
CI-V CTL Address
48h
```

20. There will be a flashing cursor on the hex address. Use the left and right buttons (AUTO & MANUAL) to select the digit and the UP and DOWN buttons to increase or decrease the value until it corresponds with the radio's CI-V address.

21. The most popular mobile Icom radios CI-V addresses are shown below:

Icom IC-703:	68h
Icom IC-706 (original):	48h
Icom IC-706 Mark II:	4Eh
Icom IC-706 Mark II/G:	58h
Icom IC-718:	5Eh
Icom IC-7000:	70h
Icom IC-7100:	88h

22. Once you have selected the correct address press the SAVE button. The display will indicate your selection has been saved
23. After a short period the display should return to read:

```
MENU SELECT
```

```
CI-V CTL Address
```

24. Pressing the DOWN button will select the “Rig CTL Baud” menu:

```
MENU SELECT
Rig CTL Baud
```

25. Press the SAVE button. The display will change to read:

```
Rig CTL Baud
9600
```

26. If the Baud rate shown does not match the radio’s Baud rate then use the UP and DOWN buttons to select the correct value.

27. Press the SAVE button.

This completes configuring the TARGETuner for the rig control data link.

28. Press the MANUAL button to confirm the transceiver’s frequency is being correctly displayed. The display should read similar to:

```
Manual Control
Pos: 0712  14.336
```

Operating The TARGETuner

Operating Modes
The TARGETuner has four operating modes: “Manual Control”, “Manual Memory”, “Auto SWR Tuning” and “Auto Memory”.

Pressing the MANUAL button will toggle between “Manual Control” and “Manual Memory”.

Pressing the AUTO button will toggle between “Auto SWR Tuning” and “Auto Memory”

Note: “Manual Memory” will only be available to users of 4-wire antennas i.e., with the “encoder wheel” option enabled. “Auto Memory” will only be available to users of 4-wire antennas plus an active rig control data link.

Operating Mode: Manual Control
TARGETuner will not move the antenna unless the user presses the UP or DOWN button. Pressing the UP or DOWN button will cause the antenna to move in that direction, and the antenna will stop moving when the button is released.

The LCD will display antenna position, motor load current (Amps), detected frequency and detected SWR while transmitting a tuning carrier from the radio.

If the rig control data link is disabled, the frequency will only be shown during transmit. When the rig control data link is active then frequency will be displayed during both transmit and receive cycles.

Note that there is a small delay when changing direction. This is to ensure that the antenna position is not affected by motor inertia.

If you wish to store a manual position in memory then hold down the SAVE button for 5 seconds.

Operating Mode: Auto SWR Tuning
This mode is fully automatic. The TARGETuner will wait for a tuning carrier from the radio and then search for the best SWR match by moving the antenna coil up or down. When a match has been found the LCD display will change to “Auto SWR Locked”.

This cycle can take some time depending on the speed of the antenna motor, the frequency band selected and any motor speed settings set in the TARGETuner.

Note that during the tuning cycle if it is believed the antenna is moving in the wrong direction, press the UP or DOWN buttons to change direction.

Auto SWR Tuning requires a constant carrier throughout the duration of its tuning cycle to find a match. For this reason it is recommended to limit the transmitter power to no more than 10W. An FM or AM carrier is ideal and probably the simplest method to use when operating mobile.

When locked, pressing the SAVE button for 5 seconds will cause this position to be saved to memory.

When locked, if the frequency changes or the detected SWR gets significantly worse the TARGETuner will exit locked mode and go back to the "Auto SWR Tuning" cycle.

Operating Mode: Manual Memory*
The user can select from previously saved memory positions by pressing the UP and DOWN button. The LCD will display the selected position on the LCD
screen. Pressing the SAVE button will cause the antenna to move to the position in memory.

Operating Mode: Auto Memory*
The TARGETuner will not move the antenna until a new valid frequency has been detected, at which point the antenna will be moved to the closest position in memory for that frequency.

If the rig control data link is active, the frequency will be read directly from the radio and the TARGETuner will move the antenna the moment the frequency is changed on the radio.

If the rig control data link is not active, the TARGETuner will move the antenna the moment a transmitted carrier occurs.

To get the best out of the Auto Memory mode we recommend you store a number of positions in memory - at least one for each band of interest and multiple memories for the lower frequency bands. Once accomplished you will enjoy the full benefit of receive tuning!
Only available on 4-wire antennas.

Clearing a stored memory:
Use the following procedure to clear a stored memory.

1. Press the MENU button.
2. Repeatedly press the DOWN button till the display reads “View Memory”.
3. Press the SAVE button.
4. The memories are displayed. Press the UP or DOWN buttons to select the memory to erase.
5. Hold down the SAVE button until the display reads “CLEARED THIS MEMORY POINT”.

More Configuration Options
There are a number of features in the TARGETuner which may be helpful for
some particular needs. All of these are available via the menu system and it is recommended to fully review following chart to become familiar with the TARGETuner.

Ham Band Filter
Enabling this option tells the TARGETtuner you will only be transmitting in the Amateur Radio bands. This helps to prevent spurious frequency readings when using the sensor module. For MARS, Marine or other service users this option should be disabled.

Possible values: Yes, No.

The range of frequencies included in the Ham Band Filter is as follows:-

160m:	1.8MHz - 2.0MHz
80m/75m:	3.5MHz - 4.0MHz
60m:	5.1MHz - 5.45MHz
40m:	7.0MHz - 7.3MHz
30m:	10.1MHz - 10.15MHz
20m:	14.0MHz - 14.35MHz
17m:	18.068MHz - 18.168MHz
15m:	21.0MHz - 21.450MHz
12m:	24.89MHz - 24.99MHz
10m:	28.0MHz - 29.7MHz
6m:	50.0MHz - 54.0MHz

Park Position
This option tells the TARGETuner where your “Park Position” should be. Possible values: UP, DOWN.

Depending on how you set the direction of antenna travel in the earlier step
choose the value which corresponds to minimum physical antenna height for a safe parked position.To enter Parking mode, press and hold the MANUAL button for 5 seconds.

LCD Auto Off
The LCD back-light can be configured to automatically turn off if there has been a period of inactivity (i.e., no buttons pressed).
Possible values: ALWAYS ON, 30 SECONDS, 10 SECONDS, 5 SECONDS.

LCD Brightness
The LCD backlight can be set to 1 of 4 different intensity levels.
Possible values: BRIGHT, MEDIUM, LOW, OFF.

User Motor Speed
This is used to select the fastest speed the TARGETuner will move the antenna. Use the “Fastest” setting in most cases, which is the DC power directly applied to the motor on the antenna for full speed.

This speed setting is used in the “Manual Control” mode but also used in all other modes when the TARGETuner needs to move at the fastest speed.

This is configurable when needing to limit power used by the antenna motor. Possible values: FASTEST, MEDIUM FAST, MEDIUM SLOW, SLOWEST.

Auto Motor Speed
This speed option is used by the TARGETuner in auto and movement modes when needing to operate at a slower speed. For instance when operating in a memory mode or Auto SWR Tuning and the antenna is close to the desired position, the TARGETuner will use this slower speed to move the final amount to reduce overshoot.

If memory mode or Auto SWR mode appears to overshoot position, try reducing this speed. Possible values: FASTEST, MEDIUM FAST, MEDIUM SLOW, SLOWEST.

Motor Ramping
If set to “Yes” the TARGETuner will slowly ramp the antenna motor speed to the desired speed. This is useful for performing manual tuning as tapping the UP and DOWN keys will result in slow movements of the antenna for fine adjustments.

If set to “No” the TARGETuner will not ramp the speed of the antenna motor and instead go directly to the “User Motor Speed”. This is useful if the PWM waveform driving the DC motor in the antenna is causing an objectionable noise on receive.
Possible values: YES, NO.

Sensor Module
For most cases this will be set to YES which indicates that the TARGETuner sensor module is connected. It is possible to use the TARGETuner controller unit without the sensor module, but it is strongly recommended to use the rig control data link in this case.

Note that when this option is set to NO the measured SWR will not be displayed or saved to memory.
Possible values: YES, NO.

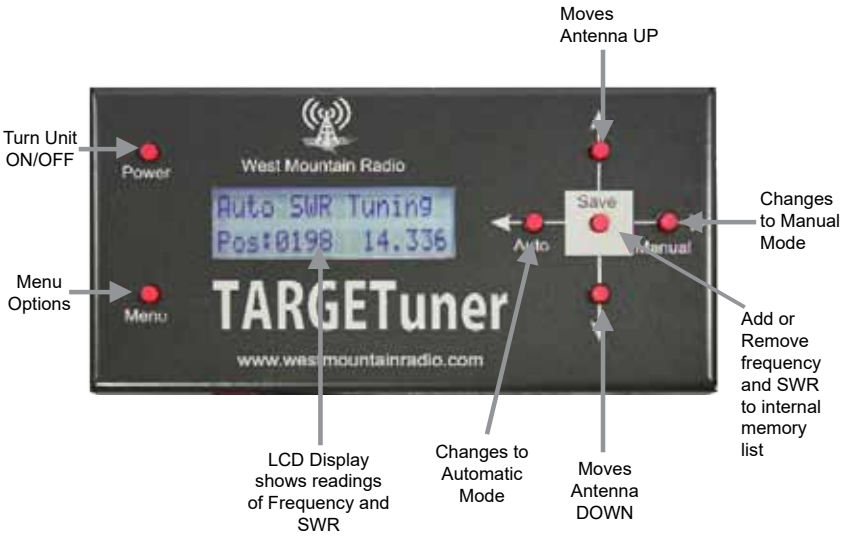
Beep On Motor
The TARGETuner can be configured to produce an audible beep if the motor is moving. This provides a useful indication of antenna movement when unable to see the antenna.
Possible values: NEVER, ALWAYS, IN AUTO MODE.

NEVER: The TARGETuner will never beep.
ALWAYS: The TARGETuner will beep at any time the motor is moving.
IN AUTO MODE: TARGETuner will only beep if the motor is moving in an automatic mode. In other words; never during “Manual Control” mode.

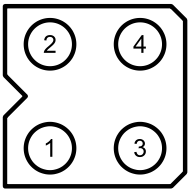
Beep On SWR
The TARGETuner can be configured to beep if the SWR detected is over the specified threshold.
Possible values: NEVER, >=9.0:1, >=8.0:1, >=7.0:1, >=6.0:1, >=5.0:1, >=4.0:1, >=3.0:1, >=2.0:1

View Memory
Used to view the stored memories. Pressing UP and DOWN will cycle through the memory points. Pressing and holding down the SAVE button down for 5 seconds can be used to delete a memory.

Clear Memory
Used to clear all stored memories. If selected you must confirm by pressing SAVE 3 times. Pressing MENU will cancel.



TARGETuner Antenna Control Jack
(View is looking into the connector on the TARGETuner)



1. Motor (Black)
2. Motor (Red)
3. Encoder (Green)
4. Encoder (White)

Accessories

Rig Control Cable Options

- **Rig Control Cable for CI-V (Icom) Radios (#58107-971)**
- **CAT Cable for Yaesu 817,857,897 (#58108-972)**

Mounting Options

- **TARGETuner SmartMount (#58426-1538)**
- **TARGETuner Controller Mounting Brackets (58426-1539)**
  Provides a convenient method of mounting the TARGETuner controller to many surfaces. Uses existing case screws for mounting to controller. Surface mounting will require 4 screws (recommended Size #6 x 3/8")

Specifications

Primary Power	13.75VDC 2.1 Amp max. 33mA Standby (internally monitored and fused)
Antenna Motor Voltage	13.75V PWM Speed Controlled
Antenna Motor Current	Monitored. Maximum current selectable - 2.0A max (intermittent)
Antenna Encoder Range	0 to 9999
Frequency Range	1.800Mhz to 54.000Mhz
Frequency Readout	+/- 0.01%
Useable RF Power Range	2.0 to 800 Watts
SWR Range	1.0:1 to 9.9:1 (auto level and ranging)
Frequency/SWR Antenna Location Memories	35

FCC INFORMATION
For a Class B digital device or peripheral, the user instructions shall include the follow-
ling or similar statement, placed in a prominent location in the text of the manual:

Note: This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection again harmful interference in a residential installation. This equipment generates,uses and can radiate radio frequency energy, and if not installed and used in accordance with the guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- •Reorient or relocate the receiving antenna
- •Increase the separation between the equipment and receiver
- •Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- •Consult the dealer or an experienced radio/TV technician for help.

Modifications not expressly approved by the manufacturer could void the user's authority to operated equipment under the FCC Rules.

Federal Communications Commission

TARGETuner Limited Warranty

TARGETuner is warranted against failure due to defects in workmanship or materials for one year after the date of purchase from West Mountain Radio. Warranty does not cover damage caused by abuse, accident, misuse, improper or abnormal usage, failure to follow instructions, improper installation, alteration, lightning, or other incidence of excessive voltage or current. If failure occurs within this period, return the *TARGETuner* or accessory to West Mountain Radio at your shipping expense. The device or accessory will be repaired or replaced, at our option, without charge, and returned to you at our shipping expense. Repaired or replaced items are warranted for the remainder of the original warranty period. You will be charged for repair or replacement of the *TARGETuner* or accessory made after the expiration of the warranty period.

West Mountain Radio shall have no liability or responsibility to customer or any other person or entity with respect to any liability, loss, or damage caused directly or indirectly by use or performance of the products or arising out of any breach of this warranty, including, but not limited to, any damages resulting from inconvenience, loss of time, data, property, revenue, or profit, or any indirect, special incidental, or consequential damages, even if West Mountain Radio has been advised of such damages.

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