

# CatMeters

Thank you for purchasing the original CatMeters.

CatMeters is an external screen that plugs into the transceiver RS232 CAT port, it requests data from the transceiver, detects & decodes changes, then updates the display. It is reliant on the way Yaesu updates the data. Some changes you see on the transceiver screen or make with its keys and knobs, are not instantly updated. In these cases, you will notice a delay in CatDisplay screen updates.



## Compatibility

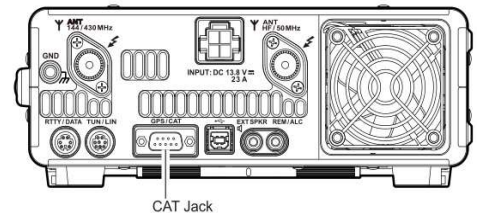
CatMeters was specifically developed for the Yaesu FT-991A which supports the latest Yaesu CAT command set. It also works on other Yaesu models that support these commands including all versions of FT-450, FT-950, FT-2000, FT-DX10, FT-DX101, FT-DX1200, FT-DX3000, FT-DX5000, FT-DX9000. However not all these models support all the CAT commands. This means that some features will simply not update or will be incorrect.

CatMeters does not work with older RS232 CAT used in transceivers such as FT-847, FT-900, FT-920, FT-990 & all versions of FT-1000. It is also not compatible with Yaesu 5V CAT such as FT100, FT817, FT818, FT857, FT897.

## Installation

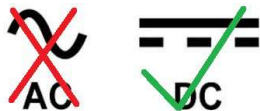
These instructions are correct for FT-991A firmware version Main:02-04. It has been noted the menu numbers may be different for other revisions of firmware. Set Menu item:

- **028 GPS/232C SELECT**                      **RS232C**
- **029 232C RATE**                              **19200bps (default) or 38400bps**  
*..this must be set the same as SW3 shown on next page*
- **030 232C TOT**                                **10msec**



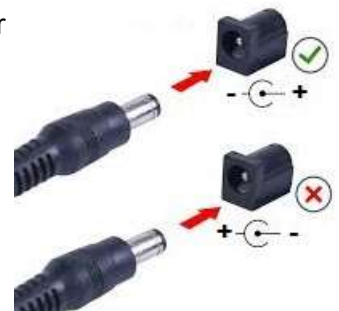
Plug the supplied cable into the transceiver's RS232 Cat port. Plug the other end into the CatMeters

CatMeters requires 7VDC to 30VDC at around 160mA to operate. It has a standard 2.1mm DC jack and is wired centre pin positive (tip positive), an industry standard for many plug-packs (wall warts)



You must use a power supply with a DC output

Do not use a power supply with AC output



### Note:

- The FT991 GPS/CAT Jack cannot be used for GPS while CatMeters is connected
- If you want to use a GPS for updating transceiver location, you will have to remove the CatMeters and set up the GPS/CAT port for GPS use. Refer page 117 of the FT-991A Operating Manual
- You can manually enter a location into the transceiver as outlined on page 118 of the FT-991A Operating Manual
- **For transceivers other than FT-991A, please refer to your user manual**

## Display Options

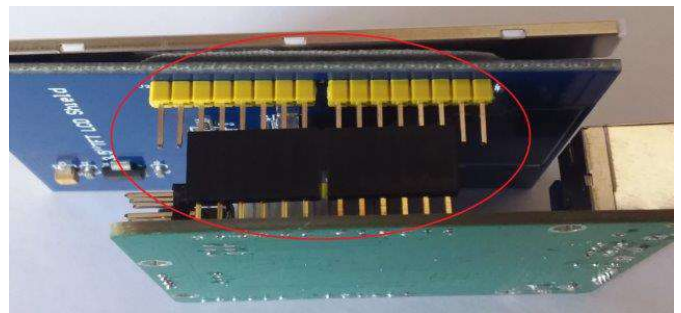
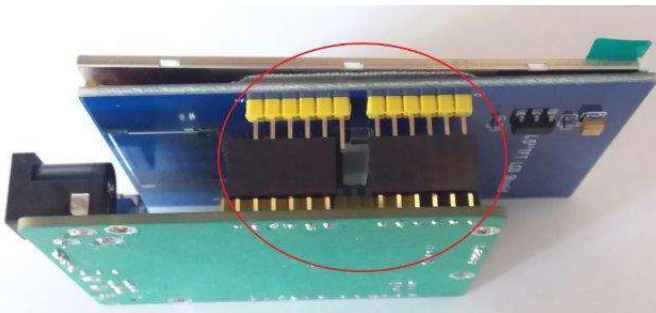


CatMeters's display can be flipped or inverted.

To make changes, turn off CatMeters, remove the back cover, carefully unplug the display and turn the required switch on or off. Plug the display back in making sure it is correctly located. Reassemble and start the display for changes to apply.

- **SW1 – HUD**  
This will invert the display & allows you to see the display in a mirror or other shiny surface. This technique is used for Heads Up Display (HUD) in aircraft, cars, Etc. It could be an option for mounting the CatDisplay at the rear of go-kit. An angled mirror or reflective perspex would be added to view the display.
- **SW2 – FLIP**  
This flips the screen so you can change which side the cables enter the case - from right or left.
- **SW3 – 19200bps (default) or 38400bps**
- **SW4 - Not Used**  
*These switches are not used and have no effect on the display*

## Important Notes



- On older boards, the screen on the DC socket side has one pin hanging as pictured left. The latest revision aligns correctly. All revisions align on the other side as shown in the right picture – two pins hanging out the ends of both sockets.
- All meters are an indication only and may not be 100% accurate. S-Meter is calibrated according to Yaesu service data for HF FTDX10 (IPO=AMP1, f=14.2MHz, ATT= OFF, WIDTH=2.4kHz, R.FILT=3kHz, MODE=CW-U). It may not be accurate in other bands or modes & relies on CAT data from transceiver. It is not calibrated for transceivers that have VHF & UHF bands.
- The display is fragile and can be broken. Treat it with respect and do not place it in direct sunlight. Do not press directly on it, squash it, squeeze it or it will break.
- High RF fields may cause interference. If when transmitting, the display becomes corrupted in any way, this will most likely be due to high RF field which needs to be remedied. The most common cause is poor earth connection, high antenna SWR or very close proximity to the antenna or its feed line.
- CatMeters is a digital device that has an internal oscillator. Even though TDK EMI filters are used in its design, you may experience interference when in close proximity to some transceivers. It can be particularly noticeable if the transceiver has a poor earth or are using simple rubber-duck type antennas on VHF/UHF. In this instance, it may be necessary to add further RFI suppression techniques. A good article on this is "A Ham's Guide to RFI, Ferrites, Baluns, and Audio Interfacing" by Jim Brown K9YC.
- On the PCB, the trimmer between CAT jack and power switch is the *Voltage Adjust Potentiometer*. This multi turn trimpot allows you to calibrate the displayed voltage. Adjust it so the displayed voltage is the same as the input voltage.
- For transceivers with a sub receiver like FT-DX101, CatMeters shows the main receiver only.
- CatMeters is proudly designed, programmed and marketed for Amateur Radio use by ZL1CVD Chris Day, New Zealand. It was not designed for commercial or life saving purposes.

*Thank you for your custom...  
...73s de Chris ZL1CVD*