

LED Replacement module for Fluke VFD used in 8840A/8840AF/8842A Meters

This LED display is a 1:1 replacement for the Fluke Itron CP2067A Vacuum Fluorescent Display (VFD). We have made the process as simple as possible by pre-assembling the display connectors and power wiring, including termination connectors for +5VDC & Ground as well as the spacers.

Meter Disassembly

You should be familiar with the disassembly instructions in the Fluke manual Section 6.

- UNPLUG THE METER!
- Work on a static-protective surface.
- With the cover removed, VERY carefully remove the F/R pushbutton and calibration switch extension. A small flat blade screwdriver can help. Make sure the CAL switch remains in the OUT position (not-CAL).
- Disconnect & remove all option boards.
- Disconnect the 4 input connections.
- Disconnect the 2 ribbon cables from the display PCB.
- Remove the fuse holder.
- There are 4 self-tapping screws that retain the front cover. Remove them and lift the cover away from the frame.
- Remove the fuse wire from the cover. DO NOT FORGET to reattach this on reassembly!
- Remove cover. The inner frame and buttons will come out with the display.
- Flip over the meter and remove the power switch.
- Remove all bottom hardware and shield.
- Examine the type of retainers used for the main PCB and turn upright. Two types were used:
 - Pop-up buttons – easy to pop up but easy to break. While pressing rivet down, pull up on button. DO NOT remove rivet from PCB.
 - Center-pin rivets – hard to remove. You must drive out the pin from the top while supporting the PCB from the under-side against something firm. We use a small ¼" socket. Using a dowel pin driver, tap the pin completely out. Then work the rivet down out of the retainer.
- Unclip wires on left side from retainers and pull wires out of channels so main PCB can be partly removed.
- If you removed all 6 rivets, the main PCB should drop in the front below the frame allowing the display PCB to move first down, then out from under the frame at the top. Lift display PCB up through the top. AT ALL TIMES RESPECT THE IRRIPPLACEABLE RESISTOR NETWORKS on the main PCB.

Display Disassembly

Use good solder reworking techniques and plenty of proper electronic flux.

- Remove the inner frame and buttons.
- Cut through the mounting pads between the display & PCB. DO NOT scratch the switch contact pads!
- De-solder each VFD pin fully. Heat may be required on both sides.

- Remove old VFD and clean the PCB.
- Insert LED display. The outer left & right PCB holes are unused. (Originally the filament supply).
- Solder display in place insuring that the connector is fully seated against the PCB at all times.

Display Reassembly

- Clean the PCB of flux as required by the type used.
- Fit the buttons into the inner frame and snap the frame into the PCB. There are 2 retaining snaps.

Install Display PCB

Use the Fluke Section 6 instructions as a baseline for reassembly.

- From the top, move the bottom of the display PCB into to meter frame and below the bottom of the frame by pushing the main PCB down.
- Rotate the top of the display PCB under the top of the frame front and into the final position against the front metal cutouts.
- Snap the inner frame front 2 retaining hooks into the metal cutout holes to retain the display PCB.
- Good time to REMOVE the protective film from the LED display.

Main PCB reassembly

Reverse the disassembly procedure.

- Pin the main PCB into the retainers using the button or pin retainers.
- Reset the left-hand wiring into the retainers and cradle.
- Fish fuse wire through the front metal and feed into fuse holder extension on the front cover.
- Fit the front cover to metal frame ensuring all buttons are in place.
- Replace the 4 self-tapping screws that retain the front cover.
- Reinstall F/R pushbutton, CAL extension, fuse holder and 4 input connections.
- From the bottom, reinstall the shield and other retaining hardware.
- Install power switch extension.
- From top ensure that the CAL switch is in the out position.
- Attach the 2 display ribbon cables.
- Reinstall the fuse holder.

Display Power Connections

Be sure to connect the display power connectors to the correct terminals. We recommend routing the power wires along the right side of the meter frame.

- Connect the RED +5VDC to the +5V pin near the power capacitors. See photos.
- Connect the BLACK GROUND to the DIGITAL_LO pin between the power transformer and the U220 EPROM socket.
- An optional sticky clip is provided to anchor the wires to the metal frame.

Finalize Repair

Review everything done in disassembly, repair and reassembly for missing steps or left-over parts. In particular, recheck the display power connections. Connect AC power and test meter display! If you feedback on these instructions, we would love to hear (good or bad).



Remove the protective film from the 7-segment display.



