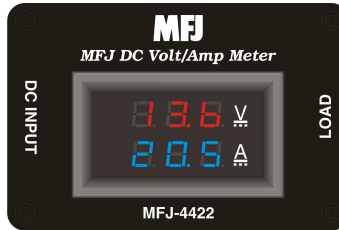


MFJ DC Volt/Amp Meter

Model MFJ-4422



Specifications

Voltage 4-30VDC
Current 0-20ADC Continuous
30A Intermittant
50A Peak Full Scale

Introduction

The MFJ-4422 is an inline voltmeter and ammeter with Power Pole connectors for easy insertion into circuits with Power Pole connectors. The shunt and connector assembly is built into one board for easy use.

Connection and Operation

Anderson *Powerpole*[®] are used on the MFJ-4422. If the device does not have *Powerpole*[®] connectors a pack of 4 are included to splice into the device power lines. Do not remove and replace the connectors on the MFJ-4422.

The current path measured is the **negative side** of the power feed line. Make sure there are no current paths that bypass the negative line and the MFJ-4422. If there are the current may not read correctly.

Connect the power line from the power supply to the DC INPUT side of the MFJ-4422. Connect the device being measured to the LOAD side of the MFJ-4422. The line voltage at that point and the current in the negative lead at that point will be displayed.

If for some reason the input and output sides are swapped the voltmeter will read but the ammeter will be zero at all times.

Operational Notes

The shunt is built into the copper trace of the PC board. Copper has a positive temperature coefficient so when the ammeter is used with continuous high currents the resistance and the indicated current will increase a few percent. Removing the high current and allow the shunt to cool down will allow it to go back to normal. The shunt is not considered a high precision shunt.

The design of the meter module is to measure the shunt voltage in the ground side of the current path. Any other conductive paths that may go around the negative wire between the device and the power supply will reduce the measured current. Things like ground bus connections between the device and ground and the power supply and ground need to be checked. A simple test is to remove the ground bus connection to the device and see if the current changes.

The voltmeter is designed to operate between about 4 and 30V. Below 3.5-4V the module will shut down. The MFJ-4422 measures the voltage across the DC INPUT side of the unit and represents the voltage at the point you place the MFJ-4422. Depending on the lengths of the wires and the wire gauge you may observe a voltage lower than is indicated on the power supply especially under high current loads.

Powerpole® connector assembly

These units use Anderson *Powerpole*® connectors. Your MFJ-4422 includes both plastic connector housings and terminals for making *Powerpole*® plugs. The terminals accommodate wires from 12 to 16 gauge.

First, slide two connector housings together to match the configuration of the corresponding connectors on your power strip. It's easier to do this now rather than after the wired terminals have been inserted in the housings.

You can install the *Powerpole*® connectors on your wires by either soldering or crimping, as long as you make sure you have good, solid connections. Wires smaller than 12 gauge will **not** allow for crimping, and must be soldered to the terminals.

To crimp, first strip the wire, making sure not to damage the wire strands. Insert the wire into the terminal and crimp. **Be careful not to deform or squash the terminal body.** If you do, crimp again to return it to its original shape. Otherwise, the terminal may not fit inside the housing. Be sure that you have a good firm connection to reduce resistance.

If you solder wires to the terminals, tin them lightly first. When soldering, flow solder only into the hole in which the wire is inserted. Be careful not to get any solder around the outer body of the terminal.

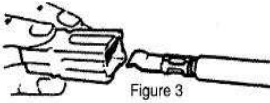


Figure 3



Figure 4



Fig. 5 (Cut Away)

Fig 3: Correct orientation of terminal and housing.

Fig 4: Using an insertion tool to snap terminal in place. A very small, flat-blade screwdriver will work.

Fig 5: Assembled terminal and housing.

Then insert the flanged end of the terminal into the contact housing through the open, square end of the housing (Figs. 3, 4 and 5). The terminal will snap into place when correctly oriented.



Internal view of two *Powerpoles*[®] connected.
(Anderson Power drawings; www.andersonpower.com)

FULL 12-MONTH WARRANTY

MFJ Enterprises, Inc. warrants to the original owner of this product, if manufactured by MFJ Enterprises, Inc. and purchased from an authorized dealer or directly from MFJ Enterprises, Inc. to be free from defects in material and workmanship for a period of 12 months from date of purchase provided the following terms of this warranty are satisfied.

1. The purchaser must retain the dated proof-of-purchase (bill of sale, canceled check, credit card or money order receipt, etc.) describing the product to establish the validity of the warranty claim and submit the original or machine reproduction of such proof of purchase to MFJ Enterprises, Inc. at the time of warranty service. MFJ Enterprises, Inc. shall have the discretion to deny warranty without dated proof-of-purchase. Any evidence of alteration, erasure, of forgery shall be cause to void any and all warranty terms immediately.
2. MFJ Enterprises, Inc. agrees to repair or replace at MFJ's option without charge to the original owner any defective product provided the product is returned postage prepaid to MFJ Enterprises, Inc. with a personal check, cashiers check, or money order for **\$12.00** covering postage and handling.
3. MFJ Enterprises, Inc. will supply replacement parts free of charge for any MFJ product under warranty upon request. A dated proof of purchase and a **\$8.00** personal check, cashiers check, or money order must be provided to cover postage and handling.
4. This warranty is **NOT** void for owners who attempt to repair defective units. Technical consultation is available by calling (662) 323-5869.
5. This warranty does not apply to kits sold by or manufactured by MFJ Enterprises, Inc.
6. Wired and tested PC board products are covered by this warranty provided **only the wired and tested PC board product is returned**. Wired and tested PC boards installed in the owner's cabinet or connected to switches, jacks, or cables, etc. sent to MFJ Enterprises, Inc. will be returned at the owner's expense un-repaired.
7. Under no circumstances is MFJ Enterprises, Inc. liable for consequential damages to person or property by the use of any MFJ products.
8. **Out-of-Warranty Service:** MFJ Enterprises, Inc. will repair any out-of-warranty product provided the unit is shipped prepaid. All repaired units will be shipped COD to the owner. Repair charges will be added to the COD fee unless other arrangements are made.
9. This warranty is given in lieu of any other warranty expressed or implied.
10. MFJ Enterprises, Inc. reserves the right to make changes or improvements in design or manufacture without incurring any obligation to install such changes upon any of the products previously manufactured.
11. All MFJ products to be serviced in-warranty or out-of-warranty should be addressed to **MFJ Enterprises, Inc., 300 Industrial Park Rd, Starkville, Mississippi 39759, USA** and must be accompanied by a letter describing the problem in detail along with a copy of your dated proof-of-purchase and a telephone number.
12. This warranty gives you specific rights, and you may also have other rights, which vary from state to state.