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Topic: Trouble calibrating Maynuo M9712 DC Electronic Load (Read 438 times)

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TheDefpom
Frequent Contributor



Posts: 272
Country: 

YouTube Nerd


 **Trouble calibrating Maynuo M9712 DC Electronic Load**

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« on: July 06, 2019, 01:21:33 am »

Hi All,

I finally got tired of the small voltage and current error on my M9712 load, so I started doing calibration on it, I did the voltage just fine, then when I went to do current it was fine until it got to the final step, the 4.5A calibration, it is maxing out my power supply at 10A, so I entered the actual current and finished the cal, it is displaying the correct current, but it does not set to the correct current!

If I set it to 1A it actually runs at 1.7A (and shows this on the display), if I try and set anything less than 0.5A it doesn't load up at all... if I set to 3A I get 7A actual and if I set to 4.5A (the set point of calibration) I get in excess of 10A.

Very odd, has anyone else come across this and know how to rectify it ?

I have attached the only calibration info I could find, if you have something better then please post it!

Another interesting error is that if I set it to resistance mode instead, it gives the same results as setting the current, IE 10 Ohms on a 10V supply is giving me 1.7A.

Note that this calibration sheet is a bit mixed up and is based on the M98xx but also shows the M97xx.

I am just wondering if I need an even bigger power supply to see if it needs more Amperage to be able to set it correctly, I do have a 35A Astron supply here, but I am not sure that is the issue at this point.

 LED load -Calibration Procedure for M97xx electronic loads_1.pdf (171.72 kB - downloaded 30 times.)

« Last Edit: July 06, 2019, 05:02:41 am by TheDefpom »

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Cheers Scott

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TheDefpom

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Re: Trouble calibrating Maynuo M9712 DC Electronic Load

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« Reply #1 on: July 06, 2019, 05:05:57 am »

UPDATE, I tried it on the Astron, it drags the supply right down till it crowbars off, so my supply isn't big enough it would seem...

Sure I could parallel all three of my Agilent E3646As up with both channels to get 48A but I suspect that may not be enough... my M9712 is the 300W version and the terminals state 60A, so I just spent \$200 on a 5V 100A power supply from eBay, I guess I will continue this saga once it arrives, along with a different shunt to give me better resolution (I currently only have a 500A/50mV one on hand, I just ordered a 50A/50mV one to use.)

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Cheers Scott

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2N3055

Super Contributor



Posts: 2090

Country: 



Re: Trouble calibrating Maynuo M9712 DC Electronic Load

Say Thanks

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« Reply #2 on: July 06, 2019, 06:45:07 am »

Hi Scott,

It says in cal procedure that you need 5V / 50A for high current step.

Sorry for being daft but are you sure it asks for 4.5A and not 45A ?

Regards,

Sinisa

« Last Edit: July 06, 2019, 06:48:14 am by 2N3055 »

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HighVoltage

Super Contributor



Posts: 4252

Country: 



Re: Trouble calibrating Maynuo M9712 DC Electronic Load

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« Reply #3 on: July 06, 2019, 08:45:45 am »

I have used a Keysight N5741A DC System Power Supply with 6V and 100A max rating to calibrate a M9712 at 5V and 50A and it worked well.

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There are 3 kinds of people in this world, those who can count and those who can not.


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TheDefpom

Frequent Contributor



Posts: 272

Country: 

YouTube Nerd



Re: Trouble calibrating Maynuo M9712 DC Electronic Load

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« Reply #4 on: July 27, 2019, 07:02:44 am »

An update to this, I ended up with a 5V 75A MeanWell power supply, using this and a poor quality (read inaccurate) 50mV/50A current shunt I was able to at least get it close.

After doing some calculations etc and playing with re-doing calibration data over and over again to get the low range right at least, I was able to then get the high range pretty close.

Today I was playing around with a Siglent SDL1020X-E which I used to find out actual current drawn for the same shunt mV readings as my Maynuo during its calibration test (FYI it was 24.180 Amps).

As the first three calibration points are all below 10A I was able to use my Siglent SDM3065X to measure the actual currents, making those easy, the hard part was my shunt not being the 1.0mOhm

(0.001 Ohm) it was supposed to be, it was more like 1.12857mOhm, BUT it also changed resistance noticeably with temperature, I measured it as high as 1.15027mOhm after I had about 30 amps running through it for 5 minutes (even though it didn't feel warm to the touch).

So as a starting point to at least get you up and running if you completely lose your calibrating data, try using these values for your current calibration:

Step 1: 0.21328
 Step 2: 2.4180
 Step 3: 0.5207
 Step 4: 24.1800

Note, you MUST still have a high current 5V supply connected at all times, as it seems to check for the actual value at the time of entering the calibration data at each step, failing to have a current/voltage present will result in "Unreg" showing on the display when trying to use the load (even if you have a supply going to it).

And I also found one other interesting point on my unit, I was expecting it to go up to 60A (as marked on the front panel), it doesn't it can only go up to 30A... I have never tried using that high a current so this finding surprised me, I thought it could do it... oh well.

« Last Edit: July 27, 2019, 07:07:16 am by TheDefpom »

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Cheers Scott

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2N3055

Super Contributor



Posts: 2090

Country: 



Re: Trouble calibrating Maynuo M9712 DC Electronic Load

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« Reply #5 on: July 27, 2019, 08:02:55 am »

Quote from: TheDefpom on July 27, 2019, 07:02:44 am

And I also found one other interesting point on my unit, I was expecting it to go up to 60A (as marked on the front panel), it doesn't it can only go up to 30A... I have never tried using that high a current so this finding surprised me, I thought it could do it... oh well.

HI Scot,

Good to hear you were successful and thanks for sharing the details.

As for max current, which exact version do you have?

9712 is 30A/150V, 9712B is 15A/500V and 9712C is 60A/150V. All are 300W.

Regards,

Sinisa


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TheDefpom

Frequent Contributor



Posts: 272

Country: 

YouTuber Nerd



Re: Trouble calibrating Maynuo M9712 DC Electronic Load

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« Reply #6 on: July 27, 2019, 08:09:29 am »

Mine is the M9712 (not the B or C variant), I was thrown as the output terminals have "60A Max" marked below them !

The menu system only allows a maximum current of 30A so definitely not a problem with that.

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Cheers Scott

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HighVoltage

Super Contributor



HIGH VOLTAGE

Posts: 4252

Country: 



Re: Trouble calibrating Maynuo M9712 DC Electronic Load

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« Reply #7 on: July 27, 2019, 08:27:52 am »

Nice calibration job !

My M9712 goes to 60A, so I guess I have the M9712C, although the screen print says M9712.

Another interesting fact about a China made instrument.

Actually I am surprised how good the M9712 works and I have mine for several years already.

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There are 3 kinds of people in this world, those who can count and those who can not.

2N3055
 Super Contributor

 Posts: 2090
 Country: 


Re: Trouble calibrating Maynuo M9712 DC Electronic Load

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« Reply #8 on: July 27, 2019, 09:27:37 am »

Quote from: HighVoltage on July 27, 2019, 08:27:52 am

Nice calibration job !

My M9712 goes to 60A, so I guess I have the M9712C, although the screen print says M9712.
 Another interesting fact about a China made instrument.
 Actually I am surprised how good the M9712 works and I have mine for several years already.

Same here, i have M9812 LED that has two loop response types, so it works better with sources that are sensitive to difficult loads..
 No problems so far...

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