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06-13-2012, 10:44 PM

#1


**John**  
 Moderator

Join Date: Jan 2009  
 Posts: 3,007

**Yamaha CS01 MIDI Retrofit Guide**

Step #0: Read the UMR2 user manual! You can download it from the [UMR2 product page](#).

Always remove batteries and disconnect any power supply from the CS01 before wiring activity.

Important: Set the CS01 "FEET" slider to 32' before performing the setup procedure.

**1. (VERY IMPORTANT) Connect Matrix Polarity Jumper**

Connect the UMR2 Matrix Polarity Jumper for the "Active High" setting. You can do this by soldering a small piece of wire as shown.



## 2. Power and MIDI: Wiring and Test

Connect the UMR2 "DC IN" terminals as shown in the diagram. The 220-ohm resistor and zener diode 1N4734A are included with the UMR2. They are required to prevent damage to the UMR2.

Connect the MIDI terminals as shown in the diagram.

With the host keyboard powered on, test the MIDI signal path by making the following connections:

MIDI Controller MIDI Out -> UMR2 MIDI In  
UMR2 MIDI Out -> Sound Module MIDI In

Test the UMR2 "software MIDI thru" by attempting to control the sound module with the MIDI controller. This confirms that the MIDI and power wiring are correct.

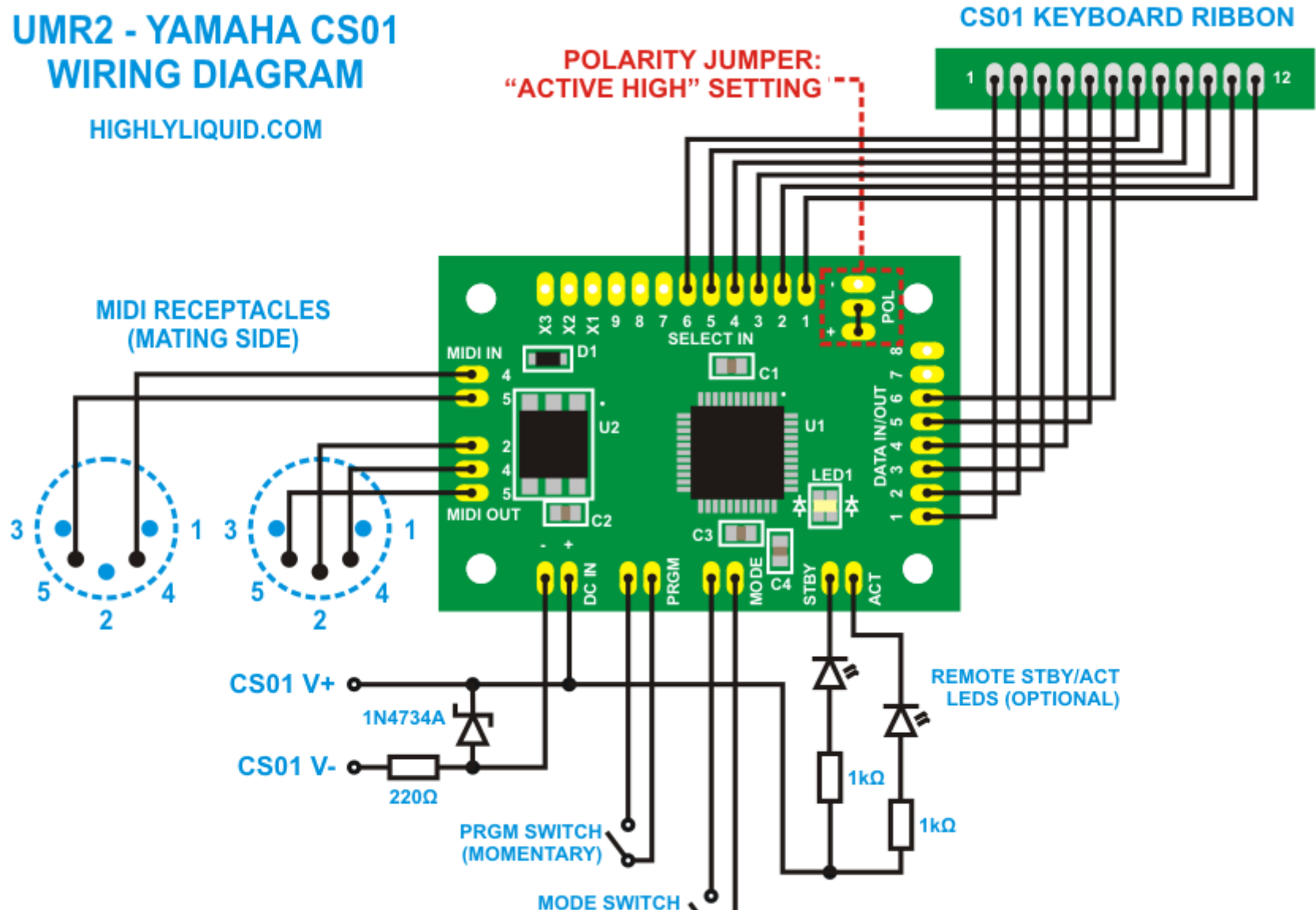
## 3. Matrix and Switch Wiring

Complete the matrix wiring and PRGM and MODE switch wiring as shown in the diagram.

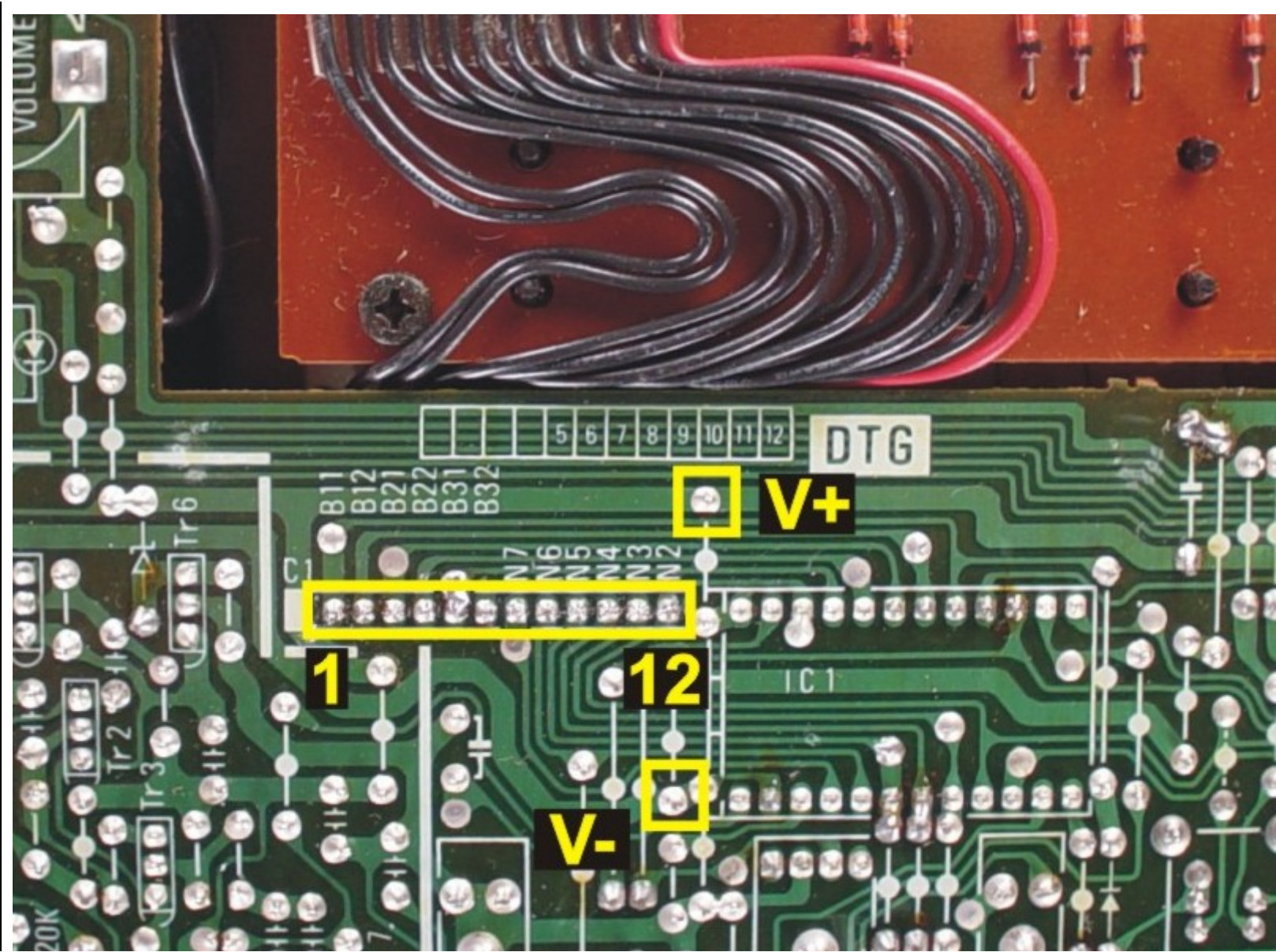


# UMR2 - YAMAHA CS01 WIRING DIAGRAM

HIGHLYLIQUID.COM



Host V+, V-, and ribbon locations:



**4. UMR2 Setup Procedure**

Note: move the CS01 "FEET" slider to the 32' setting before performing the setup procedure.

Complete the UMR2 Setup Procedure as described in the UMR2 user manual. This allows the UMR2 to "learn" the keyboard switch matrix configuration of the host, and also sets the MIDI channel and note range.

**5. Post Feedback**

Post a reply to let us know how this worked for you. 😊

*Last edited by John; 03-07-2013 at 03:43 PM.*



01-25-2013, 02:55 AM

#2



Join Date: Jan 2009  
Posts: 3,007



D. writes:

Quote:

Does the UMR2 midi retrofit install inside the Yamaha CS01 without any modifications to the CS01 besides soldering of course..  
And wheres the best place to install midi in Jack

The CS01 does not have a lot of empty space on the inside, so I have always housed the retrofit PCB and MIDI connector outside of the CS01 in a separate enclosure. Like this:

<http://glitchdesk.com/cb/019/>

That said, it should be possible to put the UMR2 inside the CS01. The UMR2 is smaller than the discontinued "CS01-MIDI" retrofit, which was placed inside the CS01 as shown here:

<http://forum.highlyliquid.com/showthread.php?t=130>

I can't promise that you will be able to do it without any modifications to the CS01.

It might be helpful to take a look at the mechanical drawing of the UMR2 in the user manual, which can be downloaded from the [product page](#).

I hope this helps.

*Last edited by John; 01-25-2013 at 02:57 AM.*



08-27-2013, 04:24 PM

#3



Join Date: Jan 2009  
Posts: 3,007

#### **UMR2 installation inside CS01**

Here is a detailed description of a really nice installation by [ELSmurf](#):

<http://blog.highlyliquid.com/2013/08/27/1306/>



[Attached Images](#)



09-17-2014, 04:00 AM

#4

[loopdokter](#) 

Junior Member

Join Date: Aug 2014

Posts: 4

 **CS-01 MKII assembly for UMR2**


Hi,

So apparently the CS-01 MKII is a bit different of a board to the MKI. I had a friend solder up my UMR2 to the board and he was unsure if the following points with the red and black wires were correct, since the black has two points on the board instead of just the one on the MKI and schematic. He assumed that it was fine to solder to the two points since he said he figured this was just for ground, but to check before I fired everything up so I don't toast the board.

Can you please confirm?

*Last edited by loopdokter; 09-29-2014 at 04:45 AM.*



 09-29-2014, 04:29 AM

[loopdokter](#) 

Junior Member

#5

Join Date: Aug 2014

Posts: 4



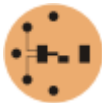
Could someone please help? I'm quite reluctant to turn this on and then pooch the board!

Thanks!



10-03-2014, 02:33 AM

#6



**John**  
Moderator

Join Date: Jan 2009  
Posts: 3,007



Hi loopdokter, welcome to the forum and sorry for the slow response.

With the UMR2 disconnected, can you measure the voltage on the V+ and V- points with respect to CS01 ground?



10-27-2014, 01:35 AM

#7

**loopdokter**  
Junior Member

Join Date: Aug 2014  
Posts: 4



Quote:

Originally Posted by **John** *Hi loopdokter, welcome to the forum and sorry for the slow response.*  
*With the UMR2 disconnected, can you measure the voltage on the V+ and V- points with respect to CS01 ground?*

Funny, I just send you an email asking for your response. I'm not too crafty with a multimeter. How would I go about doing so? What setting does it need to be at? Where do you want me to put the black and the red points?

Thanks!



10-31-2014, 05:49 PM

#8



**John**  
Moderator

Join Date: Jan 2009  
Posts: 3,007



Quote:

Originally Posted by **loopdokter**

*Funny, I just send you an email asking for your response. I'm not too crafty with a multimeter. How would I go about doing so? What setting does it need to be at? Where do you want me to put the black and the red points?*

*Thanks!*

Multimeter setting: DC volts.

Black lead on the V- point. Red lead on the V+ point. What is the reading?



11-07-2014, 12:30 AM

#9

**loopdokter**  
Junior Member

Join Date: Aug 2014  
Posts: 4



The board doesn't match up, so I'm having difficulty locating the V- and V+ points? My multimeter was poached after some battery acid leaked into it, so I just grabbed a new one.

Regardless, if the points that you speak of match up to the red and black wires that are soldered onto my board, the reading is 0.

I'm guessing that doesn't sound right?



12-10-2014, 05:49 AM

#10



**John**  
Moderator

Join Date: Jan 2009  
Posts: 3,007



Quote:

Originally Posted by **loopdokter** [▶](#)

*The board doesn't match up, so I'm having difficulty locating the V- and V+ points? My multimeter was pooched after some battery acid leaked into it, so I just grabbed a new one.*

*Regardless, if the points that you speak of match up to the red and black wires that are soldered onto my board, the reading is 0.*

*I'm guessing that doesn't sound right?*

Does it read 0 with CS01 power on? (Or, with the power off, can you detect continuity between the points?)

If yes to either of those, then yes, it's not right. It just sounds like you have the same signal in two locations.

The instructions are written so that the difference between V+ and V- is about 8V. The zener regulator circuit as drawn in the wiring diagram at the top of the thread regulates the UMR2 supply voltage down to 5V.

Unfortunately, I do not have a UMR2 mkII on hand to test with at the moment. Otherwise I would give you a photo and very specific instructions. Sorry! 😞



09-04-2015, 05:55 AM

#11

Join Date: Sep 2015  
Posts: 3

[krhnyc](#)  
Junior Member

**Bare bones install**

I am putting this in for a friend and am wondering that if I forego the switches, leds, MIDI out, etc. if the board will still operate as designed? He only wants the MIDI in functionality, so if I leave the other pads unpopulated... will this prevent it from working?



09-04-2015, 06:06 AM

#12

Join Date: Sep 2015  
Posts: 3

[krhnyc](#)  
Junior Member



Quote:

Originally Posted by [krhnyc](#)  
*I am putting this in for a friend and am wondering that if I forego the switches, leds, MIDI out, etc. if the board will still operate as designed? He only wants the MIDI in functionality, so if I leave the other pads unpopulated... will this prevent it from working?*

Just to clarify, when I ask about unpopulated pads, i mean just the pads for the functions I do not intend to use (mode, pgm chng, midi out, led indicators, et al 😊 I intend to hook up all of the other vital conections (power supply, midi in, keys and so on).



09-07-2015, 05:09 AM

#13

**krhnyc**  
Junior Member

Join Date: Sep 2015  
Posts: 3



Quote:

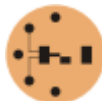
Originally Posted by **krhnyc** *Just to clarify, when I ask about unpopulated pads, i mean just the pads for the functions I do not intend to use (mode, pgm chng, midi out, led indicators, et al 😊 I intend to hook up all of the other vital conections (power supply, midi in, keys and so on).*

Well, no response but I think I figured it out. I looked at the wiring diagram and the LED are clearly labeled "optional". The momentary and latching switches appear normally open, so intuition tells me that not using those pads should not affect the operation of the board as my friend wishes to use it (midi in jack only). Unless someone tells me different (which I doubt will happen considering the lack of initial response) I am going on that logic.



09-09-2015, 11:35 PM

#14




**John**  
Moderator

Join Date: Jan 2009  
Posts: 3,007



Quote:

Originally Posted by **krhnyc** 

*Well, no response but I think I figured it out. I looked at the wiring diagram and the LED are clearly labeled "optional". The momentary and latching switches appear normally open, so intuition tells me that not using those pads should not affect the operation of the board as my friend wishes to use it (midi in jack only). Unless someone tells me different (which I doubt will happen considering the lack of initial response) I am going on that logic.*

Hi krhnyc, you are correct on all counts. Sorry for the slow response.



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UMR2 

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