

RS485 Conversion Card Parts List (in recommended order of assembly)

Qty.	Symbol	Description
5	J1-J5	Jumpers - make from spare leads from resistors
2	R1, R2	330 Ω resistors [orange-orange-brown]
3	R3-R5	2.2K Ω resistors [red-red-red]
2	R6, R7	120 Ω resistors [brown-red-brown]
4	R8-R11	1.0K Ω resistors [brown-black-red]
3	-	4-40 x ¼" pan-head machine screws (Digi-Key H142)
3	-	4-40 hex nuts (Digi-Key H216)
2	S1, S2	8-pin DIP sockets (Jameco 112192)
1	S3	14-pin DIP socket (Jameco 112213)
1	S4	16-pin DIP socket (Jameco 112221)
4	C1-C4	.1 μ F, 50V monolithic capacitors (JDR .1UF-MONO)
5	C5-C9	1 μ F, 35V tantalum capacitors (Jameco 33662)
1	C10	2.2 μ F, 16V tantalum capacitor (Jameco 94001)
1	H1	3-pin Waldom right angle header (make from 24-pin right angle header Mouser 538-26-48-1242 – see text)
1	H2	5-pin Waldom right angle header (make from 24-pin right angle header Mouser 538-26-48-1242 – see text)
1	L1	Diffused amber T1¾ size LED (Digi-Key P306)
1	L2	Diffused red T1¾ size LED (Digi-Key P300)
2	U1, U2	Dual RS485/RS422 transceivers (Digi-Key MAX487CPA)
1	U3	7407 hex buffer/driver, non-inverting (Jameco 49120)
1	U4	Dual RS232 transmitter & receiver (Digi-Key MAX232CPE) or (Jameco 24811)

Author's recommendations for suppliers given in parentheses above with part numbers where applicable. Equivalent parts may be substituted. Resistors are ¼W, 5 percent and color codes are given in brackets.

General Information:

Assembly, testing and using the RS485 card follows the same basic steps as the RS422 card covered in the Second Edition Build Your Own Universal Computer Interface book and in the C/MRI User's Handbook. The ICs have been updated to new standards and only a +5Vdc supply input is required.

Information notes on card assembly:

1. Insert the three 4-40 machine screws from the component side of the board into the holes marked +5V, Ground and Shield. Secure by attaching the nuts on the solder side of the board. Tighten firmly then solder the nuts to the pad.
2. Bend the leads at right angles on all the resistors and insert into their respective holes. While holding each resistor firmly against the board solder the two leads and trim.
3. Make sure that all the IC sockets and the ICs are installed with the correct pin 1 orientation.
4. Capacitors C5 through C10 are polarity sensitivity. The longer lead needs to be installed into the + holes. The + holes also have the square pad for easy identification.

5. Capacitors C1-C4 are not polarity sensitive so simply insert, solder and trim.
6. The right angle headers specified for H1 and H2 are made from a 24-pin header that you simply cut and snap off the needed 3-pins and 5-pins.
7. Installing H1 and H2, make sure you have the plastic part of the connector push firmly against the card before soldering only the center pin. Check the connector to make sure that the complete plastic base is snugly pressed firmly against the card. If not, reheat the center connection to reseal the connector. Once you are sure the total connector is firmly seated, then solder the remaining pins.
8. Installing L1 and L2 make sure the long leads go into the + holes, the ones with the square pad. Make sure you get the amber LED installed in the L1 position and the red LED in the L2 position. Once installed correctly solder and trim.