

Ordering Parts for a MOAS II Board

There are many possible options when you go to build the MOAS board, too many to try and customize the parts procurement. That is why this project is being supplied as a partial kit only.

Step 1: Determine how many outputs you are going to need. Count how many control lines there are on each device you have. A simple relay has one. A Top Ten relay has two. A 2x6 switch has twelve. A switched bandpass filter has six. A stack match may have as few as two or as many as seven. A 4-square probably has two but some have four.

Step 2: Determine if the control lines are high side or low side. A high side control is one that is connected to +12V to activate it. A low side control is connected to ground to activate it.

Step 3: The MOAS outputs can be set to high or low side, but they are set in groups of eight. Figure out how many groups of each you will need. For example if you have twelve high side and four low side controls you will need two groups of high side and one group of low side outputs. The MOAS II can handle eight groups – if your total is more than this you may be able to parallel some controls (such as combining the 2x6 and the bandpass filters). Otherwise you will need more than one MOAS II board.

Step 4: There are 3 parts lists shown below and on the attached spreadsheet. The part numbers shown are from Mouser Electronics, www.mouser.com, a large mail-order electronics distributor. Mouser usually has good prices and they carry all of the parts for this project.

The spreadsheet interfaces directly to the Mouser “Services & Tools-Parts List Importer” page on the Mouser website. To order these parts, simply highlight and copy the Mouser Part number and quantity off the spreadsheet, and paste it into the Mouser template. The parts that are already mounted on the board and the programmed IC are not on this list as they are supplied with the partial kit.

The first list contains the parts that ALL boards will need, regardless of the number of outputs. Start a Mouser order and add those parts.

Step 5: The second list consists of the parts needed for each group of low side outputs. Add one set for each group of low side outputs you need as figured in Step 3.

Step 6: The third list consists of the parts needed for each group of high side outputs. Add one set for each group of high side outputs you need as figured in Step 3.

Other options: I call this the “no soldering again” option. There are 8 outputs on the MOAS board; order 8 20-pin sockets, and 8 16-pin sockets, the bypass caps for all 8 channels, and the pluggable block female receptacles. If you want to expand your capabilities in the future, all you need do is purchase the ICs, plug them in, and get a pluggable block male plug to match what's on the box. You can then do that without soldering anything additional.

Additional Tip: The .1uf caps are .30 apiece if you buy less than 100 and .117 apiece if you buy at least 100. So, if you're going to buy 40 of them, you might as well buy 100 of them.

If you find that a part is not in stock it is possible that there is a substitute. For example, Mouser carries a dozen suitable voltage regulator ICs. The one listed is the one which had the lowest price of the ones that were in stock when I made the list. If you are not sure of a substitution contact us.

All Boards

| Board label | Description | Mouser Part Number | Quantity |
|---------------------|--------------------|---------------------------|-----------------|
| C1,4,6,9,10,101-107 | .1uf | 80-C315C104M5U | 12 |
| C2 | 22uf | UPM1H220MED | 1 |
| C3 | 220uf | TPC1H221MCD1LW | 1 |
| C5 | 10uf | UPM1H100MDD | 1 |
| C7,8 | 22pf | 140-50N2-220J-RC | 2 |
| C11-16 | .01uf 1000v | S103M47Z5UN63L0R | 6 |
| D1-14 | 1N4007 | 583-1N4007-B | 14 |
| D15 | Red LED | 645-550-2405F | 1 |
| D101-102 | Green LED | 645-550-2205F | 2 |
| F1 | 4A Fuse | 504-AGC-4-R | 1 |
| J1 | APP Power Conn | 879-1377G2 | 2 |
| | APP Black Plas | 879-1327G6 | 1 |
| | APP Red Plastic | 879-1327 | 1 |
| J2 | USB Recep | 154-2442-E | 1 |
| J3-8 | RCA Jack | 161-0097-E | 6 |
| J101-106 | RCA Jack | 161-0098-E | 6 |
| R1-12,R101-102 | 1K 1/4w | 291-1K-RC | 14 |
| R13 | 1.5K 1/4w | 291-1.5K-RC | 1 |
| U3 | IC- LM7805 | 863-MC7805CTG | 1 |
| U101 | IC- TPIC6A596 | 595-TPIC6A596NE | 1 |
| X1 | Xtal | 815-ABL-16-B2 | 1 |
| | Fuse Hldr ½ | 576-01020071Z | 2 |
| | 20pin IC sock | 575-11044320 | 1 |
| | 28pin IC sock | 575-11044328 | 1 |

Low Side Outputs

| Board label | Description | Mouser Part Number | Quantity |
|--------------------|--------------------|---------------------------|-----------------|
| J*01, J*02 | Phoenix Jack | 158-P105EHDVCH-E | 1 |
| | Phoenix Plug | 538-39520-0010 | 1 |
| U*02, U*04 | TPIC6A596NE | 595-TPIC6A596NE | 1 |
| | IC Socket-20p | 575-11044320 | 1 |
| C*01-C*13 | .1uf | 80-C315C104M5U | 13 |

High Side Outputs

| Board label | Description | Mouser Part Number | Quantity |
|--------------------|--------------------|---------------------------|-----------------|
| J*01, J*02 | Phoenix Jack | 158-P105EHDVCH-E | 1 |
| | Phoenix Plug | 538-39520-0010 | 1 |
| U*01, U*03 | MIC5891YN | 998-MIC5891YN | 1 |
| | IC Socket-16p | 575-11044316 | 1 |
| C*01-C*13 | .1uf | 80-C315C104M5U | 13 |