DO NOT UNPLUG LOADS WHILE POWER IS ON. BREAKING OF CURRENT IN THE INDUCTANCE OF THE MOTOR GENERATES A HIGH VOLTAGE ARC, WHICH DAMAGES THE DRIVE.
**ACCESSORIES AND OTHER ELECTRICAL NOTES**

**MATING CONNECTORS:**
- POWER CONNECTIONS AMP MTA 100 SERIES
  - 8P IN 22 GA DIGIKEY P/N A31111 (NEMA23 MOTOR)
  - 8P IN 24 GA DIGIKEY P/N A31023 (NEMA17 MOTOR)
  - 8P IN 26 GA DIGIKEY P/N A31030
- T HANDLE CRIMP TOOL DIGIKEY P/N A9982
- PISTOL GRIP TOOL DIGIKEY P/N A1998 + A2031

**SIGNAL CONNECTIONS HIROSE DF11 SERIES**
- 4PIN DF11-4DS-2C
- 8PIN DF11-8DS-2C
- 10PIN DF11-10DS-2C
- PRECRIMPED DF11 WIRES: SEARCH H3BXT ON DIGIKEY

**USB:** USB MICRO

**OPTO HOME SWITCH:**
1) "Z" OR HOME COMMAND RUNS MOTOR UNTIL OPTO #1 IS ON_FLAG EDGE.
2) AN OPTO SWITCH PROVIDED WITH EACH STARTER KIT
3) USE TRANSISTOR OPTO THAT HAS Ic > 1mA @ IF = 20mA.
4) EXAMPLES OF ACCEPTABLE OPTOS ARE:
   - DIGIKEY P/N QVA11134
   - DIGIKEY P/N M21A1
   - HONEYWELL NOA1867-012 (IS PREWIRED)
   - HONEYWELL NOA1870-33 (IS PREWIRED)
   - OPTEK OPB830M11 (IS PREWIRED)
5) THE OPTO COUPLER LED PIN HAS 200 OHM TO 5V IN SERIES ON THE BOARD. THE 200 OHM CAN BE REMOVED IF DESIRED FOR RUNNING SENSORS THAT REQUIRE DIRECT ACCESS TO 5V. (OR USE ENCODER 5V POWER) THE COLLECTOR OF THE TRANSISTOR HAS A 10K PULLUP TO 5V. THE TOTAL CURRENT DRAWN FROM THE 5V SUPPLY (INCLUDING OPTOS) MUST BE LESS THAN 600mA.
6) ALL INPUTS ARE 0-3.3V ADC INPUTS, THE ONE/ZERO THRESHOLD IS FACTORY SET TO 1.23V, TO BE TTL COMPATIBLE, AND CAN BE CHANGED BY SOFTWARE COMMAND.

**MOTORS:**
1) THE EZ STEPPER WILL DRIVE MOST STEPPER MOTORS
2) FOR BEST PERFORMANCE SELECT A MOTOR RATED AT ABOUT 1/4 OF THE SUPPLY VOLTAGE. E.G USE A 6V Motor With A 24V SUPPLY.
3) FOR MOTORS WITH 6 Wires DO NOT CONNECT THE CENTER TAPS TO ANYTHING OR EACH OTHER
4) FOR MOTORS WITH 8 Wires THE PHASES CAN BE COMBINED IN PARALLEL OR SERIES TO YIELD 4 Wires. SEE MANUFACTURERS DATA ON HOW TO DO THIS.

**ON/OFF DRIVERS**

**ON/OFF DRIVERS ALTERNATE WIRING DIAGRAM**
1) EACH ON/OFF DRIVER IS RATED AT 2 AMPS PEAK, 1 AMP CONTINUOUS HOWEVER THE TOTAL GROUND RETURN FROM ALL 16 DRIVERS MUST BE KEPT TO LESS THAN 4A.
2) THE NEGATIVE PIN OF THESE DRIVERS IS ACTUALLY AN OPEN COLLECTOR TYPE OUTPUT THAT PULLS DOWN TO GROUND. IT IS POSSIBLE TO DRIVE LOADS THAT ARE OF A DIFFERENT VOLTAGE THAN THE SUPPLY VOLTAGE, BY CONNECTING THE POSITIVE SIDE OF THE LOAD TO AN EXTERNAL SUPPLY, AND THE NEGATIVE SIDE TO THE -VE OUTPUT PIN. HOWEVER, IN CASE THIS IS DONE IT IS NEEDED TO PLACE AN EXTERNAL "FREE WHEELING" DIODE ACROSS ANY INDUCTIVE LOADS. EXTERNAL SUPPLY VOLTAGE MUST BE LESS THAN SUPPLY VOLTAGE BOARD.
3) THE LED POWER PIN CAN BE CONFIGURED AS A DIRECT CONNECTION TO 5V TO SUPPLY 5V POWER ON THE I/O CONNECTOR. PLEASE CONTACT FACTORY.

**PRELIMINARY RELEASE**

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0.125" DIAM HOLE, 0.250" DIAM PAD. (4X)

+1.125"
+0.975"

-0.975"
-1.125"

0.000"

+ 0.762" TOP COMPONENTS + PCB THICKNESS

+ 0.062" PCB THICKNESS

- 0.200" BOTTOM COMPONENTS

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EZ-QUAD-SERVO DIMENSIONAL INFORMATION

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