TO PC COM PORT
USE 9600 BAUD
8BIT, NO PARITY,
1 STOP, NO FLOW
CTRL.

TO OTHER
EZ STEPPERS

RS485 CONVERTER

4 AXIS STEPPER DRIVER CONTROLLER WITH DUAL ENCODERS

NOTES:

"H" OR HALT COMMAND WAITS FOR SWITCH #2 TO CHANGE STATE

"Z" OR HOME COMMAND RUNS MOTOR UNTIL OPTO #1 IS ON FLAG EDGE.

A SWITCH CAN REPLACE THE OPTO FOR HOMING, CONNECT SWITCH
FROM PHOTO TRANSISTOR INPUT TO GROUND.

TOTAL CURRENT DRAW FROM ENCODERS + LEDS MUST BE < 200mA

DO NOT BUNDLE ENCODER OR SENSOR WIRES WITH THE MOTOR WIRES.

SHIELD MOTOR WIRES WITH A GROUNDED BRAID TO REDUCE EMI
MATING CONNECTORS:
AMP MTA 100 SERIES
4FIN 22 GA DIGIKEY P/N A31108 (INPUT / MOTOR / OUTPUT CONNECTOR)
6FIN 26 GA DIGIKEY P/N A31030 (FOR OPTOS)
5FIN 26 GA DIGIKEY P/N A31028 (FOR OPTOS)
5FIN 26 GA DIGIKEY P/N A31027 (FOR ENCODER)
T HANDLE CRIMP TOOL DIGIKEY P/N A9892
PISTOL GRIP TOOL DIGIKEY P/N A1998 + A2031

MOTORS:
1) THE EZ STEPPER WILL DRIVE MOST STEPPER MOTORS
2) FOR BEST PERFORMANCE SELECT A MOTOR THAT IS RATED AT ABOUT 1/4 OF THE SUPPLY VOLTAGE. (E.g. USE A 6V MOTOR WITH A 24V SUPPLY).
3) FOR (UNIPOLAR) STEPPER MOTORS WITH CENTER TAPPED WINDINGS, TYPICALLY LEAVE THE CENTER TAP UNCONNECTED, OR WIRE PER MANUFACTURERS RECOMMENDATIONS.

SUITABLE POWER SUPPLIES:
1) FOR FIRST TIME USERS, TO GUARD AGAINST A POSSIBLE MISWIRE, A CURRENT LIMITED LAB SUPPLY SET TO 12V AND 0.5A IS RECOMMENDED.
2) A SUPPLY OF 24V AND 2A CAPABILITY IS GOOD FOR MOST PURPOSES. POSSIBLE CHOICES ARE:
DIGIKEY P/N 237-1296-ND
DIGIKEY P/N 237-1395-ND (ENCLOSED)
3) INPUT CURRENT IS MUCH LESS THAN MOTOR CURRENT DUE TO THE SWITCHING (PWM). IT CAN BE CALCULATED BY CONSIDERING CONSERVATION OF POWER. HOWEVER IT IS IMPORTANT TO MAKE SURE THAT THE SUPPLY WILL NOT FOLD BACK AS IT IS COMING UP SINCE THE EZ STEPPER WILL DRAW MORE CURRENT AT LOWER VOLTAGES.

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 QA11134
DIGIKEY P/N H21A1
HONEYWELL HQA1887-012 (IS PREWIRED)
HONEYWELL HQA1870-33 (IS PREWIRED)
OPTEK OPB830W11 (IS PREWIRED)
5) THE OPTO COUPLER LED PIN HAS 150 OHM TO 5V IN SERIES ON THE BOARD. THE 150 OHM CAN BE REMOVED IF DESIRED FOR RUNNING SENSORS THAT REQUIRE DIRECT ACCESS TO 5V. THE COLLECTOR OF THE TRANSISTOR HAS A 10K PULLUP TO 5V.
6) ALL INPUTS WORK ON TTL LEVEL SIGNALS

ON/OFF DRIVERS ALTERNATE WIRING DIAGRAM
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FEEDBACK POT1 GROUND
FEEDBACK POT1 WIPER
FEEDBACK POT1 POWER

POSITION COMMAND POT2 GROUND
POSITION COMMAND POT2 WIPER
POSITION COMMAND POT2 POWER

SWITCH #1 CLOSURE TO GROUND INPUT
SWITCH #2 CLOSURE TO GROUND INPUT

NOTES:

1) ALL 4 INPUTS ARE ANALOG INPUTS

2) ADC's VALUES RANGE FROM 0-16368. THE ACCURACY AS SHIPPED IS 7 BIT BUT CAN BE IMPROVED TO >10BIT WITH THE REMOVAL OF THE INPUT PROTECTION CIRCUITRY, CONTACT FACTORY FOR DETAILS

3) POTS IN THE RANGE OF 500 OHM - 10K ARE SUGGESTED, LOWER VALUES ARE LESS AFFECTED BY INTERNAL 10K PULLUP. 500 OHM RECOMMENDED.

4) IF USING POT FOR POSITION FEED BACK WITH /IN3R MODE, IF MOTOR EXHIBITS POSITIVE FEEDBACK, SWITCH ENDS OF POT

5) 10K INTERNAL PULLUP WILL INTERFERE WITH LINEARITY OF POT VOLTAGE, AND MAY NEED TO BE REMOVED - CONTACT FACTORY.

6) INPUT OVERVOLTAGE PROTECTION CIRCUITRY MAY NEED TO BE REMOVED FOR >7BIT ACCURACY - CONTACT FACTORY.
0.125" DIAM HOLE, 0.250" DIAM PAD. (4X)

+0.975" -0.000" +1.125"

+0.000" -0.975" +1.125"

+0.000" -0.975" +1.125"

+0.975" -1.125" +1.125"

+0.762" TOP COMPONENTS + PCB THICKNESS

-0.062" PCB THICKNESS

-0.200" BOTTOM COMPONENTS

4 AXIS CONTROLLER DRIVER DIMENSIONAL INFORMATION

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