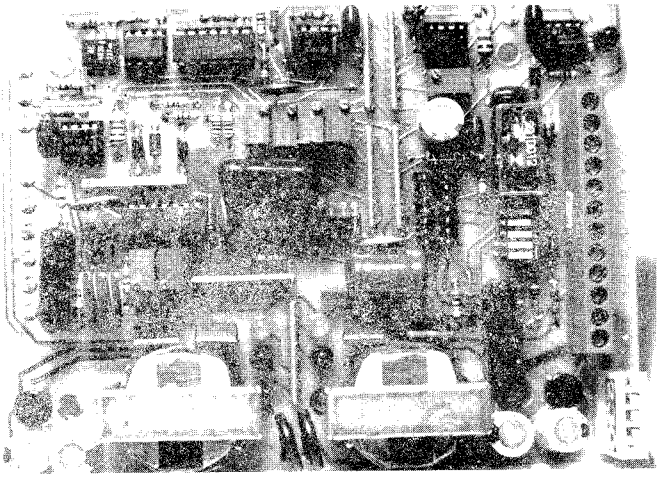
ELECTROL

OPERATING INSTRUCTIONS FOR OPTION A42

Process Control Interface Board

P/N 9094 #1091 Circuit

Effective
December 31, 1984



ELECTROL process control with speed profile capabilities has standard input command of 0 - 10VDC, or 4 - 20 MA DC. Other inputs from 0 - 200VDC or 0 - 45 MADC are selectable via dip switch and trim adjustment pots. Isolation is provided as standard. Output is adjustable 1 - 13.5VDC and AC power input is selectable for 115VAC or 230VAC for easy field application. Input impedence: Current 475 ohm, voltage 10K - 200K ohm.

Tools required:

1. Very small straight blade screwdriver
2. Digital voltmeter set on 2 to 20VDC scale

The process control P.C. Board is a very precision control. Readings are set in .01 of a volt. Precise measurements are required to set this P.C. Board up. By following the procedure below, you will find an exact set-up is relatively easy:

1. Pot Description:

   Entry Pot
   Exit Pot
   Entry Speed
   Exit Speed
   Set Point Pot
   Set Point Hysteresis Pot
   Gain Pot

2. Test Posts have been installed for simple testing

1		1 +15VDC ± .5VDC
2	Are Supply #1	2 Common 1 and 3
3		3 – 15VDC ±5VDC

If an osscope is available, ripple on all supplies should be below 70 MV.

4		4 +15VDC ± .5V
5	Are Supply #2	5 Common
6		6 –15VDC ± .5V

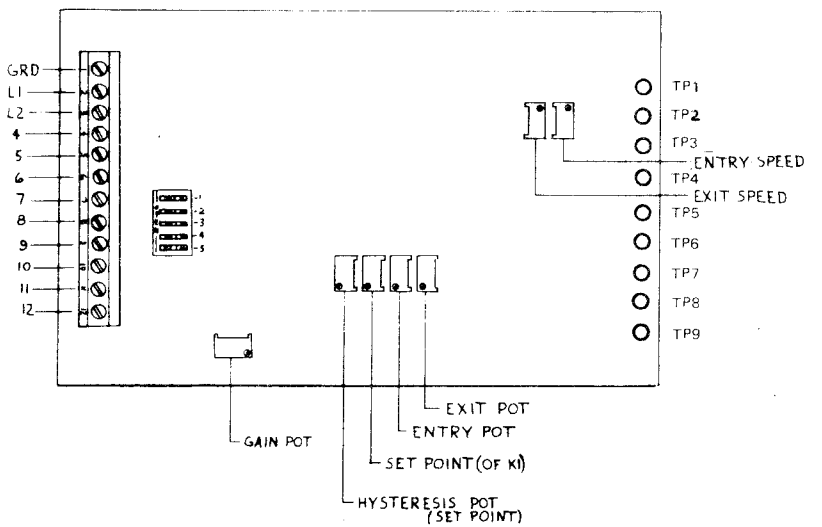
TP7 Voltage output scaled 0 to 9.00 VDC. This test point should not be set above 9.00 VDC because the next step in the circuit is A to D conversion of 0 to 10 KHZ with 0 to 9.00 input.

TP8 0 to 10 KHZ Square wave with 0 to 9.00 at TP7.

TP9 0 to 10 KHZ Square wave with 0 to 10 KHZ at TP8. This is the isolated command so 100% of information is transferred with no loss of accuracy.

TP10 This test pin is where you monitor the output. Adjusted to 13.5V DC MAX volts.

ADJUSTMENT PROCEDURES



1. First set up all trim pots as follows:

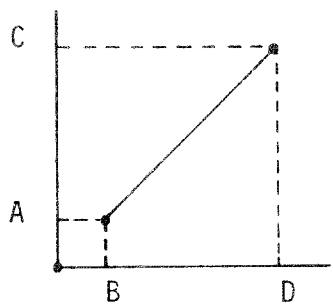
   Entry Pot – CCW
   Exit Pot – CW
   Exit Speed Pot – CCW
   Entry Speed Pot – CW
   Set Point – CCW
   Hysteresis – CCW
   Gain – CCW

2. Select input on chart and set switches as shown:

SW Position X = Closed

INPUT	1	2	3	4	5
4 - 20 ma					X
0 - 50 ma				X	X
0 - 10V					
0 - 100V		X	X		
0 - 200V	X		X		

3. Look at and complete speed profile chart as follows:



Central command – 0 - 10V DC.

Input command – 4 - 20, 0 - 10.

A. Lowest start input _____.

B. Speed of control at A input command _____.

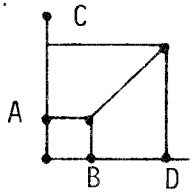
C. Highest command _____.

D. Speed of control at C input command _____.

Continued

3. Continued

Example:



Using 4 to 20 ma control:
1. All pots set.
2. 4 to 20 ma = close sw #5.
3. Fill sample chart.

A. Lowest input **4** ma.
B. Speed of control at A input command **0** speed.
C. Highest command = **20** ma.
D. Speed of control at B input command 1800 RPM or 90V DC to motor = **10** V DC output.

4. Now, with chart filled out (following example 4 to 20 ma):

Step 1: Set input to minimum 4 ma into control. Slowly adjust entry pot (adjust CW) until tri-state light turns green.

Step 2: Set voltage at TP #7 to B of adjustment chart (0 speed) with pot entry speed (adjust CCW) to set in minimum voltage to offset any required minimum speed of any drive. Example: Running A 200 drive requires a minimum pot setting of 1.00V DC so motor will turn at slightest request, so set entry speed pot (TP#7, TP#5, common) to 1.00 V DC.

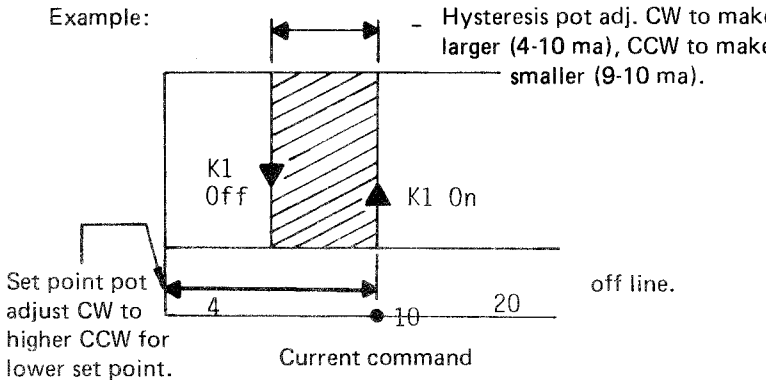
Step 3: Select highest input command = 20 ma. Slowly adjust exist pot (CCW) until tri-state LED turns red.

Step 4: With a (20 ma) command (tri-state LED on red), set exit speed (adj. CW) set output voltage (from TP#5 common to TP#7) to 9.00V DC. This sequence had adjusted the front end of control.

Step 5: Now make command 4 to 20 go up and down in scale and watch tri-state light. At 4 ma light will turn green above 4.1 light is out when you hit 20 ma light should turn red. If this does not happen, repeat Steps 1 through 4.

Step 6: Adjust gain pot with 20 ma input on PC #1091 so that motor runs at full speed.

Step 7: A set point relay output is available for customer usage. This set point moniters the input command, so and adjustment can be set the full range of that input.



Step 8: (Continued) Set point pot can be set full range (Adjust CW) of input (4 to 20 ma). Example: set point at 10 ma because customer does not want motor to ever be below 10 ma. Relay K1 will stay on as long as input command is above 10 ma. When command goes below 10 ma K1 will shut off (opening K1 contacts).

If the customer wants K1 on at 10 ma but does not want to shut off until 6 ma, the hysteresis pot may be set up for this. Adjust hysteresis CW. This opens up the on-latch of K1 shaded area.

Step 9: PC #1091 is now ready to run controls.

Step 10: Special. Ramps can be accommodated by simply setting up command on charts. Reverse ramp or any portion ofcontrol signal may be used. Example:

0 to full speed with 6 to 18 ma.
50% to 100% speed with 4 to 20 ma.
50% to 80% with 6 to 14 ma.
100 to 50% with 4 to 20 ma.
80% to 30% with 10 to 18 ma.

Any input for almost any output.

Step 11: For questions contact your area Representative or the Factory.

To Request Schematic
Please call or write:

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