



Quality One
ENGRAVERS

9749 Crescent Center Drive, Ste. 202
Rancho Cucamonga, CA 91730
909-989-3898 FAX 909-989-8617

Quality One Engravers (Fred Schwartz)
9749 Crescent Center Drive #202
Rancho Cucamonga, CA 91730
Ph 909-989-3898 FAX 909-989-8617
email: fred@q1engravers.com

Updated: July 12, 2006

Here is the output required for our 3 types of Q1E Engravers.

- 2+ output for our engravers - X & Y stepper motors, Z pneumatic solenoid
- 2 ½ output for our new engravers – X, Y & Z stepper motors using VZ
- 2 ½ output for our older engravers – X, Y & Z stepper motors using Dwell Time

Note the values in **BLUE** would be nice if the software sent these, but are not absolutely necessary. If these values do not exist, the defaults in the pendant will be utilized. Our pendant engraving values are easily input, but again, would be best if sent and saved as part of the job.

The Q3X controller and the Quest engraver can be outfitted to run with a pneumatic system. This is very advantageous for diamond drag engraving.

Common to 2+D & 2 ½ D Axis Engraver: Variables and allowable ranges:

Com port: Selectable 1 or 2 - Baud rate: 19200, 38400, 57600 or **115,200**

Parallel port: We have been using a Generic Windows driver with good results.

XY Table Slew rate (default of SD100 in controller)

Range 0.01-9.99 inches per second **SD100** = 1.00 ips, **SD55** = 0.55 ips

Spindle Start Delay (default of ST20 in controller)

ST - Start Delay – Delay to allow spindle motor & chip removal to get to full speed/suction before job start.

Range 0.0 to 9.9 seconds **ST0** = 0 seconds, **ST22** = 2.2 seconds

Travel Velocity (default of TV100 in controller)

TV - Speed between characters, move from Home and return to Home.

TV100 = 1.00 inches/sec, **TV200** = 2.00 inches/sec

Spindle Motor On/Off

R0 - Spindle motor Off

R1 - Spindle motor On

Cutter Dwell Time (default of DW10 in controller)

Range 0.01 - 9.99 seconds, **DW10** = .10 sec, **DW200** = 2.0 sec.

Home is the upper left corner

Output Stepping:

Our Quest engravers and all our new retrofits utilize 1"=4000 steps for X, Y & Z. Our older 2D engravers used 2000 steps per inch.



Quality One
ENGRAVERS

9749 Crescent Center Drive, Ste. 202
Rancho Cucamonga, CA 91730
909-989-3898 FAX 909-989-8617

2+ Axis (Z axis Solenoid) *Most use 2000 steps per inch*

Example of a 3 x 4 plate w/ two single line capital L's, XY speed 1.3 ips (SD130), Travel Velocity 1.50 ips (TV150), Dwell 0.10 sec (DW10).

;IN;ST20;TV150;PU;PA0,0;SP1;R1;SD130;DW10;PU;PA4656,4000;PD;PA4656,8000;PA7330,8000;PU;PA8670,4000;PD;PA8670,8000;PA11344,8000;PU;R0;PA0,0;SP0;

2½ Axis (Z axis Stepper Motor) Uses 4000 steps per inch

(2004 later) Primary Driver Used

For our 2 ¾ axis output, we use a **ZU** (Z up), **ZD** (Z down), **ZC** (Z to Clearance), **CLxxx** (Clearance value), **CDxxx** (Cut Depth value). Added value is **VZ** (Velocity of Z) also known as plunge rate. **Dwell Time DW has been eliminated.**

We set the distance to the material on our engraver control board with a joy stick. This number in steps is stored in memory. Our firmware keeps track of this number to apply to the job being sent. The engraving software if sending **CLxxx** or **CDxxx** must convert the dimensions selected to a step number of 4000 steps/in for the desired depth and clearance numbers.

;CLxxxx Clearance Value to be in steps. A calculated number at computer based on user input Clearance Distance (inches) times steps per inch of the leadscrew or cam mechanism (preset pitch value part of driver setup).

;CDxxxx Cut Depth Value to be in steps. Also a calculated value at computer. Same as above, user input times preset value.

ZU - "Z" Up 2½ axis

ZD - "Z" Down 2½ axis

ZC - Spends "Z" down to clearance position. This input is very necessary.

This is a sample output for the 2½ axis engraver. Engraving speed 1.30 ips (SD130), Travel Velocity 1.50 ips (TV150), Velocity Z .40 ips (VZ40), Clearance value .060" (CL240) and cut depth .010" (CD40).

;IN;ST20;TV150;PU;PA0,0;ZA0;SP1;R1;CL240;VZ40;CD40;R1;SD130;PA4656,4000;ZC;ZD;PA4656,4000;PA4656,8000;PA7332,8000;ZU;PA8668,4000;ZD;PA8668,4000;PA8668,8000;PA11344,8000;ZU;R0;ZA0;PA0,0;SP0;



Quality One
ENGRAVERS

9749 Crescent Center Drive, Ste. 202
Rancho Cucamonga, CA 91730
909-989-3898 FAX 909-989-8617

2 1/2 Axis (Z axis Stepper Motor) Uses 4000 steps per inch
(OLD – Pre-2004)

For our 2 3/4 axis output, we use a **ZU** (Z up), **ZD** (Z down), **ZC** (Z to Clearance), **CLxxx** (Clearance value), **CDxxx** (Cut Depth value).

We set the distance to the material on our engraver control board with a joy stick. This number in steps is stored. Our firmware keeps track of this number to apply to the job being sent. The engraving software if sending **CLxxx** or **CDxxx** must converts the dimensions selected to a step number knowing the Z axis leadscrew pitch (4000 steps/in for the Quest) for the desired depth and clearance numbers.

;CLxxxx Clearance Value to be in steps. A calculated number at computer based on user input Clearance Distance (inches) times steps per inch of the leadscrew or cam mechanism (preset pitch value part of driver setup).

;CDxxxx Cut Depth Value to be in steps. Also a calculated value at computer. Same as above, user input times preset value.

ZU - “Z” Up 3 axis

ZD - “Z” Down 3 axis

ZC - Spends “Z” down to clearance position. This input is very necessary.

This is a sample output for the 2 3/4 axis engraver. Engraving speed 1.30 ips (**SD130**), Travel Velocity 1.50 ips (**TV150**), Dwell time .40 seconds (**DW40**), Clearance value .060” (**CL240**) and cut depth .010” (**CD40**).

;IN;ST20;TV150;PU;PA0,0;ZA0;SP1;R1;CL240;DW40;CD40;R1;SD130;PA4656,4000;ZC;ZD;PA4656,4000;PA4656,8000;PA7332,8000;ZU;PA8668,4000;ZD;PA8668,4000;PA8668,8000;PA11344,8000;ZU;R0;ZA0;PA0,0;SP0;