

CNC-CB 1234

Control Box Setup Instructions

Rev. B

Company Name

Company Address
City, State, Zip

(999) 999-9999

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Sample Document

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Power-up Initialization

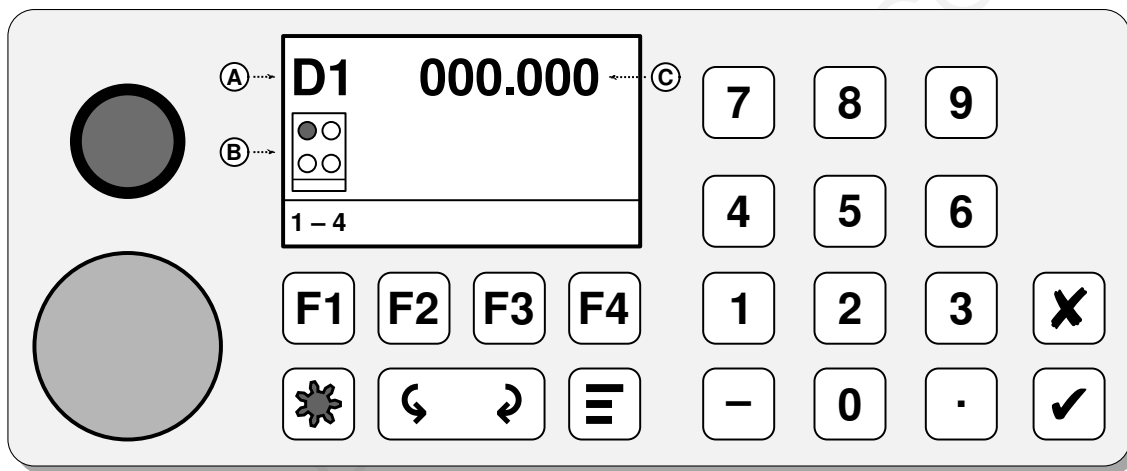
1. Turn on the control box and wait approximately 30 seconds. During this time the control initializes and the drives return to home position.
2. Do not press any buttons until these actions are complete.

Idle Mode

Display

The control box begins in Idle Mode, illustrated here.

Figure 1: Idle Mode — Display



- (A) Selected drive number
- (B) Selected drive illustration
- (C) Working angle — relative to “work-zero”

While in Idle Mode, the display shows the user’s choice of drive D1-D4 (A), an illustration highlighting which drive is selected (B), and a numeric display of its current working angle (C). The working angle is relative to its “work-zero” angle, displaying 000.000 when the drive is exactly at work-zero.

Selecting the Drive

1. Press **F1** to select which drive to display.
2. The display changes to the next drive and shows its current angle relative to work-zero.
3. Press **F1** additional times to select other drives.

Additional Keys

While in Idle Mode, the numeric keypad, the keys **F2**–**F4**, **☄**, and the jog keys **↶** **↷** are inactive.

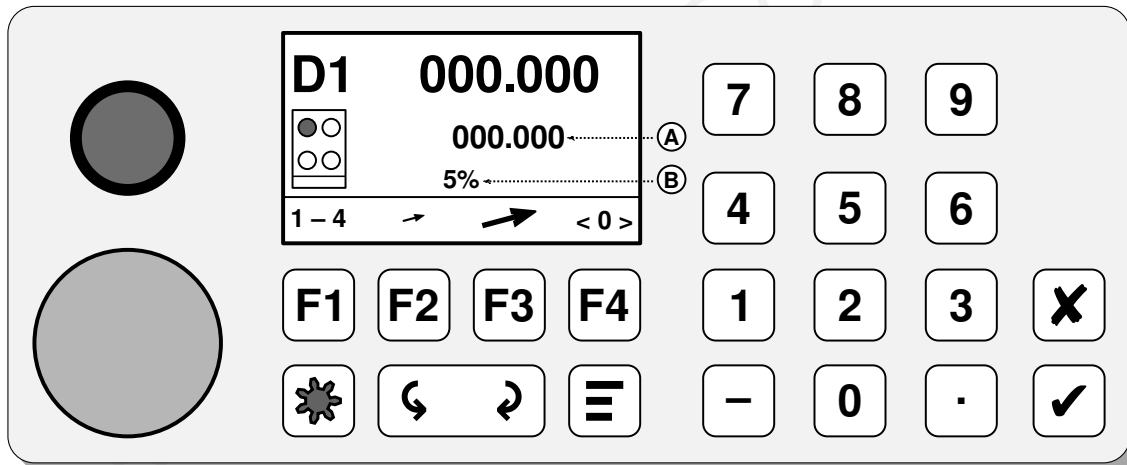
Program Mode

Entering Program Mode

Program Mode is used to set the “work-zero” positions of each drive to match a new part which is to be cut.

1. From Idle Mode, press and hold the **≡** key for four seconds.
2. The display changes to the programming display, shown here.

Figure 2: Program Mode — Display



- Ⓐ Absolute angle — relative to “up”
- Ⓑ Movement speed or step size

While in Program Mode, the display continues to show the selected drive and its angle relative to work-zero, but it also displays the drive’s absolute angle relative to “up” (Ⓐ), and the speed or step size (Ⓑ) which the drive will move when using the jog keys. Icons above the keys **F2**–**F4** indicate that these keys are now active.

Selecting the Drive

1. Select a drive with **F1**.
2. The display changes to the next the drive and shows that drive’s relative angle and absolute angle.

Selecting the Jog Speed or Step Size

Each drive may be rotated in either direction by a small step per jog-key press, or by a steady motion for as long as the jog key is held.

1. Press **F2** to select movement by a smaller amount.
2. Press **F3** to select movement by a larger amount.

Shown below is a table of the movement amounts which are available.

Table 1: Jog Movement Speed or Step Size

0.001°	Smallest movement step per jog-key press.
0.010°	
0.100°	Largest movement step per jog-key press.
5%	Slowest movement while a jog key is held.
10%	
25%	
50%	
100%	Fastest movement while a jog key is held.

Jogging the Drive

After selecting the drive with **F1** and the movement speed or step size with **F2** and **F3**:

1. Move the drive using the jog keys .

Small Steps

If the display shows 0.001° to 0.100°, the drive will step a small amount per key press of a jog key, then stop until a new jog-key press. While moving in this manner, the drive may be moved in small increments using repeated taps of the jog keys.

Large Movements

If the display shows a percentage, the drive moves when a jog key is pressed, and continues to move as long as the key is held.

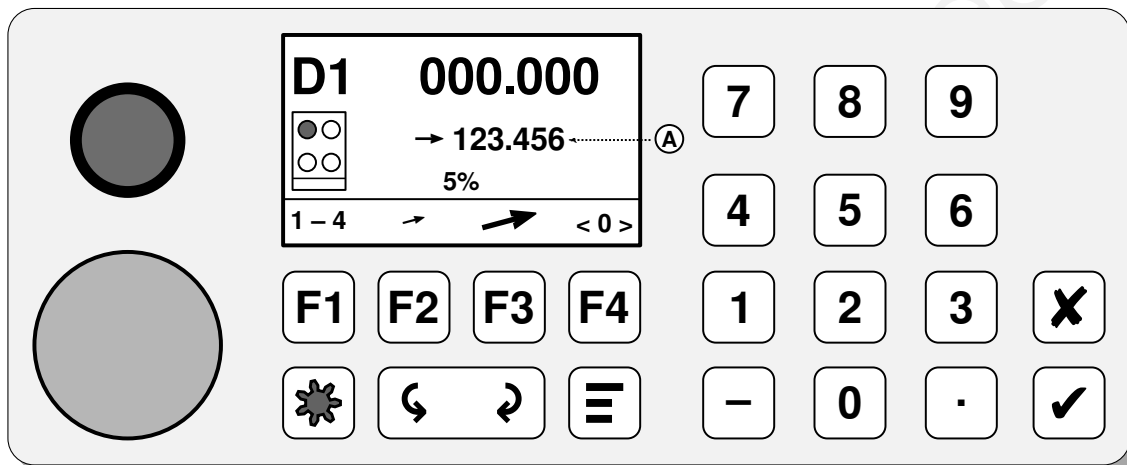
Moving to an Absolute Angle

The drive may be moved to an exact absolute angle relative to "up" by entering the angle with the numeric keypad.

The current absolute angle is displayed below the working angle.

1. Enter a new absolute angle with the keypad. While entering the new angle, an arrow points to the value being entered (A), as shown below.
2. Press the key to accept the value which has been entered.
3. Press the key to cancel the entry and return to the previous value.

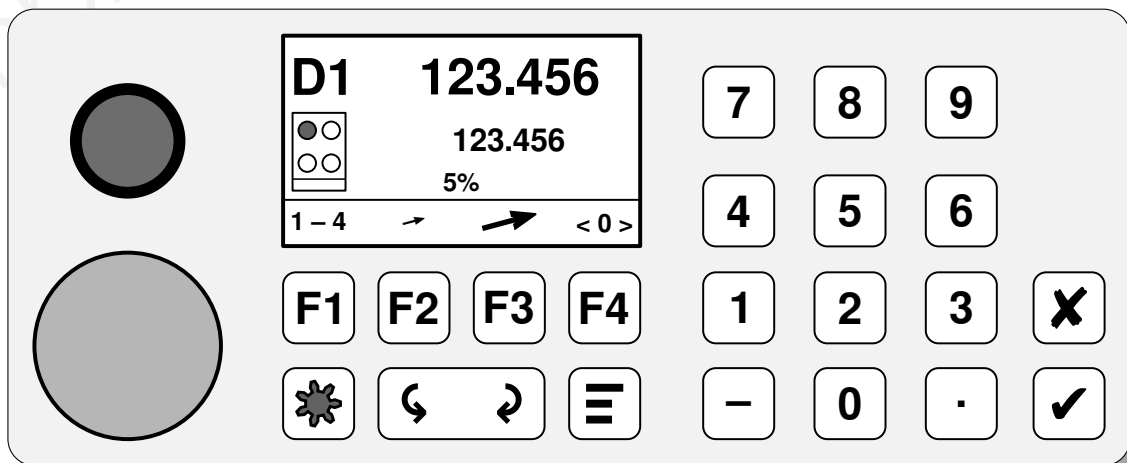
Figure 3: Entering an Angle



A The angle being entered, highlighted by an arrow.

Once a new value has been entered, the drive moves immediately to that angle.

Figure 4: Moving to the New Angle



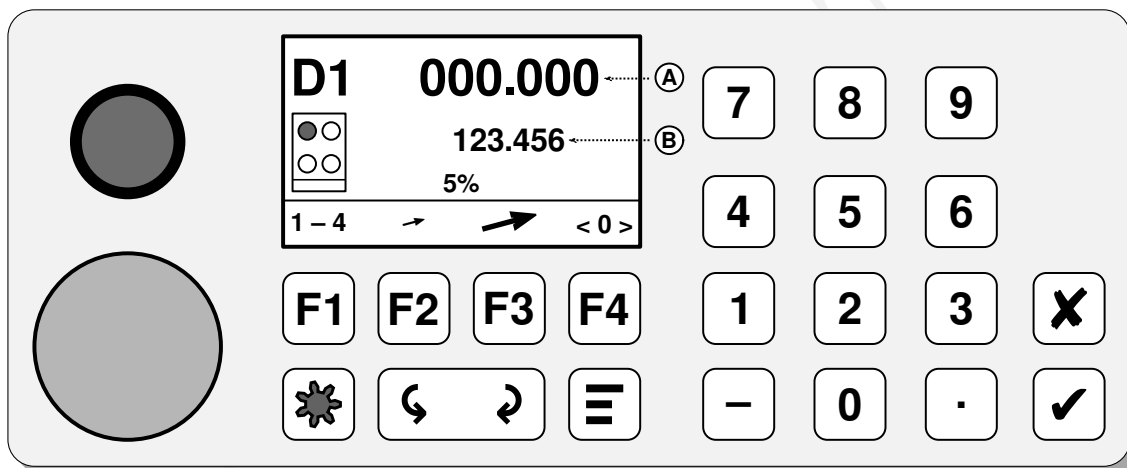
Setting Work-Zero

Once each drive has been moved to its work-zero position, this position must be recorded for future use.

For each drive which is positioned exactly where required for its work-zero:

1. Press and hold the **F4** key for four seconds.
2. The work-zero relative angle on the first line of the display **A** will change to 000.000, indicating that this drive is now at its work-zero position.
3. The second line of the display **B** will continue to show the absolute angle relative to "up", as shown here.
4. Other drives may be selected with the **F1** key, and zeroed by holding the **F4** key for four seconds.

Figure 5: Setting Work-Zero



- A** When work-zero is set, the relative angle is 000.000.
B The absolute angle remains unchanged.

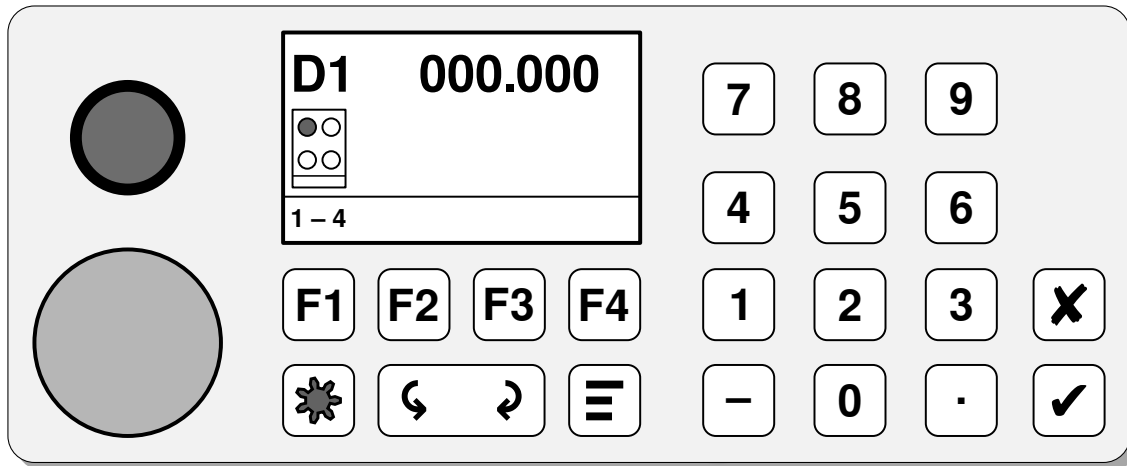
Be sure that all drives have had their work-zero positions set before attempting to cut parts.

Returning to Idle Mode

Once all drives have been set to a correct work-zero angle, Idle Mode must be selected.

1. Press and hold the  key for four seconds to return to Idle Mode.

Figure 6: Back to Idle Mode



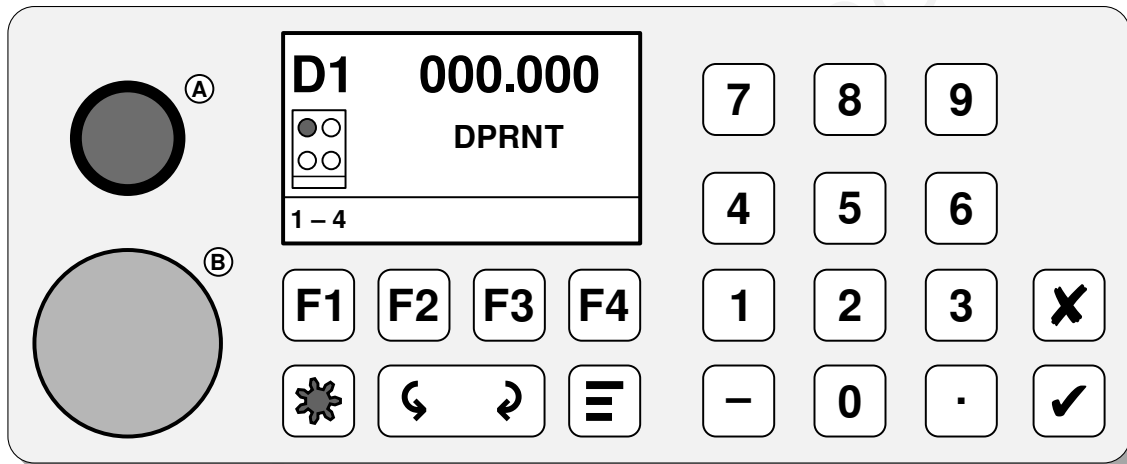
DPRNT Mode

When all work-zero positions have been recorded by the controller, and the controller has been returned to Idle Mode, the controller is ready to be placed into DPRNT mode to begin accepting the commands from the HMC to cut parts.

Idle Mode must be selected before entering DPRNT mode. See the previous section.

1. To put the controller into DPRNT mode, press the green START button (A). The display shows DPRNT in the center, as shown, and the controller begins to respond to commands from the HMC.
2. While in DPRNT mode, press (F1) to select which drive to display.
3. To exit DPRNT mode, press the red emergency stop button (B).

Figure 7: DPRNT Mode



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- (A) The Start button enters DPRNT mode.
 - (B) The Emergency-Stop button exits DPRNT mode.
 - (F1) Selects which drive to display.
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