



USBCNC-SW

USB Disk Key reader for CNC Controls
Machine Mount instructions for
Universal Switcher Version



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Introduction

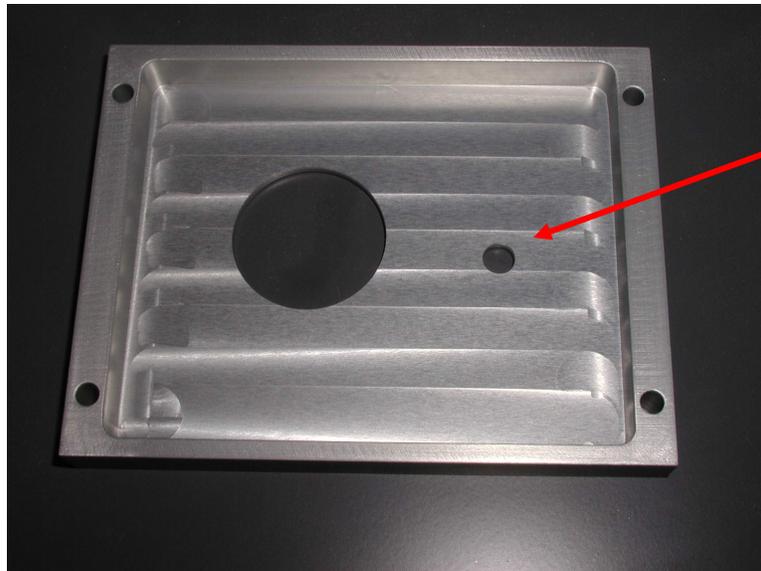
This manual is intended to provide a description of the installation procedure for the Calmotion USBCNC universal disk key reader.

Requirements

The USBCNC device will work with a CNC control with a standard DB25 RS-232 serial connection to the control box for the purposes of input/output of CNC data. Typically, the CNC manufacturer refers this as read and punch tape functions.

Please review the instruction manual thoroughly before beginning installation. In addition, the installer should verify that proper space and clearance has been taken into account prior to drilling holes in the CNC pendant. This includes cable bending radius and cable length.

The USBCNC-INT kit includes a mounting bezel that also acts as a drill jig. Once the installer has identified where the display should be mounted, the mark the small hole in the center and drill a hole the same size. Mount the plate, level and tighten to the cabinet.



This is the smaller hole in the center. Use this to hold bracket in place while drilling the outer four mounting holes.

Figure 1

Note the orientation of the bracket. The large hole should be on the left. Place the display on the bracket to see how the display has the RJ11 jack that protrudes through the large hole.

With the bracket held in place with a bolt through the smaller center hole, level the bracket and mark the larger hole on the bracket, this will need to be punched or step drilled to this same size.

Now drill the four outer holes using the bracket as a drill jig.

Remove the bracket.

Step drill or punch out the larger diameter hole. The display's RJ11 jack connector will protrude through this hole.



Figure 2

Mount the display and bracket to the control box.

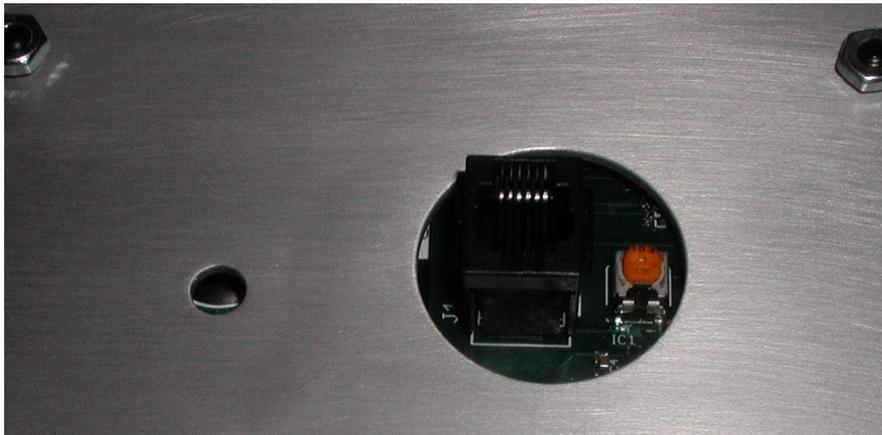


Figure 3

Inside the cabinet the RJ11 and the potentiometer should be visible through the large diameter hole.

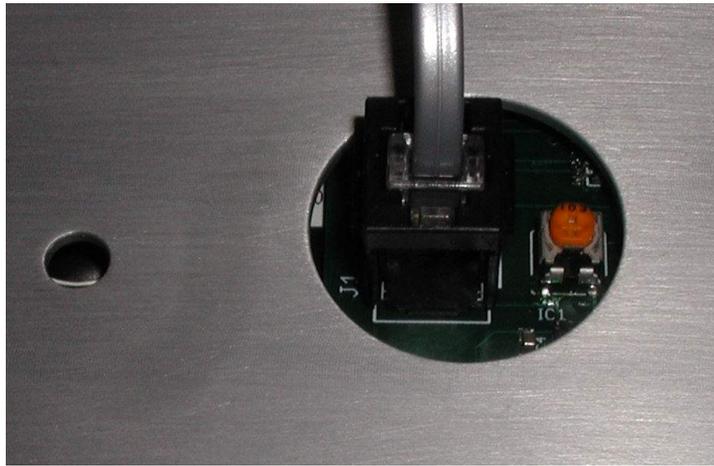


Figure 4

Plug the modular cable into the RJ11 jack. Note the length of the cable. The USBCNC controller board will need to be within the distance of the cable length when mounted.

Locate a good position for the USBCNC controller board. It will need to be within the distance of the display cable, serial cable and the power plug. Secure the din rail as shown below. Use all 6 ¼-20 nuts, by using two to secure it to the cabinet and the other 4 to stand off the din rail so the board is clear of the screws.



Figure 5

Attach the din rail clips to the USBCNC controller and mount to the din rail. Check for spacing. The two outer holes from the din rail clips can be used to release from the clips with a small screwdriver.

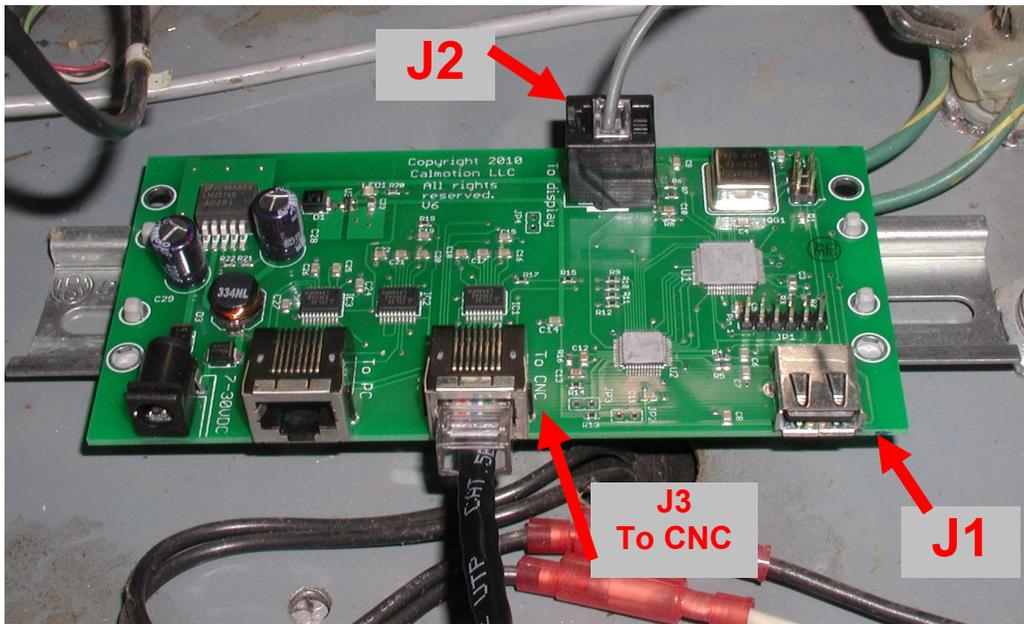


Figure 6

Plug the modular cable from the display into the RJ11 connector **J2** on the USBCNC controller board.

There are two RJ45 plugs **J3** and **J4**. **J3** will plug into the CNC using the DB25 plug labeled “To CNC”, see figure 8. **J4** will replace the DB25 panel mounted plug that was on the CNC cabinet going out of the machine, see figure 9. Connect the provide plug labeled “To PC” to **J4**, and use the DB25 male gender changer to replace the RS-232 plug going out of the CNC cabinet.

Plug the USB cable into **J1** on the control board shown above. In a later step the other end of the USB cable will plug into the panel mounted USB connector.

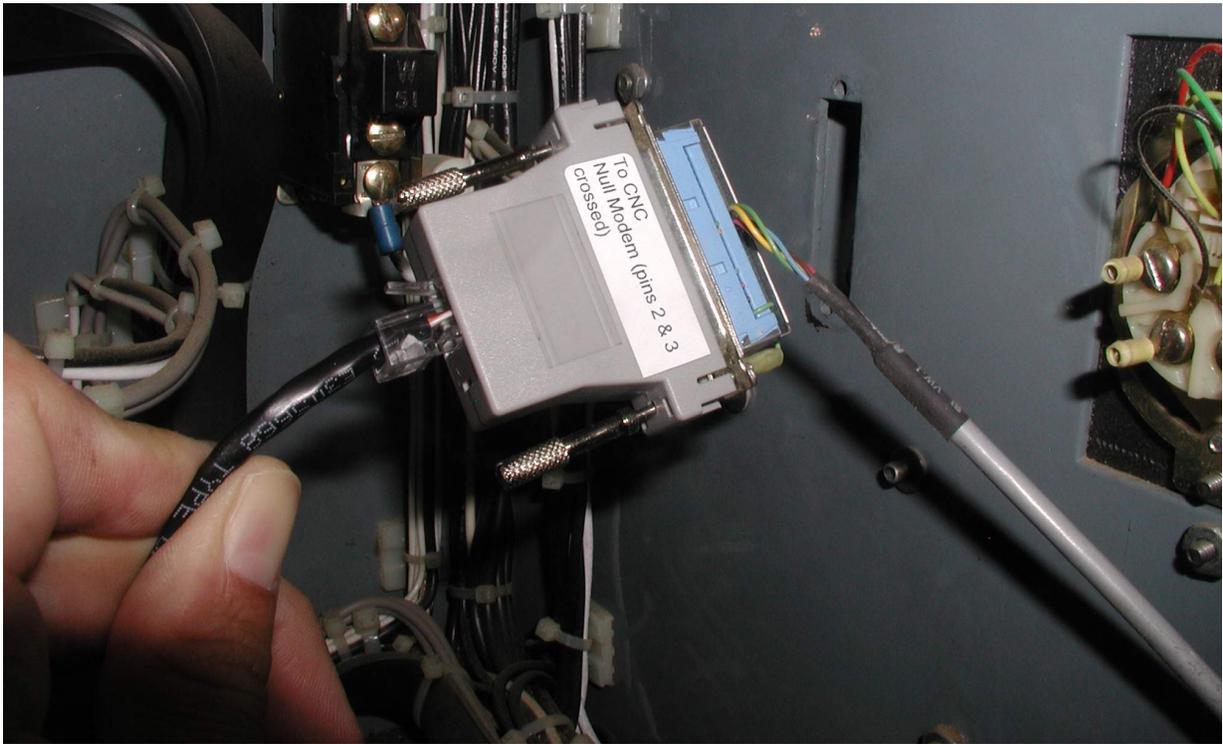


Figure 7
Plug the DB25 connector removed from the cabinet panel and plug it into the DB25 to RJ45 plug labeled “To CNC”.



Figure 8
Mount the included DB25 female-female plug to the cabinet. Then the DB25 to RJ45 connector labeled “To PC” can be plugged into back of female-female plug on the cabinet panel.

Choose a location for the panel mounted USB plug. Its location should be chosen for convenient connection of a USB key during normal operation of the machine. Punch a hole in the desired location to the dimensions shown above. Insert the panel mount USB connector through the hole and secure with the attached nut. Ensure that the gasket included with the kit is used to prevent contaminants from entering the enclosure. The cap of the panel mount USB connector snaps onto the connector house. (Note: the A side of the USB connector faces out of the pendant while the square B side of the USB connector faces into the pendant). Connect the USB plug to the controller with the USB cable provided.

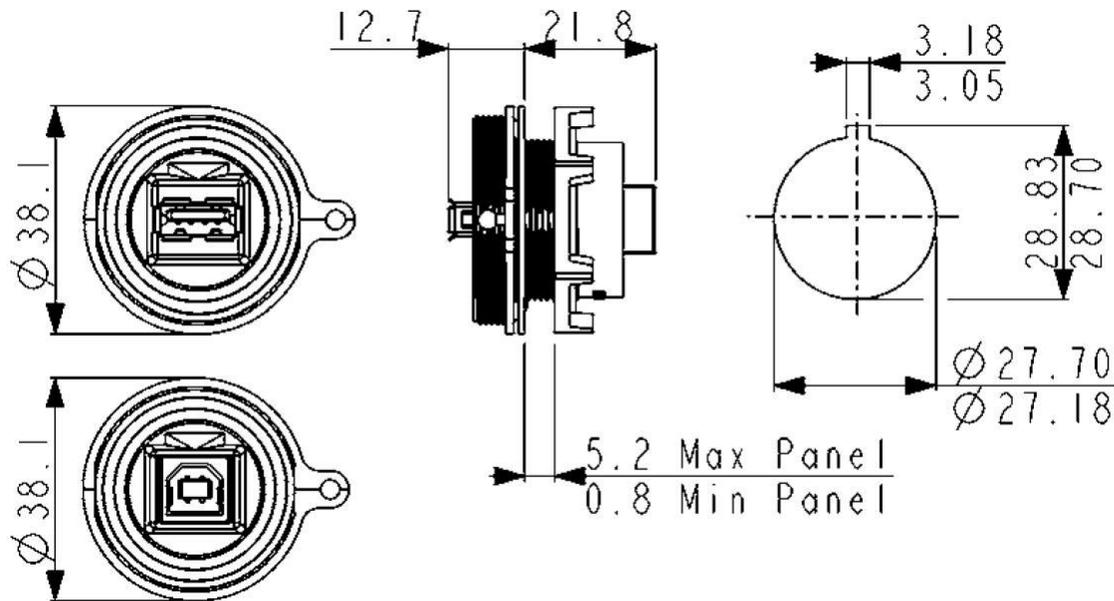


Figure 9

Locate the serial port connector of the CNC. Attach one end of the CAT5 cable to the serial port connector of the USBCNC controller. Attach the other end to one of the DB25 connectors included with the kit. Both male and female connectors have been provided. Choose one as appropriate. In most cases, it is best to simply pull the serial connector in from its mounting assembly and connect inside the pendant as shown below.

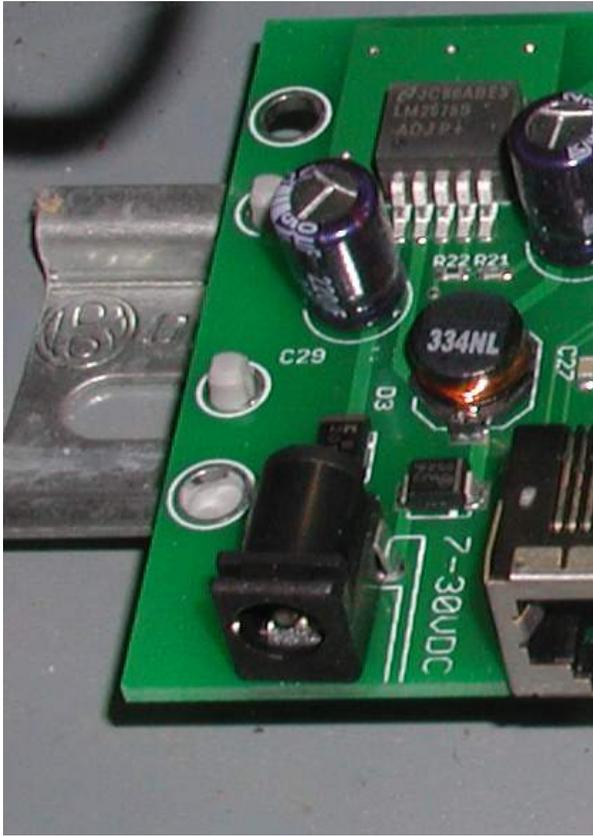


Figure 10

Connect the power plug provided to the printed circuit board. The power connection is center positive. The positive wire is identified with a white-stripe running the full length of the wire. The solid black wire should be connected to ground. The power supply can be anywhere in the range of 7-30 volts DC. Find a suitable power source in the cabinet and connect the flying lead connections to a power source, if one can not be found an optional power supply can be purchased from Calmotion. Apply power to the unit. A green LED should illuminate on the controller indicating that power has been applied. If properly connected, the keypad will also illuminate after a slight delay.

To Adjust the Display Contrast

An orange potentiometer (**R2**) located on the back of the display board can be used to adjust the contrast of the keypad display. This potentiometer should be accessible through the large diameter hole in the control box. (Note: the R20 on the USBCNC control board does **not** adjust the contrast).



Figure 11

Please refer to the USBCNC user's manual for operation and communication set-up of the USBCNC.

How the RS-232 Switch Box Version Works

The USBCNC "Switch Box" version acts like having a physical A-B switch box connecting two devices to the machine. This allows for existing computers attached to the CNC to stay in place while adding the USBCNC functionality.

The way this USBCNC Switch Box version works is very straightforward. The USBCNC always allows RS-232 data to pass to and from the CNC. This allows computers connected to the CNC's serial port to function normally. The USBCNC will automatically switch the serial port to itself when using the USBCNC to transfer files in and out of the CNC. When the USBCNC function is complete, the serial port will be returned to the external device connected to the CNC.