



Here are some instructions for the installation, connection and operation of the 737 style clocks for Engravity MIPs.

### **Installation:**

This is fairly straightforward; the clocks are fitted with four screws, (one on each corner). These should be long enough to go through the backplate of your Engravity MIP and secure the clock. If you have a thicker backplate then you may need to get longer screws. The screws used are M3 size and should only enter the nylon posts behind the face by 5-6mm. Please do not force any longer screws into the posts or you may damage the circuit boards they are attached to.

It's easy enough to check how long your screws need to be, by measuring the thickness of your backplate, then simply add 5mm plus the thickness of the clock face (which is also 5mm) to this size.

The supplied screws should be just pinched up, please do not over tighten them or you may strip the threads in the nylon..

One other thing to watch out for; when you remove the four screws, check to see that the nylon posts are not turning as well. If one starts to unscrew simply hold it with a small pair of fine nose pliers as you remove the screw. This shouldn't happen, but I'm simply covering all eventualities.

Finally please do NOT remove the cross head screws fitted to the bezel, these hold the whole assembly together. So if you remove them it will undoubtedly come apart. The unit has been tested for a minimum of 12 hours continuous use, so there should never be any reason to take it apart.

### **Connection:**

The clocks need two separate power sources, one at 5 volt and another between 9-12 volts. I imagine that most people will have this available on their systems.

You must NOT mix these up. The clock section is based on two microprocessors and will accept up to 5.4 volts only, any higher and the processors will fry and the clocks will die.

The LED backlight section is designed to run anywhere between 9 and 12 volts; this is up to you and will affect the brightness of the backlight only. You cannot change the brightness of the 7 Segment LED Displays.

I use one of those cheap LED dimmers from ebay on my own system, which allows me to vary the backlight brightness very easily.

### **Wire Identification.**

#### **Black and Orange wire**

**Black - (negative) and Orange + (positive) = 5 volts**

#### **Black and Yellow wire**

**Black - (negative) and Yellow + (positive) = 9 to 12 volts**

**As I said please DO NOT connect these to the wrong voltage.**

**Clock Setting Operation:**

There are four buttons on the clocks, I will deal with them one at a time.

Button marked SET, upper left corner:

This button is used to set the time on the upper display. If you hold down the button for more than 3 seconds, it will start to advance firstly at a slow rate and after about 10 seconds at a much faster rate. If you release the button it will stop immediately, then you can alternate between the button marked TIME and the SET button to move forward or backwards, until the time is correct.

**Stop Watch Operation:**

The stopwatch has two buttons START/.STOP in the lower right corner and RESET lower left. Pressing START will obviously start the stopwatch, a second press will stop it. At this point if you press RESET it will do just that and the display will return to four zeros.

However if you press RESET while the stopwatch is running, it acts as a lap time and although the stopwatch will stop, the time is still counting in the background. You can do this as many times as you like, the stopwatch will continue each time until you press STOP, followed by RESET.

*For your information:*

*When you first press START the stopwatch will count seconds on the left two digits and hundredths of a second on the right. It will do this until the seconds reach 60, then it will change and show minutes on the left two digits and seconds on the right. Should you leave it running for over 60 minutes it will the change to Hours and Minutes.*

*Please note that these are not identical to the real 737 clocks but function simply as an independent clock and stop watch in a 737 style casing.*

*I hope you are pleased with them and have many years use out of them.*

*Any questions please do not hesitate to contact me:*

*Regards*

*Jeremy Britton*

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