

Disclaimer:

Many things can go wrong during the reloading process and it is entirely your responsibility to load ammunition safely using proper reloading precautions. Reloading ammunition requires complete attention to detail. To be used exclusively as industrial test equipment. For these reasons, SA Development makes no guarantees and is not liable for any issues that may arise from its use or malfunction.

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Introduction

First, thank you for purchasing a Press Counter. We hope you enjoy your counter for many years to come!

Included items:

Press Counter Main Board
Power Supply
Wiring Harness
Press Sensor
Press Light LED
Press Light Mounting Tube
Press Light Mounting Wire
Cable Ties
Double Stick Tape
Heat Shrink Tubes

There are two Press Counter models:

Press Counter Basic – This is a basic round counter and provides a press light as well. It supports Progressive or Turret presses with 1 to 8 stations. You can easily adjust the count by pressing the plus (+) or minus (–) buttons to change it.

Press Counter Stat – Will do everything that the basic version does, and adds five more statistics for a total of six: Round Counter, Press Time, Rounds Per Hour Current, Rounds Per Hour Total, Remaining Rounds, and Remaining Press Time. It also has a completed reminder and will flash “done” on the display for 10 seconds when you have loaded all the rounds you have specified. The display can be customized to show only the statistics you prefer. It can be configured to rotate between two or more statistics, or stay on a single statistic you choose. No matter how it is configured, you can always see all statistics by holding the plus (+) button for 3 seconds.

Both of these products do not have an enclosure because we wanted to keep it affordable. You can put it in your own enclosure or simply mount it to something. It has been designed with ESD protection, but you should be careful when handling the board because of static electricity. The + and - buttons are insulated so there shouldn't be an issue with them and they are the only thing you would need to touch anyway. In the event that your unit does get damaged by static electricity, we will repair or replace it for \$20 plus \$5 for shipping. **I have had ZERO units come back for this reason so far.**

The left side and right sides of the board have four mounting holes so you can mount the board to something like a piece of wood or metal bracket if you like, or even just zip tie it to some pegboard, etc.

Please email us if you have any questions or issues we can help with!

Feature Summary

Round Counter: The intelligent round counter automatically handles both progressive and turret presses with 1 to 8 stations. If you have a 5 station progressive for example, it will begin at -4 so that it will read 1 when your first round hits the finish bin when you begin with an empty shell plate. If you have a 4 station turret, it will advance the counter every 4 cycles and uses the decimal point indicator to show which cycle you are currently on.

Statistics - Adds 5 more statistics for a total of 6: Round Counter, Press Time, Rounds Per Hour Current, Rounds Per Hour Total, Remaining Rounds, and Remaining Press Time. It also has a completed reminder and will flash “done” on the display when you have loaded all the rounds you have specified for 10 seconds. (Stat Only)

Adjustment Buttons - The plus (+) and minus (-) buttons allow you to adjust the round count at any time if a cartridge was lost due to damage, etc. This allows you to always have the correct round count on the counter.

Press Light: A LED press light allows you to see inside a case to verify powder level. My number one reloading rule is to look inside each case before you put a bullet on it and make sure it has about the right amount of powder. You won't be able to tell if it is 5.6 or 5.7 grains, but you will be able to tell if it is a squib (no powder) or a double (twice powder). Following this one simple rule will save you and the Press Light makes it easy to see clearly!

Large 4 Digit Numeric Bright LED: It can display up to 9999 rounds, and is used for configuring the unit. On the Stat model is also used for displaying statistics.

Easy To Install: Requires only a single sensor to be mounted to your press using the included strong 3M double stick tape. It does not require any specific type of dies like some mechanical counters do.

Setup And Diagnostics: Setup allows you to specify the rounds to load (Stat Only), clear the counter, configure the display (Stat Only), and configure the press type. **Diagnostics** allows you to verify the press sensor, test the display, calibrate (Stat Only), or see the firmware version.

Press Sensor Installation

Step 1 – Press Sensor:

The Count Sensor must be positioned so that it is hit each time the press is cycled.

You have a great deal of flexibility of where to mount the sensor because you only need one sensor and it only needs to change state one time per press cycle. The Press Counter can also be configured to advance the counter when the switch is pressed or when the switch is let go (see the press sensor normally open or press sensor normally closed setting). It all depends on where you want the counter to advance.

One good place for the sensor is detecting when the press handle is up. A little care must be taken with this sensor because it needs to be hit when the press handle is up at rest and also when the press handle is being pushed forward to prime as well (if used on a press that primes this way). The shell plate on a 550 is a good place to detect this and a location underneath the shell plate on the back right of the 650 is also a good place.

Step 2 – Electrical connections:

The wiring harness provided has been prepared by stripping off the outer insulation to expose 4 twisted pairs:

Green Pair = Count Sensor (Stripe=Ground, Solid=Sense)

Brown Pair = LED Press Light (Stripe=Cathode, Solid=+5V)

The provided press sensor is a micro switch that detects when the press is in a specific position. The striped wire is ground and needs to be connected to the “C #1” on the micro switch. The solid is the sense wire and should be connected to the “NO #3” on the micro switch.

The switch can be soldered on the press or ahead of time, whichever is easier. It makes sense to bend the contacts on the back of the switch at an angle if it is put somewhere with limited clearance (like the Dillon 550 column). Just don't bend them back and forth repeatedly because they are copper and a few times back and forth and they will break off. Make sure the shrink wraps are put on the wire ahead of time so they can be slid down over the joint and shrunk into place with a lighter.

Step 3 – How to attach the sensor to the press:

Strong 3M double stick is provided for attaching the sensor to the press. It works very well for this as long as the surface of the press and sensor are prepared properly. The 3M technical contact recommended that both sides of the tape are completely "wetted" against the surface they are bonding to. He said to imagine putting a piece of transparent tape down on a table and then pressing it all around to make sure it is completely sealed against the table with no air gaps.

Press preparation: Clean the press surface where the tape will connect using a paper towel or q-tip and rubbing alcohol. It won't hurt to repeat with a new paper towel or q-tip again to make sure the surfaces are very clean and free of oil. Allow the rubbing alcohol to evaporate completely.

Sensor preparation: The side of the sensor that will attach to the press should be filed (preferably with a flat file) to give a nice flat rough surface without raised lettering, etc. The rough surface provides a better grip for the tape than the shiny factory surface. Follow up with the same cleaning with rubbing alcohol that was done on the press.

Oversize the tape slightly compared to the sensor size, this will give the tape more grip on the press surface. The sensor is a little smaller than 7/16" x 13/16". Cut the tape to 11/16" x 1 1/16" as this will give a 1/8" edge all around the switch to grab the press a little more. It may be necessary to do 9/16" x 1 1/16" for the Dillon 550 column since it is only 9/16" wide.

Figure out close to where the sensor will be on the press and figure out where to stick the tape. Stick the tape to the press first so it can be firmly pressed into the press surface. Get a paper towel and rub it into the press from all angles for the best bond. It would probably be easier to put the tape on the sensor first, but the press surface is textured and more difficult to bond to so doing it this way allows the tape to bond the best it can to the press surface.

Once the tape is pressed in good, remove the liner and lightly stick the sensor to it to test it. Don't worry if the sensor isn't centered on the tape as long as it is where it needs to be. Test it to make sure it is activated when it should be and not when it shouldn't by actuating the press. When it is in the right spot, press it firmly and give it a little push in all directions just to make sure it is stuck well. Clamp the sensor using a small clamp. Use some cardboard on the other side of the clamp so it doesn't mar the press. There is no need to apply a ton of pressure, just a little bit. The goal is to make sure it stays firmly put during the curing time and a clamp providing that little pressure will help.

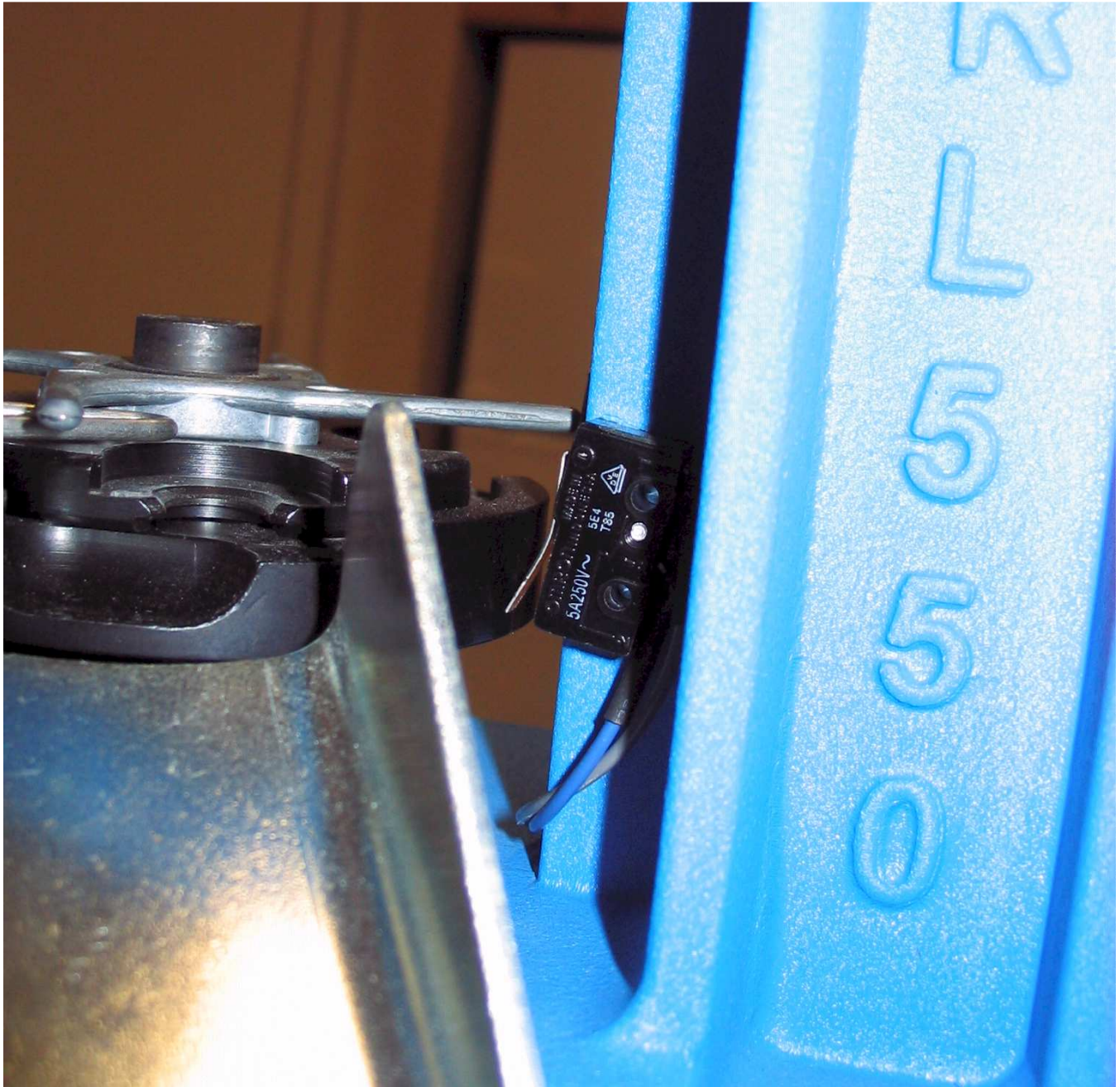
Curing time is 72 hours according to 3M, but it will be pretty good in 24 hours. It is really tempting to get started and use the Press Monitor immediately, but allowing the tape to cure properly will really ensure a good long term bond.

Properly installed and clamped, the tape works very well. Experience has shown that a sensor will either stay on until you want it to come off, or it will come off fairly quickly usually in the first few days. If it does come off, resticking it with the same tape is sure to come off again although it may be the thing to do to finish a reloading session. If that happens, start over and clean the surfaces again and use new tape. The Sensor can also be attached with #2 56tpi socket head bolts and nuts/tapping. These are quite tiny and only require a very small 3/32" drilled hole. It is recommended that the double stick tape is still used to test switch location before drilling the holes and using some small bolts. Even a mix of using the tape to keep the position of the switch fixed and a single #2 56tpi socket head bolt to keep it tight to the press can be a great compromise.

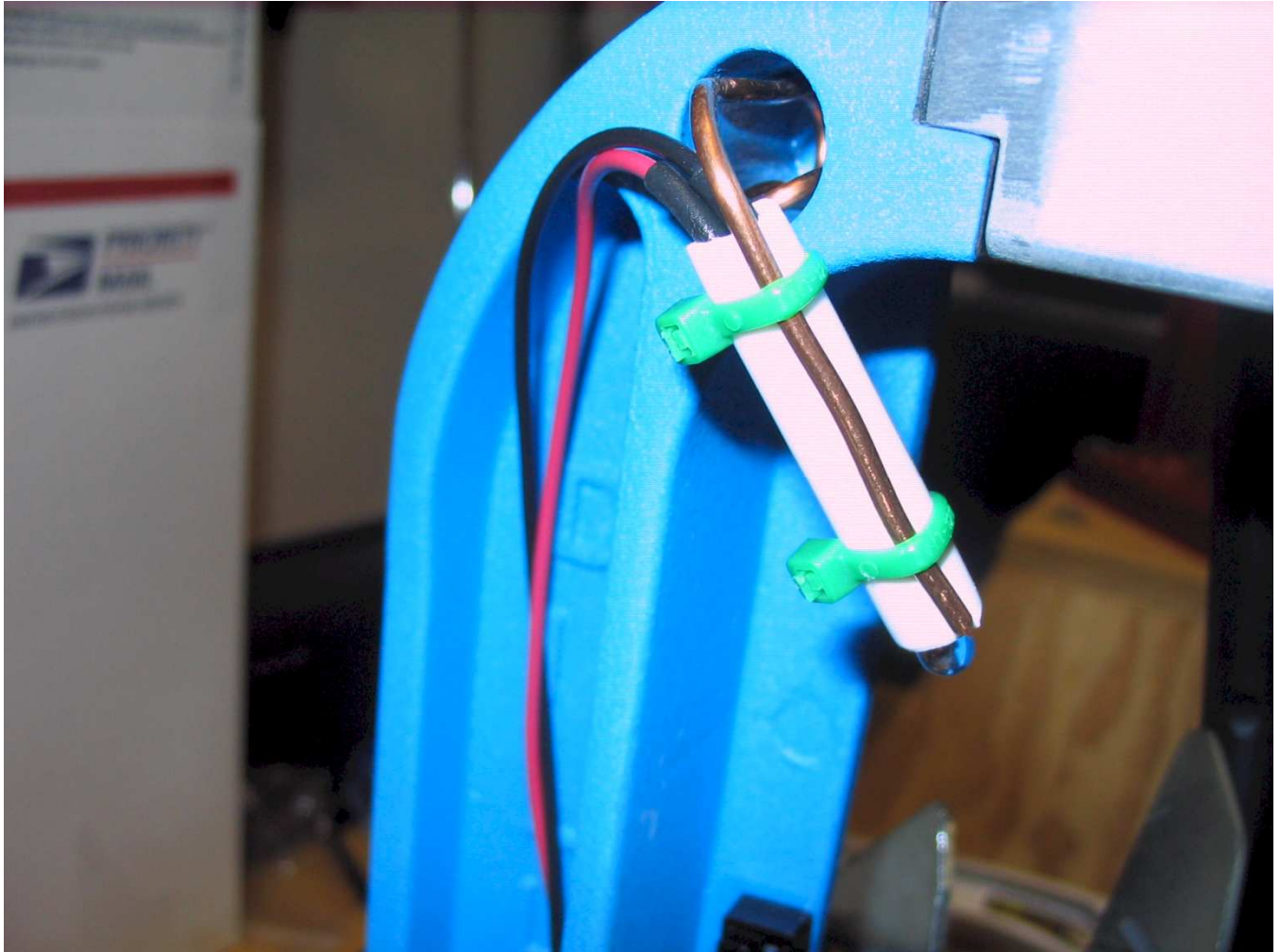
Step 4 – Press light attachment:

The Press Light will light up the charged case at the bullet seating station so the user can clearly see if about the correct amount of powder is present or not. **This is one of the most important reloading safety rules: look into each case before putting the bullet on it to make sure it has about the right amount of powder.** Attach the tube to the wire with the wire ties and feed the LED through the center of it. The other side of the wire needs to be attached to the press. On the 550 it can be folded into a spring that fits inside the hole in the left rear side of the press. Polarity is important for these two wires; the solid brown wire must go to the longer lead on the LED. The striped brown goes to the shorter lead. **If the user does not implement the Press Light, make sure the solid brown wire is taped off and not allowed to connect to ground because it is +5V.**

Dillon 550 Recommended Sensor Location

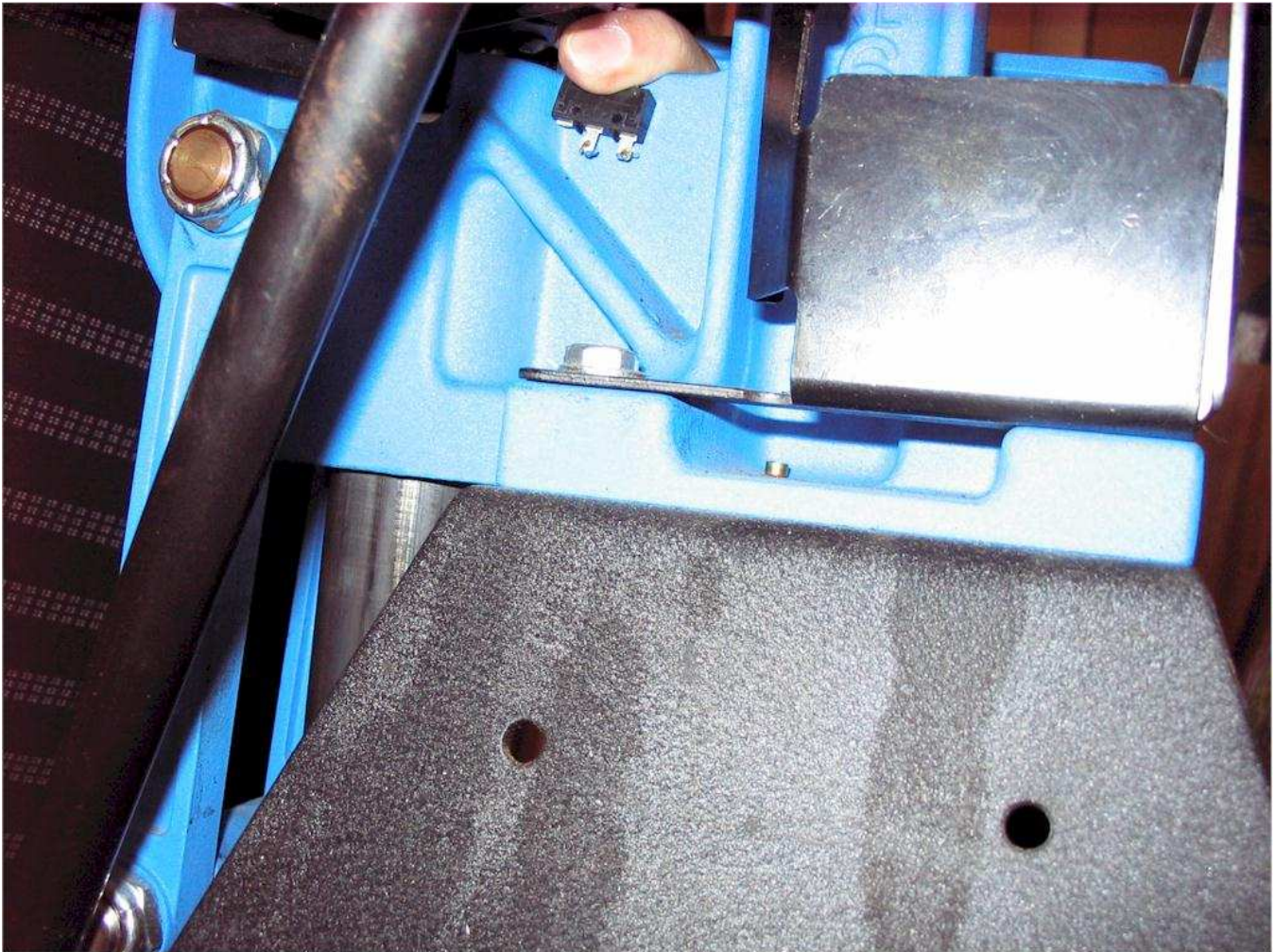


The best place to sense the handle up on the Dillon 550 is on the right side of the rear column. Note that this shell plate is at rest and that the end of the lever is near the bottom of the shell plate. This allows the shell plate to drop slightly further when priming is occurring and still the end of the lever will be activate and will not reach the top of the shell plate.



This is an easy way to attach the Press Light on a Dillon 550. Cable tie the plastic tube to the copper folded wire (now in a matching blue) and use the copper like a spring so that its tension will hold it in the hole on the top left side of the press. The copper can be adjusted to that the tube aims perfectly at station 3 where the bullet is seated. The LED simply hangs in the tube, in the picture it somewhat protruding.

Dillon 650 Recommended Sensor Location

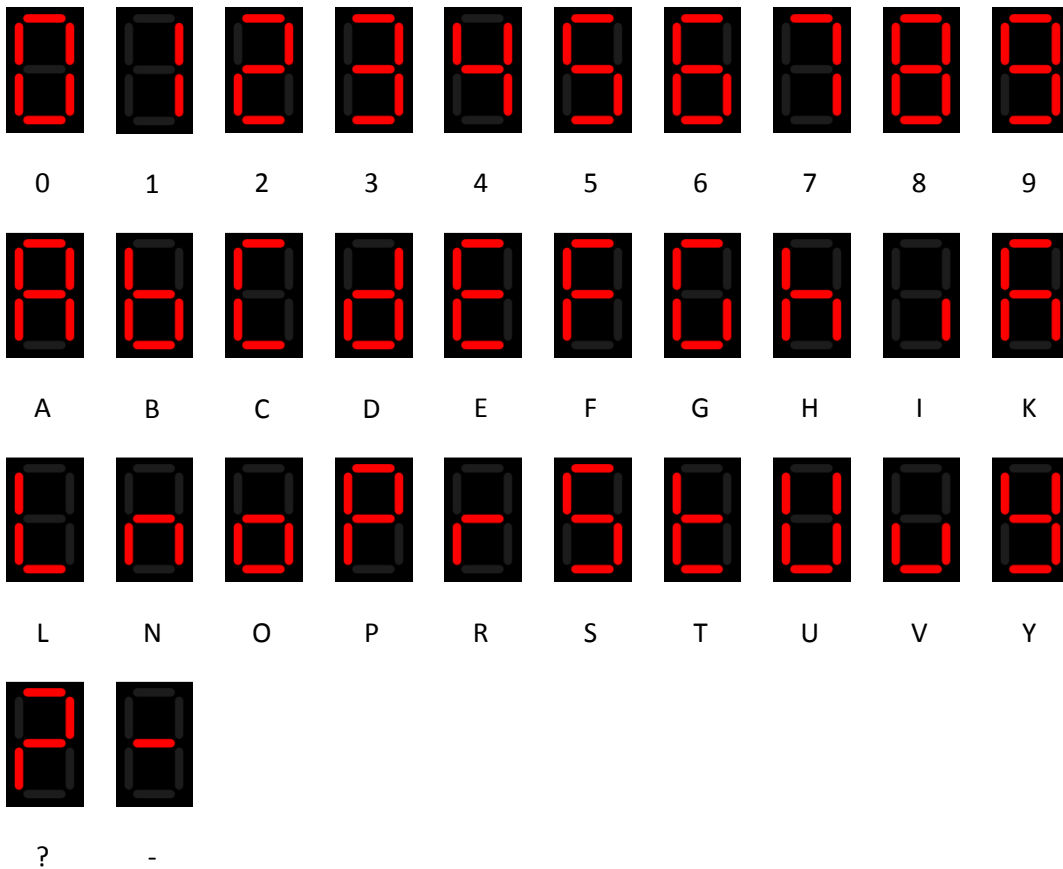


This picture shows the recommended location for the press handle up sensor. It is on the back right side of the press where there is a nice flat surface to mount the sensor. It should be mounted so that the lever is pointing towards the user. There is something that comes down with the shell plate that will hit it in this location. One thing about this sensor is that it needs to be set when the press handle is at rest, and also tolerate a little more movement when the user pushes forward on the handle to seat the primer. It is recommended that the lever is bent in the middle perhaps 30 degrees so that it extends upward a little more.

Display

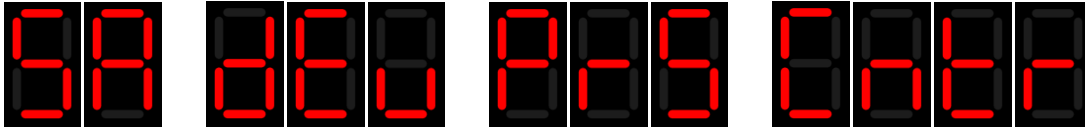
The 4 digit numeric LED is meant primarily to display numbers, but it can also be used to display most letters fairly well. One side effect of this is that some letters will appear to be uppercase and others lowercase and it may look a bit odd to see both cases in a word.

Here are the numbers and letters used in the Press Counter. Some letters are missing because they were not needed and some are missing because they are near impossible to display (such as M). For the most part these are very readable with K and V being a little different.



First Use

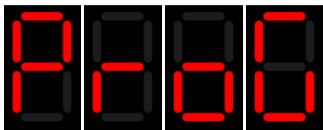
When first plugged in, the Press Counter always displays the company and product name. There is no power switch on the board, simply plug or unplug its wall adapter when needed.



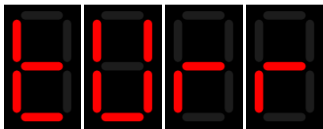
It will then display either the basic model or stat model:



When turning on the Press Counter for the first time, it will ask for Press Information and you will see the following on the display:

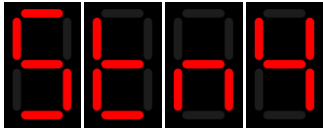


This is for a progressive press. If you have a progressive press, just press the minus (-) to exit this setting. If you have a turret press however, you will need to press plus (+) to change this value and it will become:



If you press plus (+) again it will change back to progressive and will go back and forth if you keep pressing plus. This is a typical setting for the Press Counter. The plus (+) key will change the value and then finally the minus (-) key will exit and accept the setting.

Once you have set the press type, the next question will be the number of stations your press has:



Again, plus (+) will keep changing the value between 1-8 stations and finally minus (-) will exit and accept the value. It defaults to 4 stations, but you need to set it to the number of stations your press has.

The next option is whether the press sensor is normally open or normally closed. If you want it to advance the counter when the sensor is pressed then leave it at PRNO, but if you want it to advance the counter when the sensor is released then change it to PRNC.



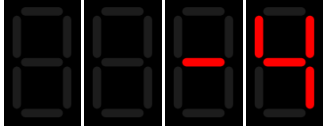
Press minus (-) to exit and accept. At this point the press type is configured and saved to memory and will not be asked for again.

The next chapter is for the Press Counter Basic model, if you have the Press Counter Stat model, please skip ahead one chapter to the Press Counter Stat chapter.

Press Counter Basic Model

Once the press type is configured, it will display the counter statistic.

In progressive mode, it will look something like this (5 station press):



As mentioned previously, if your progressive press has five stations, it will begin at negative one less. When you start a round in station one and cycle it around the shell plate, it will hit the finish bin and the counter will read 1.

If you would prefer the counter to start at 0, you can just set the number of stations to 1 which will accomplish that.

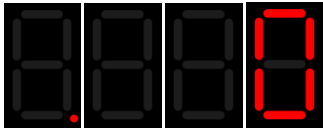
Each time the press sensor is activated, it will add one round to the counter.

If you are having more than one round added for each cycle, then it is likely the press sensor is not properly mounted. It needs to be activated when the press handle is up and it needs to stay activated when the handle is pushed forward to prime if the press operates this way.

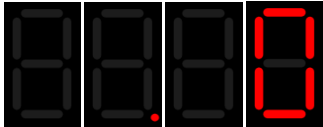
You can adjust the counter at any time by pressing the plus (+) or minus (-) buttons. You might need to subtract one for example, if one of the cases on the shell plate was crushed and you needed to remove it.

Another reason might be that you finished up a session and emptied the shell plate. The count will be correct as the last round on the shell plate hits the finish bin. If you start back up again to add to the current count, then you may have an empty shell plate for a number of cycles that you need to press the minus (-) button for each time you cycle the press and a new round doesn't go in the finish bin.

In turret mode, it will look something like this:



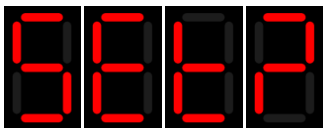
There is a decimal point in digit 1 indicating that the turret is at station 1. Cycling the press will move from station 1 to station 2:



Stations 1-4 are displayed as a decimal point in digits 1-4 and stations 5-8 will repeat on digits 1-4. Finally after all stations have been cycles through, it will start at station one and advance the counter:

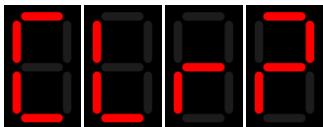


To go into Setup, hold the minus (-) button for 3 seconds and the display will show:

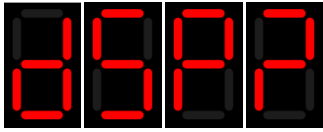


This is a typical question that the Press Counter might ask. Press the plus (+) button to go into setup or press the minus (-) button to exit. **One interesting thing** about questions like this is that when you come back out of them, they will be asked again. For example, when leaving the list of options in setup, it will ask "SET?" again to see if you want to go back in.

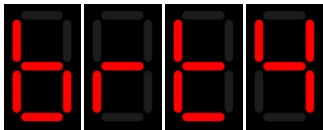
"CLR?" allows you to clear the counter. If you press the plus (+) button, it will display BUSY briefly and clear the counter. If you do not wish to clear the counter, press the minus (-) button to exit.



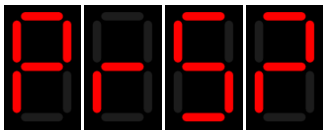
“DSP?” allows you to specify the display settings.



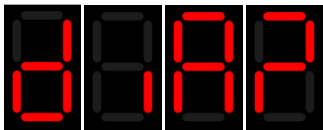
“BRT” controls the display brightness. If you press the plus (+) button, it rotates between 1 to 4 and adjust the display brightness.



“PRS?” allows you to edit the press settings. **These are the same settings covered in the First Use chapter above.**

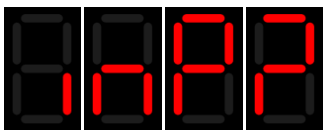


“DIA?” allows you to enter diagnostics.



Pressing plus (+) will take you inside diagnostics.

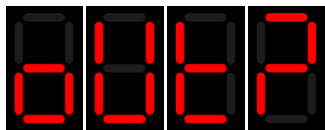
“INP?” allows you to test the press sensor.



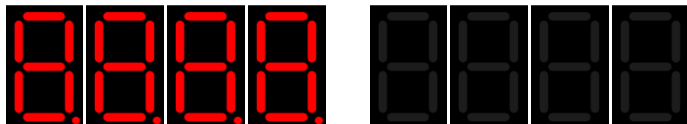
It will display “ON” or “OFF” depending on the press sensor.



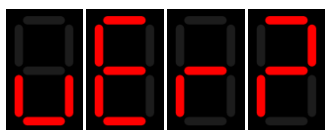
“OUT?” allows you to test the display.



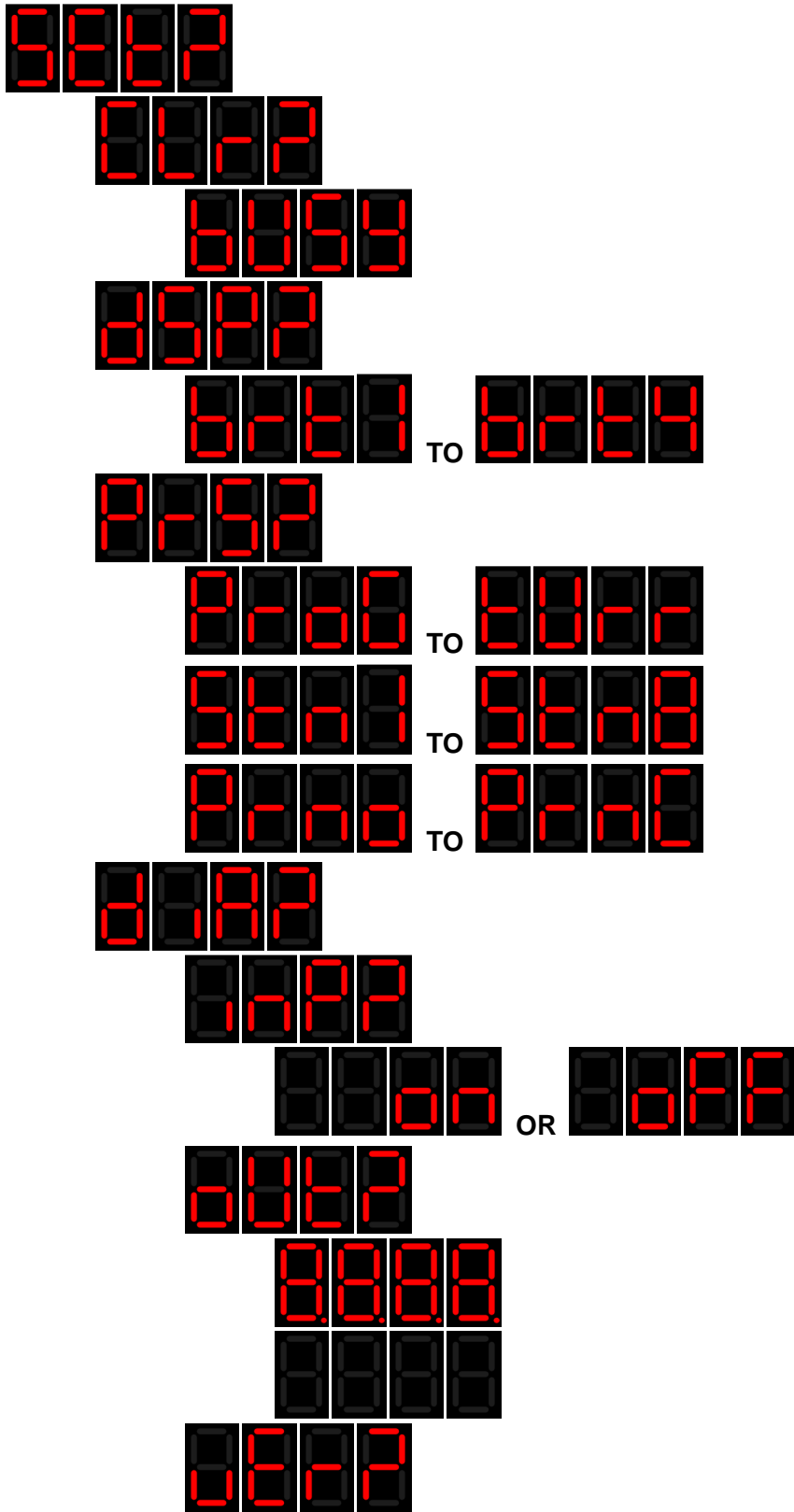
It will first turn on all display segments and decimal points. Press minus (-) to exit and then it will turn off all display segments.



“VER?” allows you to see the firmware version:



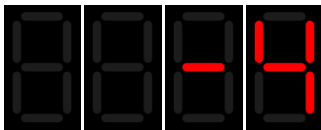
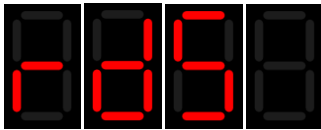
Menu Map Basic Model



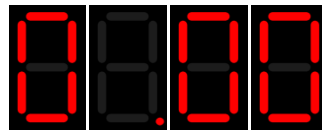
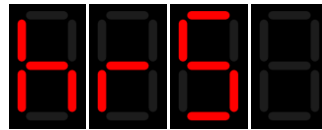
Press Counter Stat Model

Once the press type is configured, it will begin rotating through the statistics. Each statistic will display its label first, and then its statistic. The default values will display the label for 1 second and the statistic for 3 seconds. You can **completely customize** how the display works in setup, displaying one statistic only or rotating between multiple statistics. Holding the plus (+) button for 3 seconds will display all statistics.

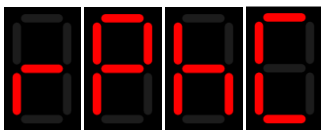
Rounds:



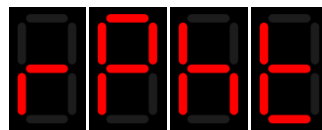
Hours (and minutes):



Rounds Per Hour Current:



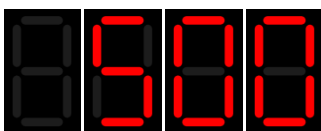
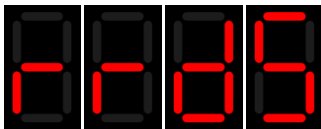
Rounds Per Hour Total:



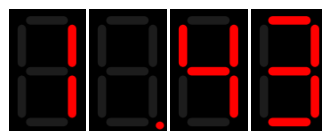
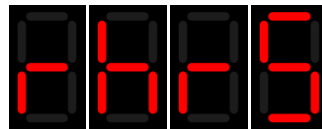
If a statistic is unable to be calculated, it will be displayed as a dash.

If you specify the number of rounds (see Setup section below), it will add these two additional statistics:

Remaining Rounds:



Remaining Hours (and minutes):



As mentioned previously, if your progressive press has five stations, it will begin “RDS” at negative one less. When you start a round in station one and cycle it around the shell plate, it will hit the finish bin and the counter will read 1.

If you would prefer the counter to start at 0, you can just set the number of stations to 1 which will accomplish that.

Each time the press sensor is activated, it will add one round to the counter.

If you are having more than one round added for each cycle, then it is likely the press sensor is not properly mounted. It needs to be activated when the press handle is up and it needs to stay activated when the handle is pushed forward to prime if the press operates this way.

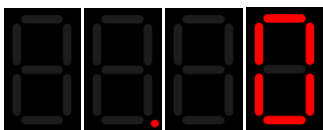
You can adjust the counter at any time by pressing the plus (+) or minus (-) buttons. The display will immediately change to the RDS statistic so you can see the change you are making to the round count and stay there 5 seconds before returning to the normal display. You might need to subtract one for example, if one of the cases on the shell plate was crushed and you needed to remove it.

Another reason might be that you finished up a session and emptied the shell plate. The count will be correct as the last round on the shell plate hits the finish bin. If you start back up again to add to the current count, then you may have an empty shell plate for a number of cycles that you need to press the minus (-) button for each time you cycle the press and a new round doesn't go in the finish bin.

In turret mode, the Rounds (and Remaining Rounds) statistics will indicate the current turret station by the location of the decimal point like this:



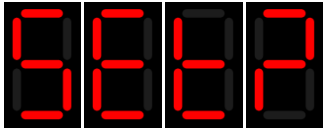
There is a decimal point in digit 1 indicating that the turret is at station 1. Cycling the press will move from station 1 to station 2:



Stations 1-4 are displayed as a decimal point in digits 1-4 and stations 5-8 will repeat on digits 1-4. Finally after all stations have been cycles through, it will start at station one and advance the counter:

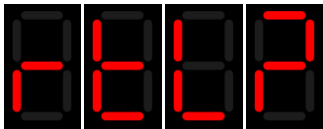


To go into Setup, hold the minus (-) button for 3 seconds and the display will show:

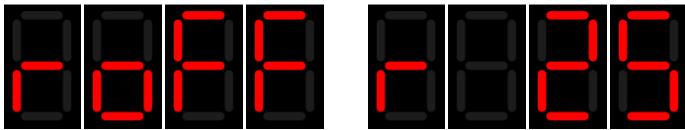


This is a typical question that the Press Counter might ask. Press the plus (+) button to go into setup or press the minus (-) button to exit. **One interesting thing** about questions like this is that when you come back out of them, they will be asked again. For example, when leaving the list of options in setup, it will ask “SET?” again to see if you want to go back in.

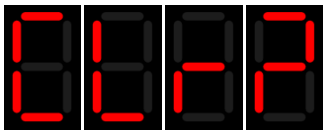
“RTL?” allows you to specify the rounds to load. If you press the plus (+) button, it will allow you to specify the number of rounds to load.



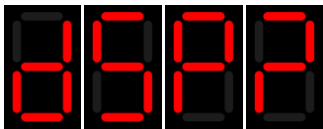
You can specify between 25 and 1000 in 25 round increments or turn it off. There are a few special button shortcuts you can use here. Pressing the + increases the value and holding the + will repeat. Pressing both the + and – key together will decrease the value in case you went past the value you wanted. Specifying the number of rounds to load will enable the two remaining statistics, remaining rounds and remaining press time. When you complete the number of rounds, “DONE” will flash on the display for 10 seconds.



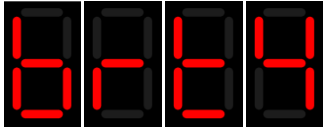
“CLR?” allows you to clear the counter. If you press the plus (+) button, it will display BUSY briefly and clear the counter. If you do not wish to clear the counter, press the minus (-) button to exit.



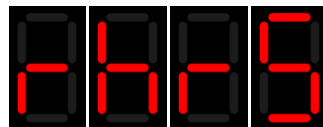
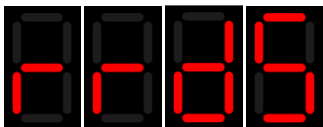
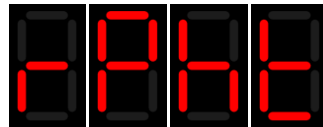
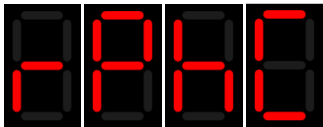
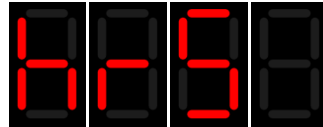
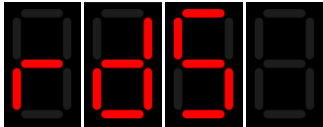
“DSP?” allows you to specify the display settings.



“BRT” controls the display brightness. If you press the plus (+) button, it rotates between 1 to 4 and adjust the display brightness.



The next six options are all six statistics and each one can be enabled or disabled. **If it is enabled, all four decimal points will be on**, if it is disabled, all four decimal points will be off.

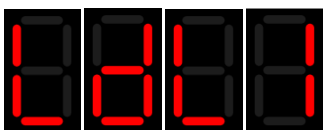


The user can always request to display all statistics by holding down the plus (+) button for 3 seconds, so **enabling or disabling these controls the normal display**.

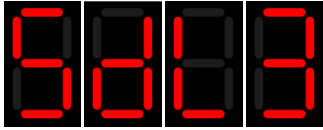
If a single statistic is enabled, it will be displayed all the time. For example, if you wanted it to be a dedicated RPH current meter, you might enable rounds per hour current only. If more than one statistic is enabled, it will rotate between the enabled ones by displaying their label first followed by their statistic.

There is a process that the Press Counter goes through to determine which statistics are active or not. For example, even if remaining rounds and remaining hours are enabled in setup, they will not be enabled if the rounds to load are not specified. If no statistics are enabled, it will enable rounds automatically. This can allow for some interesting configurations. For example, the user might enable only remaining rounds and remaining time in setup. In this example if they specify the rounds to load, then the display will rotate between remaining rounds and remaining time, but if they don't specify the rounds to load, these two statistics would not be enabled leaving none enabled and the rounds statistic would then be automatically enabled and the only thing displayed.

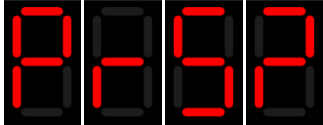
“LDL” specifies how many seconds the label will be displayed. The user can select from 1-8 seconds.



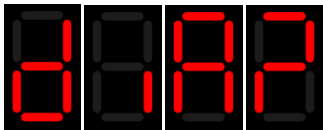
“SDL” specifies how many seconds the statistic will be displayed. The user can select from 1-8 seconds.



“PRS?” allows you to edit the press settings. **These are the same settings covered in the First Use chapter above.**

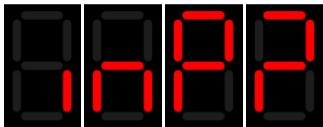


“DIA?” allows you to enter diagnostics.



Pressing plus (+) will take you inside diagnostics.

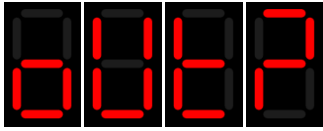
“INP?” allows you to test the press sensor.



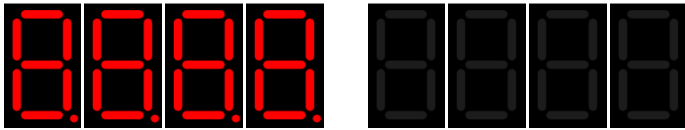
It will display “ON” or “OFF” depending on the press sensor.



“OUT?” allows you to test the display.

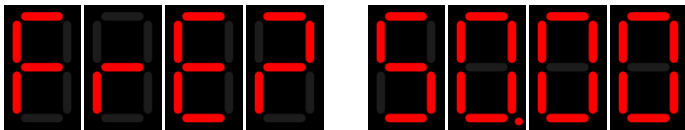


It will first turn on all display segments and decimal points. Press minus (-) to exit and then it will turn off all display segments.

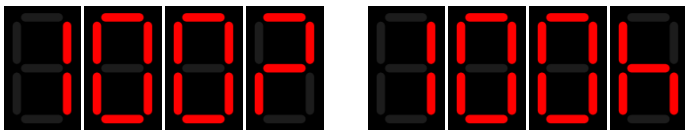


“FRE?”, “100?”, and “CLK?” are all related to accurate timekeeping for the Press Counter. Each unit is calibrated before it is shipped out so the user should not need to use these three options, but they are present in case they need to be adjusted later.

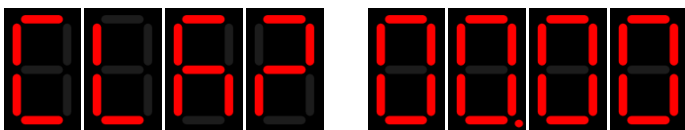
“FRE?” allows the user to enter a frequency. The clock speed of the unit is 8 MHz, but the frequency output at the TPF test point is 250 Hz and this is the value to measure and enter. Connect the frequency counter with at least two decimal digits of accuracy to the test point and enter the measurement. The display can only show the last 4 digits, so 250.00 Hz would be displayed as 50.00 on the display. If the meter says 253.45 Hz, then the entered value should be 53.45 Hz. Press plus (+) to change the blinking digit and minus (-) to change each digit. The Press Counter uses this value to calibrate its internal clock for time calculations.



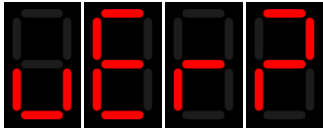
“100?” outputs a 100 Hz clock on the TPF test point. The decimal points will pulse when in this mode and the frequency counter should display near 100.00 Hz if the frequency measurement was entered accurately.



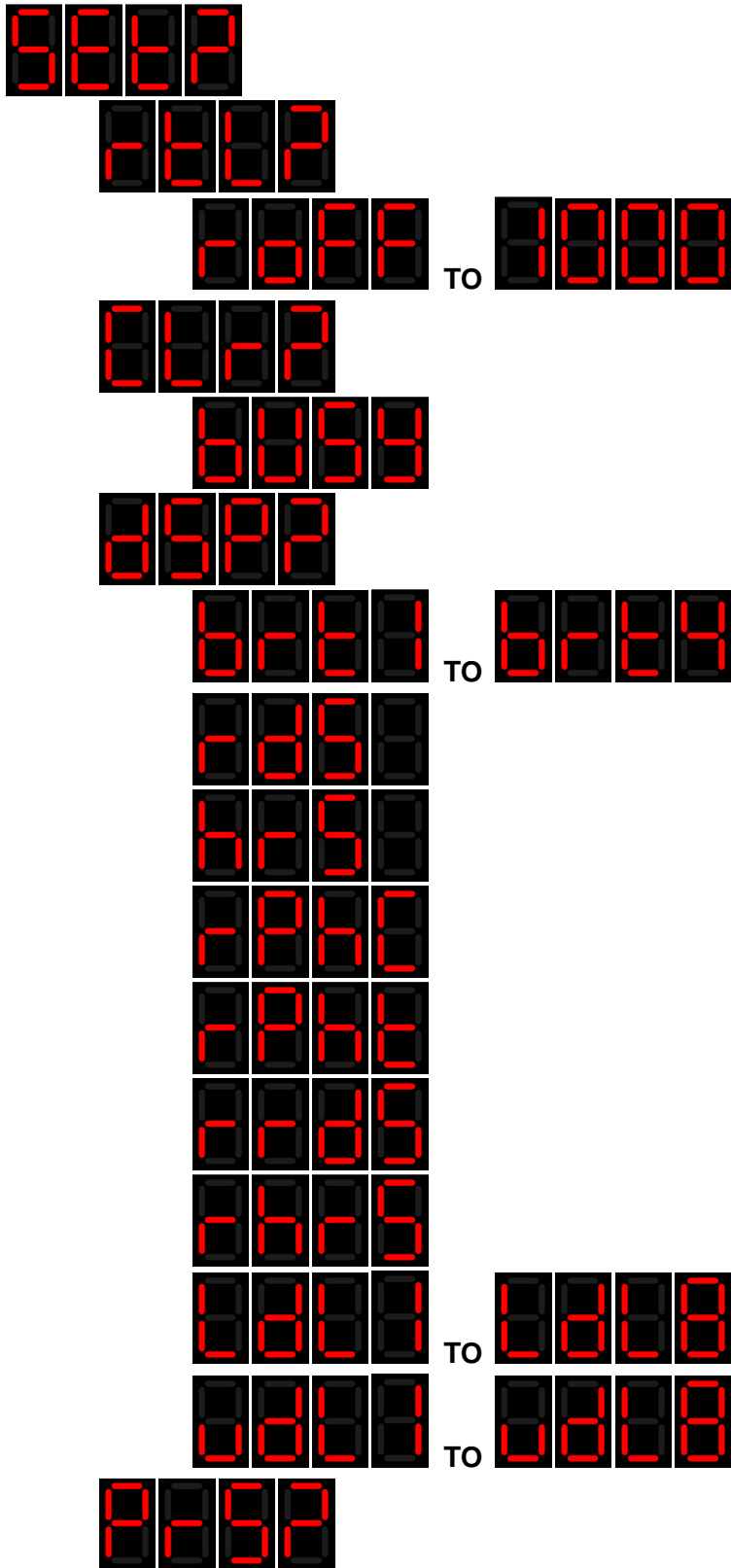
“CLK?” will display a clock in minutes and seconds. Pressing the plus (+) button will reset it.

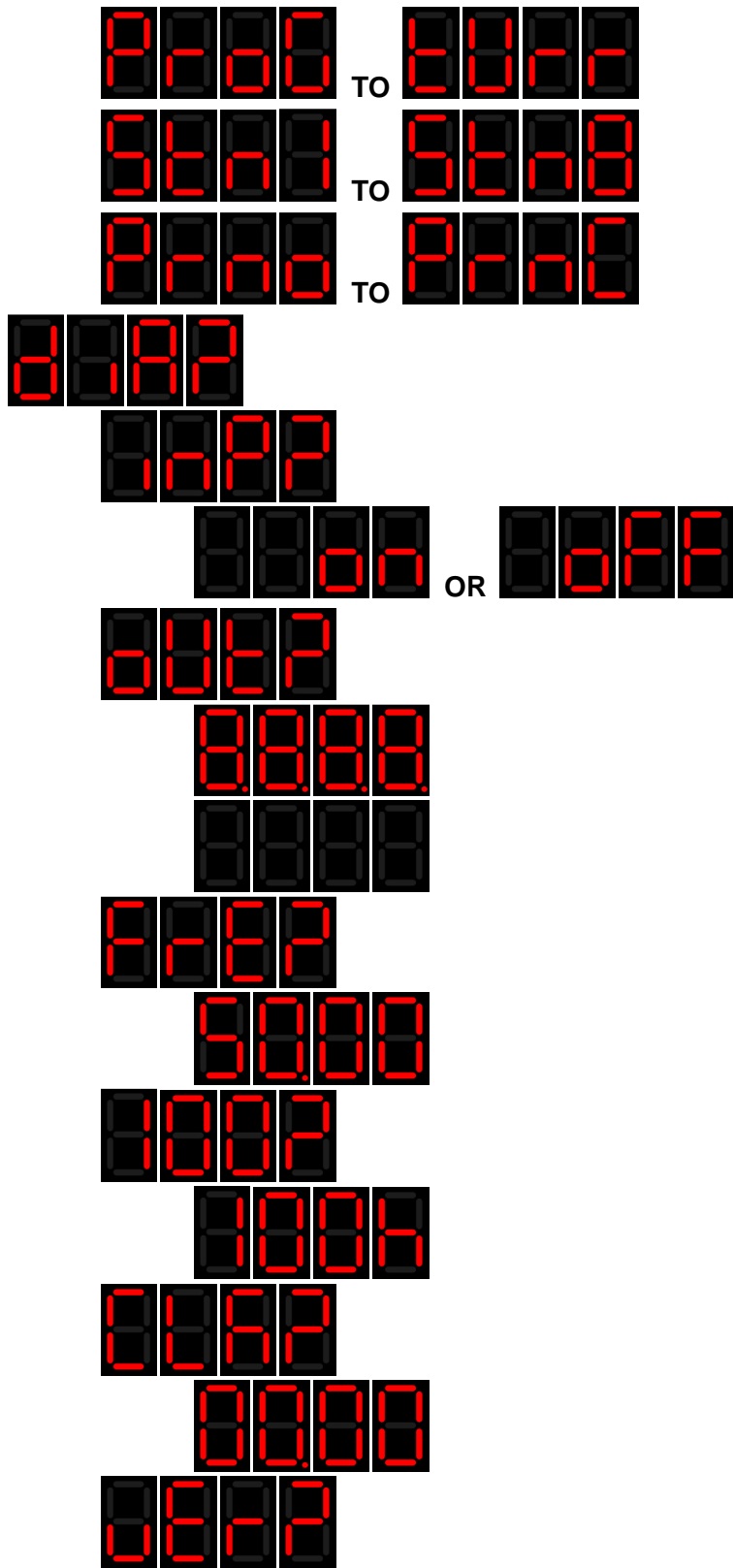


“VER?” allows you to see the firmware version:



Menu Map Stat Model





Statistic Details

Loaded Rounds (RDS): Keeps track of the number of rounds loaded. The user can press the minus or plus buttons to change this statistic if a round is lost, etc.

The following statistics are available on the stat model:

Press Time (HRS): This timer starts and stops automatically based on press sensor activity. If the press does not change for 30 seconds, the press timer stops. The user can check if the press timer is running by looking at the period between the hours and minutes. If the period is blinking, then the press timer is running. If the period is not blinking, it is stopped. Press Time is used for calculating rounds per hour total, and since the timer stops, the user can walk away from the press for 10 minutes without it affecting the RPHt calculation.

Rounds Per Hour Current (RPHC): Calculates a rounds per hour statistic for the last 3 to 15 rounds loaded. If no changes are detected in 30 seconds, it goes to zero and needs 3 loaded rounds to begin calculating again.

Rounds Per Hour Total (RPHt): Calculates a rounds per hour statistic for the entire session by dividing the loaded rounds by the press time.

The next two statistics requires the user to specify the number of rounds being loaded.

Remaining Rounds (RRDS): Indicates how many rounds are remaining.

Remaining Time (RHRS): Calculates how much time is remaining based on the rounds per hour total and how many rounds are remaining.

Firmware Release Log:

Version 1.00:

Initial release.