

# PET

## *Pressure Evaluation Tool*

Patent Pending



**C.E. Electronics**

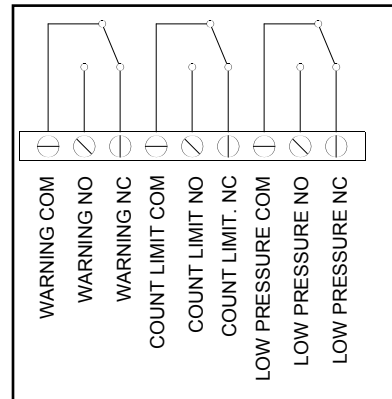
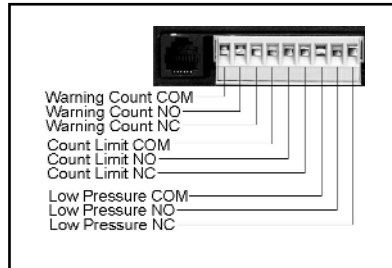
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### Output Relays:

There are three relays inside the PET unit. Each relay is capable of carrying 10A and has a maximum voltage rating of 250VAC or 30VDC.

The relays have the following functions:

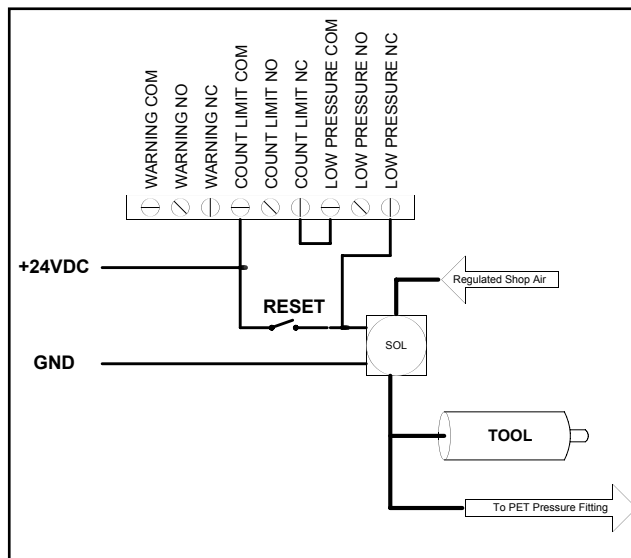
- **Low Pressure Indication**
- **Count Limit Reached**
- **Count Warning Reached**



### Applications:

External wiring can be added to the screw terminal connector in order to customize applications.

In the first application either a low-pressure event or maximum cycles event can shut-down the tool and stop it from restarting. This application would require a user supplied solenoid and reset switch.



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### Using the PET:

After the unit has been calibrated, the count function and pressure monitoring functions will be in place. The five LEDs and the pressure gauge on the circuit board will provide feedback about the status of the counter.

#### COUNT FUNCTIONS:

Every time the pressure dips below the **Count Trip Pressure** the Cycle LED will illuminate. Once the pressure rises back above the **Count Trip Pressure** the Cycle LED will go off and the Cycle Count in the non-volatile memory will be incremented.

Once the Cycle Count reaches the **Warning Set-Point** the yellow Warning LED will be illuminated and the WARNING Relay will be turned on. As more cycles accumulate the count may reach the **Overcount Set-Point**. Once this occurs, the Count Limit LED will illuminate and the COUNT LIMIT Relay will be turned on.

The Cycle Count can be reset to zero through the use of the **key-switch**. In order to reset the count, the key should be inserted, turned to the reset position, turned back to the neutral position, and removed.

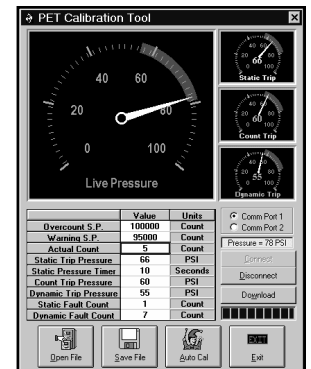
#### PRESSURE FUNCTIONS:

Low Pressure Warnings are triggered by two separate events. If the air pressure leading to the tool drops below the **Static Trip Pressure** for a time greater than the **Static Pressure Timer**, a Low Pressure Warning will occur.

This static pressure mechanism is intended to stop the tool from running or warn a user not to start a tool when the air line pressure droops. The tool manufacturer should be consulted to find out the minimum line pressure that is necessary to complete the tool's function and use it for the

### Quick Start Guide (With Software)

1. Plug in and power up the PET unit.
2. Be sure that the PET is teed into the air line between the regulator and the tool.
3. Confirm that the air pressure reading on the PET's display corresponds with the actual air-line pressure.
4. Plug the RJ11 cable into the bottom of the PET. Plug the other end of the RJ11 cable into the RS-232/RJ11 converter.
5. Plug the RS-232/RJ11 converter into the serial port on a computer.
6. Start the PET\_CAL software
7. Be sure the COMM port is set correctly on the PET\_CAL software then press the connect button.
8. After the PET's set-point are uploaded, run and then stop the tool.
9. A red annular will appear showing the pressure deflection that occurs when the tool runs
9. Edit any desired set-points (pressure trip points etc...), then press Download button.



## Product Overview:

The Pressure Evaluation Tool (PET) was designed to monitor the air-line that supplies a pneumatic tool. By monitoring the air-line the PET can count the number of times a tool has cycled. Also, the PET is able to determine if the air-pressure is sufficient for the given tool to properly perform its tasks.

The face of the PET has five LEDs which provide information pertaining to count and pressure. A ten segment LED on the face acts as a pressure gauge. Serial communication with the PET can be accomplished through an RS-232 port located on the bottom of the unit.



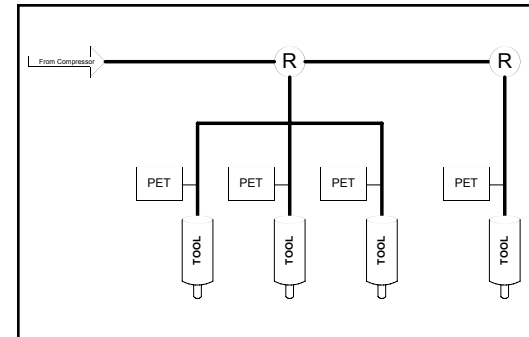
Relay functions pertaining to count and pressure can be accessed using the 9 position screw terminal connector also located on the bottom of the unit.

The count function can be reset using the external key-switch. This key switch is located above the power entry on the side of the device

A 1/4" pressure fitting is located on the bottom of the unit.

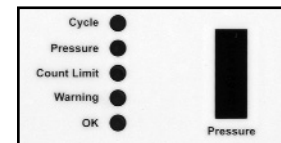
## The Pressure Fitting:

The PET unit needs to monitor the air pressure leading to the tool. In order to accomplish this, a tee should be placed in line beyond the pressure regulating device but before the tool. The regulator is labeled "R" in this diagram. The pressure fitting on the PET will accept 1/4" O.D. diameter tubing.



## Getting Started:

When the unit is powered up and the pressure line is in place, the PET is ready to monitor pressure. As the tool is cycled on and off, a pressure drop should be visible on the pressure bar-gauge.



## Calibration:

In order for the unit to count cycles and give low pressure warnings, the unit must be calibrated. Calibration can be accomplished with the help of the Windows based software called PET\_CAL.

While running, the software will be able to give the user an indication of the pressure deflection that occurs when the tool is running.

Using this information the user will be able to determine a proper **Count Trip Pressure**. The tool manufacturer should be consulted to determine appropriate pressure fault settings.

### Quick Start Guide (Without Software)

1. Remove the lid from the PET unit
2. Plug in and power up the PET unit.
3. Be sure that the PET is teed into the air line between the regulator and the tool.
4. Confirm that the air pressure reading on the PET's display corresponds with the actual air-line pressure.
5. Turn the key-switch to the "Clear Count" position.
6. Press the "TEST" button on the PET unit. The green OKAY LED should begin to flash slowly.
7. Run the tool a few times while watching the PRESSURE read out on the PET. Be sure that the pressure is dropping slightly every time the tool runs.
8. Press the "TEST" button again. The green OKAY LED should flash at a faster rate.
9. Use the "TEST" button to select the number of cycles that the Shut-Down Relay will turn on at. Every time the "TEST" button is pressed and released, 50,000 cycles will be added to the set-point. The PRESSURE read out will give an indication in this mode of CYCLES instead of PRESSURE.
10. Turn the key-switch back to the home position. The PET is now calibrated to count cycles and monitor for low-pressure events.

**Static Trip Pressure.** Also, the **Static Pressure Timer** should be set to a length of time that is greater than the tool's cycle time. A Low Pressure Warning will also occur if the air pressure instantaneously drops below the **Dynamic Trip Pressure**. This pressure event is intended to stop a tool or warn the user while the tool is in cycle.

Once again, the tool provider should be consulted to find out the lowest running pressure that will allow the tool to complete its task. This pressure should be set as the **Dynamic Trip Pressure**.

#### Power Supply:

The power entry module is located on the side of the unit. This unit can operate on either 110VAC or 220VAC. A small circuit board inside the power entry module governs this input voltage. A small window on the power entry module indicates the input voltage setting. This input voltage is set to 110VAC at the factory.



In order to change the input voltage, be sure the power cord is removed from the power entry module. Use a flat bladed screw driver to remove the cap that covers the AC selection circuit board. Remove the circuit board and turn it upside down and then reinsert it into the power module. The new input voltage selection should appear in the window. Place the voltage selection module back into the power entry module.

Both a fuse and a spare fuse are located inside the power entry module. Removing the fuse is accomplished in the same manner as removing the voltage selection circuit board.

In the second application +24VDC lamps are used to indicate alarm statuses.

As with any system design, user safety should be of utmost concern. **WARNING: CE Electronics cannot be held liable for misuse of this device.**

