

NEW**PRESETTABLE BATCH COUNTER/TIMER (UP/DOWN)
REPLACES FORM, FIT & FUNCTION MECHANICALS****MODEL
PBC****FEATURES:**

- Replaces Durants® 5-Y
- 4 Digit Red for Count
- 4 Digit Green for Preset
- Front Panel Presetable
- Manual Override
- Dry Contact to VAC Input
- **SPDT** 10A Relay Out
- Many Options on Request
- Programmable Time Base For Up/Down **Timer**

**SPECIFICATIONS @ 25°C****(See Other Specifications)**





- Displays: 8 Ea., 7 Segment, 0.35" High
- Power Input: See Ordering Information
- Stor. / Op. Temp: - 20 + 80 Degrees C / 0-70 Degrees C
- Nuclear & Mil-Spec on Request
- CMTBF: > 100,000 Hours
- Relay: 10A SPDT 120VAC / 30VDC
- Life Expectancy: 10 Million Cycles
- Weight: < 5 Ounces (< 140G)
- Lifetime Warranted

DESCRIPTION:

OTEK's new **PBC** was designed to replace electro-mechanical up or down counters with identical inputs, outputs and panel mounting except that the **PBC** is all electronic and microprocessor based.

The **PBC** has 2 each, 4 digit, 7 segment displays color coded. Red for count and green for preset.


Counter: The **PBC** can be preset to any number from 0000 to 9999 by simple menu activation keys. After the "START" command, the relay is energized and upon receiving the external count input signal, count, **down** to Zero (0000). Upon reaching "Zero", the **SPDT** 10A relay resets and stays off until the next batch is started by pressing a key (remote on request).


Keypad: The  key activates the **PBC** or stops the cycle (See A.7.). The  key sets the preset value, and turns "on" the relay, the  key scrolls to the next digit from **MSD** to **LSD** and the  key increments the value of the digit being preset from 0 to 9.








OPERATING MODES

Operating Modes: The **PBC** can be used as an **Up** or **Down Counter** or **Timer** and being **µP** based, it can be configured for many modes such as count or time in engineering units and accept different input types such as **Dry Contact**, **TTL/CMOS** or High Voltage.

DOWN COUNTER

A. Down Counter To 0000: On power up, the **PBC** will light all its segments and D.P. (lamp test) and after C.O.P., it will flash the green **MSD** to prompt you to enter your preset value. If you want to do it later, press the  to put it on standby. (Only D.P. will be on.)

A.1 To turn "ON" the PBC, press the  (power on/off symbol) for more than one (1) second. All digits (red and green) will display "0000". Nothing else occurs.

A.2 Preset: Press the  key momentarily (< 1 second) and the **MSD** of the Preset (**Green** display) will flash (3/sec) prompting a new value. If Zero is desired for the MSD, press the  key to move to the next digit, otherwise press the  key to scroll up (0, 1 . . . 9) to the desired value. Pressing the  key will move flashing to the next digit. Once finished the presetting of all 4 digits, press the  key for **more** than one (1) second and both the **red** (count) and green (preset) displays will have the same value and the preset (green) display will flash) indicating ready to **Start** (Go to A.3) **unless** the preset value is "0000" (illegal). In this case, the **PBC** will display **Errr** (Error) only on its **red** display and blank on its green display. Nothing else occurs. If an "ERROR" occurs, press  >1 second to go back to standby. Press  again >1 second to go back to Step A.1.

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A.3 Start: If the presetting is successful (other than 0000), press the **(P)** key for > 1 second, the green display will stop flashing and the relay will energize switching its contacts N.O. (orange) becomes closed and N.C. (red) becomes open to its common (black). Your **PBC** is ready to accept pulses.

A.4 Count Down: Upon receipt of a complete pulse (on and then off) of >50VAC <200VAC amplitude and >200mS duration (debounced factory programmable), the **PBC** will decrement its count on the red display only (9999-9998-9997, etc).

Note: The **green** (top) display does not change. **Important Note:** The **PBC** will decrement its count only when the **A.C.** Signal is removed. The "OFF" Signal must be off for >25mS before the PBC can accept another count.

A.5 End of Batch: When the count (**red** display) reaches "0000", the relay will **de-energize** reversing its contacts as in power off (fail safe mode) and the red (count) display will show steady **END** to indicate "**end of batch**".

A.6 Repeat Same Value of Batch: If no changes on the preset value are desired and **after** the previous batch has been completed (red display **END**), press **twice** the **(P)** key for > 1 second to **start** the new cycle (see A.3 above).

A.7 Pause: Pressing the **(S)** key <1 second will stop the cycle, de-energize the relay and flash the red (count) display on the **value** prior to the "STOP" command. (Only valid if batch is running)

A.7.1 To re-start (only valid after **pause**) at the same count prior to pause, press the **(S)** key <1 second. This will energize the relay (as on "START") (See A.3 Above) and be ready to accept pulses again.

A.7.2 Abort The Batch: Press the **(S)** key > 1 second, the **PBC** will de-energize its relay and prompt you to enter new preset value (See A.2 above). (Only valid if batch is running) The count (red) display will show the last count prior to aborting, but will update to new preset value.

A.7.3 OFF: To keep the **PBC** off of operation, press **(S)** key for > 1 second. Only the **decimal points** will be lit indicating power to the **PBC** and its relay "OFF" (stand-by).

A.7.4 START After "STANDBY" (Only D.P. On) or OFF: Repeat A.1 through A.3 steps above.

Note: If no power has been removed from the **PBC**, pressing **(S)** >1 second, the **PBC** will display all zeros on both displays.

A.7.5 Manual Relay Control: (Only during batch cycle) The relay can be manually turned on and off by pressing **(S)** on and off <1 second. The red display (count) will flash indicating the relay is **off** and steady if it is **on**.

A.8 Tamper Proof: Pressing any key except **(S)** while the **PBC** is "counting" has no effect. Any other key pressing other than the sequence listed above (A.1 through A.7) has no effect.

UP COUNTER

B. Up Counter to Limit: On power up, the **PBC** will light all its segments and D.P. (lamp test) and after C.O.P., it will flash the green **MSD** to prompt you to enter your preset value. If you want to do it later, press the **(S)** to put it on standby. (Only D.P. will be on.)

B.1 To turn "ON" the PBC, press the **(S)** (power on/off symbol) for more than one (1) second. All digits (red and green) will display "0000". Nothing else occurs.

PBC - Page 3

B.2 Limit: Press the P key momentarily (< 1 second) and the MSD of the (**Limit**) display will flash (3/sec) prompting a new value. If Zero is desired for the MSD, press the > key to move to the next digit, otherwise press the ^ key to scroll up (0, 1 . . . 9) to the desired value. Pressing the > key will move flashing to the next digit. Once finished the presetting of all 4 digits, press the P key for more than one (1) second. The Limit (green) display will lock on the limit value and the red display will show "0000". If the limit value (green) displays "0000" also, the **PBC** will flash Errr (error) and blank out its green display. Press ^ >1 second (to standby) and again >1 second to go back to B.1 above.

B.3 Start: If the limit setting is successful (other than 0000), press the P key for > 1 second, the green display will stop flashing and the relay will energize switching its contacts N.O. (orange) becomes closed and N.C. (red) becomes open to its common (black). Your **PBC** is ready to accept pulses.

B.4 Count Up: (TTL/CMOS 5V Standard, Others on Request)

B.4.1 Unit Count: Every pulse received by the **PBC** will increment its count (**red**) display by one count until it reaches the limit value.

B.4.2 Engineering Units Count: This option is factory programmed to convert pulses to engineering units such as 1 pulse = 55 gallons, = 12 inches, = 25.4mm, 5 pulses = 1 meter, etc. You tell us, we do it! Again, as in B.4.1 above, the **PBC** will increment its count until it reaches the preset value.

B.5 End of Batch: When the count (**red**) display reaches the limit, the relay will **de-energize** reversing its contacts as in power off (fail safe mode) and the red (count) display will flash END to indicate "**end of batch**".

B.6 Repeat Same Value of Batch: If no changes on the preset value are desired and **after** the previous batch has been completed (red display flashing end), press twice the P key for > 1 second to **start** the new cycle (see A.3 above).

B.7 Pause: Pressing the ^ key <1 second will stop the cycle, de-energize the relay and flash the red (count) display on the **value** prior to the "STOP" command. (Only valid if batch is running)

B.7.1 To re-start (only valid after pause) at the same count prior to pause, press the ^ key <1 second. This will energize the relay (as on "START") (See A.3 Above) and be ready to accept pulses again.

B.7.2 Abort The Batch: Press the ^ key > 1 second, the **PBC** will de-energize its relay and prompt you to enter new limit value (See A.2 above). (Only valid if batch is running.) The **count** (red) display will show the last count prior to aborting, until you **Start** the cycle again (See B.2) when it will reset.

B.7.3 OFF: To keep the **PBC** off of operation, press ^ key for > 1 second. Only the **decimal points** will be lit indicating power to the **PBC** and its relay "OFF" (Stand-By).

B.7.4 START After "STANDBY" (Only D.P. On) or OFF: Repeat A.1 through A.3 steps above.

Note: If no power has been removed from the **PBC**, pressing ^ >1 second, the **PBC** will display all zeros on both displays.

B.7.5 Manual Relay Control (Only After Batch Cycle): The relay can be manually turned on and off by pressing ^ on and off <1 second. The red display (count) will flash indicating the relay is **off** and steady if it is on.

B.8 Tamper Proof: Pressing any key except ^ while the **PBC** is "counting" has no effect. Any other key pressing other than the sequence listed above (A.1 through A.7) has no effect.

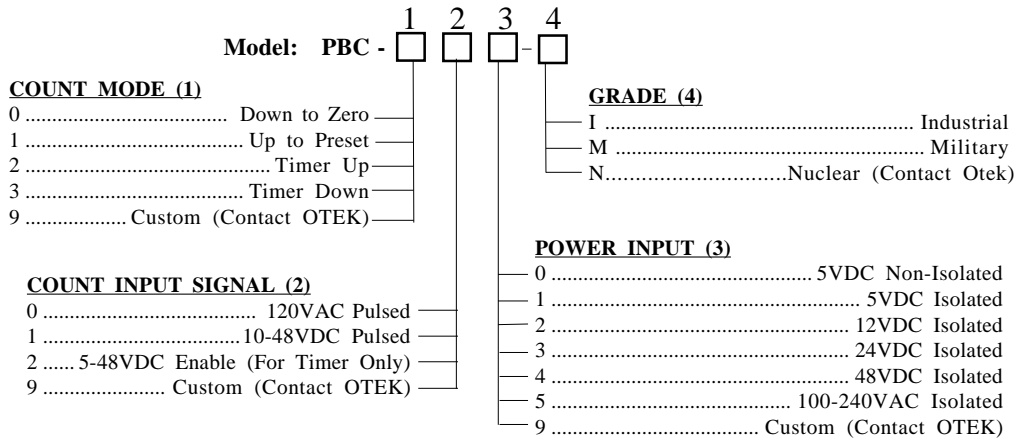
Important Note: You can use the **PBC's** SPDT relay contacts to control your valve, flow, crane, etc. or stop/start the flow of input pulses coming into the PBC count input. Contact OTEK for applications.

UP OR DOWN TIMER

C.1 Down Timer: Operated the same as A Mode (See Enable Note).

D.1 Up Timer: Operates the same as B Mode (See Enable Note).

PRELIMINARY ORDERING INFORMATION 6-09-09



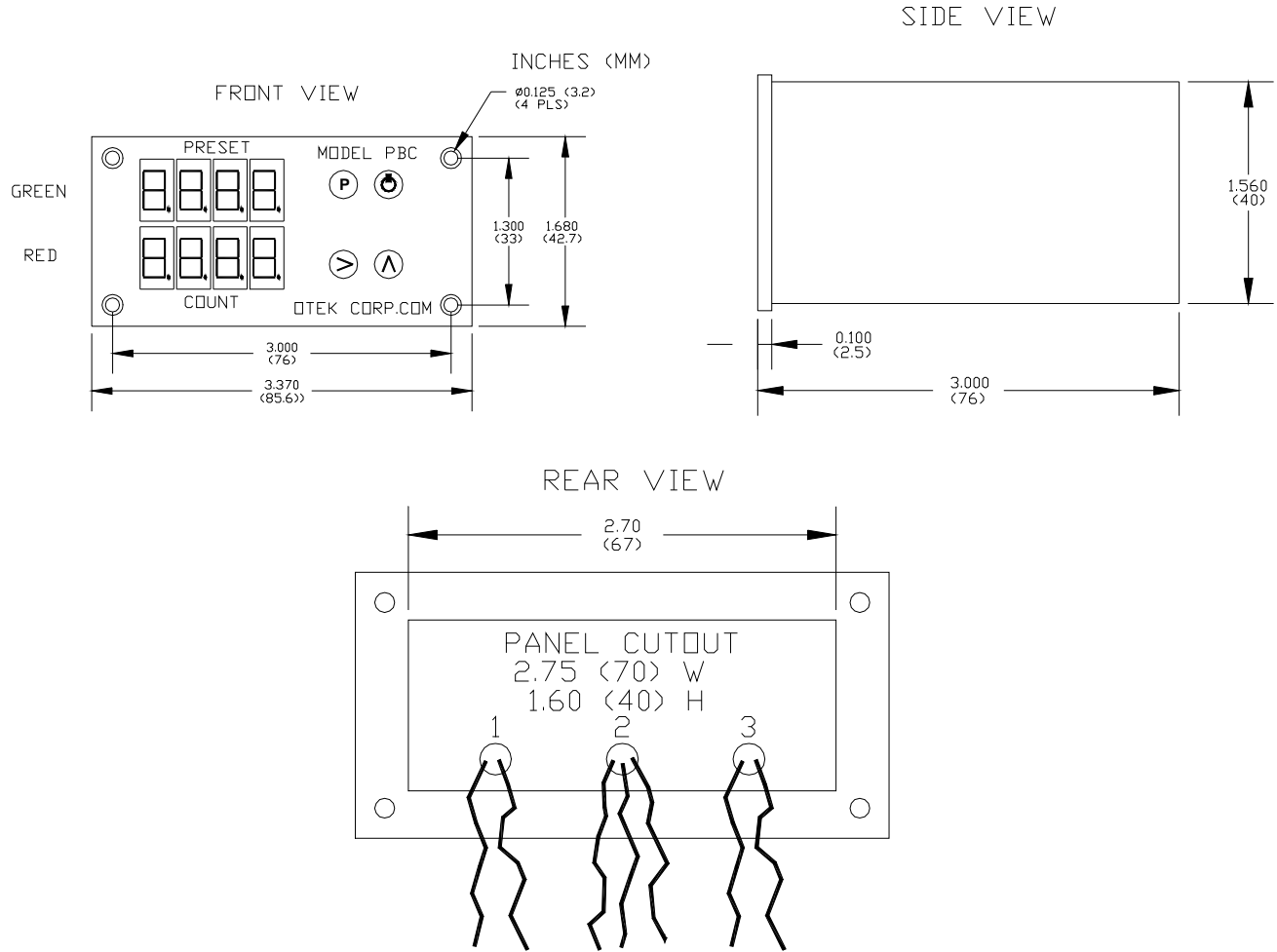
NOTES:

The **PBC** has space for many hardware and firmware options not listed. Contact **OTEK** for your applications.

1. See text for counting **down** or **up** modes. As a **timer**, the time base if factory programmed for 1 second on LSD (9,999 seconds total). Use Option **9** for your custom time base and contact OTEK. Options 2 and 3 of Digit #1 must use Option #2 on Digit #2 (enable).
2. Option #2 (enable) must use Options 2 or 3 on Digit #1.
3. Typical Power Consumption: 1 Watt.
4. Contact **OTEK** with your Mil-Std. specs. for M Grade. "N" Grade to 10CFR50-B requirements (to be qualilfied). Otek will build to certain MIL-standards but testing and confirmation of compliance, if required, will need to be done by a third party and at customer's expense.



If You Don't See It Ask For It!



NOTES:

1. Use #4-40 flat head screws (4). Not supplied for mounting.

90-265VAC (Option 5) Power

Typical connections (Model PBC-C01): Pigtail 11" (300) long (All 20 ga.)

1. **Power Input:** Brown and blue, 120VAC $\pm 20\%$ 50-60Hz
2. **Relay Out:** Black: common; Orange: N.C.; White: N.O.
3. **Signal In:** Red: one side of AC Signal; Red: Other side of AC Signal

Note: All 3 sets of "pigtail" wires are electrically isolated (except for Option "0" Power) from each other. Other power inputs, operation and mechanical on request.

VDC (Options 0-4) Power

1. **Power Input:** Red: "+", Black: "-"
2. **Relay Out:** Black: common; Orange: N.C.; White: N.O.
3. **Signal In:** Yellow: "+", Green: "-"

Note: Timer **enable** (Start): For **front panel** start, the yellow and green wires must be left unconnected. For **remote** start, short them together to start, open to stop.