

ENFORCER®

Multi-Function Timer/Counter

Manual



Features:

- 12~24VDC (auto-sensing) operation
- Low current draw
- Form C relay output (10A@24VDC)
- 7 modes easily programmable with pushbuttons and LED display (auto door closure, guard timer, pulse extender / false trigger avoidance, timed relay output, timed pulse relay output, input counter, input timer)
- Mode and last programmed settings remain after power loss
- Timer can be set from 1sec~11h 59min
- Can be set to trigger notification (red LED and/or buzzer) and/or relay output
- Can be triggered by N.O.+ or N.C.– input
- Relay can be programmed to trigger at the start or end of the timing cycle, or to toggle
- Relay can be programmed to pulse (0.5sec on / 0.5sec off) or steady on
- Includes reset input (N.O.–) to manually reset cycle

ENFORCER Multi-Function Timer/Counter

Introduction:

The ENFORCER SA-025MQ Multi-Function Timer/Counter is programmable for a wide range of timed or counter operations, such as garage door/gate closure, guard monitoring, pulse extending, timed relay output, timed pulse relay output, counter, or timer. It is easily programmable using three pushbuttons and an LED display. The timer/counter remembers the last programmed mode and settings when power is restored.

Parts List:

1x Timer

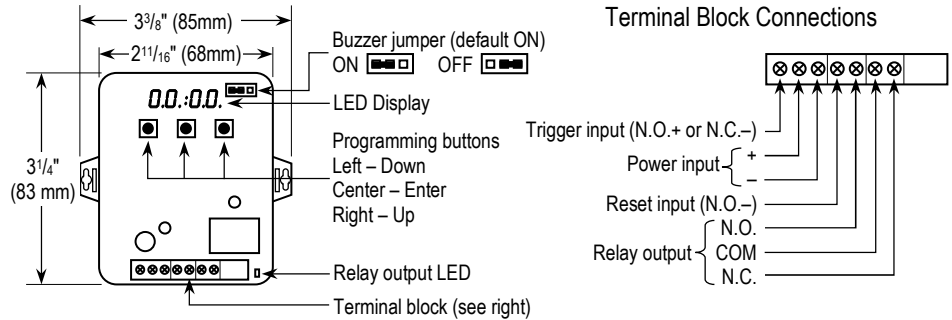
1x 1k Ω Resistor

1x Manual

Specifications:

Operating voltage		12-24VDC
Current draw	Standby	20-40mA@12/24VDC
	Active	65-100mA@12/24VDC (relay and buzzer activated)
Inputs	Trigger	N.O.+ or N.C.-
	Reset	N.O.-
Output		10@24VDC NO/NC/COM Dry Form C relay
Audio and visual Indicators	Display	For programming and status
	Red LED	Relay output indicator
	Buzzer	For programming and warning
Operating temperature		-40°~158° F (-40°~70° C)
Dimensions		2 ¹¹ / ₁₆ "x1 ¹ / ₈ "x3 ¹ / ₄ " (68x28x83 mm)
Weight		2.8-oz (79.2g)

Overview (Cover Removed):



Operation Notes:

When powered up, the timer/counter loads the last setup and the display will indicate the mode and the programmed settings in sequence. When complete, the timer/counter enters a waiting state. In the case of a power loss, the last mode and settings remain in memory.

Note that the buzzer is only used during power on, programming, and Modes 1, 2, 6 and 7, but may be turned on or off using a jumper next to the display.

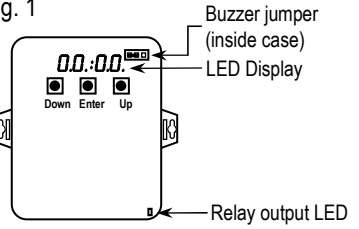
For a manual reset option, a reset button (N.O.-, not included) must be connected between the reset input (N.O.-) and the power supply's negative terminal (see "Sample Applications," pg. 3).

Sample Applications:

Entering Programming Mode:

The timer/counter has 7 modes (default is Mode 1) which can be customized for your particular needs. Each mode is listed below with its most common application, though you may use them for other applications as well. For each step in the programming process, the far left dot in the display will blink once and the buzzer (if buzzer jumper is set to the "ON" position) will sound once to confirm.

Fig. 1



To enter the programming mode, press and hold the "Enter" button for 3 seconds, until the LED display's colon (":") begins to flash and the buzzer sounds three times (see Fig. 1).

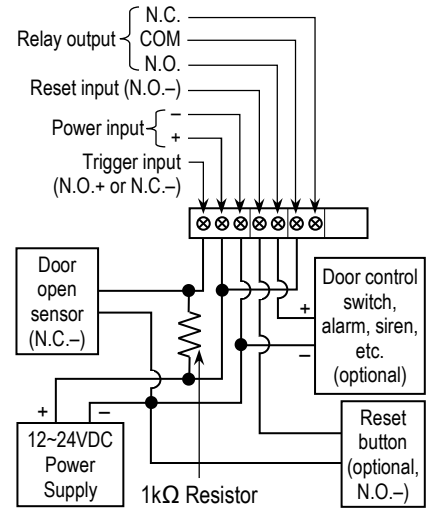
Mode 1: Auto Garage Door or Gate Closure

When the gate/door is left open longer than the set wait time (the countdown will show on the display LED), the relay/buzzer output will trigger continuously for a set time, until the door is closed, or until a manual reset button is pressed. If the manual reset is triggered while the gate/door is still open, the timer restarts the countdown. This could be used as a simple warning notification using the buzzer/LED or an external notification device, or could be connected to a door close relay (see Fig. 2 for sample wiring diagram).

Warning: Users and installers of this product are responsible for ensuring this product complies with all national, state, and local laws and statutes. Sensors to detect any door/gate obstruction and override the door closer should be installed when connected to a door closer relay. SECO-LARM will not be held responsible for the use of this product in violation of any current laws or statutes nor any injuries or damage that may result from its use.

1. After entering programming mode, use the "Up" or "Down" buttons to set the display to 00:01 to choose "Mode 1" and press "Enter" to confirm.
2. Use the "Up" or "Down" buttons while viewing the display, to set the time units as below and press "Enter" to confirm.
 - a. 00:00 to set the time units to minutes:seconds
 - b. 00:01 to set the time units to hours:minutes
3. Use the "Up" or "Down" buttons while viewing the display to set the length of time (according to the time units you set in step 2) you want to set as the door-open wait time after which the timer will trigger the relay/notification output. Press "Enter" to confirm.

Fig. 2 – Mode 1



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Sample Applications (Continued):

4. Use the "Up" or "Down" buttons to set the output relay/notification duration (00:01~59:59 in minutes:seconds or 00:00 for continuous). Press "Enter" to confirm.
5. The buzzer will sound 3 times and the display will flash through the settings in order (00:01 for Mode 1, time unit, wait time, relay/notification duration) and automatically exit the programming mode returning to display the wait time.

Mode 2: Guard Timer

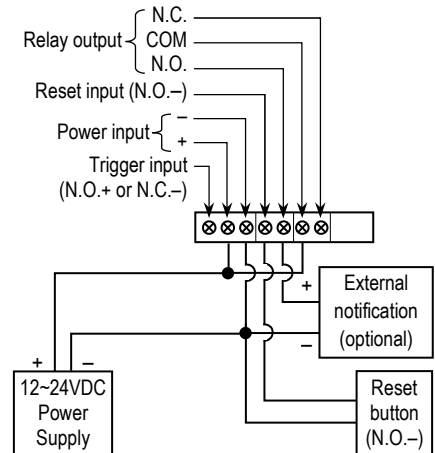
This is used where a guard should patrol an area at a certain maximum time interval but could be used for other things that should be repeated at a set interval. The timer functions as a countdown timer (showing the countdown on the LED display) that will trigger a relay/notification output (using the buzzer/LED or an external notification device) after a user-set duration (00:01 to 59:59) if not reset within the set time. When the timer is reset, the countdown will start again. No input trigger is used in this application; only a manual reset button (see Fig. 3 for sample wiring diagram).

1. After entering programming mode, use the "Up" or "Down" buttons to set the display to 00:02 to choose "Mode 2" and press "Enter" to confirm.
2. Use the "Up" or "Down" buttons while viewing the display to set the time you want to set as the maximum time between guard visits from 00:01 to 59:59 (minutes:seconds). Press "Enter" to confirm.
3. The buzzer will sound 3 times and the display will flash through the settings in order (00:02 for Mode 2 and maximum wait time) and automatically exit the programming mode returning to display the wait time countdown.

Mode 3: Pulse Extender or False Trigger Avoidance

Some devices only give a brief pulse output when triggered. This mode allows you to extend that pulse to set a relay output duration between 1 second and 59min 59sec. This mode also allows one to avoid false triggers by requiring either 2 or more inputs within 5 seconds, or a continuous input of at least 5 seconds. To accomplish this, it has two settings for the input trigger. It can be set to trigger the relay output when any trigger input signal is received. Or, to avoid false triggers, it can be set to trigger the relay output when either 2 trigger input signals are received within 5 seconds, or the trigger input signal continues for at least 5 seconds. Connect the desired triggering device's output to the timer's trigger input and connect the device to be triggered to the timer's relay outputs. The process can also be interrupted using a manual reset button (see Fig. 4 for sample wiring diagram).

Fig. 3 – Mode 2



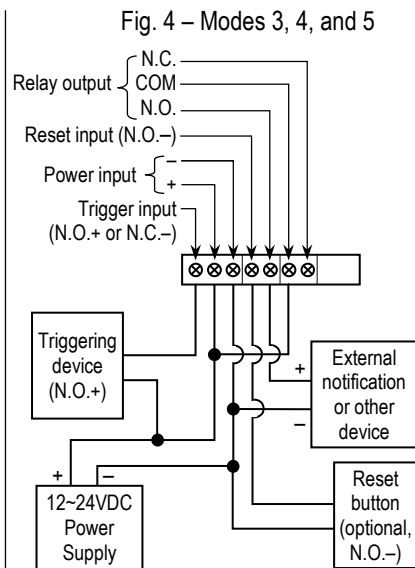
Sample Applications (Continued):

1. After entering programming mode, use the "Up" or "Down" buttons to set the display to 00:03 to choose "Mode 3" and press "Enter" to confirm.
2. Use the "Up" or "Down" buttons while viewing the display to set the trigger type as below and press "Enter" to confirm.
 - a. 00:00 to trigger the relay output when any trigger input is received
 - b. 00:01 to trigger the relay output when 2 or more trigger inputs are received within 5 seconds or when the trigger input is at least 5 seconds in duration
3. Use the "Up" or "Down" buttons while viewing the display to set the length of time you want to extend the output duration from 00:01 to 59:59 (minutes:seconds). Press "Enter" to confirm.
4. The buzzer will sound 3 times and the display will flash through the settings in order (00:03 for Mode 3, input type, and output duration) and automatically exit the programming mode returning to display the mode chosen (00:03).

Mode 4: Timed Relay Output

This mode allows you to program either a toggle (on/off) or timed/delayed output. If the latter, you can program when the delay time begins (either when the trigger input is received or when the trigger input is released), the delay duration, and the relay output duration. The process can also be interrupted using a manual reset button (see Fig. 4 for a sample wiring diagram).

1. After entering programming mode, use the "Up" or "Down" buttons to set the display to 00:04 to choose "Mode 4" and press "Enter" to confirm.
2. Use the "Up" or "Down" buttons while viewing the display to set how the relay should respond to the trigger as below and press "Enter" to confirm.
 - a. 00:00 to trigger the relay output for a user determined duration starting from when the trigger input signal is received
 - b. 00:01 to trigger the relay output for a user determined duration starting from when the trigger input is released
 - c. 00:02 to toggle the relay output on or off (if this is chosen, there are no further programming steps and the timer will exit programming mode.)
3. Use the "Up" or "Down" buttons while viewing the display to set the time units for the relay output duration (not the delay duration) as below and press "Enter" to confirm.
 - a. 00:00 to set the time units to minutes:seconds
 - b. 00:01 to set the time units to hours:minutes
4. Use the "Up" or "Down" buttons while viewing the display to set the relay output duration (according to the units set in step 3). Press "Enter" to confirm.



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Sample Applications (Continued):

5. Use the "Up" or "Down" buttons while viewing the display to set the relay output delay duration 00:00 to 99:99 (for 0–9,999 seconds) after the trigger input and press "Enter" to confirm.
6. The buzzer will sound 3 times and the display will flash through the settings in order (00:04 for Mode 4, relay output type, time unit, relay output duration, delay duration) and automatically exit the programming mode returning to display the mode chosen (00:04).

Mode 5: Timed Pulse Relay Output

Mode 5 is similar to "Mode 4" except that the trigger input will produce a timed pulse relay output (alternating "ON" for 0.5 seconds and "OFF" for 0.5 seconds repeatedly) and there is no delay. This mode can be set to trigger the relay for a set duration starting from when the input trigger signal is received or when the trigger input is released, or to toggle a relay on or off. The process can also be interrupted using a manual reset button (see Fig. 4, pg. 5 for sample wiring diagram).

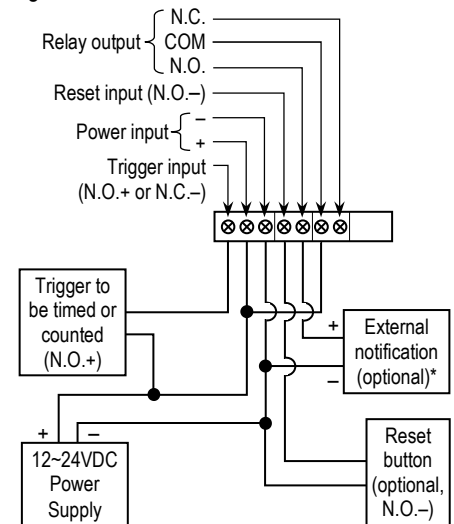
1. After entering programming mode, use the "Up" or "Down" buttons to set the display to 00:05 to choose "Mode 5" and press "Enter" to confirm.
2. For the remaining programming, continue with steps 2 through 4 of the **Mode 4: Timed Relay Output** above.
3. After completing step 4, the buzzer will sound 3 times and the display will flash through the settings in order (00:05 for Mode 5, relay output type, time unit, relay output duration) and automatically exit the programming mode returning to display the mode chosen (00:05).

Mode 6: Counter (Count up / Countdown)

The counter mode tracks the number of input triggers. It can count up from 0 (to a maximum of 9,999 times), showing the current progress on the display (Note that there is no relay output or LED/buzzer notification for count up). Or, it can trigger the output relay/notification LED and/or buzzer for one second (or an external notification device) after a set number of trigger inputs, showing the countdown on the display. After either count is complete, counting will stop until manually reset using an external reset button. A manual reset button can also be used to reset the count at any time (see Fig. 5 for sample wiring diagram).

1. After entering programming mode, use the "Up" or "Down" buttons to set the display to 00:06 to choose "Mode 6" and press "Enter" to confirm.

Fig. 5 – Modes 6 and 7



*Notification (internal LED/Buzzer or external) only for countdown counter/timer.

Sample Applications (Continued):

2. Use the "Up" or "Down" buttons while viewing the display to set the count type as below and press "Enter" to confirm.
 - a. 00:00 to count up from 0 (if this is chosen, there are no further programming steps and the unit will exit the programming mode and the display will show 0000.)
 - b. 00:01 to count down from a user determined number (can be set from 0 to 9,999)
3. Use the "Up" or "Down" buttons while viewing the display to set starting number for the countdown (not applicable if 00:00 is chosen in step 2). Press "Enter" to confirm.
4. The buzzer will sound 3 times and the display will flash through the settings in order (00:06 for Mode 6, count type, countdown starting number) and automatically exit the programming mode returning to display the countdown starting number.

Mode 7: Timer (Count up / Countdown)

The timer can be used to time the cumulative length of time that the trigger input is triggered (trigger inputs of less than 1 second are not counted), pausing when the trigger input stops, and restarting when it triggers again. Similar to the counter mode above, the count up timer shows the current cumulative triggered time on the display (Note that there is no relay output or LED/buzzer notification for the count up timer). The countdown timer shows the time remaining on the display and triggers the output relay/notification LED and buzzer (or an external notification device) for one second when the timer reaches 00:00. After either time is complete, timing will stop until manually reset using an external reset button. A manual reset button can also be used to reset the timer at any time (see Fig. 5, pg. 6 for sample wiring diagram).

1. After entering programming mode, use the "Up" or "Down" buttons to set the display to 00:07 to choose "Mode 7" and press "Enter" to confirm.
 2. Use the "Up" or "Down" buttons while viewing the display to set the timer mode as below and press "Enter" to confirm.
 - a. 00:00 for a cumulative timer (minutes:seconds) starting from 00:00 (if this is chosen, there are no further programming steps such that the unit will exit the programming mode and the display will show 00:00.)
 - b. 00:01 for a cumulative countdown timer from a user determined duration from 00:00 to 59:59 (minutes:seconds) after which the LED will light and the buzzer will sound for 1 second
 3. Use the "Up" or "Down" buttons while viewing the display to set time for the countdown (not applicable if 00:00 is chosen in step 2) and press "Enter" to confirm.
 4. The buzzer will sound 3 times and the display will flash through the settings in order (00:07 for Mode 7, timer mode type, countdown duration) and automatically exit the programming mode returning to display the time remaining.
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Troubleshooting:

Unit does not power up	<ul style="list-style-type: none">• Check voltage (12~24VDC) and wiring
Timer is not triggering the connected device	<ul style="list-style-type: none">• Ensure that you have connected the device to the proper terminal (N.O.+ / N.C.-) for the device• For Mode 1, ensure that you have installed the 1kΩ resistor as instructed
Reset button doesn't reset the timer/counter	<ul style="list-style-type: none">• Ensure that you are connecting the correct button type for the reset input (N.O.-)
