Features

- 10 Programmable Timing Modes + 2 Counting Modes
- 0.1 sec to $9,990 \mathrm{hr}$. Programmable Timing Range
- 1 to 99,900 Counting Range
- LCD Digital Display
- Thumbwheel Switches for Programming

* Note input polarity for DC operation. For most reliable operation on AC, connect high side to " + " and low side to " - ".
** IMPORTANT: A dry circuit switch is recommended. A "dry circuit" switch is one rated to reliably switch currents of less than 50 mA . Use of a switch rated for other than dry circuit may result in failure of the time delay relay to function properly.


| ACCESSORIES |  |  |
| :--- | :---: | :---: |
| MOUNTING <br> STYLES | DESCRIPTION | NTE <br> TYPE NO. |
| SURFACE MOUNT | 11-PIN OCTAL | R95-104 |
| PANEL MOUNT | 11-PIN OCTAL | R95-119 |
| DIN RAIL MOUNT | 11-PIN OCTAL | R95-114 |
| DIN RAIL MOUNT | 11-PIN OCTAL | R95-182 |

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## Programmable, DPDT, 10 Amp, AC or DC, Multifunctional, Digital Time Delay Relay/Counter.

## D46



## Electrical Specifications

## Contact

Rating: 10 Amps @ 30VDC or 277VAC, resistive;
1/2 HP @ 250VAC; 1/3 HP @ 120VAC
Life: 100,000 operations at minimum rated load
Mechanical Life: 10,000,000 operations

## Input

Nominal Input voltage: $24-240 \mathrm{~V} \pm 15 \%, 50 / 60 \mathrm{~Hz}$ AC or DC
Nominal Power: See Chart

## Timing

Timing Ranges: 0.1 to 99.9 / 1 to 999 sec; 0.1 to 99.9 / 1 to 999 min
0.1 to 99.9 / 1 to 999 / 10 to $9,990 \mathrm{hr}$.

Timing Adjustments: Digital adjustment via thumbwheel switches Tolerance: $\pm 0.1 \% \pm 0.05 \mathrm{sec}$
Delta Time (for AC units add $\pm \mathbf{1}$ cycle $\mathbf{6 0 H z}$ ): $\pm 0.1 \% \pm 0.05$ sec
Repeatability: $\pm 0.1 \% \pm 0.05 \mathrm{sec}$ - including first cycle of operation
Reset Time (power interruption): 45mS, typ; 60 mS , max
Minimum Pulse Width, Control: 50 mS
Recycle Time: 45mS, typ; 60mS, max

## Counting

Maximum Count: 1 to 999; 10 to $9,990(\div 10) ; 100$ to $99,900(\div 100)$
Maximum Count Rate: 100 counts per second
Minimum Pulse Width:
Count (Control): 3mS
Reset: 3mS
Available Counting Functions: Operate at preset count and release at preset count

## Protection

Transient: yes
Dielectric Strength

$$
\text { Between Open Contacts: } 1000 \mathrm{~V}_{\text {rms }}, 60 \mathrm{~Hz}
$$ Between All Other Conductors: $1500 \mathrm{~V}_{\mathrm{rms}}, 60 \mathrm{~Hz}$

Environmental Characteristics
Operating: $-10^{\circ} \mathrm{C}$ to $+55^{\circ} \mathrm{C}$
Storage: $-20^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$
Weight
Std: 4.3 oz (122 grams) approx.

Programming Switch Diagram

|  |  |  |
| :---: | :---: | :---: |
| Function Select | Timer/Counter Select | Time Base Select |
| Timer Mode: <br> A - Delay On Operate <br> B - Delay On Release <br> C - Interval On <br> D - Control-Off Interval On <br> E - Recycle <br> F - Single Cycle <br> G - Control On-Off Interval On <br> H - Control On-Off Delay <br> I - Pulse <br> J - Cumulative Delay On Operate | 001 to 999 | $\begin{aligned} & \hline \text { Timer Base: } \\ & .1 \mathrm{~S}-0.1 \text { to } 99.9 \mathrm{Sec} \\ & \mathrm{~S}-1 \text { to } 999 \mathrm{Sec} \\ & .1 \mathrm{M}-0.1 \text { to } 99.9 \mathrm{Min} \\ & \mathrm{M}-1 \text { to } 999 \mathrm{Min} \\ & .1 \mathrm{H}-0.1 \text { to } 99.9 \mathrm{Hrs} \\ & \mathrm{H}-1 \text { to } 999 \mathrm{Hrs} \\ & 10 \mathrm{H}-10 \text { to } 9990 \mathrm{Hrs} \end{aligned}$ |
| Counter Select |  | Counter Mode Select |
| Counter Mode: <br> A, D-J - Normal Count <br> B - Divide by 10 <br> C - Divide by 100 |  | CO - Operate at Preset Count CR - Release at Preset Count |

NOTE: With this setting, the relay would operate after a delay period of 214 seconds.

## Timer Function Descriptions

## A. Delay On Operate

Output relay turned on at end of programmed time interval which is started by CONTROL input or power-on with CONTROL on. Relay turned off by RESET input until next cycle is started. With CONTROL on, turning RESET off restarts timing.

## B. Delay On Release

Output relay turned on with CONTROL input and remains on for programmed time interval following removal of CONTROL. During time interval after release of CONTROL, RESET turns relay off until cycle restarted with reapplication of CONTROL With CONTROL on, relay is held off while RESET is activated.

## C. Interval On

Output relay turned on for programmed time interval by CONTROL or power-on with CONTROL on. RESET turns relay off until next cycle is started, and does not restart timing when RESET is removed.

## D. Control-Off Interval On

Output relay turned on for programmed time interval by turn-off of CONTROL. RESET truns relay off until next cycle is started, and does not restart timing when RESET is removed.

## E. Recycle

Output relay turned on at end of programmed time interval which is started by momentary CONTROL input or power-on with CONTROL on. Relay stays on for equal time interval, then turns off and cycle is repeated on a free-running basis until terminated by momentary RESET, turning relay off. With CONTROL on, turning RESET off restarts cycle.

## F. Single Cycle

Output relay turned on at end of programmed time interval which is
started by momentary CONTROL input or power-on with CONTROL on. Relay stays on for equal time interval, then turns off. RESET terminates timing and turns relay off. Turning RESET off does not restart timing.

## G. Control On-Off Interval On (Watch Dog Timer)

Output relay turned on and programmed time interval started of restarted by chang of CONTROL input. RESET turns relay off and stops timing. Turning RESET off does not restart timing.

## H. Control On-Off Delay

Output relay turned on at end of programmed timing interval which is started or restarted by charge of CONTROL input. If relay is on, trun-off of relay occurs at end of programmed time interval which is started or restarted by charge of CONTROL input. RESET turns relay off and stops timing. Turning RESET off does not restart timing.

## I. Pulse

Output relay turned on at end of programmed time interval, which is started by CONTROL input, for 0.5 second duration, and continues in pulsed mode at programmed time interval with fixed 0.5 second on-time. Turning CONTROL off turns relay off and stops timing. RESET turns relay off and inhibits operation. With CONTROL on, removal of RESET restarts timing.

## J. Cumulative Delay On Operate

Output relay turned on at completion of total accumulate CONTROL input duration equal to programmed time. Turning CONTROL off before accumulation of programmed time results in measured time total being held until CONTROL is again turned on and total programmed time value is reached. RESET input resets time value to zero and turns relay off if energized. Turning RESET off restarts timing if CONTROL is on.

## Counter Function Descriptions

## CO. Operate at Preset Count - Normal Mode

After initializing by momentary activation of RESET input, each on/off signal at COUNT (CONTROL) input increments displayed count in upcounting manner from initial 000 value until preset count, set by thumbwheel switches, is reached and output relay turns on. Additional inputs continue to increment displayed count. Continued counting past maximum count (999) results in a "wrap-around" effect to 000, followed by continued up-counting. Activation of RESET input turns relay off and resets count to zero.

## CR. Release at Preset Count - Normal Mode

Initializing by momentary activation of RESET input turns relay on.

Operation is similar to CO (Operate at Preset Count) except relay turns off at preset count.

## CO or CR. Divide-by-10 Mode

Operation is as described previously, except count is incremented for every 10 on/off input signals for a maximum presettable count of 9,990 .

## CO or CR. Divide-by-100 Mode

Operation is as described previously, except count is incremented for every 100 on/off input signals for a maximum presettable count of 99,900.

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