

MODEL 331 MODEL 361

Release Delay Relays

- Solid-State Design
- Multiple Voltage & Timing Ranges
- UL and CSA Approved to 120VAC
- 5-Year Unconditional Warranty

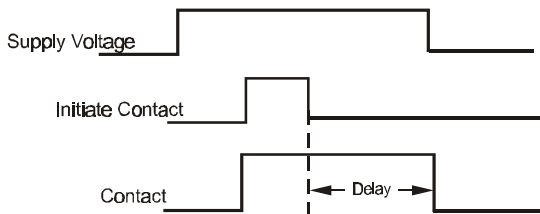
DESCRIPTION

The **Models 331 and 361 Release Delay Relays** are designed for a wide usage in new or replacement industrial applications. Examples include delay-off circuits, batch processing circuits, and other applications requiring a remote-triggered, off-delay timer.

The Model 331 is a DPDT, knob-adjustable timer. The Model 361 is a DPDT, high-accuracy digital timer. Solid-state timing circuits in each model drive an internal electromechanical relay.

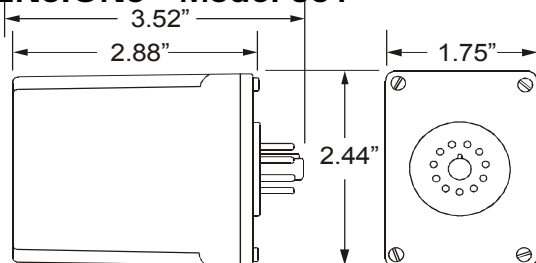
Each model is functionally interchangeable. They are available in a variety of voltage and timing ranges to cover any application. Both the Model 331 and Model 361 are UL Recognized and CSA Certified in voltage ranges of 120vac/dc, or less. The Model 361 is CSA Certified in voltage ranges of 230VAC/DC.

OPERATION



Supply voltage must be constantly applied. When the control switch is closed, the internal relay will energize. Timing begins when the control switch is opened. The delay can be reset by reclosing the control switch. On completion of the delay, the relay will de-energize.

DIMENSIONS - Model 361



(dimensions have tolerance of ± 0.06)



SPECIFICATIONS

MODEL	331	361
Supply Voltage	12, 24, 120 or 230 VAC/DC	
Timing Range	1 - 10 seconds 1 - 60 seconds 1 - 180 seconds 1 - 300 seconds	0.1 - 102.3 seconds 1 - 1023 seconds 1 - 1023 minutes
Accuracy	$\pm 5\%$	$\pm 2\%$
Repeatability	$\pm 2\%$	$\pm 0.1\%$
Recycle Time	100 msec	20 msec
Contact Rating	DPDT 10A at 120VAC resistive	
Transient Protection	2500 VRMS for 10 msec	
Operating Temperature	-40° to $+140^{\circ}$ F	
Humidity Tolerance	0 - 97% w/o condensation	
Enclosure Material	ABS plastic	
Mounting	11-pin socket *not included	
Weight	5 oz.	
Agency Approval	UL Recognized and CSA Certified up to 120VAC/DC	

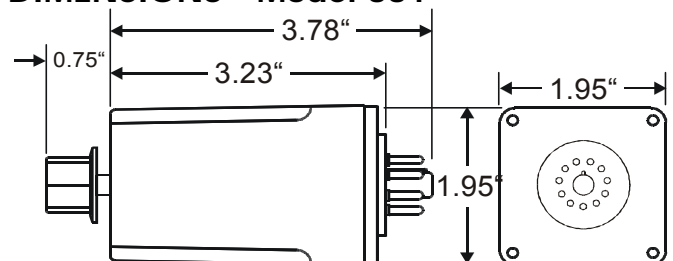
* order 11-pin socket number 51X016

ORDERING OPTIONS

MODEL	VOLTS	DELAY	
331 (knob-adj)	12 VAC/DC	331 ONLY	361 ONLY
361 (digital)	24 VAC/DC	10 seconds	0.1 seconds
	120 VAC/DC	60 seconds	1 Second
	230 VAC/DC	180 seconds	1 Minute
		300 seconds	

EXAMPLE: 331-24-180 orders a knob-adjustable 24VAC/DC timer, with a range of 1 to 180 seconds.

DIMENSIONS - Model 331



(dimensions have tolerance of ± 0.06)

MODEL 331 / 361 Release Delay Relays

READ ALL INSTRUCTIONS BEFORE INSTALLING, OPERATING OR SERVICING THIS DEVICE.
KEEP THIS DATA SHEET FOR FUTURE REFERENCE.

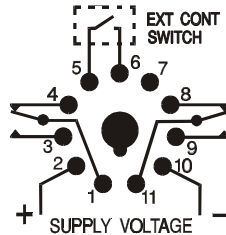
GENERAL SAFETY

POTENTIALLY HAZARDOUS VOLTAGES ARE PRESENT AT THE TERMINALS OF THE MODELS 331 OR 361.
ALL ELECTRICAL POWER SHOULD BE REMOVED WHEN CONNECTING OR DISCONNECTING WIRING.
THIS DEVICE SHOULD BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL.

Installation Instructions

PIN CONNECTIONS

The Models 331 and 361 Release Delay Relays require a standard 11-pin socket for mounting, and use a standard pin configuration. Refer to the pin diagram below, or on the timer, for terminal connections.



The external control switch must be a dry contact. **DO NOT APPLY POWER TO PINS 5 AND 6.** The external control switch can be a maximum of 10 feet away. The recommended wire is 22 gauge.

ADJUSTMENT PROCEDURE - Model 361

The procedure to determine the switch selections for the digital Model 361 Release Delay Relay requires some simple calculations, which can be completed easily after the basic steps are explained.

- Convert the delay time required to minutes, seconds, or tenths of seconds, depending upon the timing range of the unit. **For example:**

$$7 \text{ hrs, } 32 \text{ min} = 420 \text{ mins } (7 \times 60) + 32 = 452 \text{ minutes}$$

$$15 \text{ min, } 2 \text{ secs} = 900 \text{ secs } (15 \times 60) + 2 \text{ secs} = 902 \text{ seconds}$$

60.7 secs is set to 607, omitting the decimal point

- To set the desired delay period on the timer, you must perform a series of subtractions from the desired time (using binary numbers), until the remainder is equal to zero. This is how you will determine which switches to set to the ON position, on the DIP switch.

The subtraction process must begin with the largest binary number that can be subtracted from the desired time.

The remaining time after each subtraction must be reduced by the largest binary number possible (see figures 1 and 2).

figure 1

Binary numbers	Time Delay 300 seconds	Time Delay 400 seconds
512	300	400
256	<u>-256</u>	<u>-256</u>
128	44	144
64	<u>-32</u>	<u>-128</u>
32	12	16
16	<u>-8</u>	<u>-16</u>
8	4	0
4	<u>-4</u>	256+128+16=400
2	0	
1	256+32+8+4=300	

figure 2

Model 361-1 sec; set for a 600 seconds delay

600
-512
88
-64
24
-16
8
-8
0

1		
2		
4		
8	●	
16	●	
32		
64	●	
128		
256		
512	●	

Code: = switch OFF
 = switch ON

WARRANTY

The Models 331 and 361 Release Delay Relays are covered by Time Mark Corporation's exclusive **5-Year Unconditional Warranty**. Should this device fail, for any reason, within five years from the date of purchase, we will repair or replace it free. Contact the Time Mark Sales department, Monday through Friday; 8 a.m. to 5 p.m., CST, for further details.