MODEL 330
MODEL 360

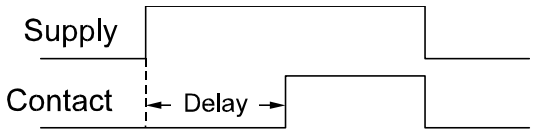
Operate Delay Relays

- **Solid-State Design**
- **10 Amp Relay Contacts**
- **Multiple Voltage and Timing Ranges**
- **5-Year Unconditional Warranty**

DESCRIPTION

The **Models 330** and **360 Operate Delay Relays** are designed for a wide range of industrial applications. Examples include automatic and machine tool control circuits, HVAC circuits, and warm-up delay circuits. The Model 330 is a DPDT, knob-adjustable timer. The Model 360 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 all possible applications. The Model 330 is UL Recognized and CSA Certified in all voltage ranges. The Model 360 is UL Recognized and CSA Certified in voltage ranges of 120VAC/DC or less, and the Model 360 is CSA Certified in voltage ranges of 230VAC/DC.



OPERATION

The time delay begins when the supply voltage is applied. Upon completion of the delay period, the internal relay will energize, and remain that way until the supply voltage is removed.

SPECIFICATIONS

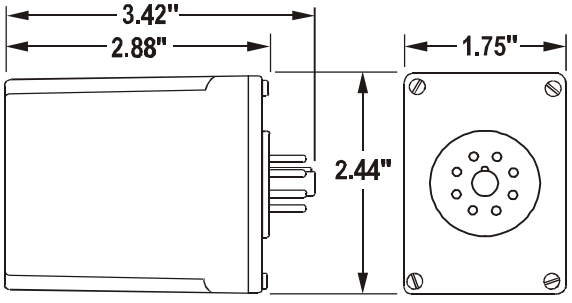
MODEL	330	360
Supply Voltage	12, 24, 120 or 230 VAC/DC	
Timing Range	1 - 10 seconds 1 - 60 seconds 1 - 180 seconds 1 - 300 seconds	0.1 - 102.3 seconds 1 - 1023 seconds 1 - 1023 minutes
Accuracy	± 5%	± 2%
Repeatability	± 2%	± 0.1%
Recycle Time	100 msec	20 msec
Contact Rating	DPDT 10A at 120VAC resistive	
Transient Protection	2500 VRMS for 10 msec	
Operating Temperature	-40° to +140° F	
Humidity Tolerance	0 - 97% w/o condensation	
Enclosure Material	ABS plastic	
Mounting	8-pin socket (*not included)	
Weight	5 oz.	
Agency Approval	UL Recognized and CSA Certified	UL Recognized & CSA Certified up to 120VAC/DC

* order 8-pin socket number 51X120

ORDERING OPTIONS			
MODEL	VOLTS	DELAY	
		330 ONLY	360 ONLY
330 (knob-adj)	**12** VAC/DC	**10** seconds	**0.1** seconds
360 (digital)	**24** VAC/DC	**60** seconds	**1** Second
	120 VAC/DC	**180** seconds	**1** Minute
	230 VAC/DC	**300** seconds	

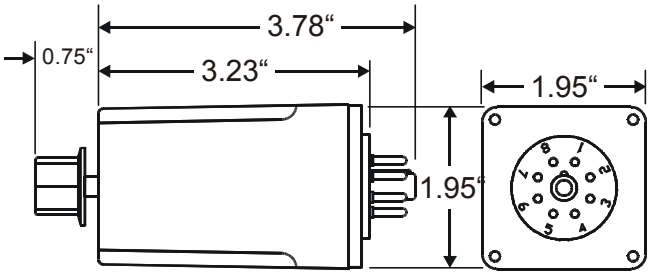
EXAMPLE: **330-120-60** orders a knob-adjustable 120VAC/DC timer, with a range of 1 to 60 seconds.

DIMENSIONS - Model 360



(dimensions have tolerance of ± 0.06)

DIMENSIONS - Model 330



(dimensions have tolerance of ± 0.06)

Telephone: Main - (918) 438-1220
Sales - (800) 862-2875
Fax: (918) 437-7584

E-mail: sales@time-mark.com
Internet: http://www.time-mark.com

SIGNALINE
DIV OF TIME MARK CORPORATION

11440 East Pine Street
Tulsa, Oklahoma 74116

Doc No. 87A152 12/00

MODEL 330 / 360 Operate Delay Relays

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

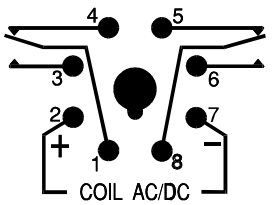
GENERAL SAFETY

POTENTIALLY HAZARDOUS VOLTAGES ARE PRESENT AT THE TERMINALS OF THE MODEL 330 OR 360. 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 330 and 360 Operate Delay Relays require a standard 8-pin socket for mounting, and use a standard pin configuration. Refer to the pin diagram below, or on the timer, for terminal connections.



Shows No Power Applied

ADJUSTMENT PROCEDURE - Model 360

The procedure to determine the switch selections for the digital Model 360 Operate Delay Relay requires some simple calculations, which can be completed easily after the basic steps are explained.

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

   7 hrs, 32 min = 420 mins (7x60)+32 = 452 minutes

   15 min, 2 secs = 900 secs (15x60)+2 secs = 902 seconds

   60.7 secs is set to 607, omitting the decimal point

2. 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 determine which switches to set to the ON position, on the DIP switch.

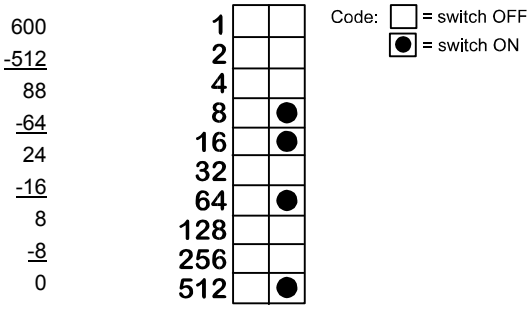
   The subtraction process must begin with the largest binary number that can be subtracted from the desired time. The remaining time after each subtraction must be reduced by the largest binary number possible (see *figures 1 and 2*).

figure 1

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

figure 2

Model 360-1 sec; set for a 600 second delay



WARRANTY

The **Models 330 and 360 Operate Delay Relays** are covered by the Time Mark Corporation **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.

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