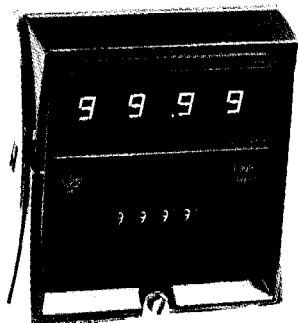


CT53 SERIES TIMER



The CT53 Series Timer is a microprocessor based timer housed in a standard 15 terminal CYCL-FLEX® plug-in case. The plug-in case allows easy removal for programming changes and replacement. The CT53 series directly replaces previous model Eagle Signal CT5 series timers. The revised CT53 model includes several new switch programmed options that expand the capabilities of the unit as well as simplify wiring.

The switch programmed options include:

- Four time ranges from 99.99 seconds to 99 hours: 99 minutes.
- Four operating modes for the programmed set of relay contacts.
- Cycle progress display either DOWN from the setpoint to zero, or UP from zero to the setpoint.
- STANDARD START OPERATION: Close start switch to time, open start switch to reset; or, REVERSE START OPERATION: Open start switch to time, close start switch to reset.

The CT53 Series Timer is available, with or without cycle progress display. The CT531 version has a .3 inch high, four digit LED display. The CT530 version does not have a digital cycle progress display. Both versions have an LED indicator in the lower left hand corner of the front panel that indicates when the timer is in the timing cycle.

All models of the CT53 Series have 7 amp socket mounted relays for output functions.

SPECIFICATIONS

Setting Accuracy

.01% of setting or 35 milliseconds, whichever is larger.

Repeat Accuracy

.01% of setting or 35 milliseconds, whichever is larger.

Reset Time

35 milliseconds

Power On Response Time

35 milliseconds

Operating Voltage and Frequency

Symbol	Voltage & Frequency
A6	120 VAC, 50/60 Hz
B6	240 VAC, 50/60 Hz

Operating Temperature

+32° to +140°F (0° to 60°C)

Output Rating

7 amp, 10-240 VAC resistive.

Vibration

Unit function is unaffected by 2.5g sinusoidal vibration magnitude in both directions of the perpendicular mounting axes imposed from 20 to 100 Hz.

Static Discharge

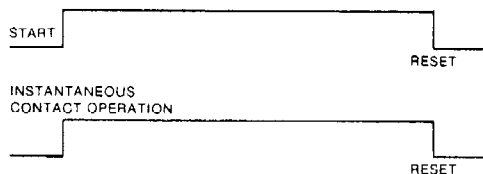
Unit function is unaffected by a constant 3600 volt peak, 60 Hz discharge applied to the front plate at a relative humidity of less than 25%.

Transient Protection

Immune to 2500 volts peak transients up to 50 microseconds in duration.

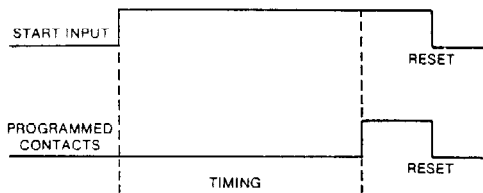
OUTPUT OPERATION

The CT53 Series Timer has two 7 amp relay outputs. One output is a set of instantaneous contacts that energize when power is applied to the start circuit on terminal 1. The instantaneous contacts remain energized as long as power is applied to terminal 1.

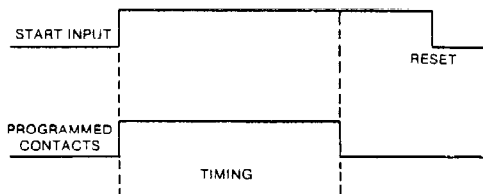


The other output is a set of programmable contacts. These contacts are programmed using the first two rocker switches as described in **SWITCH PROGRAMMING**. The output sequences available are:

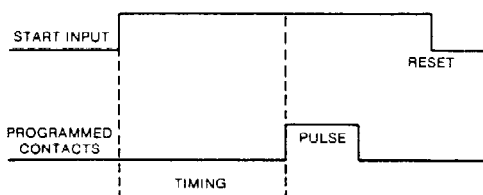
OOX ON DELAY OPERATION — The contacts are energized at the end of the timing cycle and remain energized until the unit is reset.



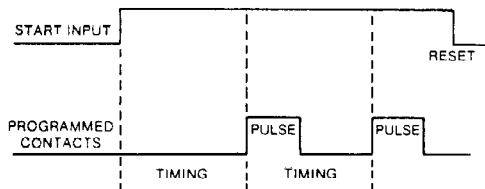
OXO INTERVAL OPERATION — The contacts are energized during the timing cycle and de-energized at the end of the cycle.



OO X PULSE OUTPUT OPERATION — The contacts are energized at the end of the timing cycle for a 100 millisecond pulse output.



OO X PULSE AND REPEAT OPERATION — The contacts are energized at the end of the timing cycle for a 100 millisecond pulse. At the same time that the cycle is completed and the pulse output begins, the timing cycle resets and begins again. This repeat operation continues as long as the start circuit is energized.



START INPUTS

The timer has two start modes. Each is programmed using rocker switch 7. In the Standard Start mode (switch 7 OFF), POWER is applied to terminal 1 to START the timing. The unit will reset if power is interrupted to terminal 1.

In the Reverse Start mode (switch 7 ON), POWER is applied to terminal 1 to RESET the unit. The timing cycle begins when power is removed from terminal 1. Terminal 11 provides the power to operate the unit in this mode.

Note that in the Standard Start mode the relay coil for the instantaneous output is de-energized when the unit is reset. In the Reverse Start mode the relay coil for the instantaneous output is energized when the unit is reset.

The unit can be used with either a sustained start input or a momentary contact start input. When a momentary input is used, provisions must be made in the wiring to provide "lock in" power to the start circuit on terminal 1 during the timing cycle. This is done using a combination of the instantaneous contacts and the programmed contacts for ON Delay Operation as is shown in Figure 2 of the wiring diagrams.

CYCLE PROGRESS DISPLAY (CT531 ONLY)

The unit can be programmed to display the timing cycle progress DOWN from the setpoint to zero or UP from zero to the setpoint. The cycle progress direction is programmed by switch 5.

When switch 5 is OFF, the CT531 will display cycle progress DOWN from the setpoint to zero. When the timing cycle is complete, the cycle progress display will return to the setpoint value and stop.

When switch 5 is ON, the CT531 will display cycle progress UP from zero to the setpoint. When the timing cycle is complete, the cycle progress display will stop at the setpoint value. The UP cycle progress mode operates only with the 99.99 second and 999.9 second time ranges.

In both the CT531 display version and the CT530 non-display version the LED indicator at the bottom left hand side of the front panel is lighted during the timing cycle.

SWITCH PROGRAMMING

A series of miniature switches located in the unit housing are used to program the output operating modes, time ranges, display cycle progress direction, and start modes. The following table defines the switch conditions for these operating parameters.

NOTE: SWITCH 8 IS NOT USED ON THE CT530 SERIES. This switch may be set in any position without affecting unit operation.

— CAUTION —

SWITCH 6 MUST ALWAYS BE OFF FOR PROPER TIMER OPERATION. With switch 6 ON, the unit is set for the self test operating mode. IN THE SELF TEST MODE THE UNIT WILL NOT TIME.

When the unit is set for the self test mode, the display flashes the value set on the thumbwheels, but does not operate. If eights have been entered into all four thumbwheel positions (8888), the display will flash the tEST prompt. If this sequence appears, remove the unit from the case and set switch 6 to the OFF position for normal timer operation. The self test function is only intended for use by trained repair technicians.

X = Switch ON O = Switch OFF Blank = Does Not Apply

SYM	OPERATING MODE	SWITCH NUMBER							Notes	
		1	2	3	4	5	6	7		
OUTPUT SEQUENCE										
1	OOX ON Delay	O	O							
2	OXO Interval	X	O							
3	OO <input checked="" type="checkbox"/> Pulse Output	O	X							A
4	OO <input checked="" type="checkbox"/> Pulse & Repeat	X	X							A
TIME RANGE										
1	99.99 Seconds			O	O					
2	999.9 Seconds			X	O					
3	99 Min : 99 Sec			O	X					B
4	99 Hr : 99 Min			X	X					B
CYCLE PROGRESS DISPLAY										
1	Down - From setpoint to zero					O				
2	Up - From zero to setpoint				X					C
OPERATING MODE -- SEE CAUTION										
1	Normal Timer Operation						O			
2	Self Test Operation						X			
START MODE										
1	Standard Start							O		
2	Reverse Start								X	

NOTES:

- a. If a power interruption occurs during the timed pulse output cycle, the unit resets, and the pulse cycle is not completed.
- b. When the timer is programmed for Minute:Second or Hour:Minute time range, it is possible to set the right two thumbwheel switches with a value that exceeds the conventional limit of 60 seconds or minutes. When this is done, the timer will time the value set by the two right switches, then time the appropriate value set by the two left switches. Example: A setpoint of 02 minutes and 75 seconds (195 seconds) will time for 03 minutes and 15 seconds (195 seconds).
- c. The UP cycle progress mode operates only with the 99.99 second and 999.9 second time ranges.
- d. When replacing an older CT5 series timer the only switches that should have to be changed for most applications are switches 3 and 4 for the time range. The following chart shows how these switches have to be set to provide the time ranges of the older models listed here.

Old CT5 Model	Time Range	New CT53 Model Switch Setting	
		3	4
CT5302/CT5312	99.99 Seconds	OFF	OFF
CT5303/CT5313	999.9 Seconds	ON	OFF
CT5304/CT5314	99 Min : 99 Sec	OFF	ON

- e. When replacing older model CT5 timers, note that the Momentary Start/Auto Reset operation, shown in Figure 2, may not produce a usable pulse output.

WIRING DIAGRAMS

Bold Lines Are Internal Wiring

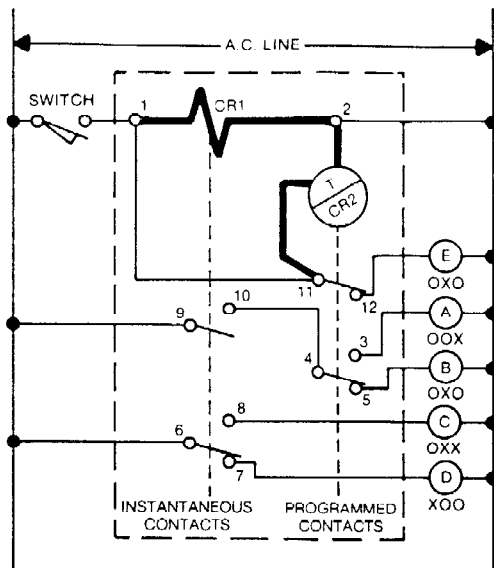


Figure 1

Sustained Control Switch. Close to Start, Open to Reset - When the control switch is closed, CR1 is energized and timing starts. Contacts 9-10 and 6-8 close and 6-7 open. At the end of timing, CR2 is energized opening contacts 11-12 and 4-5 simultaneously (4-5 closes). The unit remains in this position until the control switch is opened.

Programmed contacts set for OOX ON Delay operation ONLY.

NOTE: The pulse length indicated by and has been removed on the new model, and may not be of sufficient duration to produce a usable output.

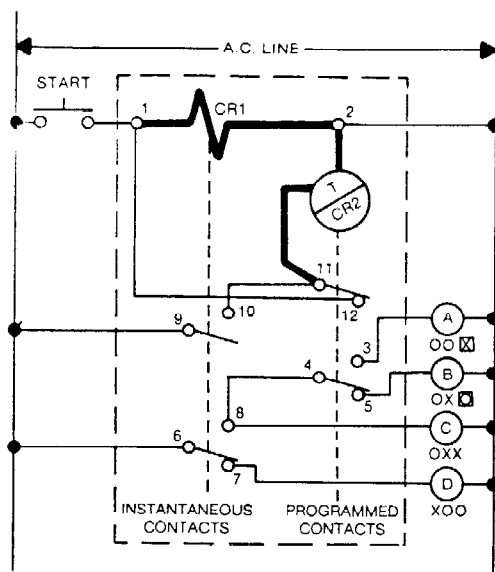


Figure 2

Momentary Control Switch. Close to Start, Resets Automatically - When the pushbutton is pressed, CR1 is energized and held in through contacts 9-10 and 11-12. Timing starts when contacts 9-10 close. At the end of timing, CR2 is energized opening contacts 11-12, deenergizing CR1 and allowing the timer to reset. **Programmed contacts set for OOX ON Delay operation ONLY.**

WIRING DIAGRAMS

Bold Lines Are Internal Wiring

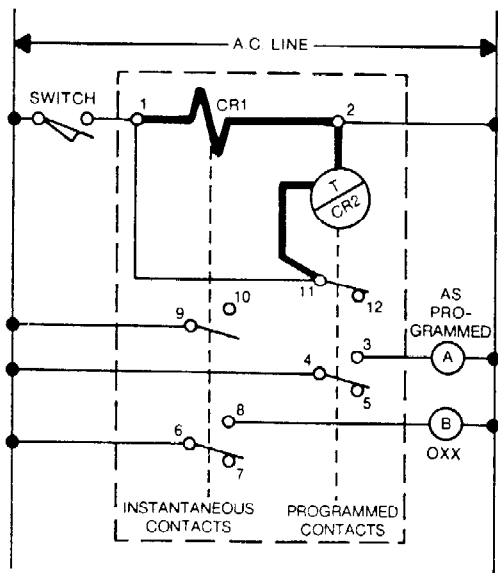


Figure 3

Sustained Control Switch. Close to Start, Open to Reset — When the control switch is closed, CR1 is energized and timing starts as above. CR2 contacts 11-12 and 4-3-5 operate according to the programming of rocker switches 1 and 2.

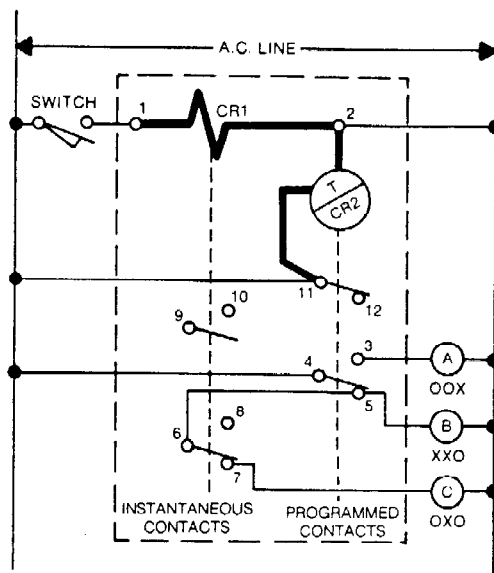
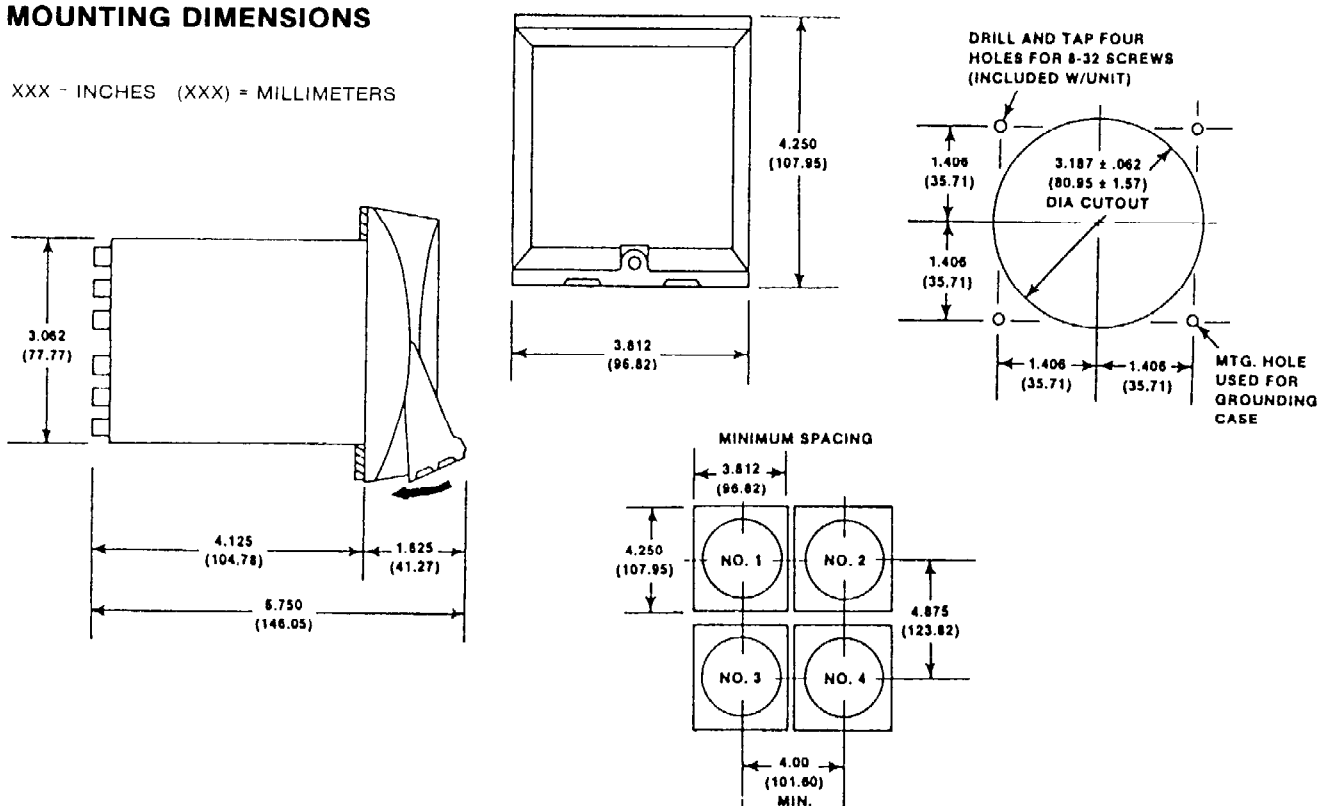


Figure 4

01 Feature Reverse Start Operation Sustained Control Switch. Close to Reset — When the control switch is open, the simulated clutch coil is de-energized and timing starts. When the control switch is momentarily closed, the simulated clutch coil is energized and the timer is reset. The timer will reset automatically at power failure.

MOUNTING DIMENSIONS

XXX - INCHES (XXX) = MILLIMETERS



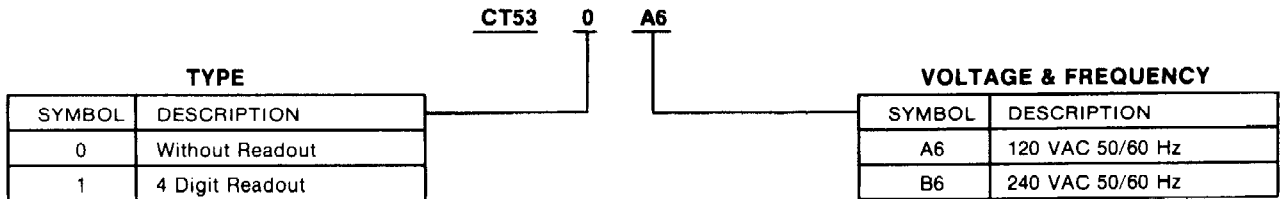
ENCLOSURES

PART NUMBER	NEMA CLASS	DESCRIPTION
HN308	1	Surface Mtg. with terminal block
HN364	1	Surface Mtg. without terminal block
HN368	1A	Dual unit cabinet with 9 position terminal block, timer housings, and DPST toggle switch.
HN370	1A	Dual unit cabinet less unit cases and toggle switch, with 9 terminal block.

ACCESSORIES

PART NUMBER	DESCRIPTION
H-5331	Mounting Brackets 2 req'd per timer
HP50-31	One Hole Mounting Ring
HP50-133	Surface Mounting Adapter to use in place of Brackets
CT500-27	Dust Cover

ORDERING INFORMATION



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ELECTRONIC
TIMERS