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ChronTrol®

FORM #X-98



Microprocessor-based
Table Top Timers

Features

- Twenty (optionally 40) programs
- Two or four independent circuits, AC receptacles or dry contacts
- Up to 8 inputs for external activation
- Cycle times from two seconds to one year
- Separate On and Off time settings and cycle times on each program
- Six-digit display shows hours, minutes, and seconds
- Directly replaces multiple mechanical timers
- Tamper-resistant locking keyboard
- Program up to one year in advance
- Weekly cycle with day omission
- Microprocessor controlled
- 14-day battery backup keeps time even during power outages
- 12- or 24-hour time readout
- Countdown timer
- Field-proven dependability
- Easy to set and operate
- Serial interface for remote monitoring

- **Ideal for laboratories, businesses, hospitals, universities and homes**
- **Laboratory experiment cycling**
- **Sampling control of air and other fluids**
- **General lighting control**
- **Display or illuminated sign control**
- **Furnace cycling**
- **Animal feeding and stimulus**
- **Chromatography**
- **Process control**

ChronTrol Table Top timers give you push-button control of up to four independent circuits which can be used to operate electrical devices such as lights, valves, solenoids, pumps, motors, fans or other equipment. With 20 independent On/Off programs - or up to 40 programs optional -you can exercise control right to the second, am and pm, every day of the week.

Time settings are entered right from the keyboard, with settings displayed on the digital clock during entry. Any or all of the available programs can be applied to an individual output, so the On/Off sequencing can be as simple or as complex as you require.

Up to 8 inputs are available through the rear panel connector, allowing timing sequences to be synchronized with external triggers, such as manual pushbuttons or switch closures from other equipment. Table Top timers may be ordered with independent 120 VAC grounded outlets or with individual SPST dry contact relay outputs.

These timers can be computer-controlled, either directly through an onboard serial communication port, or remotely by modem over the dial-up telephone network.

ChronTrol timers are also available in wall mount and rack mount versions with up to 16 outputs.

Outlet Model

Simply plug equipment to be controlled into the independent 120 VAC grounded outlets on the rear panel. **Controls up to 15 amps.**

Dry Contact Model

Wire the equipment to be controlled into the power source and the circuits on the rear panel. Each circuit can be wired to switch from 0 to 277 volts, independently or in series, giving simple or complex circuit override capabilities. **Controls up to 20 amps per circuit at 240 VAC.**



Outlet Model

OPERATIONAL CAPABILITIES

Twenty On/Off Programs
(40 optional)

Assign up to 20 independent programs, each with independent On and Off times, in any combination to the (up to four) individual circuits. Settings are made to the second from the keyboard, with AM/PM selection. Each program has individual cycle length and day-of-the-week omission settings.



Dry Contact Model

Cycle Length
Any program can be set to repeat, or Cycle, anywhere from once every 2 seconds (1 second on, 1 second off) to once a year. This feature can be used to simulate photoperiodic variation (to adjust for daily changes in the times of sunrise and sunset) and for short interval repetitive operations.

Day Omission
Programmed operations can be selectively omitted on any day or days of the week, including holidays.

Calendar Operations
ChronTrol's versatile calendar compensates for leap years and can be programmed for any number of holidays. On/Off programs may be set for specific dates.

Daylight Saving Time
ChronTrol's real-time clock moves forward or backward one hour at Daylight Saving Time, automatically.

Countdown Timer
ChronTrol's display can be set to show, in hours, minutes and seconds, the time remaining until the occurrence of any of its programmed events.

Easy Verification
Audible Keyboard Entry Entries made through the front panel keyboard are acknowledged with an audible tone for each key.

Next Program Program numbers can be assigned in any order, or ChronTrol will choose the next available program automatically.

Cross-Review feature allows the user to find out immediately what program or programs control any given circuit.

Manual Override
Any circuit can be switched On or Off immediately without waiting for or disturbing programmed operations.

Power Fail Protection
The time of day continues to operate, with crystal accuracy, during power failure. A nine-volt battery keeps the clock operating and protects the system memory to prevent the loss of stored programs. When power returns, all occurrences of On and Off events are accounted for, and outputs are switched to the proper positions for the current time, in sequence or all at once.

Inputs
Timers equipped with inputs can perform timing sequences that are synchronized or triggered by contact closures, and they can switch circuits On and Off based on external conditions. As many as 8 inputs can be wired to detectors, pushbuttons, or automatic equipment through a convenient rear panel connector.

Use as an Interval Timer
Set up to 40 independent timing operations at once. Durations are set in hours, minutes and, if desired, seconds, from one second through one year. Timing intervals can be triggered and re-triggered through the keyboard, or by any of the 8 available inputs, or by other operational programs.

Timing intervals can be set to repeat at any rate from two seconds (one second on, one second off) to one year.

Serial Communications
All programming information and procedures can be accessed and performed via computer terminal through ChronTrol's RS-232 serial communication port. Or, by attaching a modem to this port, programming can by performed remotely over the telephone to facilitate centralized control.

ORDERING GUIDE

Code	Description
XT-2	2 circuit Outlet model
XT-4	4 circuit Outlet model
XT-2S	2 circuit Dry Contact model
XT-4S	4 circuit Dry Contact model

Optional Equipment

Code	Description
F	40 programs
N8	8 inputs
240V	240 volt power source

When ordering, add option code to the basic model number.

Example: XT-4FN8 is a four outlet Table Top Timer with 40 programs and 8 inputs.

SPECIFICATIONS

Number of available circuits: 2 or 4 independent circuits.

On/Off Programs: 20, or optionally 40, each assignable to any or all outputs. Each On/Off program includes the setting of:

ON time (AM or PM, to the second)
OFF time (AM or PM, to the second)
(ON and OFF times can be set to occur on a specific date within the next 12 months)

Cycle length (from 2 seconds to one year)

Day Omission (inhibits program operations on any day or combination of days within the week, including holidays)

Optional interval timing: Each On/Off program can be made an interval timer by specifying a duration of time instead of specifying an On or Off time. Durations can be set from one second through one year.

Display: .56" continuous LED display of time-of-day or program information.

Power switching capabilities:
Outlet Model--120 volts AC
15 amps total all outlets
Relays--15 amp single pole, single throw

Dry Contact Model—0 to 277 volts AC
20 amps per circuit @ 240 VAC
6 amps per circuit @ 277 VAC
Relays--20 amp single pole, single throw

Circuit Status Indicators: LED circuit ON indicator (one per circuit)

Number of available inputs: 8 digital inputs.

Input timing: Edge triggered, with programmed enable/disable on each input.
Minimum input pulse width: 100 ms (1/10 sec.)
Maximum input pulse width: Indefinite.
Minimum delay between pulses: 2 seconds

Input electrical: Current: 500 µA;
Requires switch closure or open collector individually or in groups.
Connection: 9-pin D-subminiature, female

Time base: 50/60 Hz line frequency (automatically selected) with crystal backup system.

Power source: 120 volts AC ± 5%
Optional: 240 volts AC ± 5%

Power Consumption: 5 watts (not including relays)

Battery backup system: 9-volt alkaline battery provides 14-day protection of memory and time-of-day.

Serial Communication:
Protocol: Serial asynchronous, 2400 baud, 8 data bits, 1 stop bit, no parity
Signal level: EIA RS-232C
Connection: 6-position, 4-conductor modular jack (RJ-11 type)

Case: High impact plastic (non-weatherproof)

Keyboard: 24-key, dome switch, audible.

Environmental Range: 0°F to 130°F / -17°C to 54°C; 0 to 90% relative humidity (non-condensing)

Dimensions: 4.75" x 8.25" x 5.00" (H/W/D)
120mm x 209mm x 127mm

Shipping Weight: 4 lb. / 2 kg.

WARRANTY:
Limited, 1 year parts and labor.

Design and specifications subject to change without notice.

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