

# EC7001 Single Channel Electronic Time Controls General Instructions

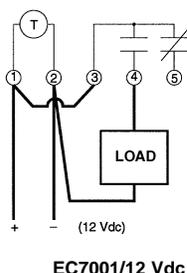
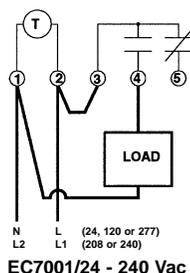
## Specific Capabilities

- 16 Setpoints - A setpoint defines the type of event (ON, OFF or duration) as well as the time and day(s) on which the event will occur.
- Momentary Duration - Two Separate durations of 1-59 seconds.
- 24-hour or 7-day Programming - Allows the same schedule or a different schedule for each day of the week.
- Selectable Clock Format - 12 hour (AM/PM) or 24 hour format.
- Manual Override - Reverses current output state; begins immediately when initiated and remains until overridden again or until next setpoint is reached.

## Introduction

The EC7001 is a single-channel electronic time control that provides simple, inexpensive control of lighting, heating, ventilation, air-conditioning, security systems, motors, pumps, fans or any load with a time-of-day schedule. The control may be utilized as a 24-hour or 7-day control. As a 24-hour control, the same ON/OFF program is utilized each day of the week. Saturday and/or Sunday, or any other day may be skipped. When schedules vary from day to day, the 7-day programming capability allows a different schedule for each day of the week. With 16 setpoints available, this time control provides programming versatility.

The EC7001 provides two individually programmable durations of 1-59 seconds in addition to the maintained ON and OFF setpoints. This provides ideal control for ringing chimes, school bells, factory bells, remote animal feeders, and air and water purity samplers. ON events can be combined with duration events to obtain to-the-second ON times such as one minute and fifteen seconds or two minutes and thirty seconds, providing excellent control for loads that require precise ON durations longer than 59 seconds.



## CONTACT RATINGS

### Output UL Ratings

- Normally open contacts: 20 amp resistive at 24-240 Vac  
1 Hp at 120 Vac  
2 Hp at 240 Vac  
5 amp tungsten at 120-240 Vac
- Normally closed contacts: 10 amp resistive at 24-240 Vac  
1/4 Hp at 120 Vac  
1/2 Hp at 240 Vac  
3 amp tungsten at 120-240 Vac  
3 amp ballast at 120-277 Vac
- Normally open contacts: 20 amp resistive at 24-240 Vac  
1 Hp at 120 Vac  
2 Hp at 240 Vac  
5 amp tungsten at 120-240 Vac

### CSA Ratings

- Normally open contacts: 10 amp resistive at 24-240 Vac  
1/2 Hp at 120 Vac  
1 Hp at 240 Vac  
5 amp tungsten at 120-240 Vac  
6 amp ballast at 277 Vac
- Normally closed contacts: 10 amp resistive at 24-240 Vac  
1/4 Hp at 120 Vac  
1/2 Hp at 240 Vac  
3 amp tungsten at 120-240 Vac  
3 amp ballast at 277 Vac

### Output 12 - 28 Vdc Ratings

- Normally Open Contacts: 20 amp resistive  
Normally closed Contacts: 10 amp resistive

NOTE: Paragon solid state controls utilize dry contacts, input power enables the control to keep time, store programmed information and carry out instructions but input power *does not power the load*. To make circuits function, you must provide power to the contacts.

### WIRING

EC7001 terminals can accommodate 10-16 AWG wire.

### POWER OUTAGE CARRY-OVER

The program and time-of-day are maintained during a power outage for a minimum of 7 days. A built-in special capacitor eliminates the inconvenience of battery replacement.

### PHYSICAL

EC7001/24-240 Vac  
Mounting - NEMA 1 enclosure mounting  
Weight - Approx. 2 lbs.(0.9kg)  
Dimensions-  
Width 10.8 cm (4-1/4")  
Height 20.0 cm (7-7/8")  
Depth 7.6 cm (3")

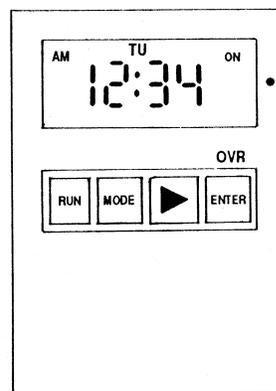
### PHYSICAL

EC7001/12 Vdc  
Mounting - NEMA 3 enclosure mounting  
Weight - Approx. 3 lbs. (1.4kg)  
Dimensions-  
Width 10.8 cm (4-1/4")  
Height 22.9 cm (9")  
Depth 9.8 cm (3-7/8")

The EC7001/24-240 Vac should be mounted indoors in an environment that is free from excessive contaminants such as oil, moisture and dirt.

## KEYPAD DESCRIPTION

**RUN-** Returns timer to the RUN mode. The timer will only control



EC7001

the load when in the RUN mode.

### MODE-

Advances from one programming mode to the next. The order of programming modes is as follows: Clock Format Select, Run, Set Time, Setpoint Programming, Set Duration 1 and Set Duration 2. After the last mode, the control will loop back to the Run Mode.



Rolls through the parameter currently being programmed.

**ENTER-** In all programming modes, what is shown in the display is what exists in memory. Pressing the ENTER key simply advances to the next parameter to be programmed (e.g., hours to minutes).

**UNDERSTANDING SETPOINTS AND DURATIONS**

Before you begin programming, make sure you understand setpoints and durations.

A setpoint defines the type of event – ON, OFF or momentary – as well as the time of the event and the day(s) on which the event will occur. For example, to turn the lights on at 8 AM each day of the week, a setpoint like this would be required: ON 8:00 AM, Mon-Tue-Wed-Thur-Fri-Sat-Sun. Setpoint programming provides built-in Skip-A-Day capability; to skip any day(s), simply do not add the day(s) to the setpoint.

The EC7001 provides two independent duration events (DUR and DUR2) in addition to the ON and OFF event types. An ON event energizes the load at a given time; the load remains ON until an OFF event is reached. A duration event energizes the load at a given time for a given period of time (anywhere from 1 - 59 seconds). The relay de-energizes at the end of the duration; therefore, no OFF event is required to end a duration event.

Programming durations are explained as part of the programming instructions that follow.

Example of how to mark your work sheet using schedule on previous page.

NO.	DAY OF WEEK	TYPE OF EVENT	TIME
1	S (M) T (M) W (M) T (M) F (M) S (M)	ON OFF DUR DUR2	7:30 AM
2	S (M) T (M) W (M) T (M) F (M) S (M)	ON OFF DUR DUR2	5:30 PM
3	S (M) T (M) W (M) T (M) F (M) S (M)	ON OFF DUR DUR2	12:30 PM

YOUR SETPOINT WORK SHEET (mark with your schedule)									
NO.	DAY OF WEEK						TYPE ON EVENT	TIME	
1	S	M	T	W	T	F	S	ON OFF DUR DUR2	
2	S	M	T	W	T	F	S	ON OFF DUR DUR2	
3	S	M	T	W	T	F	S	ON OFF DUR DUR2	
4	S	M	T	W	T	F	S	ON OFF DUR DUR2	
5	S	M	T	W	T	F	S	ON OFF DUR DUR2	
6	S	M	T	W	T	F	S	ON OFF DUR DUR2	
7	S	M	T	W	T	F	S	ON OFF DUR DUR2	
8	S	M	T	W	T	F	S	ON OFF DUR DUR2	
9	S	M	T	W	T	F	S	ON OFF DUR DUR2	
10	S	M	T	W	T	F	S	ON OFF DUR DUR2	
11	S	M	T	W	T	F	S	ON OFF DUR DUR2	
12	S	M	T	W	T	F	S	ON OFF DUR DUR2	
13	S	M	T	W	T	F	S	ON OFF DUR DUR2	
14	S	M	T	W	T	F	S	ON OFF DUR DUR2	
15	S	M	T	W	T	F	S	ON OFF DUR DUR2	
16	S	M	T	W	T	F	S	ON OFF DUR DUR2	

**PROGRAMMING INSTRUCTIONS**

These timers initially power up in the Clock Format Select Mode. This mode is only accessible once. If the clock format needs to be changed, the timer will have to be reset. To reset the timer, insert a pointed object into the reset hole to the right of the display.

**CLOCK FORMAT SELECT mode**

STEP	KEY	DESCRIPTION
1.		Apply power to timer. Control displays 12 Hr, indicating 12 hour clock format.
2.	▶	Toggles between 12 hour (AM/PM) and 24 hour (17:00 = 5:00 PM) clock formats. Choose the format desired.
3.	ENTER	Advances to RUN mode.

**SET TIME mode**

STEP	KEY	DESCRIPTION
1.	MODE	Advances to SET TIME mode. Control displays time with hours flashing. TOD is also displayed to indicate that Time of Day is being set.
2.	▶	Advance to current hour.
3.	ENTER	Minutes begin flashing.

- 4. ▶ Advance to current minute.
- 5. ENTER Day of week begins flashing.
- 6. ▶ Advance to current day of week, then go directly to setpoint programming mode below.

**SETPOINT PROGRAMMING mode**

(Refer to **Understanding Setpoints** and your worksheet.)

STEP	KEY	DESCRIPTION
1.	MODE	Advances from the SET TIME mode to the SETPOINT PROGRAMMING mode. The timer displays "1" at bottom of display and "_ _ : _ _". The "1" indicates that the first of 16 setpoints is being programmed. The dashes indicate that this setpoint is clear.
2.	ENTER	Display shows "SU" and "NO." This indicates that Sunday is not included in the setpoint.
3.	▶	Display toggles between "YES" and "NO." If the event is desired for the particular day select "YES," if not select "NO." Then go to Step 4 on next page.
4.	ENTER	Display shows "MO" and "NO." Repeat Steps 3 and 4 to select which day(s) to include in the setpoint. After programming Saturday, the display will show the setpoint with the hours flashing. Dashes in the hour location indicate that the setpoint is still clear.
5.	▶	Advance to desired hour.
6.	ENTER	Minutes begin flashing.
7.	▶	Advance to desired minute.
8.	ENTER	Event type begins flashing.
9.	▶	Display toggles between event types (ON/OFF, DUR and DUR2). Choose the type of event desired.
10.	ENTER	Display shows "MO" and "NO." Repeat Steps 3 and 4 to select which day(s) to include in the setpoint. After programming Saturday, the display will show the setpoint with the hours flashing. Dashes in the hour location indicate that the setpoint is still clear.
11.	RUN	Returns to the RUN mode when programming is complete.

**SETPOINT DURATION mode**

STEP	KEY	DESCRIPTION
1.	MODE	Advances from the SETPOINT PROGRAMMING mode to the SET DURATION 1 mode. The timer will display the length of the duration (01-59 seconds) and DUR (duration 1).
2.	▶	Advance to desired duration 1 length.
3.	ENTER	Advances from the SET DURATION mode to the SET DURATION 2 mode. The timer will display the length of the duration (01-59 seconds) and DUR2 (duration 2). If no second duration is desired go to Step 5.

4.       ▶           Advance to desired duration 2 length.
5.       ENTER     Returns to RUN mode.

NOTE: To combine a setpoint "ON" event with a duration event to achieve an on time of greater than a whole minute such as 1 min. and 15 sec., use a duration event as the next setpoint after the "ON" event. After the total on time (e.g., 1 min. & 15 sec.), the load shuts off automatically; therefore no "OFF" event is required. For example, to program chimes to ring for 2 min. and 15 sec. beginning at 8:00 AM, your initial setpoint would be "ON" at 8:00 AM. Your next setpoint would be at 8:02 AM with a duration (dur) event of 15 sec. in length. This will give you a 2 min. and 15 sec. "ON" time and will stop automatically after that time.

## TO REVIEW SETPOINTS

STEP	KEY	DESCRIPTION
1.	MODE	Advances from RUN mode to SET TIME mode (TOD displays).
2.	MODE	Advances from SET TIME mode to SET-POINT PROGRAMMING mode. The control will display the first setpoint (1 displays at bottom). To modify the setpoint, go to Step 2 of the SETPOINT PROGRAMMING mode instructions.
3.	▶	Advance through the remaining setpoints.
4.	RUN	Returns to RUN mode when done reviewing setpoints.

## OVERRIDE:

Manual override reverses the current output state. Loads that are ON turn immediately OFF; loads that are OFF turn immediately ON. The timer displays OVR to indicate that the current load state is the result of an override. The override remains in effect until overridden again or until the next setpoint is reached. To initiate override, press OVR (ENTER) key while in the RUN mode.

NOTE: After an override has been initiated, the OVR will display until the next programmed setpoint is reached, even if the timer is overridden again. Display will show if the load is ON or OFF.

## TROUBLESHOOTING TIPS

### Problem

Nothing happens when a setpoint occurs to turn the load ON or OFF.

### Solution

Review programmed setpoints making sure the day has not been skipped.

### Problem

You wish to clear the control's memory and start over.

### Solution

Depress the reset switch to the right of the display.

### Problem

Manual override does not work.

### Solution

Check the load for proper wiring. Remember, the contacts on these units only switch what is applied to them (dry or isolated contacts).

### Problem

Blank display

### Solution

Check the input power source, ensure proper connection.

### Problem

Control does not operate after programming.

### Solution

If programming was not performed (changing clock time or entering a setpoint), the control will not update itself. Press the ENTER key and override the load until the next scheduled setpoint.



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