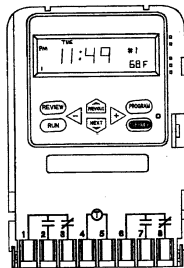


<http://waterheatertimer.org/Paragon-timers-and-manuals.html#EL>

# EL7100 - Single Channel & EL7200 - Two Channel Electronic Time Controls

## General Instructions



**P** **PARAGON**  
*Electrical Products*

## Table of Contents

INTRODUCTION . . . . .	3	PROGRAMMING . . . . .	12
SPECIFICATIONS . . . . .	3	PROGRAMMING OVERVIEW . . . . .	12
PROGRAMMING CAPABILITIES . . . . .	3	MEMORY CLEAR . . . . .	13
ELECTRICAL . . . . .	5	SET TIME . . . . .	14
ENVIRONMENTAL . . . . .	7	EVENT . . . . .	15
PHYSICAL . . . . .	7	HOLIDAY . . . . .	16
FUNCTIONAL DESCRIPTION . . . . .	8	OVERRIDE . . . . .	21
CONTROL LAYOUT . . . . .	8	RUN . . . . .	21
KEYPAD DESCRIPTION . . . . .	9	APPLICATION EXAMPLES . . . . .	22
		PROGRAMMING WORKSHEETS . . . . .	23

## **Introduction**

The EL7100 and EL7200 are one and two-channel, electronic time controls that provide simple, inexpensive control of lighting, HVAC, motors, pumps, or any electrical load with a time-of-day schedule. The control may be utilized as a 24 hour, 7 day or full year (365 day) control.

The EL series allows for the programming of 128 events. An event could be an ON or an OFF.

The EL series of time controls are versatile, yet easy to program. A simple keypad combined with a large, user-friendly display takes the frustration out of programming.

## **Specifications**

### **Programming Capabilities**

- 128 Events - An event can be an ON or an OFF. Each event can be assigned to either channel. Each event can be assigned to any day or any combination of days, including the three holiday schedules.
- Optional Daylight Savings Correction - Programmable as a day of the month (i.e. 1st Sunday in April / last Sunday in October)
- Leap Year Correction to the Year 2100
- 30 Single Day Holidays - (e.g. July 4th)
- 30 Day of Month Type Holidays - (e.g. last Monday in May)
- 30 Holiday Durations - Programmable from 1 to 366 days (e.g. June 9th to August 27th)

- 6 Specific Holidays - Each holiday can be optionally selected
 

Good Friday	Easter Sunday	Easter Monday
Boxing Day	Victoria Day	Thanksgiving Thursday and Friday
- 3 Holiday Schedules - Each of these 96 holidays can be assigned to one of three holiday schedules (A,B or C). For example, if July 4th is assigned to holiday schedule A, then on July 4th only those events containing holiday A in their day fields will be executed.
- Keyboard Override - Toggles the current output state; begins immediately when initiated and remains in effect until overridden again or until the next programmed event occurs.
- Selectable Clock Format - 12 hour (am/pm) or 24 hour clock format.
- Momentary - The EL7200 has two relays. This control can be configured for either main-  
tained or momentary, operation. The momentary option is intended for use with latching  
relays. When configured for momentary the EL7200 will have only one channel; Relay #1 will  
provide a 1 second latching ON pulse and Relay #2 will provide a 1 second latching OFF  
pulse. The EL7100 only has one relay, therefore it does not have momentary capability.

## 1. Electrical: Power Requirements

<b>Model</b>	<b>Description</b>	<b>Voltage</b>
EL7100/120	Single channel, metal case	120Vac, 50/60 Hz
EL7100/208-240	Single channel, metal case	208-240Vac, 50/60 Hz
EL7100PC/120	Single channel, plastic case	120Vac, 50/60 Hz
EL7100PC/208-240	Single channel, plastic case	208-240Vac, 50/60 Hz
EL7200/120	Two channel, metal case	120Vac, 50/60 Hz
EL7200/208-240	Two channel, metal case	208-240Vac, 50/60 Hz
EL7200PC/120	Two channel, plastic case	120Vac, 50/60 Hz
EL7200PC/208-240	Two channel, plastic case	208-240Vac, 50/60 Hz

2. Outputs - One or Two SPDT relays with contacts rated as follows:

Normally Open Contacts: 20 amp general purpose at 120-240 Vac

1 HP at 120 Vac

2 HP at 208-240 Vac

5 amp tungsten at 120-277 Vac

20 amp ballast at 120 Vac

10 amp ballast at 208-277 Vac

470 VA at 120-240 Vac

Normally Closed Contacts: 10 amp general purpose at 120-240 Vac

1/4 HP at 120 Vac

1/2 HP at 208-240 Vac

275 VA at 120-240 Vac

3. Wiring - Power input and relay contact terminals can accommodate 10-16 AWG

4. Power Outage Carryover - The program and time of day are maintained during a power outage for a minimum of 48 hours.

## **Environmental:**

1. Temperature - Operating: -20 F (-29 C) to 140 F (60 C)
2. Relative Humidity - 10 to 90% RH (non-condensing)
3. The NEMA1 (metal) enclosure models should be mounted indoors in an environment that is free from excessive contaminants such as oil, moisture and dirt.
4. The NEMA3R (plastic) enclosure models are suitable for both indoor and outdoor use.

### **Physical: Enclosure Dimensions**

NEMA 1 (metal)  
W = 4 1/8" (10.5 cm)  
H = 7 3/4" (19.7 cm)  
D = 3" (7.6 cm)

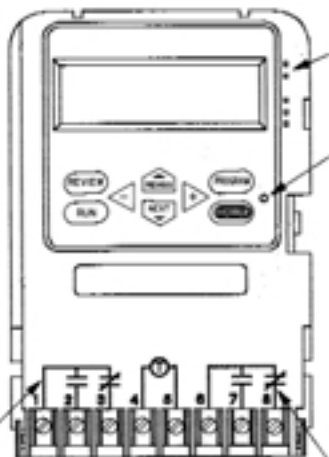
NEMA3R (plastic)  
W = 6.3" (16.0 cm)  
H = 8.5" (21.6 cm)  
D = 3.8" (9.7 cm)

## FUNCTIONAL DESCRIPTION

### Control Layout

Program Header Menu

TIME  
EVNT  
HOL



Master Reset

Channel 1 or  
Momentary ON Relay

Channel 2 or Momentary  
OFF Relay  
(EL7200 only)



## Keypad Description

Master Reset - Clears time and program. Display will show "MEM CLR". The reset switch is accessed by inserting a pointed object, such as a paper clip, into the reset hole to the right of the keypad.

PROGRAM - This key allows the user to add, delete or change parameters (events, time, holidays).

When pressed from the RUN mode, the programming menu is displayed starting with the TIME menu header.

When pressed from a menu header, the control will advance to the next menu header.

When pressed from a programming step, the control returns to that menu header.

When pressed during review, the control will go to the appropriate programming display.

**REVIEW -** This key allows the user to review all the programmed steps using displays condensed to show as much information as possible on one display. The user will not be able to change the program in the Review mode.

When pressed from the RUN mode or any programming step within a menu header, the control will return to the TIME menu header.

When pressed from any menu header during review, the control will move to the next menu header.

When pressed from a review step, the control returns to that menu header.

**RUN -** This key will return the control to the RUN mode.

From all programming steps (excluding the override menu), the control will perform a status update and return to the RUN mode.

From all review steps, the control will go straight to the RUN mode without updating. If the REVIEW key was pressed while in a programming step the control will perform a status update and return to the run mode.

When in the override menu, this key will return the selected channel from an override to the current event status shown and return the control to the RUN mode.

OVERRIDE - This key will take the user to the override header.

From the RUN mode, this key will jump to the override header.

From the override header, the selected channel's state is toggled and the control returns to the RUN mode.

PREVIOUS/NEXT - Moves the display selection to the previous or next program step. While in a programming step, the current item (to be modified) will be flashing.

+/- -These keys will change (increment or decrement) the current (flashing) item. The +/- keys will not work during review, except to allow a faster step-through of events and holidays.

## Programming

### Programming Overview:

After pressing the PROGRAM key, the EL7100 and EL7200 will continue to control the outputs based on the events that were operating at the time the PROGRAM key was pressed. The control will not check for new events until it has gone through a status update.

The control remains fully functional after pressing the REVIEW key, provided the REVIEW key wasn't pressed while in the programming mode.

During operation, the control will be in the RUN mode. When programming (or reviewing), the order of the program headers and steps is as follows:

- TIME - set time, date, daylight savings time
- EVNT - on, off
- HOL - set holidays

From the HOL header, the control will loop around to the TIME header. The OVER (over-ride) mode is only accessible from the RUN mode. The following is a detailed explanation of each mode.

In all modes use the NEXT key to advance to the next item to be programmed or reviewed, and the PREVIOUS key to go back to the previous item. Use the + and - keys to modify the current (flashing) item.

## Memory Clear

Indicates that the memory has been cleared. Use the NEXT key to begin programming. After initial power-up or a reset, the control will be in MEM CLR (memory clear) mode. This mode is only accessible once.

Toggle between MAINTain (maintained) or MOMNtARY (momentary) operation using the +/- key. When configured for momentary, Relay 1 will provide the ON pulse and Relay 2 will provide the OFF pulse. An EL7200 configured for momentary operation will become a one-channel control. Use the NEXT key to continue programming. (The EL7100 does not have this screen.)

Toggle between 12 hour (AM/PM) or 24 hour (00:00-23:59) clock format using the +/- key.

**NOTE:** After selecting relay operation and clock format, press the PROGRAM key to begin the programming steps in the TIME header.

## Set Time

Set Time header. This mode is used for setting time, date and daylight savings time. Use the NEXT key to begin programming.

Program hours, minutes, seconds and day of week using the +/- key. A PM indicator is used in the 12 hour format. AM begins with midnight and PM begins with noon. NOTE: Only the PM indicator will appear in the 12 hr format.

Program month, date and year.

To disable Daylight Savings Time operation, select NO.

Program the day that Daylight Savings Time begins. The control defaults to the first Sunday in April. At 2:00 AM on this day, the control's time will advance one hour.

Program the day that Daylight Savings Time ends. The control defaults to the last Sunday in October. At 2:00 AM on this day, the control's time will go back one hour.

## Events

Events header. Up to 128 events can be programmed. Events can be an ON or an OFF. An event can be assigned to either channel. Each event can be assigned to any day or combination of days including the 3 holiday schedules (A, B and C). Use the NEXT key to begin programming.

The +/- keys will quickly step thru the events when the event # is flashing. Select the event type, select the channel and program the hours and minutes while each of these parameters are flashing using the +/- key.

Select YES for each day that is to be included in this event.

## Holiday

Holiday header. The four holiday types with their priorities are as follows:

SPEC (special) - highest priority

DATE (month/date) - 2nd highest priority

D/WK (day of week) - 3rd highest priority

SPAN (duration) - lowest priority

To demonstrate the use of priorities, assume that Thanksgiving Break (SPEC) is programmed as a holiday schedule B. Also assume that Nov. 1st to Nov. 30th (SPAN) is programmed as a holiday schedule A. Then on Thanksgiving Day and the Friday after, the control will execute the events that include HOLIDAY B in their day field, since SPEC is a higher priority than SPAN. The rest of November the control will use events that include HOLIDAY A in their day fields. The other 11 months (assuming no other holidays) will be controlled according to the events programmed for the normal days (SUN - SAT).



Special Holiday type. Each of 6 special holidays can either be assigned as one of the 3 holiday schedules A, B or C or not selected. Press the NEXT key to program the special holidays (starting with Good Friday) or press the +/- keys to move to a different holiday type (e.g. Date).

Good Friday

Easter Sunday

Easter Monday

Thanksgiving Break (Thursday and Friday)

Boxing Day

Victoria Day

Holiday Date type. Up to 30 date type holidays can be programmed.

NONE indicates that this holiday (date) number (1-30) is not used (no holiday schedule has been selected). Press the NEXT key to program this holiday (date) or press the +/- keys to move to other holiday (date) number(s).

Program the month, date and holiday schedule while each of these parameters are flashing. To remove a date type holiday, select none of the schedules.

Day of Week Holiday type. Up to 30 days of week type holidays can be programmed. Examples of day of week type holidays are:

1st Monday in September

Last Monday in May

NONE indicates that this holiday (day of week) number (1-30) is not used (no holiday schedule has been selected). Press the NEXT key to program this holiday (day of week) or press the +/- keys to move to other holiday (day of week) numbers.

This screen shows holiday #2 is programmed as the 1st Sunday in January with holiday schedule A assigned. Program the month, week no.(1st, 2nd, 3rd, 4th or last), day and holiday schedule while each of these parameters are flashing. To remove a day of week type holiday, select none of the schedules.

Holiday Span type. Up to 30 holiday durations can be programmed. A holiday duration is defined with a beginning date and an ending date. A holiday duration can be programmed as a single day holiday by making the ending date the same as the beginning date. It is OK to have the holiday duration extend into the next year.

NONE indicates that this holiday (span) number (1-30) is not used (no holiday schedule has been selected). Press the NEXT key to program this holiday (span) or press the +/- keys to move to other holiday (span) numbers.

Program the beginning month and date for holiday duration #1.

Program the ending month and date for holiday duration #1. Then select a holiday schedule A, B or C. To remove a holiday duration, select none of the schedules.

## Override

Keyboard Override header. This mode is reached by pressing the OVERRIDE key from the RUN mode. Press the NEXT key to continue in this mode or press the RUN key to exit this mode without affecting a change to the load status.

This screen shows the status of both channels (one channel for the EL7100) on the bottom line of the display. If the channel no. is flashing, the channel is currently overridden. If it is flashing mostly on, the channel is overridden on. If it is flashing mostly off, the channel is overridden off. The channel # currently pointed to will be flashing. The current event for this channel is shown below the channel # (e.g. ON, OFF, NONE). Press the OVERRIDE key to toggle the channel status until the next event. Press the RUN key to cancel an override. Press the +/- keys to select the other channel. To exit the override mode without making a change, press the PREVIOUS or NEXT key to return to the override header, then press the RUN key.

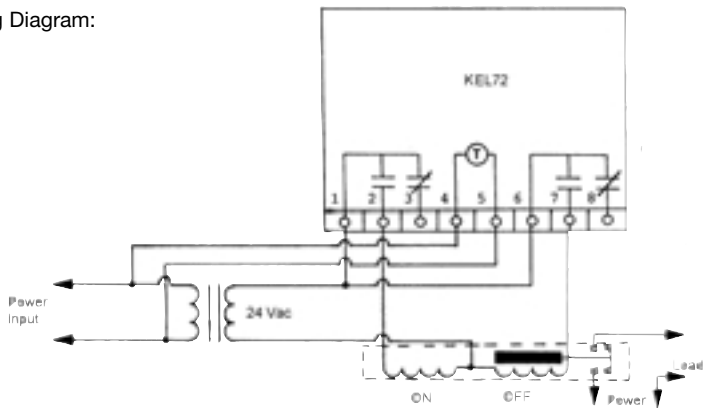
## RUN

The RUN mode is the normal operating mode. In the RUN mode, the current time and day are shown. If today is a holiday, the active holiday schedule is also shown. Channel status is shown on the bottom line. The channel no. is shown if that channel is on. If the channel no. is flashing, that channel is currently overridden. If it is flashing mostly on, the channel is overridden on. If it is flashing mostly off, the channel is overridden off.

## Application Example

Objective: To control lighting circuits using latching relays.

Wiring Diagram:



## Programming Worksheets

### Configuration

Relay Operation: maintained / momentary (EL7200 only)

Clock Format: 12 hr / 24 hr

Daylight Savings Time: yes / no

(if yes) Spring (start DST): \_\_\_\_ \_\_\_\_ in \_\_\_\_ (i.e. 1st SUN in APR)

Fall (end DST): \_\_\_\_ \_\_\_\_ in \_\_\_\_ (i.e. last SUN in OCT)







## Holidays (special)

Good Friday:                   HOL A   HOL B   HOL C   not used

Easter Sunday:               HOL A   HOL B   HOL C   not used

Easter Monday:              HOL A   HOL B   HOL C   not used

Thanksgiving Thu + Fri:     HOL A   HOL B   HOL C   not used

Boxing Day:                   HOL A   HOL B   HOL C   not used

Victoria Day:                 HOL A   HOL B   HOL C   not used

## Holidays (Date)

#	Month	Date	Holiday Schedule HOLIDAY A, B, C, or NONE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

## Holidays (Day of week)

#	Week 1, 2, 3, 4 or last	Day	Month	Holiday Schedule HOLIDAY A, B, C, or NONE
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

## Holidays (duration)

	Begin		End		Holiday Schedule
#	Month	Date	Month	Date	HOLIDAY A, B, C, or NONE
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

**Note:** This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

### **Commercial / Industrial Warranty**

The products manufactured by Maple Chase Company and used in commercial, industrial or institutional applications are warranted to be free from defects in workmanship or material under normal use and service, for a period of one (1) year from the date of purchase by the end user (whether separately or as a component of other products), or eighteen (18) months from the date of manufacture of the Maple Chase Company products, whichever is less.

Maple Chase Company's obligation under this warranty is limited to replacing or repairing, free of charge, any product returned to Maple Chase Company with transportation charges prepaid, providing that Maple Chase Company's examination discloses to its satisfaction that such product is defective.

This warranty does not apply to damage caused by misuse, neglect, accident or mishandling, or to products which have been subject to repair by anyone other than Maple Chase Company, opened or taken apart, or which have not been properly installed or have been used other than in accordance with Maple Chase Company's instructions.

**THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.**

**IN NO EVENT SHALL PARAGON BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY LOSS OF PROFITS OR OTHER INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES WHATSOEVER.**



**Maple Chase Company**  
2820 Thatcher Road  
Downers Grove, Illinois 60515  
Made in Mexico

Telephone + 1 800 732 8400  
ISO 9002 registered