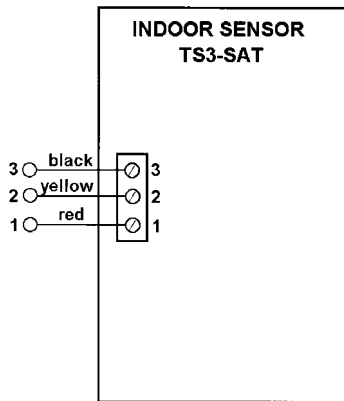


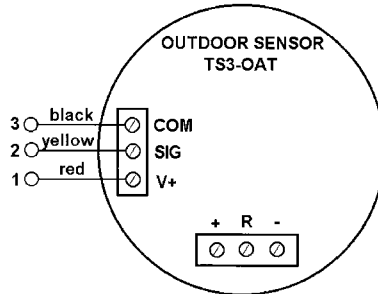
# EL74, EL78&EL712 SERIES

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

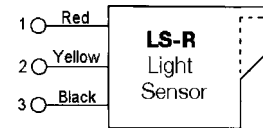
## TEMPERATURE AND LIGHT SENSOR DIAGRAMS



- 1. red (5V)
- 2. yellow (Signal)
- 3. black (GND)



- To the EL Series Time Control:
- V+ red (5V)
  - SIG yellow (Signal)
  - COM black (GND)



## TEMPERATURE SENSORS AND LIGHT SENSOR

Model No.	Description	Wiring Diagram	
TS3-SAT	Solid-state temperature sensor for indoor use designed to interface directly with the EL74. Operating temperature -40°F to 140°F (-40°C to 60°C), resolution 1.5F (1C). Dimensions: 4.5"H x 2.75"W x 1.25"D.	See Above	
TS3-OAT	Solid-state temperature sensor, sealed for outdoor use, designed to interface directly with the EL74. Operating temperature -40°F to 167°F (-40°C to 75°C) resolution 1.5F (1C). Dimensions: 6.25"H x 1.25"W x 4"D. This sensor comes complete with a 3.5"D x 1.75"H non-metallic electrical box.	See Above	
LS-R	Solid-state light sensor designed to interface directly with the EL74. It provides a relative light level to the control (0-88 L). The light sensor's range (0-300 foot candles) is adjustable to accommodate a wide variety of light sensing requirements. Dimensions: 2.5"L x 1.28"D. (Electrical box not included.)	See Above	

## QUAD CONTROLS

Paragon's EL74, EL78 and EL712 Series has it all. These controllers have 4, 8 and 12 relays, respectively, and have every feature an industrial, commercial or municipal application could possibly require engineered into it. This series can be used as 24-hour, 7-day, 365-day controls with daylight savings time, leap year adjustment and selectable SunTracker™ controls. Y2K compatible, they are easy to program with each control allowing up to 128 ON or OFF events, 34 holidays and 32 sensor events.

### FEATURES & BENEFITS

- ▶ 96-Hour Carryover, unique to Paragon, protects scheduled events from power interruptions via a capacitor-more reliable than batteries.
- ▶ Resolution enhancements allow four user-defined duty cycle patterns; four user-defined durations are available from 1 second to 23 hours, 59 minutes, 59 seconds.
- ▶ ON/OFF events can be defined by sensors-temperature, light or other user-defined sensors.
- ▶ Enabler switch allows an ON event to be selected without pre-programming the event.
- ▶ Remote programmability is enabled by the on-board RS-232 port and the Pecosoft.EL software (sold separately).
- ▶ User-friendly keypad and easy-to-read digital time display take the frustration out of programming.
- ▶ Remote toggle-type override allows immediate reaction to unexpected events without affecting pre-programming or visiting the clock site.
- ▶ UL and CSA listed means quality and durability are built into every time control.
- ▶ Title 24 certified.



### WHY ▶ Specify Paragon

Since 1903, Paragon has been the leader in time and process control technology. As inventor of the 24-hour time switch, Paragon's heritage of patents, unparalleled quality and solutions-driven innovations have made us one of the most recognized names in time control products.

## ENVIRONMENTAL

Operating Temperature Range: -20°F (-29°C) to 140°F (60°C)  
Operating Humidity: 10-90%RH non-condensing  
The EL74, EL78 and EL712 should be mounted indoors in an environment that is free of excessive contaminants such as oil, moisture and dirt.

## PHYSICAL

### EL74

In NEMA 1 enclosure of drawn steel with lockable hasp.  
Weight Approximately 7lbs. (3.2 kg)  
Dimensions Width 7.4" (18.8 cm)  
Height 10.9" (27.7 cm)  
Depth 3.5" (8.9 cm)  
Display Size 2-5/8" x 3/4" (6.7 cm x 1.9 cm)

### EL78, 712

In NEMA 1 enclosure of drawn steel with lockable hasp.  
Weight Approximately 17.7lbs. (8.0 kg)  
Dimensions Width 14.3" (36.4 cm)  
Height 15.1" (40.9 cm)  
Depth 6.1" (15.6 cm)  
Display Size 2-5/8" x 3/4" (6.7 cm x 1.9 cm)

## HOW TO SPECIFY

Installer shall furnish and install Paragon EL74, EL78 Eight Channel (or EL712 Twelve Channel) Electronic Time Control. The control shall have 24-hour, 7-day, 365-day or SunTracker™ capability with 128 events available. It shall also have 4 user-definable durations and duty cycle lengths plus automatic daylight saving time and leap year adjustments. Control shall have remote override capabilities (timed, toggle or enable type). Control shall have keyboard override until overridden again or until next event is reached. It shall be capable of switching loads based on user-definable temperature and light levels with 32 events available. Control shall have momentary (latching relay) capability and shall have Astro features plus 30 definable holidays and 6 pre-programmed holidays. Control shall provide 2 days of power outage carry-over without a battery. Control shall provide 10 years of power outage protection with a battery. The digital time display shall be 3/4" in height. Clock format shall be selectable, allowing a choice of 12 hour (AM/PM) or 24 hour format. Control shall be capable of interfacing (sending and receiving data) with a personal computer. Power input terminals shall have the capability to accommodate #12 to #18 AWG wire. Control shall be housed in a NEMA 1, lockable steel enclosure, to guard against vandalism or tampering.

## ELECTRICAL SPECIFICATIONS

### EL74

EL74 offers five power input voltages: 24, 120, 208, 240 and 277 Vac  
Frequency 50/60 Hz  
Power Consumption 4 VA Max.

### EL78 and EL712

EL78 and EL712 offer five power input voltages: 24, 120, 208, 240 and 277 Vac  
Frequency 50/60 Hz  
Power Consumption 25 VA Max.

### EL74, EL78 and EL712

#### Wiring Terminals

Relay contact terminals can accommodate #10-16 AWG  
Sensor/override input terminals can accommodate #18-22 AWG  
Power input terminals can accommodate #12-18 AWG  
UL Listed, CSA certified and complies with FCC, part 15 rules.

#### Output Switch Rating

Four, Eight or Twelve SPDT relays with contacts rated as follows:

#### Normally open contacts:

20 amp resistive or inductive at 24-277 Vac  
1 Hp at 120 Vac  
2 Hp at 208-277 Vac  
5 amp tungsten at 120-240 Vac  
20 amp ballast at 120 Vac  
10 amp ballast at 208-277 Vac  
470 VA at 120-240 Vac

#### Normally closed contacts:

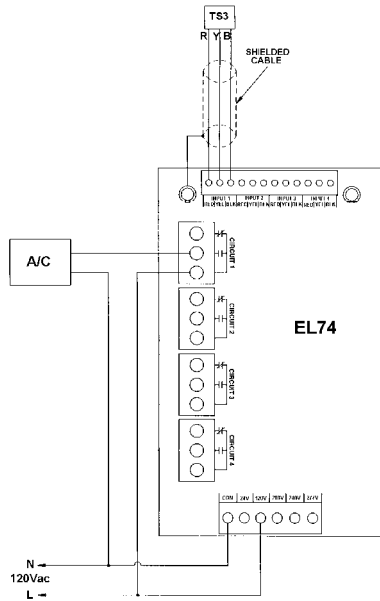
10 amp resistive or inductive at 24-277 Vac  
1/4 Hp at 120 Vac  
1/2 Hp at 208-277 Vac  
3 amp ballast at 120-277 Vac  
275 VA at 120-240 Vac

#### Power Outage Carry-Over

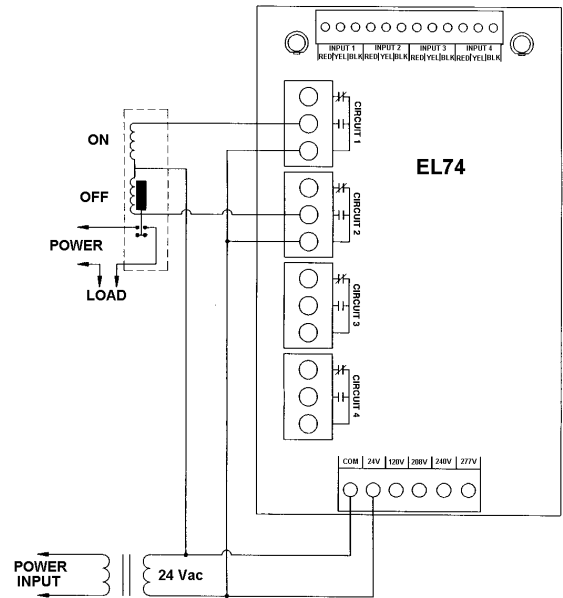
The program and time of day are maintained during a power outage for a minimum of 2 days by means of a capacitor. After two days, a lithium battery takes over and provides a minimum accumulated carryover of 1 year. The lithium battery should provide over 10 years of carryover protection.

# EL74, EL78&EL712 SERIES

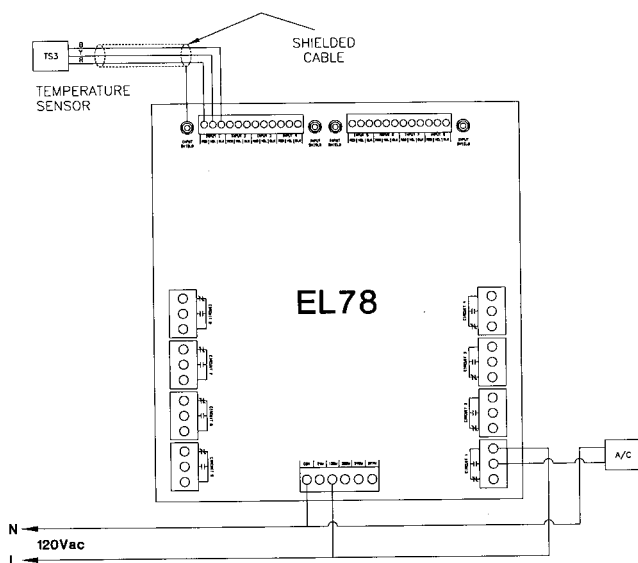
## EL74 TYPICAL WIRING DIAGRAMS FOR MAINTAINED CONTACTS



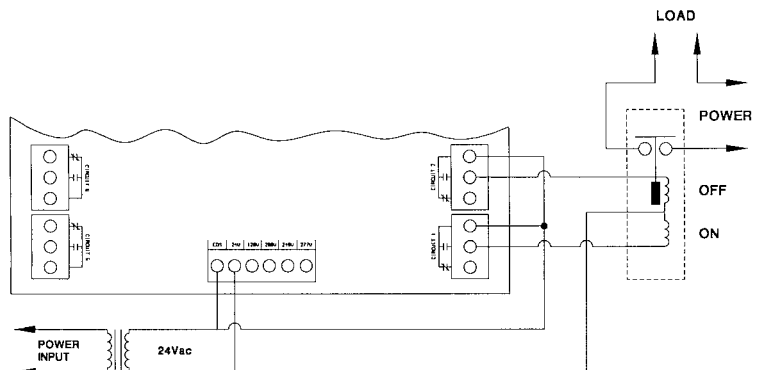
## FOR LATCHING RELAYS



## EL78, 712 TYPICAL WIRING DIAGRAMS FOR MAINTAINED CONTACTS



## FOR LATCHING RELAYS



Note: The wiring diagram for the EL712 is the same as the one for the EL78 shown above except the EL712 has 4 more channels.