EL712 - Twelve Channel Electronic Time Control

General Instructions

PARAGON
Electrical Products

CONTENTS

Introduction

The EL712 is a twelve-channel, electronic time control that provides simple, inexpensive control of lighting, HVAC, motors, pumps, bell-ringing 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 EL712 allows for the programming of 128 events. An event could be an ON, an OFF, one of four user-defined durations or one of four user-defined duty cycle patterns. In addition, up to 32 sensor events can be programmed to allow control based on temperature & light level. Other parameters can be used; contact the factory for information.

The EL712 is a member of the EL series of time controls, that also includes the EL71, EL72, EL74, and EL78 (1, 2, 4 and 8 channel, respectively). All 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, an OFF, one of four user-defined durations or one of four user-defined duty cycle patterns. Each event can be assigned to any channel. Each event can be assigned to any day or any combination of days, including the three holiday schedules.

- **4 Durations** - Each duration can be programmed from 1 second to 23 hours,59 minutes and 59 seconds.

- **4 Duty Cycle Patterns** - Each duty cycle pattern can be programmed with ON durations and OFF durations from 1 second to 23 hours, 59 minutes and 59 seconds.

- **8 User-Defined Inputs** - Each input can be independently defined as one of two override types, an enable input or as one of four sensor types.

- **ON With Off Delay Override Input** - Provides a retriggerable override input that is assignable to any combination of outputs. The affected output(s) will be overridden ON with the closing of the input and remain ON as long as the input is closed. When the input is opened, the output(s) will remain ON for the length of the off delay. The off delay is programmable from 0 seconds to 23 hours, 59 minutes and 59 seconds. Closing the input during the off delay will retrigger the override.

- **Toggle Type Override Input** - Provides a toggle type override input that is assignable to any combination of outputs. Closing the input causes the affected output(s) to be toggled to the opposite state and remain in that state until the occurrence of the next programmed event. An optional timed-on from 1 second to 23 hours, 59 minutes and 59 seconds can be programmed. Upon completion of this timed-on, the affected output(s) will return to the programmed state unless toggled off.

- **Enable Input** - The enable input is assignable to any combination of outputs. The enable input acts as a switch which opens and closes in series with the output(s). When open, the load(s) will remain off. When closed, the output(s) follow the scheduled events.

- **Sensor Input** - The inputs can be configured as one of four sensor types:
    F = degrees Fahrenheit (-40 to 215)
    C = degrees Celsius (-40 to 102)
    L = light level (0 to 100)
    U = undefined (0 to 255)

- **32 Sensor Events** - A sensor event will control a channel based on programmable on/off sensor levels. Each sensor event can be assigned to any day or 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**

- **10 Single Day Holidays** - (e.g. July 4th)

- **10 Day of Month Type Holidays** - (e.g. last Monday in May)

- **10 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 36 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 and sensor 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.

- **Astro** - Optional Astro feature assignable to any combination of channels. Astro will automatically keep track of the changing sunrise and sunset times throughout the year without the need of a photocell. The Astro feature will keep assigned output(s) off during daylight hours.

- **Selectable Clock Format** - 12 hour (am/pm) or 24 hour clock format.

- **Stagger Up** - Optional stagger up time between channels, after a power outage; selectable from 5 seconds, 15 seconds, 30 seconds, 1 minute, 5 minutes, 10 minutes, and 15 minutes.

- **Momentary** - The EL712 will normally be configured as maintained. The momentary option is intended for use with latching relays. An EL712 configured as momentary will only have 6 channels. Relays 1, 3, 5, 7, 9 and 11 will provide a one second ON pulse for channels 1, 2, 3, 4, 5 and 6, respectively. Relays 2, 4, 6, 8, 10 and 12 will provide a one second OFF pulse for channels 1, 2, 3, 4, 5 and 6, respectively. See example 2 on page 16 for more details.

- **Computer Interface** - The controls can be programmed and reviewed by a local personal computer using Pecosoft.EL software (sold separately).

Electrical:

1. Power Requirements -

Input Voltage 24, 120, 208, 240 or 277 Vac, 50/60 Hz

2. Outputs - Twelve SPDT relays with contacts rated as follows:
Normally Open Contacts: 20 amp resistive or inductive at 120-277 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 120-277 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

3. Wiring - Relay contact terminals can accommodate 10-16 AWG
    - Power input terminals can accomodate 12-18 AWG
    - Sensor/override input terminals can accommodate 18-22 AWG

4. Power Outage Carryover - 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.

Environmental:

1. Temperature - Operating: -20 F (-29 C) to 140 F (60 C)

2. Relative Humidity - 10 to 90% RH (non-condensing)

3. The EL712 should be mounted indoors in an environment that is free from excessive contaminants such as oil, moisture and dirt.
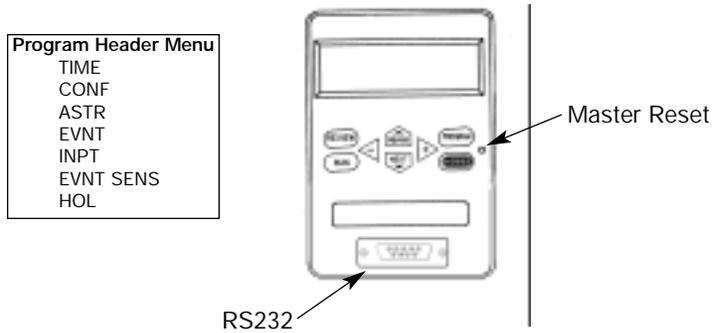
Physical: Enclosure Dimensions

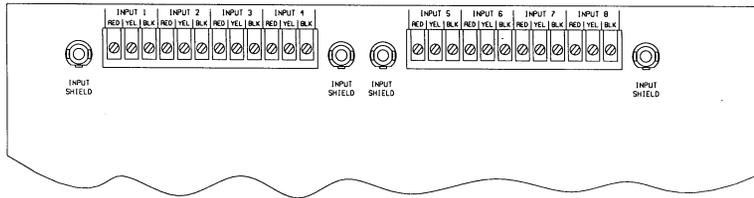Enclosure: NEMA 1 drawn steel with lockable hasp

W = 14.3" (36.4cm), H = 16.1" (40.9 cm), D = 6.1" (15.6 cm), Weight: Approx. 17.7 lbs. (8.0 kg)

FUNCTIONAL DESCRIPTION

Front Panel Layout

```
Program Header Menu
    TIME
    CONF
    ASTR
    EVNT
    INPT
    EVNT SENS
    HOL
```

Master Reset

RS232

Input Connections

INPUT 1	INPUT 2	INPUT 3	INPUT 4	INPUT 5	INPUT 6	INPUT 7	INPUT 8
RED YEL BLK	RED YEL BLK	RED YEL BLK	RED YEL BLK	RED YEL BLK	RED YEL BLK	RED YEL BLK	RED YEL BLK

INPUT SHIELD   INPUT SHIELD   INPUT SHIELD   INPUT SHIELD

Sensor Connection: 1. red
2. yellow
3. black

External Override: use RED + YEL (Use manual switch or isolated contacts.)

CAUTION: Do not apply voltage to sensor inputs. To do so will damage control.

NOTE: It is highly recommended that shielded cable be used for sensor and override input wiring. The shield should be tied to earth ground at the control using the "INPUT SHIELD" screw terminals. The shield should be left floating (unconnected) at the sensor end. It is also recommended that shielded cable not be placed in metal conduit.

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, etc).

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, inputs and holidays.

Hierarchy of Control

Priority Level 1 - Stagger Up

Priority Level 2 - Timed External Override

Priority Level 3 - Toggle Override (keyboard and external)

Priority Level 4 - External Enable

Priority Level 5 - Astro

Priority Level 6 - Programmed events (on, off, duration, duty cycle, sensor control)

NOTES: 1. A keyboard override cannot be performed during stagger up.

2. An external override can be done during stagger up, but the stagger up sequence is still observed.

3. Status update will cancel a keyboard override or an external toggle override, but will not cancel an external timed override.

4. All programmed events have the same priority. The most recent event is the one that is active.

As an example of hierarchy, consider a simple lighting control application. It is desired to turn parking lot lights on at sunset and off at 11:00pm. Programming an ON event at 1:00pm, an OFF event at 11:00pm and using the astro feature will provide the desired control. The ON and OFF events (at priority level 6) would energize the lights from 1:00pm to 11:00pm. However, because the astro function has higher priority, the lights will be held off during daylight hours - thus achieving the desired control.

Programming

Programming Overview:

After pressing the PROGRAM key, the EL712 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
CONF - 12/24, stagger up, durations 1-4, duty cycles 1-4
ASTR - sunrise, sunset, latitude, hemisphere
EVNT - on, off, durations 1-4, duty cycles 1-4
INPT - configure inputs
EVNT SENS - sensor events
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
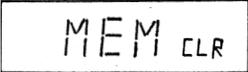
MEM CLR

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.
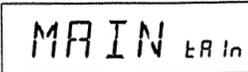
MAIN tAIn

Toggle between MAINtAin (maintained) or MOMNtARY (momentary) operation using the +/- key. When configured for momentary, relays 1, 3, 5, 7, 9 & 11 will provide the ON pulses, and relays 2, 4, 6, 8, 10 & 12 will provide the OFF pulses. An EL712 configured for momentary operation will become a six channel control. Use the NEXT key to continue programming.

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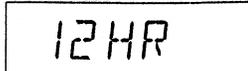
Toggle between 12 hour (AM/PM) or 24 hour (00:00-23:59) clock format using the +/- key.

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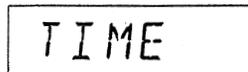
Set Time

TIME

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

12:00   30
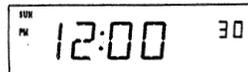
Program hours, minutes, seconds and day of week using the +/- key. A PM indicator is used in the 12 hour format. AM begins with midnight and PM begins with noon. NOTE: Only the PM indicator will appear in the 12 hr format.

JAN 1996 01

Program month, date and year.

DST yes

APR #1 SPR (sun)

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.

OCT #L FALL (sun)

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.

Configuration

CONF

Configuration header. This mode is used for changing the clock format, selecting stagger up, setting the lengths of the 4 durations and for programming the on/off times of the 4 duty cycle patterns. Use the NEXT key to begin programming.

12HR

Select 12 hour or 24 hour clock format using the +/- key.

STAG UP NO

Select the stagger up time between channels. This stagger up occurs after a power outage and after a status update. The following stagger up selections are available:

NO = not used	01.00 = 1 minute
00.05 = 5 seconds	05.00 = 5 minutes
00.15 = 15 seconds	10.00 = 10 minutes
00.30 = 30 seconds	15.00 = 15 minutes

01:30 .30 dUR1

Programs the duration length for dUR1-dUR4, which are event types (see Events). These durations are programmable from 1 second to 23 hours, 59 minutes and 59 seconds. The control will not allow a duration of 0:00.00.

01:30 .30 dCF2

Programs the duty cycle off time for CYC1-CYC4, which are event types (see Events). The off cycle is programmable from 1 second to 23 hours, 59 minutes and 59 seconds. The control will not allow an off cycle of 0:00.00. A duty cycle event will always start with the off cycle.

01:30 .30 dCN2

Programs the duty cycle on time for CYC1-CYC4. The on cycle is programmable from 1 second to 23 hours, 59 minutes and 59 seconds. The control will not allow an on cycle of 0:00.00.

Astro

ASTR

Astro header. The Astro function provides a means for controlling lights based on the changing sunrise and sunset times throughout the year without use of a photocontrol. The Astro feature does not turn loads on or off. Between sunrise and sunset the load(s) are not allowed to be on. An event must be programmed to allow the load(s) assigned to Astro to turn on. Use the NEXT key to begin programming.

6:00 R ISE

Program today's sunrise time using the +/- key. The control will automatically update the sunrise time each day. Offset Feature - program today's sunrise time with the desired offset figured in. The control will automatically update the desired offset time each day.

6:00 SEt (PM)

Program today's sunset time. The control will automatically update the sunset time each day. Offset Feature - program today's sunset time with the desired offset figured in. The control will automatically update the desired offset time each day.

LATT N- 10

Program the latitude. The allowable ranges are 10 - 70 North and 10 - 70 South. Use the following maps or consult an atlas to obtain your latitude to the nearest degree.

CHAN NO

To assign the Astro function to a channel, select YES.

U.S. LATITUDE CHART

World Latitude Chart

Events

`EVNT`

Events header. Up to 128 events can be programmed. Events can be an ON, an OFF, dUR1(duration), dUR2, dUR3, dUR4, CYC1 (duty cycle), CYC2, CYC3 or CYC4. An event can be assigned to any 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.

`12:00 #01 NONE`

The +/- keys will quickly step through 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.

`SUN 2:00 # 01 NO`

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

Input Configuration

`INPT`

Input header. Each input can be individually configured as a retriggerable override, a toggle override, an enabler or as one of four sensor types. Use the NEXT key to begin programming.

`INPT #1 NONE`

Choose the desired input type.
  NONE: not used
  On\d: On with off delay override
  OVr: Toggle override
  ENb: Enabler input
  F: Fahrenheit temperature sensor
  C: Celsius temperature sensor
  L: Light level sensor
  U: User-defined sensor

`15:30 oFFd 45`

This screen is used for setting the off delay time when the input is configured as an On\d override type. The off delay is programmable from 0 seconds to 23 hours, 59 minutes and 59 seconds.

`5:30 oNE 15`

This screen is used for setting the on time when the input is configured as an OVr (toggle) override type. The on time is programmable from 0 seconds to 23 hours, 59 minutes and 59 seconds. When this on time is set to 0:00.00, the override functions as a toggle on/toggle off override. When a non-zero value is programmed, the override functions as a timed on/toggle off override.

`INPT #2 NO`

This screen is used for assigning channels to the inputs. This applies only to the On\d, OVr and ENb input types.

`CAL #2 -02 C`

This screen is used for calibrating the sensors.The following calibration options are provided:
F: -12,-11,-9,-8,-6,-5,-3,-2,0,2,3,5,6,8,9,11
C: -8,-7,-6,-5,-4,-3,-2,-1,0,1,2,3,4,5,6,7
L: -4,-3,-2,-1,0,1,2,3
U: -8,-7,-6,-5,-4,-3,-2,-1,0,1,2,3,4,5,6,7

Sensor Events

`EVNT SENS`

Sensor Events header. Up to 32 sensor events can be programmed. A sensor event can be assigned to any channel. Each sensor 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.

`12:00 #01 2-L`

The +/- keys will quickly step through the sensor events when the event # is flashing. Select the sensor number, select the channel and program the hours and minutes while each of these parameters are flashing. When a sensor no. is shown, its sensor type (F,C,L or U) is also shown. If the input is not configured as a sensor a question mark (?) is shown.

`SUN 12:00 # 01 NO`

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

`MON TUE THU SAT HOLIDAY B C ON #01 20L`

Program the turn on setpoint.

`MON TUE THU SAT HOLIDAY B C OFF #01 100L`

Program the turn off setpoint.

Holiday

`HOL`

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).
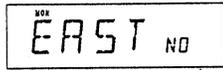 Use the NEXT key to begin programming

`SPEC HOLIDAY`

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).
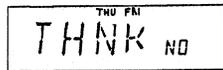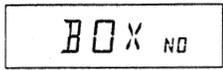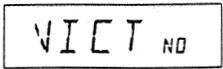
`GOOD FRI NO`

Good Friday

`EAST SUN NO`

Easter Sunday

Display	Description
`EAST NO` (MON)	Easter Monday
`THNK NO` (THU FRI)	Thanksgiving Break (Thursday and Friday)
`BOX NO`	Boxing Day
`VICT NO`	Victoria Day
`DATE` (HOLIDAY)	Holiday Date type. Up to 10 date type holidays can be programmed. Press the NEXT key to program the date type holidays or press the +/- keys to move to a different holiday type (e.g. day of week).
`NONE # 1`	NONE indicates that this holiday (date) number (1-10) 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).
`JAN 01 #2` (HOLIDAY A)	Program the month, date and holiday schedule while each of these parameters are flashing.
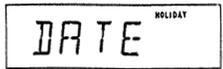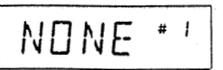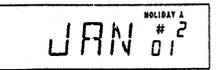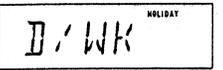
`D/WK` (HOLIDAY)	Day of Week Holiday type. Up to 10 days of week type holidays can be programmed. Examples of day of week type holidays are:
	  1st Monday in September
	  Last Monday in May
	
	Press the NEXT key to program the day of week type holidays or press the +/- keys to move to a different holiday type (e.g. SPAN).
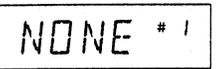
`NONE # 1`	NONE indicates that this holiday (day of week) number (1-10) is not used (no holiday schedule has been selected). Press the NEXT key to program this holiday (day of week) or press the +/- keys to move to other holiday (day of week) numbers.
`JAN 1 St #2` (SUN, HOLIDAY A)	This screen shows 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.
`SPAN` (HOLIDAY)	Holiday Span type. Up to 10 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. Press the NEXT key to program the span type holidays or press the +/- keys to move to a different holiday type (e.g. SPEC).
`NONE # 1`	NONE indicates that this holiday (span) number (1-10) 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.
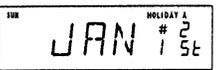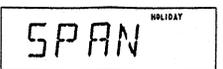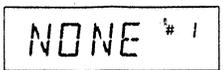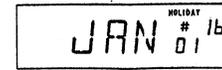
Display	Description
`JAN 01 #1b` (HOLIDAY)	Program the beginning month and date for holiday duration #1.
`JAN 16 #1E` (HOLIDAY A)	Program the ending month and date for holiday duration #1, then select a holiday schedule A, B or C. To remove a holiday duration, select none of the schedules.

Override
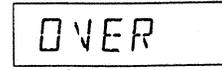
Display	Description
`OVER`	Keyboard Override header. This mode is reached by pressing the OVERRIDE key from the RUN mode. Press the NEXT key to continue in this mode or press the RUN key to exit this mode without affecting a change to the load status.
`CHAN #1 dUR3`	This screen shows the status of all channels 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 in the upper right hand corner of the display. The current event for this channel is shown below the channel # (e.g. ON, OFF, dUR2, CYC4, SC03, NONE). Press the OVERRIDE key to toggle the channel status until the next event. Press the RUN key to cancel an override (will not work for timed external overrides). Press the +/- keys to select the next/previous 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.
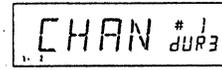
RUN
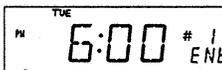
Display	Description
`6:00 #1 ENb` (PM, TUE, 2)	The RUN mode is the normal operating mode. In the RUN mode the current time and day are shown. If today is a holiday, the active holiday schedule is also shown. Channel status is shown on the bottom line. The channel no. is shown if that channel is on. If 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. The input # is also shown along with the status of that input. The following is a list of the possible input status messages:

Message	Input Config.	Status
NONE	not config	--
On\d	On\d	input closed
OFFd	On\d	input open, in delay
-N-	On\d	not active
OVd	OVR	overridden on w/delay
?-V-	OVR	not active or overridden on or off without delay
ENb	ENb	input closed (enabled)
dISb	ENb	input open (disabled)
072F	sensor,F	sensor value
LO F	sensor,F	sensor value below range
025C	sensor,C	sensor value
HI C	sensor,C	sensor value above range
055L	sensor,L	sensor value
175U	sensor,U	sensor value

The display will show the status of all inputs, one at a time, by automatically looping to the next input every 5 seconds. To lock on one input, press the NEXT key. To return to the automatic sequencing of inputs, press the NEXT key again.

Accessories (each sold separately)

Temperature Sensor

Model TS3/OAT is a sealed, outdoor solid-state temperature sensor designed to interface directly with the EL712.

Specifications: Operating temperature: -40 F to 167 F (-40 C to 75 C), Resolution: 1.5F (1C)

Model TS3/SAT is an unsealed, indoor solid-state temperature sensor designed to interface directly with the EL712.

Specifications: Operating temperature: -40 F to 140 F (-40 C to 60 C), Resolution: 1.5F (1C)

Light Sensor

Model LS-R is a solid-state light sensor designed to interface directly with the EL712. It provides a relative light level to the control (0-100 L).

Computer Software

The Pecosoft.EL software program provides a quick and easy method of programming and reviewing the EL712 from a personal computer. Programs can be written and stored on the PC and then loaded into the time control. Programs can also be copied from the time control into the PC to allow easy review and verification.

Contact Maple Chase Company for further information.

Application Examples

Example No. 1:

Objective: To control an air conditioner to operate at 73 F from 8:00 AM to 12:00 PM and to operate at 77 F from 12:00 PM to 5:00 PM on Monday through Friday. On nights and weekends the air conditioner will be off. The air conditioner will also be off from October 1st to April 30th. Temperature setpoints are to have a +/- 1 F deadband.

Wiring Diagram:

Programming:

STEP	KEY	DESCRIPTION
1.	RESET	Clears control's memory. Control is finished initializing when # stops flashing (about 6 seconds).
2.	NEXT	Display shows MAINtAin (maintained relay operation).
3.	PROGRAM	Display shows TIME header.
4.	NEXT,+,-	Use these keys to set time, date and daylight savings time information.
5.	PROGRAM	Press PROGRAM key to step through headers until EVNT (event header) is reached.
6.	NEXT	First event is shown with event # flashing.
7.	NEXT	Event type is flashing.
8.	+	Select OFF event type.
9.	NEXT	Channel no.1 is flashing. This is the desired channel.
10.	NEXT	Hours are flashing.
11.	-	Roll backward to select 5 PM.
12.	NEXT	Minutes are flashing. 00 is desired value.
13.	NEXT	SUN is flashing. NO is displayed.
14.	NEXT	MON is flashing. NO is displayed.
15.	+	Change NO to YES. Step through remaining days and select YES for TUE, WED, THU, FRI and HOLIDAY A.
16.	PROGRAM	Advance to INPT (configure inputs) header.
17.	NEXT	1st input is shown with input # flashing.
18.	NEXT	Input type is flashing.
19.	+/-	Select F (Fahrenheit).
20.	NEXT	CAL (calibration) offset is shown.
21.	+/-	Calibrate sensor if necessary.
22.	PROGRAM	Advance to EVNT SENS (sensor event) header.
23.	NEXT	First sensor event is shown with event # flashing.
24.	NEXT	Sensor no. is flashing. NONE indicates that a sensor has not yet been selected.
25.	+	Select sensor 1. 1- F is displayed.
26.	NEXT	Channel no. 1 is flashing. This is the desired channel.
27.	NEXT	Hours are flashing.
28.	+	Roll hours to 8 AM (PM indicator is not displayed).
29.	NEXT	Minutes are flashing. 00 is desired value.
30.	NEXT	SUN is flashing, NO is displayed. Step through the days to select YES for MON, TUE, WED, THU and FRI.
31.	NEXT	ON is displayed with the on setpoint flashing.
32.	+	Roll to 074F.
33.	NEXT	OFF is displayed with off setpoint flashing. Default value of 072F is what we want. If another value is desired, use the +/- keys to roll to that value. NOTE: Because the resolution is 1.5 F, not all values of F will be possible.
34.	NEXT	Sensor event # 02 is shown. Repeat the above steps to select Sensor 1, Channel 1, 12:00 PM, MON thru FRI, an ON setpoint of 077F and an OFF setpoint of 075F.
35.	PROGRAM	Advance to HOL (holiday) header.
36.	NEXT	Displays SPEC (special holiday) header.
37.	-	Select SPAN (holiday duration) header.
38.	NEXT	First holiday duration is shown with holiday # flashing.

39.	NEXT	Holiday start is shown with month flashing.
40.	-	Roll to OCT (October).
41.	NEXT	Holiday start date is flashing. 01 is the desired date.
42.	NEXT	Holiday end month is flashing.
43.	+	Roll to APR (April).
44.	NEXT	Holiday end date is flashing.
45.	-	Roll to 30.
46.	NEXT	HOLIDAY (holiday schedule) is flashing. No schedule is currently selected (not used).
47.	+	Select A (holiday schedule A).
48.	RUN	Programming is complete. The control will do a status update and then go to the RUN mode.

Example No. 2

Objective: To control lighting circuits using latching relays. The lights are to turn on at sunset and turn off at 11:00 PM. The lights are also to turn on at 4:00 AM and turn off at sunrise. This is to occur seven days a week. This example will use Channel 1 (relays 1 & 2).

Wiring Diagram:

Programming:

STEP	KEY	DESCRIPTION
1.	RESET	Clears control's memory. Control is finished initializing when # stops flashing (about 6 seconds).
2.	NEXT	Display shows MAINtAin (maintained relay operation).
3.	+	Toggle to MOMNtARY (momentary relay operation).
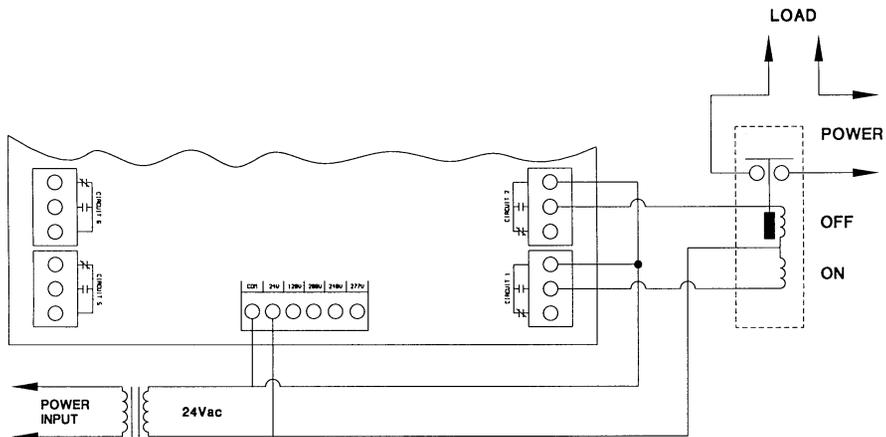
4.	PROGRAM	Display shows TIME header.
5.	NEXT,+,-	Use these keys to set time, date and daylight savings time information.
6.	PROGRAM	Press PROGRAM key to step through headers until ASTR (astro header) is reached.
7.	NEXT	Sunrise time is displayed with hours flashing.
8.	+/-	Set to today's sunrise hour.
9.	NEXT	Sunrise minutes are flashing.

10.	+/-	Set to today's sunrise minutes.
11.	NEXT	Sunset time is displayed with hours flashing.
12.	+/-	Set to today's sunset hour.
13.	NEXT	Sunset minutes are flashing.
14.	+/-	Set to today's sunset minutes.
15.	NEXT	LATT N-10º is displayed (latitude 10o north).
16.	+/-	Roll to the desired latitude.
17.	NEXT	Displays CHAN 1 NO.
18.	+	Change NO to YES to assign astro to Channel 1.
19.	PROGRAM	Press PROGRAM key to step through headers until EVNT (event header) is reached.
20.	NEXT	First event is shown with event # flashing.
21.	NEXT	Event type is flashing.
22.	+	Select ON event type.
23.	NEXT	Hours are flashing.
24.	+	Roll hours to 4 AM.
25.	NEXT	Minutes are flashing. 00 is desired value.
26.	NEXT	SUN is flashing. NO is displayed.
27.	+	Change NO to YES to assign this ON event to Sunday.
28.	NEXT,+	Assign this ON event to MON - SAT.
29.	NEXT,+,-	Second event is shown with event # flashing. Program this second event as an OFF at 11:00 PM for SUN - SAT.
30.	RUN	Programming is complete. The control will perform a status update before going into the RUN mode.

Example No. 3   Operation of Enabler Input
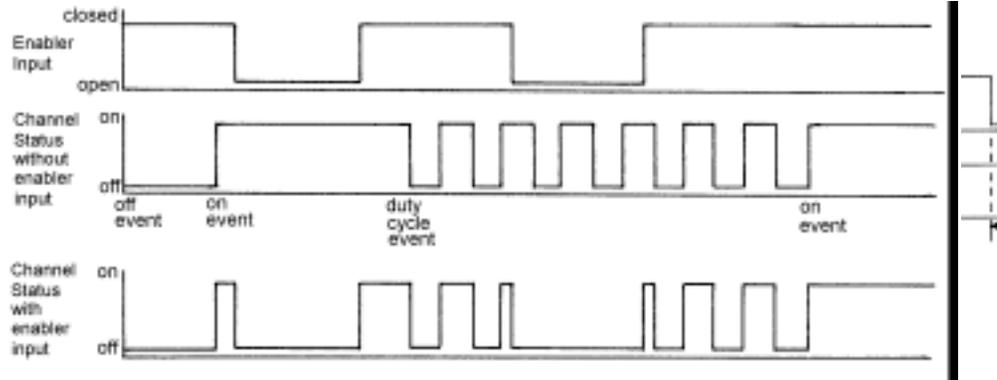
Example No. 4   Operation of On\d (On with off delay) override input

Assume that off delay time is programmed for 1 hour. Also assume that the channel's programmed state is off.
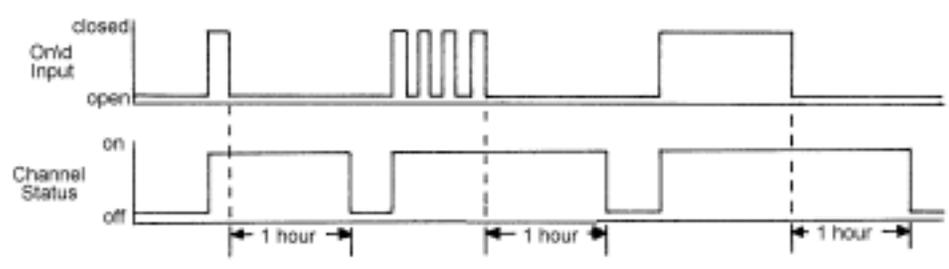
Example No. 5   Operation of OVr (toggle) override input

Assume that the channel is currently under control of a duty cycle event.

Case 1: No programmed ON time (ONt = 0:00.00)

NOTES: 1. OVr can be canceled from the keyboard override mode.

2. Toggle override will end when the next programmed event is reached.

3. OVr input is active with the closing of the input. Opening the input has no effect.

Case 2: Programmed ON time = 1 hour
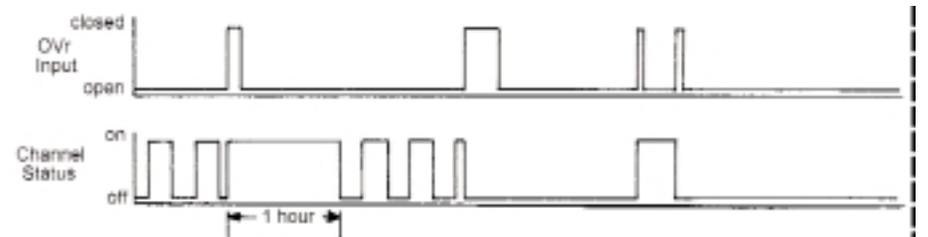
NOTES: 1. OVr ON cancels after 1 hour, unless OVr input is closed again, which will force an override OFF.

2. OVr OFF can be canceled from the keyboard override mode.

3. OVr input is active with the closing of the input. Opening the input has no effect.

Programming Worksheets

Configuration

    Relay Operation: maintained / momentary

    Clock Format: 12 hr / 24 hr

    Stagger up: No/5 second/15 second/30 second/1 minute/5minute/10 minute/15 minute.

Duration 1: ___:___.___ (hours:minutes.seconds)
Duration 2: ___:___.___ (hours:minutes.seconds)
Duration 3: ___:___.___ (hours:minutes.seconds)
Duration 4: ___:___.___ (hours:minutes.seconds)

Duty Cycle OFF 1: ___:___.___ (hours:minutes.seconds)
Duty Cycle ON 1: ___:___.___ (hours:minutes.seconds)
Duty Cycle OFF 2: ___:___.___ (hours:minutes.seconds)
Duty Cycle ON 2: ___:___.___ (hours:minutes.seconds)
Duty Cycle OFF 3: ___:___.___ (hours:minutes.seconds)
Duty Cycle ON 3: ___:___.___ (hours:minutes.seconds)
Duty Cycle OFF 4: ___:___.___ (hours:minutes.seconds)
Duty Cycle ON 4: ___:___.___ (hours:minutes.seconds)

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)

Astro

    Latitude: ___ north / south
    Channel 1 Assignment: yes / no
    Channel 2 Assignment: yes / no
    Channel 3 Assignment: yes / no
    Channel 4 Assignment: yes / no
    Channel 5 Assignment: yes / no
    Channel 6 Assignment: yes / no
    Channel 7 Assignment: yes / no
    Channel 8 Assignment: yes / no
    Channel 9 Assignment: yes / no
    Channel 10 Assignment: yes / no
    Channel 11 Assignment: yes / no
    Channel 12 Assignment: yes / no

Events

#	Event Type	Channels 1-12	Time	Day(s)
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC
			___:___ am/pm	SU MO TU WE TH FR SA HA HB HC

Input Configuration

Input # 1 (choose one of the following):

NONE

On\d	OFFd =	__:__.__ (hr:min.sec)	chan 1 = yes/no	chan 2 = yes/no
			chan 3 = yes/no	chan 4 = yes/no
			chan 5 = yes/no	chan 6 = yes/no
			chan 7 = yes/no	chan 8 = yes/no
			chan 9 = yes/no	chan 10 = yes/no
			chan11 = yes/no	chan 12 = yes/no

OVr	ONt =	__:__.__ (hr:min.sec)	chan 1 = yes/no	chan 2 = yes/no
			chan 3 = yes/no	chan 4 = yes/no
			chan 5 = yes/no	chan 6 = yes/no
			chan 7 = yes/no	chan 8 = yes/no
			chan 9 = yes/no	chan 10 = yes/no
			chan 11 = yes/no	chan 12 = yes/no

ENb   chan 1 = yes/no chan 2 = yes/no   chan 3 = yes/no   chan 4 = yes/no
      chan 5 = yes/no chan 6 = yes/no   chan 7 = yes/no   chan 8 = yes/no
      chan 9 = yes/no chan 10 = yes/no chan 11 = yes/no chan 12 = yes/no

F   calibration = ___

C   calibration = ___

L   calibration = ___

U   calibration = ___

Input # 2 (choose one of the following):

NONE

On\d	OFFd =	__:__.__ (hr:min.sec)	chan 1 = yes/no	chan 2 = yes/no
			chan 3 = yes/no	chan 4 = yes/no
			chan 5 = yes/no	chan 6 = yes/no
			chan 7 = yes/no	chan 8 = yes/no
			chan 9 = yes/no	chan 10 = yes/no
			chan11 = yes/no	chan 12 = yes/no

OVr	ONt =	__:__.__ (hr:min.sec)	chan 1 = yes/no	chan 2 = yes/no
			chan 3 = yes/no	chan 4 = yes/no
			chan 5 = yes/no	chan 6 = yes/no
			chan 7 = yes/no	chan 8 = yes/no
			chan 9 = yes/no	chan 10 = yes/no
			chan 11 = yes/no	chan 12 = yes/no

ENb   chan 1 = yes/no chan 2 = yes/no   chan 3 = yes/no   chan 4 = yes/no
      chan 5 = yes/no chan 6 = yes/no   chan 7 = yes/no   chan 8 = yes/no
      chan 9 = yes/no chan 10 = yes/no chan 11 = yes/no chan 12 = yes/no

F   calibration = ___

C   calibration = ___

L   calibration = ___

U   calibration = ___

Input Configuration

Input # 3 (choose one of the following):

NONE

On\d	OFFd =	__:__.__ (hr:min.sec)	chan 1 = yes/no	chan 2 = yes/no
			chan 3 = yes/no	chan 4 = yes/no
			chan 5 = yes/no	chan 6 = yes/no
			chan 7 = yes/no	chan 8 = yes/no
			chan 9 = yes/no	chan 10 = yes/no
			chan11 = yes/no	chan 12 = yes/no

OVr	ONt =	__:__.__ (hr:min.sec)	chan 1 = yes/no	chan 2 = yes/no
			chan 3 = yes/no	chan 4 = yes/no
			chan 5 = yes/no	chan 6 = yes/no
			chan 7 = yes/no	chan 8 = yes/no
			chan 9 = yes/no	chan 10 = yes/no
			chan 11 = yes/no	chan 12 = yes/no

ENb   chan 1 = yes/no chan 2 = yes/no   chan 3 = yes/no   chan 4 = yes/no
      chan 5 = yes/no chan 6 = yes/no   chan 7 = yes/no   chan 8 = yes/no
      chan 9 = yes/no chan 10 = yes/no chan 11 = yes/no chan 12 = yes/no

F   calibration = ___

C   calibration = ___

L   calibration = ___

U   calibration = ___

Input # 4 (choose one of the following):

NONE

On\d	OFFd =	__:__.__ (hr:min.sec)	chan 1 = yes/no	chan 2 = yes/no
			chan 3 = yes/no	chan 4 = yes/no
			chan 5 = yes/no	chan 6 = yes/no
			chan 7 = yes/no	chan 8 = yes/no
			chan 9 = yes/no	chan 10 = yes/no
			chan11 = yes/no	chan 12 = yes/no

OVr	ONt =	__:__.__ (hr:min.sec)	chan 1 = yes/no	chan 2 = yes/no
			chan 3 = yes/no	chan 4 = yes/no
			chan 5 = yes/no	chan 6 = yes/no
			chan 7 = yes/no	chan 8 = yes/no
			chan 9 = yes/no	chan 10 = yes/no
			chan 11 = yes/no	chan 12 = yes/no

ENb   chan 1 = yes/no chan 2 = yes/no   chan 3 = yes/no   chan 4 = yes/no
      chan 5 = yes/no chan 6 = yes/no   chan 7 = yes/no   chan 8 = yes/no
      chan 9 = yes/no chan 10 = yes/no chan 11 = yes/no chan 12 = yes/no

F   calibration = ___

C   calibration = ___

L   calibration = ___

U   calibration = ___

Input Configuration

Input # 5 (choose one of the following):

NONE

On\d   OFFd = __:__.__ (hr:min.sec) chan 1 = yes/no   chan 2 = yes/no
    chan 3 = yes/no   chan 4 = yes/no
    chan 5 = yes/no   chan 6 = yes/no
    chan 7 = yes/no   chan 8 = yes/no
    chan 9 = yes/no   chan 10 = yes/no
    chan11 = yes/no   chan 12 = yes/no

OVr   ONt = __:__.__ (hr:min.sec) chan 1 = yes/no   chan 2 = yes/no
    chan 3 = yes/no   chan 4 = yes/no
    chan 5 = yes/no   chan 6 = yes/no
    chan 7 = yes/no   chan 8 = yes/no
    chan 9 = yes/no   chan 10 = yes/no
    chan 11 = yes/no   chan 12 = yes/no

ENb   chan 1 = yes/no   chan 2 = yes/no   chan 3 = yes/no   chan 4 = yes/no
    chan 5 = yes/no   chan 6 = yes/no   chan 7 = yes/no   chan 8 = yes/no
    chan 9 = yes/no   chan 10 = yes/no   chan 11 = yes/no   chan 12 = yes/no

F   calibration = ___

C   calibration = ___

L   calibration = ___

U   calibration = ___

Input # 6 (choose one of the following):

NONE

On\d   OFFd = __:__.__ (hr:min.sec) chan 1 = yes/no   chan 2 = yes/no
    chan 3 = yes/no   chan 4 = yes/no
    chan 5 = yes/no   chan 6 = yes/no
    chan 7 = yes/no   chan 8 = yes/no
    chan 9 = yes/no   chan 10 = yes/no
    chan11 = yes/no   chan 12 = yes/no

OVr   ONt = __:__.__ (hr:min.sec) chan 1 = yes/no   chan 2 = yes/no
    chan 3 = yes/no   chan 4 = yes/no
    chan 5 = yes/no   chan 6 = yes/no
    chan 7 = yes/no   chan 8 = yes/no
    chan 9 = yes/no   chan 10 = yes/no
    chan 11 = yes/no   chan 12 = yes/no

ENb   chan 1 = yes/no   chan 2 = yes/no   chan 3 = yes/no   chan 4 = yes/no
    chan 5 = yes/no   chan 6 = yes/no   chan 7 = yes/no   chan 8 = yes/no
    chan 9 = yes/no   chan 10 = yes/no   chan 11 = yes/no   chan 12 = yes/no

F   calibration = ___

C   calibration = ___

L   calibration = ___

U   calibration = ___

Input Configuration

Input # 7 (choose one of the following):

NONE

On\d   OFFd = __:__.__ (hr:min.sec) chan 1 = yes/no   chan 2 = yes/no
    chan 3 = yes/no   chan 4 = yes/no
    chan 5 = yes/no   chan 6 = yes/no
    chan 7 = yes/no   chan 8 = yes/no
    chan 9 = yes/no   chan 10 = yes/no
    chan11 = yes/no   chan 12 = yes/no

OVr   ONt = __:__.__ (hr:min.sec) chan 1 = yes/no   chan 2 = yes/no
    chan 3 = yes/no   chan 4 = yes/no
    chan 5 = yes/no   chan 6 = yes/no
    chan 7 = yes/no   chan 8 = yes/no
    chan 9 = yes/no   chan 10 = yes/no
    chan 11 = yes/no   chan 12 = yes/no

ENb   chan 1 = yes/no   chan 2 = yes/no   chan 3 = yes/no   chan 4 = yes/no
    chan 5 = yes/no   chan 6 = yes/no   chan 7 = yes/no   chan 8 = yes/no
    chan 9 = yes/no   chan 10 = yes/no   chan 11 = yes/no   chan 12 = yes/no

F   calibration = ___

C   calibration = ___

L   calibration = ___

U   calibration = ___

Input # 8 (choose one of the following):

NONE

On\d   OFFd = __:__.__ (hr:min.sec) chan 1 = yes/no   chan 2 = yes/no
    chan 3 = yes/no   chan 4 = yes/no
    chan 5 = yes/no   chan 6 = yes/no
    chan 7 = yes/no   chan 8 = yes/no
    chan 9 = yes/no   chan 10 = yes/no
    chan11 = yes/no   chan 12 = yes/no

OVr   ONt = __:__.__ (hr:min.sec) chan 1 = yes/no   chan 2 = yes/no
    chan 3 = yes/no   chan 4 = yes/no
    chan 5 = yes/no   chan 6 = yes/no
    chan 7 = yes/no   chan 8 = yes/no
    chan 9 = yes/no   chan 10 = yes/no
    chan 11 = yes/no   chan 12 = yes/no

ENb   chan 1 = yes/no   chan 2 = yes/no   chan 3 = yes/no   chan 4 = yes/no
    chan 5 = yes/no   chan 6 = yes/no   chan 7 = yes/no   chan 8 = yes/no
    chan 9 = yes/no   chan 10 = yes/no   chan 11 = yes/no   chan 12 = yes/no

F   calibration = ___

C   calibration = ___

L   calibration = ___

U   calibration = ___

Sensor Events

#	Sens. #	Channels 1-12	Time	Day(s)	Setpoints ON	Setpoints OFF
1			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
2			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
3			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
4			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
5			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
6			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
7			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
8			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
9			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
10			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
11			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
12			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
13			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
14			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
15			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
16			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
17			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
18			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
19			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
20			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
21			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
22			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
23			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
24			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
25			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
26			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
27			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
28			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
29			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
30			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
31			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		
32			__:__ am/pm	SU MO TU WE TH FR SA HA HB HC		

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			

Holidays (Day of week)

#	Week 1st, 2nd, 3rd, 4th or last	Date	Month	Holiday Schedule HOLIDAY A, B, C, or NONE
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Holidays (duration)

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

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 appareill 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 MAPLE CHASE COMPANY BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY LOSS OF PROFITS OR OTHER INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES WHATSOEVER.

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Electrical Products

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ISO 9002 registered

110-710