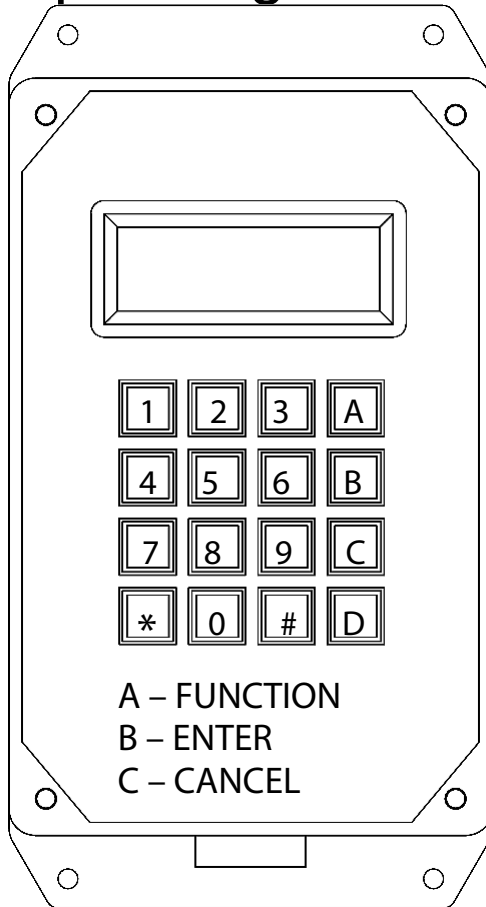


Model LC112-D12R Operating Manual



LIGHTCAST INC.

1-678-339-2326

www.lightcastinternational.com

Table of Contents

Features	3
Installation	4
Operation	4-5
Wiring Diagram	6-7
Functions	8
Function 11 – Enter Exceptions	9
Function 12 – Edit/Review Exceptions	9
Function 13 – Delete Exceptions	9
Function 14 – Delete All Exceptions	10
Function 21 – Enter Steps	10
Function 22 – Edit/Review Steps	10
Function 23 – Delete Steps	11
Function 24 – Delete All Steps	11
Function 31 – Edit/Review Momentaries	11
Function 41 – Relay Override	11
Function 51 – Set Time/Date	11-12
Function 52 – Set DST	12
Function 61 – Delete All	12
Function 71 – Transfer Time/Date	12
Function 72 – Transfer Data/Time/Date	12

Features:

- 500 Program Steps – Steps may be assigned to any program for a total of 500 steps.
- 32 Programs – Main program plus 31 alternate programs that are called by the exception periods.
- 63 Exception Periods – Periods that call alternate programs.
- Programmable Momentary Outputs – Timed outputs from 1-250 seconds.
- 1, 2 or 4 Relay Options – 16A 30VDC/250VAC
- Nonvolatile Memory – Retains program data with loss of power.
- Clock Capacitor Backup – Powers clock during power loss.
- DC and Backup Power Clock Accuracy - +/- 0.002% at 78F
- Synchronous Timing on AC Power
- Automatic Leap Year Compensation
- Automatic Daylight Savings Time Compensation – User programmable.
- Unit to Unit Data/Time/Date or Time/Date Transfer
- 2 Line x 16 Character Backlit Liquid Crystal with Automatic Contrast Adjustment
- Audible Beeper for Status Indication During Programming
- 120VAC or 12VDC Operating Power

Installation:

The unit should be mounted in a convenient location using the mounting holes in the enclosure. The unit is supplied configured for either 120VAC or 12VDC operation.

CAUTION: Applying 120VAC to a unit that is configured for 12VDC will damage the unit.

The unit comes with 1, 2 or 4 relays and a plug-in connector with wiring harness. The relay outputs are dry contact and the user must supply the power to be switched through the relay contacts.

Wiring connections are as follows:

Pin Wire Color Description

1 Black 12VDC + or Line

2 White 12VDC – or Neutral

3 Green Chassis Ground

4 Red Relay 1 - Common

5 Yellow Not Used

10 Yellow/Black Relay 1 – Normally Open

Operation:

If the unit has been without power for a long period of time, the clock may need to be programmed. All the data is stored in nonvolatile memory and is retained indefinitely. The unit will begin with the last step that was active at the time of the power loss.

The display will show the current status of the unit in normal operation. The current day of the week

and time is shown on the top line. The bottom line of the display alternated the date and DST status, the current active program and the last step activated and the relay status.

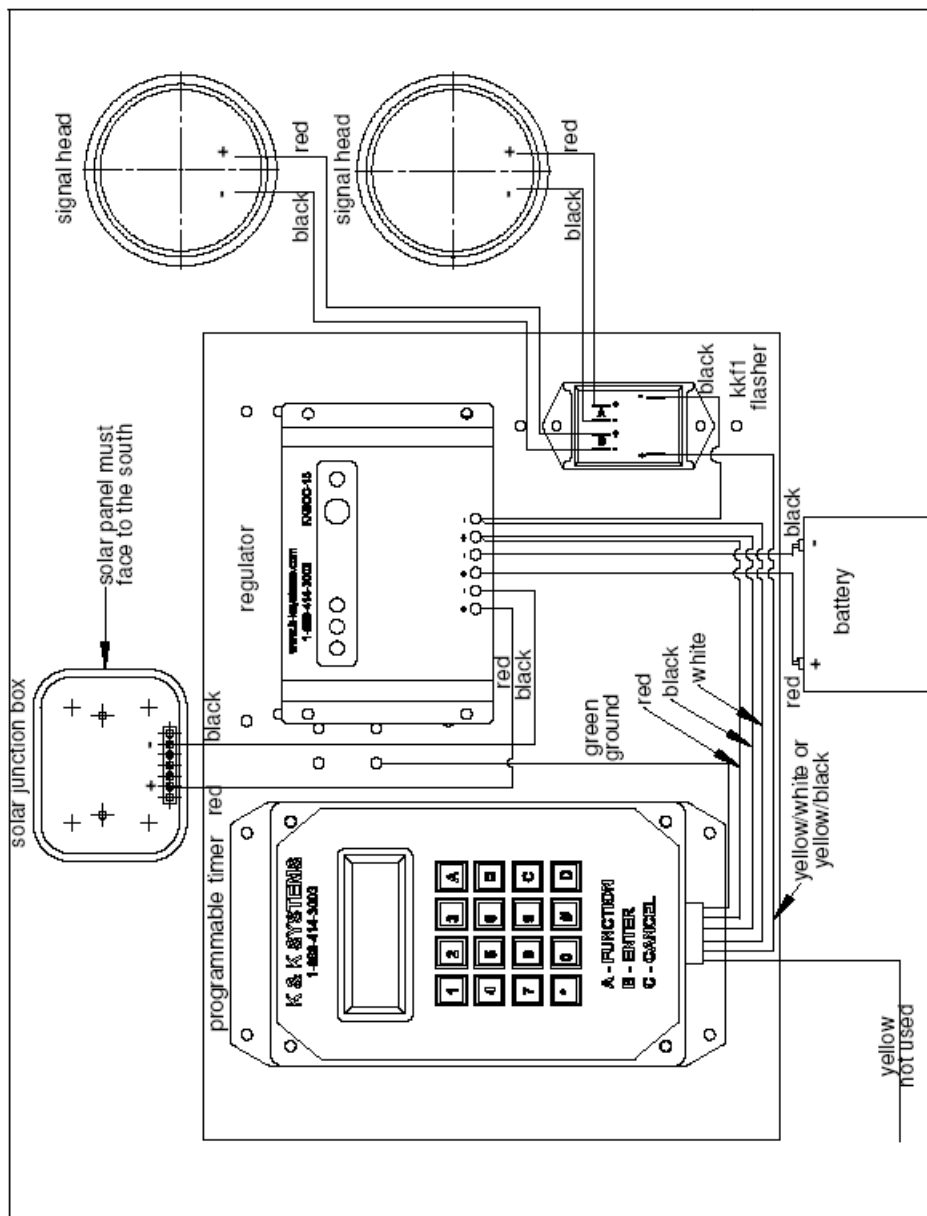
The unit is designed to be programmed on a weekly schedule. Up to 500 steps may be programmed into the unit. The steps may be assigned to any of the 32 available programs and do not have to be in order. The main program is 01. This is the default program that will be run when no exceptions are active.

A step is programmed to operate during any combination of days during the week. The step will begin at the programmed time and will remain active until a different step becomes active. When a step is active, the relays programmed to operate during that step will be on; all other relays are turned off.

A program consists of any number of steps. Up to 32 programs can be entered. In normal operation, program 01 is active. The exception periods call the alternative programs. When programming steps, the unit asks for the program number you want the step to be assigned to.

An exception is a time period that calls one of the alternate programs. An exception is active from a start date to an end date and the unit will run the steps of the program called by the exception.

For example, program 01 may consist of 2 steps. Both steps are programmed to operate Monday – Friday. Step 1 turns on relay 1 at 8:00AM and step 2 turns off relay 1 at 10:00AM. The exception is programmed to operate during the holiday. The exception calls program 02 which consists of one step that turns off the relay 1 at 12:00AM on every day of the week.



Functions:

Functions are entered using the keypad. The display will show current function being changed. A beeper provides audible feed back as the function is entered. A short beep is heard when a key is pressed.

When an error is made, a long beep will be heard. When the function has been entered correctly, a double beep will be heard. When a function is automatically begun and no key has been pressed for 15 seconds, the function will be automatically cancelled.

Days of the Week Table

1 – Sunday	6 – Friday
2 – Monday	7 – Saturday
3 – Tuesday	8 – Week Ends
4 – Wednesday	9 – Week Days
5 – Thursday	0 – Every Day

<u>Key</u>	<u>Description</u>
A – Function	Used to begin entry of a function
B – Enter	Confirm entry of data
C – Cancel	Cancel a function and return to main

On initial power up or when downloading data from another unit, it is recommended that a function 61 be used to delete data & reset the unit to a known state. To program a function, the A key is pressed followed by the 2 digit function number. Follow the display for the remaining steps to complete the function or press C to cancel.

Functions:

Function 11 – Enter Exceptions

- Press A, 1, 1. The next available exception is shown
- Enter the 2 digit program number you want the exception to run and press B to enter.
- Enter a 6 digit start date in the format MM/DD/YY and press B. If a long beep is heard, an incorrect date has been entered. Enter a correct date.
- Enter a 6 digit end date in the format MM/DD/YY and press B. The end date must be a different and later date from the start date. Exceptions begin and end one moment after midnight, thus for an exception to be in effect for July 28, 2008 only, the correct input would be: Start 07/28/08 - End 07/29/08
- To enter another exception, continue at step 2 or press C to exit.

Function 12 – Edit/Review Exceptions

- Press A, 1, 2.
- Enter the 2 digit exception number. If the number is an invalid exception, the program number for that exception is shown, otherwise, the first exception is shown. If no exceptions are programmed, a long beep will be heard and NOT PROGRAMMED will be shown on the display.
- Enter the new program number or press B to accept the current program number.
- Enter a new start date or press B to accept the current start date.
- Enter a new end date or press B to accept the current end date.
- Continue at step 3 for the next exception or press C to exit.

Function 13 – Delete Exception

- Press A, 1, 3.
- Enter a 2 digit exception number and press B.
- If the exception number is not valid, a long beep will be heard and NOT PROGRAMMED will show on the display.
- If the exception is valid, Press B to delete the exception or C to exit.

Function 14 – Delete All Exceptions

- Press A, 1, 4.
- Press B to delete all exceptions or C to exit without deleting.

Function 21 – Enter Steps

- Press A, 2, 1.
- Enter the 2 digit program number for the step or press B to accept the default program number.
- Select the desired days of operation by pressing the appropriate key as shown in the Day of the Week table. Pressing a key for a day that is selected will clear that day. Press B when the desired days have been selected.
- Enter the 4 digit start time in the format HH:MM and then press 1 for AM or 2 for PM. If a long beep is heard, an incorrect time has been entered. Enter a correct time.
- Enter the number for the relay on and off. If the number is shown, the relay will turn on during this step. Press B to confirm entry of the step or C to cancel.

Function 22 – Edit/Review Steps

- Press A, 2, 2.
- Enter the 3 digit number. If the number is a valid step, the program number for that step is shown, otherwise, the first step is shown. If no steps are programmed, a short beep will be heard and NOT PROGRAMMED will show on the display.
- Enter a new 2 digit program number and press B or press B to accept the current program number.
- Press the number keys to change the days of operation and press B or press B to accept the current days of operation.
- Enter a new start time and press B or press B to accept the current time.
- Press the keys 1-4 to change the operating relays and press B or press B to accept the current relays.
- Continue with step 3 for the next step or press C to exit.

Function 23 – Delete Step

- Press A, 2, 3.
- Enter the 3 digit step number.
- If the step is not valid, a long beep will be heard and NOT PROGRAMMED will show on the display.
- If the step is valid, press B to delete the step or C to exit.

Function 24 – Delete All Steps

- Press A, 2, 4.
- Press B to delete all steps or C to exit without deleting.

Function 31 – Edit/Review Momentaries

- Press A, 3, 1.
- Enter a 3 digit time for Momentary 1 and press B to accept or C to cancel.
- Repeat step 2 for Momentaries 2-4.

Function 41 – Relay Override

- Press A, 4, 1.
- The display will show the relays currently on. Use keys 1-4 to toggle the relay status. If the number of the relay is showing, the relay will be on when B is pressed.
- Press B to accept or C to cancel.

Function 51 – Set Time/Date

- Press A, 5, 1.
- Enter 4 digits for the current time in the format HH:MM and the 1 for AM or 2 for PM.
- Enter 6 digits for the current date in the format MM/DD/YY and press B to accept or C to cancel.
- If the time or date was invalid, a long beep will be heard and INVALID DATE will show on the display.

Function 52 – Set DST

- Press A, 5, 2.
- Enter a 1 digit start week.
- Enter a 2 digit start month.

- If a long beep is heard, invalid times were entered. Enter correct times.
- Enter a 1 digit end week.
- Enter a 2 digit end month.
- If a long beep is heard, invalid times were entered. Enter correct times.

Function 61 – Delete All

- Press A, 6, 1.
- Press B to delete all or C to cancel without deleting.

Function 71 – Transfer Time/Date

- Connect the master unit to the unit to be programmed.
- Press A, 7, 1.
- Press B to transfer time/date or C to cancel.
- If the transfer is successful, an OK message will show on each unit. If an error occurs, COMM ERROR will show on each unit.
- To try again, continue at step 2.

Function 72 – Transfer Data/Time/Date

- Connect the master unit to be programmed.
- Press A, 7, 2.
- Press B to transfer time/date or C to cancel.
- If the transfer is successful, an OK message will show on each unit. If an error occurs, COMM ERROR will show on each unit. To try again, continue at step 2.

LIGHTCAST INC.

1-678-339-2326

www.lightcastinternational.com