

SLC16H-IR

USER MANUAL

PROGRAMMABLE INDOOR
SINGLE LINE
LED SIGN



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DISCLAIMER: Every effort has been made to verify the accuracy of this user manual's content. However, specification and content can change without notice. Check for the latest updates at Grandwell's website, <http://www.grandwell.com>.

SAFETY INSTRUCTIONS

When using electrical equipments, basic precautions should always be followed to reduce the risk of fire, electric shock and injury to person, including the following:

1. Read all safety instructions before using the LED sign.
2. Save these instructions for later use and reference.
3. Follow all warnings and instructions marked on the product.
4. Do not place this product on any unstable surface; it may fall, causing damage to the product and/or injury to personnel(s).
5. This LED sign is not intended for use in wet or damp locations. Never locate sign where it may fall into a bathtub or other water container.
6. This product requires adequate ventilation for proper operation and to prevent overheating. Do not place this product near or over a radiator or heat vent. Do not install this product in a built-in cabinet unless adequate ventilation is provided.
7. Do not use this LED sign outdoors.
8. Connect to properly grounded outlets only.
9. Operate this product with only the power adapter supplied.
10. Do not run power cord under carpeting. Do not cover cord with throw rugs, runner or the like. Arrange cord away from traffic area and where it will not be tripped over.
11. If the AC display power supply is plugged into an extension cord, make sure that the ampere ratings on the product and any other product plugged into the cord do not exceed the cord's ampere rating.
12. Do not operate this product with a damaged cord or plug, if LED sign malfunctions, or has been dropped or damaged in any matter. Contact manufacturer for any necessary repair.
13. Do not attempt to service this product without authorization or insert any foreign objects into this sign. Hazardous voltages are present that can cause electric shock or fire. Refer all servicing to qualified service personnel.
14. Use LED sign only as described in this manual. Any other use not recommended by the manufacturer may cause fire, electric shock, or personal injury.

PACKAGE CONTENT

Please, check to make sure that your package contains the following items.

- (1) LED Sign
- (1) Infrared Remote Control with 2 AAA 1.5V Batteries
- (1) User Manual
- (1) 100-240V ~ 50/60Hz AC to 5V DC Power Adapter
- (1) AC Power Plug
- (1) Pair of Mounting Brackets
- (1) Female 9 Pin Serial to RJ11 Cable*
- (1) Floppy Diskette*

*Note: The RJ11 cable is used to connect the LED sign with a computer. The floppy diskette contains software to program the LED sign via a computer. *The diskette may or may not be included in the package.* However, if you wish to use the software but do not have a copy of the software, please check our website for a copy.

LED SIGN SETUP

The LED sign is fairly easy to setup. Follow the simple instructions below.

1. Remove LED sign from the packaging and set it on a flat firm surface. Position the sign so that the side with a small clear plastic piece is on the left side of the sign when looking at front of the sign.
2. Attach the power plug to AC power adapter.
3. Attach the AC power adapter into the right side of the sign.
4. Make sure all power cord connections are firmly connected.
5. Plug power cord into an electrical socket. LED sign should power up.
6. Remove infrared remote control and insert batteries into it.

MOUNTING INSTRUCTION

The LED sign when placed horizontally leveled on its edge on a flat stable horizontal surface should stand upright on its on without a prop. However, if you wish to mount it to a wall, then follow the below steps.

1. Refer to Figure 1 below and assemble as shown. You might need to unscrew the wall mount bracket nut from the side of the sign first.
2. Take the sign with attached mounts and mark on the wall the drill hole locations that correspond to the mounts. Make sure the wall is sturdy enough to support the weight of the sign.
3. Drill holes at the marked locations on the wall and attach the sign to the wall. *Note: Wall mount screws are not provided.

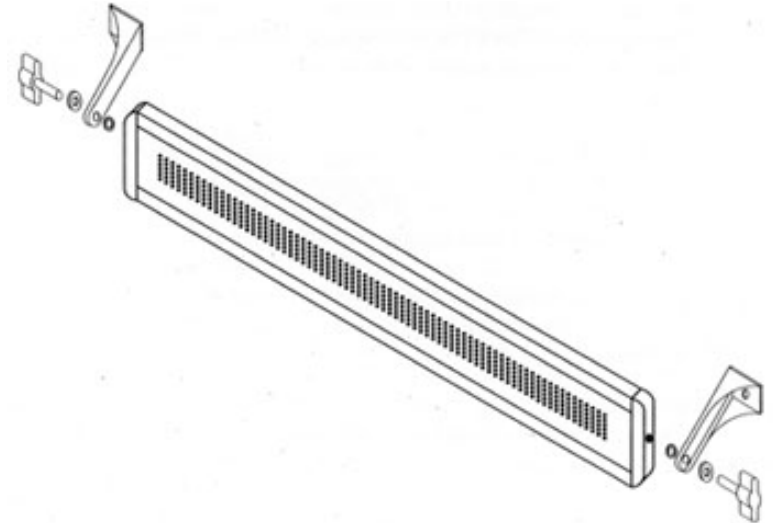


Figure 1. LED Sign's Wall Mount Bracket Assembly.

CLEANING AND STORAGE

1. Unplug LED sign from all electrical outlets before cleaning the sign.
2. Use a soft cloth for dusting and a damp cloth for cleaning.
3. Use vacuum cleaner with brush attachment to remove heavy dust.
4. Do not use liquid, abrasive and/or aerosol cleaners on this product.
5. Save original packaging to store LED sign in a safe location.

INTRODUCTIONS

As a proud owner of a new LED sign, you are undoubtedly looking forward to displaying your first message and getting the sign to work for you. Before you get started, we recommend that you invest the time to review this user manual, which will help you tremendously in understating the capabilities of the LED sign. There are numerous exercises and useful tips to help you quickly learn how to program the LED sign with effective and eye-catching messages.

Before you begin, here are some helpful tips to remember.

- Point the infrared remote at the LED sign when you are creating or editing a message. The infrared sensor is located on the left hand side of the LED sign. The LED sign will beep every time when you successfully enter a command via the infrared remote.
- The exercises and instructions in this manual assume that password protection is disabled. However, if password protection is enabled, then you'll need to provide the factory default password of "000" when prompted for it. We recommend that you turn off password protection while learning to program the LED sign, as this will reduce the number of buttons you have to press. Reactivate the password protection when you have the sign programmed and do not want unauthorized access to it.

PRODUCT SPECIFICATIONS

Model Number: SLC16H-IR

Pixel Matrix: 7x80

Characters: 13, 2.1"/5cm height.

Memory Size: 8K, 7000 Characters, 100+ Programs, 500+ Pages.

Dimensions: Height: 4"/10cm, Width: 26"/66cm, Depth: 1.3"/3cm

Gross Weight: 6lbs/2.7kg Total Package.

3lbs/1.4kg LED Sign

Power Input: LED Sign: 5V DC Input, 3 Amp

Infrared Remote: 2x AAA 1.5V Batteries

- Features:
- 24 Display Methods
 - 16 Color Styles
 - 7 Font Styles
 - Password Protection
 - Auto On/Off Timer
 - Real Time Clock
 - Advance Scheduling
 - 8 Built-in Graphics
 - 8 User Defined Graphics
 - 8 Animations
 - 30 Symbols
 - International Character Set
 - Programmable Alarms
 - Memory Backup

COMPUTER SOFTWARE & PROTOCOL

The LED sign can also be programmed using the software, Moving Sign. The package may or may not contain a floppy diskette with a copy of the software program. However, if the diskette is not included or lost, please visit our website to download the latest version of the software. Use the 9 Pin Serial/RJ11 cable to connect the LED sign to a computer for programming. For software installation and programming assistance, please consult the Moving Sign User Manual.

In addition, if you wish to integrate with the LED sign through your own developed application, you can do so by using the LED sign's protocol. A copy of the protocol is available for download from our website as well.

PROGRAM FILES

In order to create eye catching and effective messages for your audience, you will need to know what a program file is and how to create one. A program file is structured as a single line of messages and commands that tell the LED sign what to do, what to show, and how to do it. Here are some basic facts about program files:

- Program files are labeled numerically from 00 to 99. 00 is reserved for the default factory program and cannot be overwritten. Slots 01-99 are for user created programs.
- User can create up to 99 different program files as long as the total numbers of characters in all the program files do not exceed 7,000 characters including spaces. Each individual command also counts as one character.

The following exercise will help you get familiar with creating a program file. The instructions are organized into steps, which keys on the infrared remote to press, a short explanation of each step, and what you should see on the LED sign after pressing the keys.

HOW TO CREATE A SIMPLE MESSAGE IN SIX EASY STEPS

Step	Keys to Press	Explanation	What is Displayed
1.	PROG	Enters into Edit Mode, which allows you to create/edit a program ¹ .	OPEN: ??
2.	01 ENT	If prompted for a password, key in "000". Follow instruction in the password protection section to disable protection for this exercise ² . Select program file slot 01 to create or edit. If slot 01 had an existing file, you would see the tag "OLDFIL" before the display method command. [CYCLIC] is the default display method, which cycles through all the methods and colors randomly.	[CYCLIC]
3.	NEXT or PREV	If you wish to change the display method use those keys to choose a different option. In this exercise we'll use the default. Check Appendix A for a full list of available options.	[CYCLIC]
4.	GREETINGS	Key in the following message.	GREETINGS
5.	RUN	Ends the edit program mode and prompts for save changes if any.	SAVE? (Y/N)
6.	Y	Saves the program in slot 01.	Message is shown.

Note: If you made any mistakes, use the **DEL** key to correct those mistakes.

Congratulations, you have just created your first message. Important things to remember from the above exercise are:

1. Press **PROG** to get into Edit Mode after selecting a program slot (01-99).
2. The default password is "000".
3. [CYCLIC] is the default display method. Use **NEXT** or **PREV** to scroll through the other available display method options. Check **Appendix A** for other program commands that can be used to enhance messages.

The next exercise will examine more of the basic commands, such as fonts, colors, and moving around a program file. By the end of the next exercise you will know enough to create persuasive and dazzling messages.

HOW TO CREATE A MORE SOPHISTICATED MESSAGE

Step	Keys to Press	Explanation	What is Displayed
1.	PROG	Enters into Edit Mode.	OPEN: ??
2.	01 ENT	Select program file 01 to modify. Previously saved programs will have the tag "OLDFIL" before the first display method command.	OLDFIL[CYCLIC]
3.	PREV	Change display method to [SLIDEIN]	[SLIDEIN]
4.	▶▶	Advance forward the programming position ¹ to the end of "GREETINGS".	IDEIN]GREETINGS
5.	PAU	Insert a pause command.	ETINGS[PAUSE1]
6.	MET	Add a new display method.	[PAUSE1][CYCLIC]
7.	NEXT x3	Change method to [OPEN →].	[PAUSE2][OPEN →]
8.	ASK ABOUT OUR	Key in the following message ² .	ASK ABOUT OUR
9.	PAU	Insert a pause command.	OUR[PAUSE1]
10.	NEXT	Change pause to a 3 second delay.	OUR[PAUSE2]
11.	MET	Add a new display method.	[PAUSE2][CYCLIC]
12.	PREV x3	Change method to flash.	[PAUSE2][FLASH]
13.	COLOR	Add a color command ³ .	[FLASH][RED]
14.	NEXT x9	Change color to rainbow wave mix.	[FLASH][MIX]
15.	SPECIALS!!	Key in the following message.	[MIX]SPECIALS!!
16.	PAU	Insert a pause command.	IALS!![PAUSE1]
17.	RUN	Ends the edit program mode and prompts for save changes if any.	SAVE? (Y/N)
18.	Y	Saves the program in slot 01.	Message is shown.

Congratulations, you have just created a pretty sophisticated message in less than twenty steps. The LED sign is so versatile you can create an unlimited number of different designs for your message by just changing the colors, display methods and contents. There are even more commands you can add, such as font sizes, graphic images, sounds, and varying speeds, to make your messages even more intricate that add sparkle and increase readability. Remember to be creative with your approach and design of the message. There is no set method to start each message with. Experiment with all the different commands that are available and explained in **Appendix A**.

Here are important things to remember about the above exercise:

1. The program position is the right most visible position on the LED screen. Because the program file is structured as a continuous line, the program position is where any new command or characters are inserted into the program. For example, while modifying a program and **MET** is pressed [CYCLIC] will appear at the right most position of the LED screen.
2. If the message's length does not fit within the LED screen, the sign will ignore any programmed display methods and use the [OPEN ←] method (scrolls the message from right to left automatically like a ticker). For example, if the message "SPORTING GOODS DEPARTMENT" is entered, the entire message will not fit on the screen entirely. Therefore, the sign will scroll the message from right to left. Try to shorten the message or use display methods to break message into shorter individual messages. Using the default font, 7x6, up to thirteen (13) characters and spaces can fit on the LED screen at once.
3. The default color is bright Red. A list of the other color options is located in **Appendix A**.
4. Either buttons **RUN** or **PROG** can be used to save a modified program. To save the program and visually see what the program looks like on the LED screen use the **RUN** button. To save the program and continue to modify the same or another program, use the **PROG** button.

HOW TO RUN A SAVED PROGRAM

Normally, the sign will run the last saved program when the LED sign is turned on. However, you can choose which specific program to run.

Step	Keys to Press	Explanation	What is Displayed
1.	RUN	Enter into Run Mode.	RUN: ??
2.	01 ENT	Selects program file 01 to run.	Message is shown.

HOW TO DELETE THE CURRENT PROGRAM FILE

Step	Keys to Press	Explanation	What is Displayed
1.	PROG	Enter into Edit Mode.	OPEN: ??
2.	01 ENT	Select program file 01 or the file you wish to erase.	OLDFIL[CYCLIC]
3.	CLR	Enter into Deletion Mode.	DEL ALL
4.	NEXT	Select option DEL MSG.	DEL MSG
5.	ENT	Current program file will be erased. WARNING: There is no way to undo this command, so be absolutely sure.	[CYCLIC]

HOW TO DELETE A SPECIFIC PROGRAM FILE

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT x2	Select option DEL FILE??	DEL FILE??
5.	01 ENT	Select program file 01 or the file you wish to erase. WARNING: There is no way to undo this command, so be absolutely sure.	DEL FILE??

SEQUENCE FILES

A sequence file combines separate program files into one program and runs them on the LED sign sequentially. In order to create or use a sequence file, there must be saved program files. Sequence files have similar naming conventions to program files. However, sequence files begin with the letter "S" followed by a single digit number (S0-S9). Therefore, there are only ten slots available to store sequence files.

Some of the benefits of sequence files include the ability to reuse existing programs files, to quickly create different messages for varying occasions and promotions, and to schedule programs for a specific run time. The following scenario illustrates these benefits.

SEQUENCE FILE SCENARIO

Let's say that the owner of a deli called, John's Deli, wants to quickly advertise different daily specials every day. He already has the following program files created and stored in the LED sign.

Program File No.	Message Content
10	Welcome to John's Deli
11	Ask us about our awards program
12	Our today's special is
13	for \$3.95
14	for \$4.95
15	for \$5.95
16	Thank you for not smoking
17	and a cup of
18	and a bowl of
20	Meat Loaf Sandwich
21	Hot Turkey Club
22	Chicken Caesar Salad
30	Minestrone
31	Chicken Noodle
32	Clam Chowder
40	Add chips & large soda for \$1.50

By using sequence files, the owner can advertise today's special of meat loaf sandwich and a cup of minestrone soup for \$3.95 by combining program files 12, 20, 17, 30, and 13 sequentially (in that order) to create the desired promotion. By changing the selected program files to 12, 21, 18, 32, and 14, the owner can change the day's special to hot turkey club and a bowl of clam chowder for \$4.95 relatively easily and quickly. Furthermore, the owner can also appended additional messages, such as adding chips and soda for \$1.50 or prompting his award program, to the above message by including program files 11 and/or 40 to the sequence file. Lastly, he can schedule the sequence file to run from 10AM to 2PM every Monday, Wednesday and Friday.

The following exercise illustrates how to create a sequence file based on the above scenario. The exercise is based on the assumption that the above sample program files are stored in the LED sign.

HOW TO CREATE A SEQUENCE FILE

Step	Keys to Press	Explanation	What is Displayed
1.	PROG	Enters into Edit Mode.	OPEN: ??
2.	S	Select sequence files instead of program files to create or edit.	OPEN: S0
3.	1 ENT	Select a sequence file slot, such as S1. The next step is to specify which days ¹ of the week the sequence file will run. 0=Sunday, 1=Monday, 2=Tuesday, 3=Wednesday, 4=Thursday, 5=Friday, 6=Saturday.	DAY 0 1 2 3 4 5 6 (Note: DAY is orange, the numbers are red, and 0's background is green.)
4.	← or →	Use the forward or backward button to move the active cursor. The active cursor is represented by the green background color. For this exercise, move the active cursor to 1.	DAY 0 1 2 3 4 5 6 (Note: Green background on red number one.)
5.	NEXT or PREV	Toggle the selected day ON/OFF by using the NEXT or PREV buttons. When a day is turned ON the number will turn green. OFF days are colored red. The background color will also be inverted as well.	DAY 0 1 2 3 4 5 6 (Note: Red background on green number one.)
6.		Repeat step 4 and 5 until Day 3 and 5 are also turned on.	
7.	S	Once the days for the sequence file are set, the next step is to set the start time. The time format is in 24 hours, so 2PM is 14:00.	START 00:00 (Note: START is orange, the first digit is green and remaining digits are red.)
8.	← or →	Use ← or → buttons to move the active cursor to the desired digit.	START 00:00
9.	NEXT or PREV	Use NEXT or PREV buttons to change the digit's value.	START 10:00
10.		Repeat steps 8 and 9 until the time reads 10:00 (10AM).	
11.	S	Once the start time for the sequence file is set, the next step is to set the end time. The time format is in 24 hours, so 2PM is 14:00.	END 23:59 (Note: END is orange, the first digit is green and remaining digits are red.)
12.		Repeat steps 8 and 9 until the time reads 14:00 (2PM).	END 14:00
13.	ENT	Confirm the time setting ² .	[S1]
14.	12 20 17 30 13	Key in the program file number(s) ³ you want separated by a space, use the SPA button.	12 20 17 30 13
15.	RUN	Ends the edit sequence file mode and prompts for save changes if any.	SAVE? (Y/N)
16.	Y	Saves the sequence file to slot S1.	Message is shown.

Congratulations, you have just created your first sequence file. Remember the primary benefit of using sequence files is to compile a long message quickly and to change any portion of that message easily. Therefore, sequencing saves you time from having to edit long messages or make cumbersome changes. If you decide to change the above exercise's daily special, all you need to do is change the selected program files.

Here are important things to remember about the above exercise:

1. The first step to create a sequence file is to set the time setting of when the sequence file will automatically run and end. To set the time setting, select the days you wish to have the programs run, follow by the start time, and then by the end time. The time setting is designed to be flexible. You can just set the days you want and skip the starting and end time by pressing the **ENT** button when you have finished selecting the days you want.
2. If you do not wish to set the time setting for sequence files, you can skip the time setting step altogether by pressing the **ENT** button, which will take you into the program file selection step.
3. IMPORTANT: If there is at least one saved sequence file and the time setting is valid, the LED sign will automatically run that sequence file even if you have another program running. If there are multiple saved sequence files with concurrently valid time setting, the LED sign will run those sequence files in order from S0 to S9. Therefore, be very careful about the time settings of the sequence file or just do not use the sequence file's time setting.
4. Writing a short description about each program file will help tremendously with creating a sequence file. You can use the notes section at the end of this manual to write those summaries in pencil.

HOW TO SCHEDULE A SINGLE PROGRAM FILE

Follow above steps 1 to 13 and proceed with step 14 below.

Step	Keys to Press	Explanation	What is Displayed
14.	01	Key in the program file you want to schedule to run.	[S1] 01
15.	RUN	Ends the edit sequence file mode and prompts for save changes if any.	SAVE? (Y/N)
16.	Y	Saves the sequence file to slot S1.	Message is shown.

HOW TO DELETE A SEQUENCE FILE

Step	Keys to Press	Explanation	What is Displayed
1.	PROG	Enter into Edit Mode.	OPEN: ??
2.	00 ENT	Select any program file or file 00.	OLDFIL[CYCLIC]
3.	CLR	Enter into Deletion Mode.	DEL ALL
4.	NEXT x2	Select option DEL FILE??	DEL FILE??
5.	S1 ENT	Select the sequence file you wish to erase. WARNING: There is no way to undo this command, so be absolutely sure.	DEL FILE??

GRAPHIC IMAGES

The LED sign comes with eight user defined and eight factory installed graphic images. Graphic images can easily enhance any message by providing a visualization of products or services offered by your organization.

HOW TO INSERT A GRAPHIC IMAGE INTO A PROGRAM

Step	Keys to Press	Explanation	What is Displayed
1.	PROG	Enter into edit mode.	OPEN: ??
2.	01 ENT	Select a program file you want to add graphics to.	OLDFIL[CYCLIC]
3.	→	Move to the desired location in the program.	(If applicable).
4.	GRA	Enters into graphic selection mode. GET GRAPH lets you insert a graphic image into a program.	GET GRAPH
5.	ENT	Inserts a graphic image into program.	[CYCLIC][GRAPH A]
6.	NEXT or PREV	Scroll through the available graphic images. Continue modifying the rest of the program.	
7.	ENT	To select the desired graphic image.	[GRAPH P][CYCLIC]
8.	RUN	Leaves edit mode and save program.	SAVE? (Y/N)
9.	Y	Saves the program in file slot 01 and shows your graphic image.	Shows the image.

Note: A list of descriptions for the graphic images is available in Appendix A.

HOW TO CREATE USER DEFINED GRAPHIC IMAGES

Follow above steps 1 to 4 and proceed with step 5 below.

Step	Keys to Press	Explanation	What is Displayed
5.	NEXT	Scroll next to MAKE GRAPH option.	MAKE GRAPH
6.	ENT	MAKE GRAPH will overwrite any saved graphics file. Use EDIT GRAPH to edit previously saved graphic images.	NUMBER A
7.	NEXT or PREV	Scroll through available slots (A-H).	(If applicable).
8.	ENT	Enters into graphic editor mode.	A yellow dot (cursor).
9a.		Use the following keys/buttons to move the cursor around. <div style="display: flex; flex-wrap: wrap; justify-content: space-around; align-items: center;"> <div style="text-align: center;">↖ F ↑ G H ↗</div> <div style="text-align: center;">← J K L →</div> <div style="text-align: center;">↙ N ↓ O P ↘</div> </div>	Press K to turn on/off draw. For example, to draw a line press K and use pointer L to move the cursor right. A horizontal line will appear. Press K again to turn draw off.
9b.	NEXT or PREV	Changes the color of the pixel.	Cursor changes color.
10.	ENT	Leaves graphic editor and saves the graphic file in selected slot.	

CLOCK, TIMER AND ALARMS

The LED sign is equipped with a real time clock that can be used to automatically turn the LED sign on and off. In addition, alarms can be set to notify the top of every hour or at intervals. Note: The clock does not automatically adjust for day light savings or leap years.

HOW TO ADJUST THE TIME

Step	Keys to Press	Explanation	What is Displayed
1.	PROG	Enter into Edit Mode.	OPEN: ??
2.	01 ENT	Enter program file 01.	[CYCLIC]
3.	TIME	Enter into Time & Alarm Mode.	SET TIME
4.	ENT	Set the time. The green color number indicates the active cursor.	Current clock time in format HH:MM:SS.
5.	NEXT or PREV	Change the value. The input time is in 24 hour format.	Current clock time in format HH:MM:SS.
6.	→	Move the active green cursor to the next field. Repeat step 5 & 6.	Current clock time in format HH:MM:SS.
7.	ENT	Save the modified time.	[CYCLIC]

HOW TO ADJUST THE DATE

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT	Scroll to option SET DATE.	SET DATE
5.	ENT	Change the date. The green color letters indicates the active cursor.	Current date in format DY MM-DD-YY.
6.	NEXT or PREV	Change the value.	Current date in format DY MM-DD-YY.
7.	→	Move the active green cursor to the next field. Repeat steps 6 and 7.	Current date in format DY MM-DD-YY.
8.	ENT	Save the modified date.	[CYCLIC]

HOW TO SET TIME TO 12 HOUR FORMAT

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT x4	Scroll to option 12H MODE.	12H MODE
5.	ENT	Select 12-hour format for time.	[CYCLIC]

HOW TO SET TIME TO 24 HOUR FORMAT

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT x5	Scroll to option 24H MODE.	24H MODE
5.	ENT	Select 24-hour format for time.	[CYCLIC]

HOW TO ADD TIME TO A PROGRAM

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT x6	Scroll to option ADD TIME.	ADD TIME
5.	ENT	Time is added to the program.	[CYCLIC] DY HH:MM

HOW TO ADD DATE TO A PROGRAM

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT x7	Scroll to option ADD DATE.	ADD DATE
5.	ENT	Date is added to the program.	[CYCLIC]MM-DD-YYYY

HOW TO SET THE AUTO OFF TIMER

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	PREV x2	Scroll to option OFF TIME.	OFF TIME
5.	ENT	Enter timer setup. The green color number indicates the active cursor.	Off time in format HH:MM:SS.
6.	NEXT or PREV	Change the value. The input time is in 24-hour format.	Off time in format HH:MM:SS.
7.	→	Move the active green cursor to the next field. Repeat step 6 & 7.	Off time in format HH:MM:SS.
8.	ENT	Save auto off timer.	[CYCLIC]

HOW TO SET THE AUTO ON TIMER

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	PREV	Scroll to option ON TIME.	ON TIME
5.	ENT	Enter timer setup. The green color number indicates the active cursor.	Off time in format HH:MM:SS.
6.	NEXT or PREV	Change the value. The input time is in 24-hour format.	Off time in format HH:MM:SS.
7.	→	Move the active green cursor to the next field. Repeat step 6 & 7.	Off time in format HH:MM:SS.
8.	ENT	Save auto on timer.	[CYCLIC]

HOW TO TURN ON/OFF THE HOURLY ALARM

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT x3	Scroll to option HOUR ALARM.	HOUR ALARM
5.	ENT	Turn hourly alarm feature on/off. Set time to a few seconds before the top of a hour to test to see if on or off.	Off time in format HH:MM:SS.

HOW TO SET AN ALARM

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT x2	Scroll to option ALARM.	ALARM
5.	ENT	Enter alarm set up. The green color number indicates the active cursor.	C:000 M:000
6.	NEXT or PREV	Change the values. C (count) is the total number of alarms that will. C maximum number is 255. M (minute) is the minute interval between each alarm trigger. For example, C:123 M:001 means 123 alarms at an interval of one minute apiece.	C:000 M:000
7.	→	Move the active green cursor to the next field. Repeat step 6 & 7.	C:000 M:000
8.	ENT	Save alarm setting.	[CYCLIC]

Note: The alarm will automatically start when any program is run after the alarm is set. The first alarm will not sound until the interval time has elapsed. For example, if alarm is set to C:123 M:001, the first alarm will sound one minute after a program is run. The minimum value for M is 001. A value of 000 for M will not activate the alarm.

HOW TO DELETE ALL ALARMS (INCLUDING HOURLY ALARM)

Step	Keys to Press	Explanation	What is Displayed
1.	PROG	Enter into Edit Mode.	OPEN: ??
2.	01 ENT	Enter program file 01.	[CYCLIC]
3.	CLR	Enter into Deletion Mode.	DEL ALL
4.	PREV	Scroll to option DEL ALARM.	DEL ALARM.
5.	ENT	All alarm setting will be deleted and hourly alarm will be turned off. WARNING: There is no way to undo this command, so be absolutely sure.	[CYCLIC]

HOW TO DELETE AUTO ON/OFF TIMER

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	PREV x2	Scroll to option DEL ON/OFF.	DEL ON/OFF.
5.	ENT	Auto on/off timer will be deleted. WARNING: There is no way to undo this command, so be absolutely sure.	[CYCLIC]

PASSWORD PROTECTION

Password protection prevents unauthorized individuals from accessing the sign or creating any undesirable messages. When password protection is enabled, you are required to enter the correct password to create or edit any programs.

The factory default password is "000".

HOW TO TURN OFF PASSWORD PROTECTION

Step	Keys to Press	Explanation	What is Displayed
1.	PROG	Enter into Edit Mode.	OPEN: ??
2.	00 ENT	Enter default program file 00.	OLDFIL[CYCLIC]
3.	CPW	Enter into Password Mode.	UNUSE PASS
4.	ENT	Select UNUSE PASS, which turns off password protection, and leaves Password Mode.	[CYCLIC]

HOW TO TURN ON PASSWORD PROTECTION

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT	Scroll to USE PASS	USE PASS
5.	ENT	Select USE PASS, which turns on password protection, and leaves Password Mode.	[CYCLIC]

HOW TO RESET THE PASSWORD TO THE DEFAULT VALUE

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT x2	Scroll to RES PASS	RES PASS
5.	ENT	Select RES PASS, which defaults the password to "000", and leaves Password Mode.	[CYCLIC]

HOW TO CHANGE THE PASSWORD

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT x3	Scroll to CHANGE PASS	CHANGE PASS
5.	ENT	Select CHANGE PASS to change the password.	CHANGE: ***
8.	111 ENT	Password can be any three-digit combination of alphanumeric and symbols. Letters are case sensitive.	AGAIN: ***
9.	111 ENT	Confirm the password. If confirmation fails, then step 8 & 9 will be repeated.	[CYCLIC]

Note: If the password is lost or forgotten, password protection must be manually reset using the DIP SWITCH, which is located in the back of the LED sign (not the infrared). Follow the instructions in **Appendix C** for further details.

DELETE COMMANDS

In some circumstance, you may want to delete some of the programs or other data files. The LED sign comes with the capability to perform such a command. However, once a data file is erased there is no way to recover the deleted data file. **Therefore, be absolutely sure you want to delete the files before you do so.** Enter into Edit Mode and press the **CLR** button to enter into Deletion Mode.

HOW TO DELETE ALL SAVED PROGRAMS AND FILES

All data created and modified by the user will be erased, such as program and sequence files, alarm settings, graphic images, etc.

Step	Keys to Press	Explanation	What is Displayed
1.	PROG	Enter into Edit Mode.	OPEN: ??
2.	01 ENT	Select program file 01 or any file.	OLDFIL[CYCLIC]
3.	CLR	Enter into Deletion Mode.	DEL ALL
4.	ENT	All saved data will be erased. WARNING: There is no way to undo this command, so be absolutely sure.	The default program is shown.

HOW TO DELETE THE CURRENT PROGRAM FILE

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT x2	Select option DEL MSG.	DEL MSG
5.	ENT	Current program file will be erased.	[CYCLIC]

HOW TO DELETE A SPECIFIC PROGRAM/SEQUENCE FILE

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT x3	Select option DEL FILE??	DEL FILE??
5.	01 ENT	Select a program or sequence file to delete, such as program file 01.	DEL FILE??

HOW TO DELETE AUTO ON/OFF TIMER

Follow above steps 1 to 3 and proceed with step 4 below.

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT x4	Scroll to option DEL ON/OFF.	DEL ON/OFF.
5.	ENT	Auto on/off timer will be deleted.	[CYCLIC]

HOW TO DELETE ALL ALARMS (INCLUDING HOURLY ALARM)

Step	Keys to Press	Explanation	What is Displayed
4.	NEXT x4	Scroll to option DEL ALARM.	DEL ALARM.
5.	ENT	All alarm setting will be deleted and hourly alarm will be turned off.	[CYCLIC]

APPENDIX A: KEYS/BUTTONS DESCRIPTIONS

A detailed description of each key/button on the infrared remote is provided in this section. Below is a sample diagram of the infrared remote.

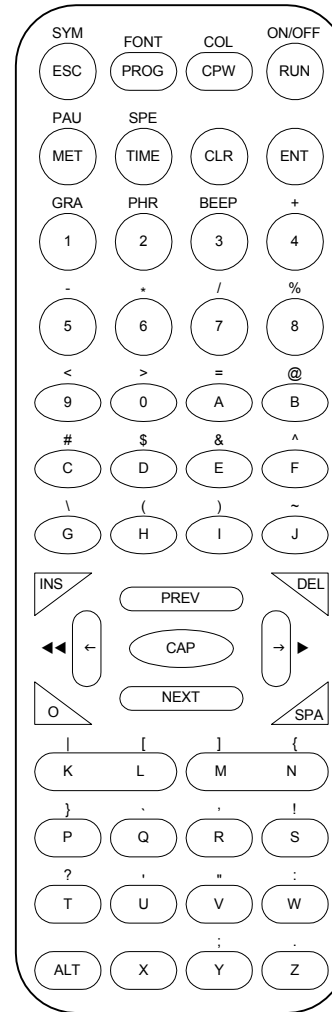


Diagram of infrared remote.

Each key/button on the infrared remote control correspond to a command, which is used to program and control the LED sign. Some commands have additional options; use the **NEXT** or **PREV** keys to scroll through those options. There are primary two modes, RUN and EDIT, and in which mode the buttons could be used. All the keys are listed in alphabetical order.

← : **BACKWARD** (EDIT MODE)

Scrolls the program position backward one command or character at a time. Program position is the right most visible position on the LED sign. This is the position where commands are inserted or removed.

→ : **FORWARD** (EDIT MODE)

Scrolls the program position forward one command or character at a time.

◀◀ = **ALT** + **←** : **ADVANCE BACKWARD** (EDIT MODE)

Moves the program position forward several places.

▶▶ = **ALT** + **→** :

ADVANCE FORWARD (EDIT MODE)

Moves the program position backward several spaces.

ALT : **ALT** (EDIT & RUN MODE)

Most buttons have alternate commands or characters. **ALT** lets the programmer access those second commands. Hold **ALT** down while pressing the other button to access the alternate commands.

BEEP = **ALT** + **3** : **BEEP** (EDIT MODE)

Use audible beeps to attract attention to the LED display.

Options	Description
[BEEP1]	A three-tone beep.
[BEEP2]	A multi-tone beep.
[BEEP3]	A quick single tone beep.

[CAP] : CAP LOCK (EDIT MODE)

Switches between lower case and upper case letters.

[CLR] : CLEAR/ERASE PROGRAMS (EDIT MODE)

Enters into Deletion Mode. Lets you erase stored programs and data files.

Options	Description
DEL ALL	Erase all stored files, including all program files, sequence files, user defined graphics, alarm setting, etc.
DEL MSG	Erase the current program file.
DEL FILES??	Erase a specific program (01-99) or sequence (S0-S9) file.
DEL ON/OFF	Erase the Auto ON/OFF timer program.
DEL ALARM	Erase the alarm program.

[COL] = [ALT] + [CPW] : COLOR (EDIT MODE)

There are sixteen different color schemes that you can use for your message.

Options	Description
[RED]*	Bright red. Default color.
[RED]	Red.
[ORA]	Orange.
[ORA]*	Bright orange.
[YEL]	Yellow.
[YEL]*	Bright yellow.
[GRE]	Green.
[GRE]*	Bright green.
[MIX]	Stripes, mixed color layers.
[MIX]*	Rainbow wave, mixed color layers.
[MIX]	Red, orange, and green vertical mix.
[MIX]	Red and green saw tooth mix.
[MIX]	Green text on red background.
[MIX]	Red text on green background.
[MIX]	Orange text on red background.
[MIX]	Orange text on green background.

*Note: The color does not actually change, only the brightness.

[CPW] : CHANGE PASSWORD (EDIT MODE)

Turns on/off and edit and reset password security.

Options	Description
UNUSE PASS	Turns off password security.
USE PASS	Turns on password security.
RES PASS	Reset password to factory default "000".
CHANGE PASS	Change password to a new value.

[DEL] : DELETE (EDIT MODE)

Deletes the command and/or letter at the current program position.

[ENT] : ENTER (EDIT & RUN MODE)

Accepts the inputted value or selected option.

[ESC] : ESCAPE (EDIT MODE)

Cancels the current command and returns to the upper level of edit mode. Sometimes the escape button will not work, instead use the program or run buttons.

[FONT] = [ALT] + [PROG] : FONT (EDIT MODE)

There are eight different font sizes to choose from.

Options	Description
[5x6]	Short font. 5 pixels high by 6 pixels wide.
[5x11]	Short wide font. 5 pixels high by 11 pixels wide.
[7x6]	Default font. 7 pixels high by 6 pixels wide.
[7x11]	Wide font. 7 pixels high by 11 pixels wide
[7x9]	Double stroke font. 7 pixels high by 9 pixels wide.
[7x17]	Extra wide font. 7 pixels high by 17 pixels wide.
[SMALL]	Small font.

[GRA] = [ALT] + [1] : GRAPHICS (EDIT MODE)

Select or edit any of the eight user defined or eight built-in graphic images.

Options	Description
GET GRAPH	Inserts any of the sixteen graphic images into the program.
MAKE GRAPH	Create a new graphic image and store it in slots A-H.
EDIT GRAPH	Edit any of the sixteen graphic images and store it in A-H.

The below options are accessible after selecting one of the above options.

Options	Description
[GRAPH A]	User defined graphics, slot 1.
[GRAPH B]	User defined graphics, slot 2.
[GRAPH C]	User defined graphics, slot 3.
[GRAPH D]	User defined graphics, slot 4.
[GRAPH E]	User defined graphics, slot 5.
[GRAPH F]	User defined graphics, slot 6.
[GRAPH G]	User defined graphics, slot 7.
[GRAPH H]	User defined graphics, slot 8.
[GRAPH I]	City landscape.
[GRAPH J]	Car.
[GRAPH K]	Teapot and cups.
[GRAPH L]	Telephone.
[GRAPH M]	Outdoors landscape.
[GRAPH N]	Ship.
[GRAPH O]	People swimming.
[GRAPH P]	Cat or mouse.

INS : INSERT (EDIT MODE)

Toggles between standard and overwrite insert. By default, users can insert commands and/or letters at the program position. Overwrite insert replaces any command and/or letter after the insertion point.

MET : DISPLAY METHODS (EDIT MODE)

How the messages are displayed and removed from the LED display.

Options	Description
[CYCLIC]	Default display style. Randomly cycles through all the display styles and color options.
[IMMED]	Immediate.
[OPEN ←]*	Open/push from right to left.
[OPEN →]	Open/push from left to right.
[OPEN ←→]	Open from center to edge.
[OPEN →←]	Open from edge to center.
[COVER ←→]	Cover from center to edge.
[COVER ←]	Cover from right.
[COVER →]	Cover from left.
[COVER →←]	Cover from edge to center.
[SCROLL ↑]	Scroll/push up.
[SCROLL ↓]	Scroll/push down.
[INTER →←]	Interlace from edge to center with previous screen.
[INCOVER]	Interlace cover horizontally with previous screen.
[COVER ↑]	Cover up.
[COVER ↓]	Cover down.
[SCANLN]	Yellow dot scan from left to right from top row down, changing each pixel as it moves over it.
[EXPLODE]	Exploding firework.
[PACMAN]	PAC-Man chomps from left to right.
[FALL]	Falls down and stack up like sand in an hourglass.
[SHOOT]	Pixels are shot from right to left moving up and down.
[FLASH]	Flashes several times.
[RANDOM]	Each pixel is randomly changed.
[SLIDEIN]	Pieces are slide in from right to left.

*Note: If the message's length does not fit within the LED screen, the sign will use the push right method and ignored any designated display method.

NEXT : NEXT (EDIT MODE)

Scrolls forward through available options of various edit commands.

ON/OFF = **ALT** + **RUN** : ON/OFF (RUN MODE)

Turns the LED display on/off. On power up, the display will run the last saved program file, otherwise, the default program will run.

PAU = **ALT** + **MET** : PAUSE (EDIT MODE)

Duration a message will pause before moving on to the next command.
Hint: To pause for a time longer or different from what is listed below, use a combination of pauses back to back, i.e. [PAUSE1][PAUSE2] equals 5 sec.

Options	Description
[PAUSE1]	Pauses for a 2 second delay.
[PAUSE2]	Pauses for a 3 second delay.
[PAUSE3]	Pauses for a 4 second delay.
[PAUSE4]	Pauses for a 6 second delay.
[PAUSE5]	Pauses for a 10 second delay.
[PAUSE6]	Pauses for a 20 second delay.
[PAUSE7]	Pauses for a 30 second delay.
[PAUSE8]	Pauses for a 60 second delay.

PHR = **ALT** + **2** : ANIMATED PHRASES (EDIT MODE)

Eight preprogrammed animations for holidays and general phrases.

Options	Description
[ANIM1]	Merry Christmas.
[ANIM2]	Happy New Year.
[ANIM3]	July 4 th , US Independence Day.
[ANIM4]	Happy Easter.
[ANIM5]	Happy Halloween.
[ANIM6]	Don't Drink and Drive.
[ANIM7]	No Smoking.
[ANIM8]	Welcome.

PREV : PREVIOUS (EDIT MODE)

Scrolls backward through available options of various edit commands.

PROG : PROGRAM/EDIT MODE (EDIT & RUN MODE)

In run mode, press **PROG** to enter into Edit Mode. If password security is enabled, the correct password must be entered to gain access to edit mode. While in edit mode, press **PROG** to save the current modified program and/or select another program file to work on.

RUN : RUN (EDIT & RUN MODE)

In run mode, press **RUN** to select another program file (00-99) or sequence file (S0-S9) to run.

In edit mode, press **RUN** to save any modification to the current file and run it.

SPA : SPACE (EDIT MODE)

Inserts a blank space in the message.

[SPE] = [ALT] + [TIME] : SPEED (EDIT MODE)

How fast the message will appear in conjunction with display methods.

Options	Description
[SPEED1]	Fastest speed.
[SPEED2]	
[SPEED3]	
[SPEED4]	
[SPEED5]	
[SPEED6]	
[SPEED7]	
[SPEED8]	Slowest speed.

[SYM] = [ALT] + [ESC] : SYMBOLS (EDIT MODE)

There are 30 symbols and simple graphical representations of every day things. A description of each symbol is provided below. The first symbol is that of a "Sunny Day", then "Cloudy Day", and so forth.

Sunny Day	Cloudy Day	Rainy Day	Clock
Phone	Eye Glasses	Faucet	Rocket
Alien Creature	Key	Shirt	Helicopter
Car	Tank	House	Teapot
Pine Trees	Duck	Moped	Bicycle
Crown	Hearts	Right Arrow	Left Arrow
Lower Left Arrow	Upper Left Arrow	Mug	Chair
High Heel Shoe	Martini Glass		

Note: In edit mode, the actual symbol appears in the brackets and not the description, i.e. [←] for "Left Arrow".

[TIME] : TIME & ALARM (EDIT MODE)

Set timer and alarm commands.

Options	Description
SET TIME	Set the current time.
SET DATE	Set the current date.
ALARM	Set the number of alarms and at what interval between each alarm sound.
HOUR ALARM	Turn the hourly alarm on or off.
12-HOUR	Show time in 12 hour format with AM and PM.
24-HOUR	Show time in 24 hour military format.
ADD TIME	Insert the time into a program.
ADD DATE	Insert the date into a program.
OFF TIME	Set the time to automatically turn the LED sign off.
ON TIME	Set the time to automatically turn the LED sign on.
ADD TEMP*	Insert the temperature into a program.

*Note: Available only on models with temperature function installed.

APPENDIX B: INTERNATIONAL CHARACTER SETS

International characters are accessible by keying the English equivalent for the character you want and then using the **[NEXT]** or **[PREV]** keys in Edit Mode to scroll through the available international characters. For example, key in "?" and use the **[NEXT]** to get "¿" for a Spanish question mark.

The following is a list of available international characters and the corresponding English character. Use the **[NEXT]** or **[PREV]** keys to scroll through the character sets.

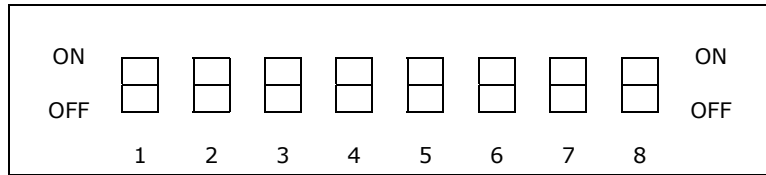
English	A	C	E	N	O	S	U	Z	\$?
International	Ä	Ç	É	Ñ	Ö	Š	Ü	Ž	¢	¿
	Å	Ć	Ę		Ó			Ž	£	
	Æ								¥	
									₣	
									f	
								€		

English	a	c	e	i	n	o	t	u	y	SPACE
International	â	ç	é	ï	ñ	ô	ť	ü	ÿ	α
	ä		ê	î	ń	ö		û		β
	à		ë	ì		ò		ù		Γ
	ã		è	í		ó		ú		π
	æ		ę							Σ
	ą									σ
	á									μ
	ą									τ
	ą									Φ
										θ
										Ω
										δ
										∞
										∅

APPENDIX C: DIP SWITCH SETTINGS

The DIP SWITCH is used for setting up the serial address of an LED sign in a network configuration and for password protection. To access the DIP SWITCH, remove the side covering where the power plug is located and pull out the circuit board carefully. **WARNING:** Opening the LED sign without authorization from the manufacturer can invalidate your warranty. Make sure to unplug the LED sign from the power source before opening the unit.

Below is a diagram on the DIP SWITCH layout.



DIP 1 to 7 are utilize for serial address configuration, while DIP 8 is use for password protection.

When the DIP is set to the ON position, the address bit value is zero. For example, if first seven DIP(s) are set to OFF, ON, ON, ON, ON, ON, ON, then the serial address is 01H in hexadecimal code.

When DIP 8 is set to the ON position, the LED sign's password protection mode is deactivated. Password protection cannot be activated using the infrared remote. When DIP 8 is set to the OFF position, password protection is enabled.

To reset a lost or forgotten password, move DIP 8 to the ON position and then back to the OFF position. The password is now reset to the default value "000".

TROUBLE SHOOTING

Problem	Possible Solutions
Nothing appears on the LED sign.	<ol style="list-style-type: none"> 1. Make sure the AC power supply is properly plugged into an electric outlet and to the back of the LED sign. 2. Make sure the electric plug to the AC power supply is firmly connected. 3. Check if the electric outlet has power. 4. Check if the auto on/off timer is properly set.
There is no response to the infrared remote.	<ol style="list-style-type: none"> 1. Check if the infrared remote's batteries still have power. If you are not sure, please replace all the batteries with working batteries. 2. Check if the batteries of the remote control are placed in the right polarity. Please follow the markings in the battery compartment. 3. When using the infrared remote, make sure you stand in front of the LED sign and point the remote directly at the display. Make sure there is nothing between the remote and the LED display to block the infrared signal
Nothing appears on the LED sign, but there is response to the infrared remote.	<ol style="list-style-type: none"> 1. Check if the auto on/off timer is properly set. 2. Check if there are no conflicting program files. If you are not sure, delete the following items. <ol style="list-style-type: none"> a. Remove all sequence files. b. Remove all alarms and on/off settings. c. Remove all saved files. d. Note: There are no ways to undo a delete, so be absolutely sure before you do so.

If the above procedures do not work, please contact your dealer.

