

# EC-1 Addendum

## Overview

This addendum replaces the menu map and menu item descriptions listed in Chapter 4 of the *EC-1™ User Manual* (p/n 60600101). With the addition of preset programming for stand alone operation, new options have been added to the EC-1 menu map. See individual subsections in this addendum for descriptions of each menu item and for preset programming information.

## Menu Map

EC-1 uses the same menu system found in Studio Color fixtures, which have pan and tilt movement. Because EC-1 does not have pan or tilt motion, the pan/tilt-related menu items listed in this menu map have no functionality.

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description	
ADDR	Fxx/Cxxx				change the existing fixture number/DMX start channel	
INFO	LAMP				view whether the lamp is on ("L ON"), off ("LOFF"), attempting to strike ("STRK"), or experiencing an error ("ERR")	
	L/HR				view the current number of lamp hours	
	L/ST				view the current number of lamp strikes	
	VER				view the fixture's software version	
	L/RS				reset lamp hours to zero ( <i>press and hold the &lt;Enter&gt; button for 5 seconds to zero the value</i> )	
	F/HR				view the current number of fixture hours	
	F/RS				reset fixture hours to zero ( <i>press and hold the &lt;Enter&gt; button for 5 seconds to zero the value</i> )	
	TEMP	CURR				view the fixture's current internal temperature (C)
						view the fixture's minimum internal temperature (C) reached since this option was reset
						view the fixture's maximum internal temperature (C) reached since this option was reset
						reset the fixture's minimum and maximum temperature values
	DMX	FIXT		ERRS		view the total number of DMX errors
				FE		view the number of DMX framing errors
				OV		view the number of DMX overruns
				CE		view the DMX checksum errors
				STRT		view the DMX start code value
				PANH		<i>this menu item has no functionality</i>
				PANL		<i>this menu item has no functionality</i>
				TLTH		<i>this menu item has no functionality</i>
				TLTL		<i>this menu item has no functionality</i>
			COLC		view the DMX color control value	
	COL		view the DMX fixed color wheel position value			

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
INFO	DMX	FIXT	CYAN		view the DMX cyan color wheel position value
			MAGN		view the DMX magenta color wheel position value
			YELW		view the DMX yellow color wheel position value
			LENS		view the DMX lens wheel position value
			FRST		view the DMX frost wheel position value
			SHUT		view the DMX shutter strobe value
			DIM		view the DMX shutter dim flag value
			MSPD		view the DMX MSpeed time value
			CNTL		view the DMX control channel value
			CSUM		view the DMX checksum value
	DATA	C001 - C512		view the DMX data for the selected DMX channel	
	SENS	SENP			<i>this menu item has no functionality</i>
		SENT			<i>this menu item has no functionality</i>
		SEN1			displays whether the fixed color wheel, cyan color wheel, and lens wheel sensor is obstructed ("OFF") or is not obstructed ("ON")
		SEN2			displays whether the magenta color wheel, yellow color wheel, and frost wheel sensor is obstructed ("OFF") or is not obstructed ("ON")
		SVCC			displays whether sensor is receiving power
		TIME			<i>Factory use only</i>
		PCOR			<i>this menu item has no functionality</i>
		TCOR			<i>this menu item has no functionality</i>
		DUTY			<i>this menu item has no functionality</i>
PPOS				<i>this menu item has no functionality</i>	
TPOS			<i>this menu item has no functionality</i>		
TEST	HOME			home the fixture	
	S/UP			place the fixture in setup mode for mechanical homing	
	SELF	ALL			self test all constructs
		PAN			<i>this menu item has no functionality</i>
		TILT			<i>this menu item has no functionality</i>
		COLR			self test fixed color wheel movement
		MAGN			self test magenta color wheel movement
		YELW			self test yellow color wheel movement
		CYAN			self test cyan color wheel movement
		LENS			self test lens wheel movement
		FRST			self test frost wheel movement
		SHUT			self test shutter strobe movement
	DIM			self test dim flag movement	
	BOOT			copy the boot sector	
	LAMP	STAT			view whether the lamp is on ("L ON"), off ("LOFF"), attempting to strike ("STRK"), or is experiencing an error ("ERR")
LOFF				extinguish the lamp	
L ON				strike the lamp	
DISP			self test LED display		
MODE	XLD			crossload fixture software to all other Studio Color 575, Studio Spot 575, ES-1, and EC-1 fixtures (with preset programming ability) on the link	
	TYPE	ES1		set the fixture type to ES-1	
		EC1		set the fixture type to EC-1	
SET	FACT	ON		set factory defaults on	

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description	
SET	FACT	OFF			set factory defaults off <i>Note: Selecting this option has no affect on individual preset values</i>	
	CHNL	DMX			set control method to DMX start channel	
		ADDR			set control method to fixture number	
	DSPL	ON			set LED display on	
		OFF			set LED display off	
		DIM			dim LED display	
	D/IN	ON			invert LED display orientation	
		OFF			set normal LED display orientation	
	P/IN	ON			<i>this menu item has no functionality</i>	
		OFF			<i>this menu item has no functionality</i>	
	T/IN	ON			<i>this menu item has no functionality</i>	
		OFF			<i>this menu item has no functionality</i>	
	SWAP	ON			<i>this menu item has no functionality</i>	
		OFF			<i>this menu item has no functionality</i>	
S/DN	5 MN			set shutdown time for 5 minutes		
	10MN			set shutdown time for 10 minutes		
LAMP	L ON			strike the lamp		
	LOFF			extinguish the lamp		
BOOT				copy the boot sector		
CODE				<i>Factory use only</i>		
PRST	PLAY	OFF			set preset playback off	
		ON			set preset playback on	
		SCN			display which scene is currently playing	
	EDIT	SN01 - SN16	SHUT	OPEN		open shutter
				CLSD		close shutter
				P001 - P120		periodic shutter strobe at specified intervals, slow (P001) to fast (P120)
				N001 - N120		shutter strobe at random intervals, slow (N001) to fast (N120)
			DIM	D000 - D255		select a dim value from dark (D000) to bright (D255)
			PAN	-185° - +185°		<i>this menu item has no functionality</i>
			TILT	-112.5° - +112.5°		<i>this menu item has no functionality</i>
			COLC	CN		allows continuous positioning at any point on the fixed, cyan, magenta, and yellow color wheels (full speed)
				FS		allows either a forward spin of the fixed color wheel <b>or</b> a variable speed, red-green-blue cycle of the cyan, magenta, and yellow color wheels (full speed)
				RS		allows either a reverse spin of the fixed color wheel <b>or</b> a variable speed, random cycle of the cyan, magenta, and yellow color wheels (full speed)
				LK		allows indexed positioning of the fixed color wheel so that the wheel takes the quickest path and snaps to the center of the color (full speed)
				2CN		same as a COLC value of CN, but allows up to 2 continuous rotations of the cyan, magenta, and yellow color wheels to allow a choice of path to the specified position
				2FS		same as a COLC value of FS
				2RS		same as a COLC value of RS
2LK		same as a COLC value of LK				

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description	
PRST	EDIT	SN01 - SN16	COLC	M CN	allows continuous positioning at any point on the fixed, cyan, magenta, and yellow color wheels (MSpeed)	
				M FS	allows either a forward spin of the fixed color wheel <i>or</i> a variable speed, red-green-blue cycle of the cyan, magenta, and yellow color wheels (MSpeed)	
				M RS	allows either a reverse spin of the fixed color wheel <i>or</i> a variable speed, random cycle of the cyan, magenta, and yellow color wheels (MSpeed)	
				M LK	allows indexed positioning of the fixed color wheel so that the wheel takes the quickest path and snaps to the center of the color (MSpeed)	
				M2CN	same as a COLC value of M CN, but allows up to 2 continuous rotations of the cyan, magenta, and yellow color wheels to allow a choice of path to the specified position	
				M2FS	same as a COLC value of M FS	
				M2RS	same as a COLC value of M RS	
				M2LK	same as a COLC value of M LK	
			COL	D000 - D358	select a color wheel position in degrees from 0° (D000) to 358° (D358) - only available with COLC value of CN, 2CN, M CN, or M2CN.	
				F001 - F124	select a fixed color wheel forward spin speed from slow (F001) to fast (F124) - only available with COLC value of FS, 2FS, M FS, or M2FS <i>Note: This option allows direct control of the cyan, magenta, and yellow color wheels</i>	
				M001 - M128	cycle the cyan, magenta, and yellow color wheels through 9 factory-selected colors from red to blue to green at variable speeds from slow (M001) to fast (M128) - only available with COLC value of FS, 2FS, M FS, or M2FS <i>Note: This option sets the fixed color wheel to the open "white" position and does not allow direct control of the cyan, magenta, or yellow color wheels</i>	
				STIL	stop any color wheel spin and move all wheels to the open "white" position - only available with COLC value of FS, RS, 2FS, 2RS, M FS, M RS, M2FS, or M2RS	
				R001 - R124	select a fixed color wheel reverse spin speed from slow (R001) to fast (R124) - only available with COLC value of RS, 2RS, M RS or M2RS <i>Note: This option allows direct control over the cyan, magenta, and yellow color wheels</i>	
				N001 - N128	randomly cycle the cyan, magenta, and yellow color wheels at variable speeds from slow (N001) to fast (N128) - only available with COLC value of RS, 2RS, M RS or M2RS <i>Note: This option sets the fixed color wheel to the open "white" position and does not allow direct control of the cyan, magenta, or yellow color wheels</i>	
				C 0 - C 5	select a fixed color wheel, full color position - only available with COLC value of LK, 2LK, M LK, or M2LK	
				CYAN	D000 - D358	select an exact position on the cyan color wheel from 0° (D000) to 358° (D358) - only available with COLC value of CN, LK, 2CN, 2LK, M CN, or M2CN
			MAGN		D000 - D358	select an exact position on the magenta color wheel from 0° (D000) to 358° (D358) - only available with COLC value of CN, LK, 2CN, 2LK, M CN, or M2CN
			YELW		D000 - D358	select an exact position on the yellow color wheel from 0° (D000) to 358° (D358) - only available with COLC value of CN, LK, 2CN, 2LK, M CN, or M2CN
			LENS		OPEN	select the open (no lens) position on the lens wheel
				D001 - D357	select a specific lens wheel position on either the radium, lenticular, or fibroid lens	

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
PRST	EDIT	SN01 - SN16	FRST	OPEN	select the open (no lens) position on the frost wheel
				D001 - D355	select a specific frost wheel position on either the frost, lenticular, or fibroid lens
			MSPD	NONE	disable MSpeed and allow for DMX controller crossfade
				0.15 - 252.7	select a motor movement time in decimal seconds, from fast (0.15) to slow (252.7)
			XFAD	X 0.1 - X 9.9	select the crossfade time for the DIM construct in increments of 0.1
				X 10 - X166	select the crossfade time for the DIM construct in increments of 1
			DLAY	D 0.1 - D 9.9	select the scene delay time in increments of 0.1
				D 10 - D166	select the scene delay time in increments of 1
			TIME	SEC	select seconds as the units of time used for the XFAD and DLAY constructs
				MIN	select minutes as the units of time used for the XFAD and DLAY constructs
	HOUR	select hours as the units of time used for the XFAD and DLAY constructs			
	ZERO	OK?	erase any programming of the current scene by voiding all construct values / mark the end of the loop		
	COPY	FROM	F 01 - F 16	select a scene to copy from (source scene)	
		TO	T 01 - T 16	select a scene to copy to (destination scene)	
	CAPT	SN01 - SN16		select a scene to capture a pre-programmed scene to (from your DMX controller)	
DFLT	OK?		enable the factory-programmed 16 preset scene sequence - erases any preset scenes previously programmed		

## Menu Options

The sections below explain how to access the fixture options shown in the fixture's menu map. For more information on preset programming, see page 20.

### Address Menu (ADDR)

Use the Address menu to quickly change the current fixture number/DMX start channel. Using this menu option, you can only change the *existing* fixture number to another fixture number, or the *existing* DMX start channel to another DMX start channel.

If you want to change the way you identify the fixture (i.e. change to a fixture number instead of a DMX start channel, or vice versa), complete the procedure described in "Setting the Fixture Shutdown Time (S/DN)" on page 16.

To change the current fixture number or DMX start channel:



1. Press and hold the <Menu> button until "ADDR" appears on the LED display.
2. Press the <Enter> button to select the "ADDR" menu.

or

3. Use the <Up> and <Down> arrow buttons to select a new DMX start channel (C001 - C512) / fixture number (F 01 - F xx). The LED display will flash when a new option is selected.
4. Press the <Enter> button to accept the new fixture number / DMX start channel. The LED display will stop flashing when a new option is entered. If you do not press the <Enter> button, the new option you selected will not be stored.

Note: Be sure you do not overlap fixture channel ranges when changing the fixture number/DMX start channel.

## Information Menu (INFO)

The Information menu allows you to view current fixture information such as lamp status, lamp hours, lamp strikes, software version, total fixture hours, internal temperature, sensor information, DMX errors, and DMX data for any other device on the link. You can also reset the lamp hours or fixture hours. The procedures below are listed in the order that they appear on the menu map.

### Viewing the Lamp Status (LAMP)

This menu option allows you to view the fixture's current lamp status.

To view the lamp status:

1. Press and hold the <Menu> button until "ADDR" appears on the LED display.

2. Using the <Up> and <Down> arrow buttons, scroll to the "INFO" menu and press the <Enter> button to select the "INFO" menu.

3. Using the <Up> and <Down> arrow buttons, scroll to the "LAMP" option. (This will be the first option displayed.) Press the <Enter> button to select the "LAMP" option. The LED will display "L ON" if the lamp is on, "LOFF" if the lamp is off, "STRK" if the lamp is attempting to strike, or "ERR" if the lamp is experiencing an error.

### Viewing the Current Lamp Hours (L/HR)

To view the number of hours the lamp has been on since this option was reset:

1. Press and hold the <Menu> button until "ADDR" appears on the LED display.

2. Using the <Up> and <Down> arrow buttons, scroll to the "INFO" menu and press the <Enter> button to select the "INFO" menu.

3. Using the <Up> and <Down> arrow buttons, scroll to the "L/HR" option and press the <Enter> button to select the "L/HR" option. The LED will display the number of hours the lamp has been on since this option was reset.

### Viewing the Number of Current Lamp Strikes (L/ST)

To view the number of times the fixture has attempted to strike (turn on) the current lamp:

1. Press and hold the <Menu> button until "ADDR" appears on the LED display.

2. Using the <Up> and <Down> arrow buttons, scroll to the "INFO" menu and press the <Enter> button to select the "INFO" menu.

- Using the <Up> and <Down> arrow buttons, scroll to the “L/ST” option and press the <Enter> button to select the “L/ST” option. The LED will display the number of times the fixture has struck the current lamp.

Note: Lamp strikes are automatically reset when the lamp hours are reset (see “Resetting Lamp Hours (L/RS)” below).

## Viewing the Current Software Version (VER)

To view the current software version:

- Press and hold the <Menu> button until “ADDR” appears on the LED display.

- Using the <Up> and <Down> arrow buttons, scroll to the “INFO” menu and press the <Enter> button to select the “INFO” menu.

- Using the <Up> and <Down> arrow buttons, scroll to the “VER” option and press the <Enter> button to select the “VER” option. The LED will display the fixture’s current software version.

Note: The software version is also displayed when you exit the menu system and the normal alphanumeric display cycles between displaying the software version, the fixture name, and the fixture address.

## Resetting Lamp Hours (L/RS)

This menu item allows you to track the number of hours the current lamp has been operating.

To reset the current lamp hours to zero:

- Press and hold the <Menu> button until “ADDR” appears on the LED display.

- Using the <Up> and <Down> arrow buttons, scroll to the “INFO” menu and press the <Enter> button to select the “INFO” menu.

- Using the <Up> and <Down> arrow buttons, scroll to the “L/RS” option and press the <Enter> button to select the “L/RS” option\*. The LED will display “0000” when the lamp hours are reset.

\*Note: This option has a 5-second delay to avoid inadvertent changes. To reset the lamp hours, you must press and hold the <Enter> button for at least 5 seconds.

## Viewing the Current Fixture Hours (F/HR)

To view the number of hours the fixture has been on since this option was reset:

- Press and hold the <Menu> button until “ADDR” appears on the LED display.

- Using the <Up> and <Down> arrow buttons, scroll to the “INFO” menu and press the <Enter> button to select the “INFO” menu.

- Using the <Up> and <Down> arrow buttons, scroll to the “F/HR” option and press the <Enter> button to select the “F/HR” option. The LED will display the number of hours the fixture has been on since this option was reset.

## Resetting Fixture Hours (F/RS)

This menu item allows you to track the number of hours the fixture has been operating.

To reset the fixture hours to zero:

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

2. Using the <Up> and <Down> arrow buttons, scroll to the “INFO” menu and press the <Enter> button to select the “INFO” menu.

3. Using the <Up> and <Down> arrow buttons, scroll to the “F/RS” option and press the <Enter> button to select the “F/RS” option\*. The LED will display “0000” when the fixture hours are reset.

\*Note: This option has a 5-second delay to avoid inadvertent changes. To reset the fixture hours, you must press and hold the <Enter> button for at least 5 seconds.

## Viewing the Logic Board Temperature (TEMP)

This menu option allows you to view the logic board’s current, minimum, and maximum temperatures. This option also allows you to reset the minimum and maximum temperature readings.

To view the logic board temperatures:

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

2. Using the <Up> and <Down> arrow buttons, scroll to the “INFO” menu and press the <Enter> button to select the “INFO” menu.

3. Using the <Up> and <Down> arrow buttons, scroll to the “TEMP” option and press the <Enter> button to select the “TEMP” option.

4. Using the <Up> and <Down> arrow buttons, scroll to the “CURR” option to view the current temperature, “MINT” to view the minimum temperature, “MAXT” to view the maximum temperature, or “RST” to reset the minimum and maximum temperature readings.

or

or

or

5. Press the <Enter> button to select the desired option. The LED will display the temperature of the fixture’s logic board in degrees centigrade.

The maximum temperature reading for the logic board is 99° C. If this maximum temperature is exceeded, the fixture will shut down and the LED panel will display “OVER TEMP.”

## Viewing DMX Status and Construct Values (FIXT)

This menu option allows you to view DMX status and construct values for the fixture. You should follow this procedure if you are having a particular problem with a fixture; for example, a color wheel that does not respond to commands from the controller.

The following DMX status information is available for viewing:

- ERRS - total number of DMX errors
- FE - number of framing errors



- OV - overruns (changing values could indicate data link/connector problems)
- CE - DMX checksum errors
- STRT - start code

The following construct values are available for viewing:

- COLC - color control value
- COL - color wheel position value
- CYAN - cyan color wheel position value
- MAGN - magenta color wheel position value
- YELW - yellow color wheel position value
- LENS - lens wheel position value
- FRST - frost wheel position value
- SHUT - shutter strobe value
- DIM - shutter dim flag value
- MSPD - MSpeed time value
- CNTL - control channel value
- CSUM - DMX checksum value

To view the DMX status and construct values:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

INFO

2. Using the <Up> and <Down> arrow buttons, scroll to the “INFO” menu and press the <Enter> button to select the “INFO” menu.

DMX

3. Using the <Up> and <Down> arrow buttons, scroll to the “DMX” menu and press the <Enter> button to select the “DMX” menu.

FIXT

4. Using the <Up> and <Down> arrow buttons, scroll to the “FIXT” menu and press the <Enter> button to select the “FIXT” menu.

5. Using the <Up> and <Down> arrow buttons, scroll to the desired DMX status or construct (listed above) and press the <Enter> button to select the desired option. The LED will display the selected DMX status or construct value.

If you are having a particular problem with the fixture, follow the steps above to select a construct and view its value. After noting the value of the construct you selected, use your controller to change that construct’s value.

If the value changes on the fixture’s LED display, but the fixture still does not respond, contact High End Systems customer service.

However, if the value does not change on the fixture’s LED display, remove the fixture from the DMX link and try to change the construct’s value using the fixture’s menu system. If the fixture then functions normally, the problem was likely with the DMX link. Otherwise, contact High End Systems customer service.

## Viewing DMX Data for Another Device (DATA)

This procedure allows you to use an EC-1 fixture to view DMX channel values for other devices on the DMX link. You should use this procedure either for testing devices that do not have built-in DMX diagnostics, or for fixtures that are physically inconvenient to monitor directly.

To view DMX data for another device on the DMX link:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

INFO

2. Using the <Up> and <Down> arrow buttons, scroll to the “INFO” menu and press the <Enter> button to select the “INFO” menu.

DMX

3. Using the <Up> and <Down> arrow buttons, scroll to the “DMX” menu and press the <Enter> button to select the “DMX” menu.

DATA

4. Using the <Up> and <Down> arrow buttons, scroll to the “DATA” menu and press the <Enter> button to select the “DATA” menu.

C001

5. Using the <Up> and <Down> arrow buttons, scroll to the desired DMX channel (C001 - C512) and press the <Enter> button to select the desired DMX channel. The LED will display the selected channel’s DMX value.

to  
C512

If you are experiencing a particular problem with a device on the link, follow the steps above to select a DMX channel in the device’s channel range and view its DMX value. After noting the value of the channel you selected, use your controller to change that channel’s value.

If the value of the DMX channel you selected does not change, there may be a problem with the DMX cable or your transmitting device (i.e. controller).

However, if the DMX channel value changes, but the device does not respond, the device may be faulty. Consult the documentation provided with that device for more information.

## Viewing Sensor Information (SENS)

This menu option allows you to view whether a specified sensor is working correctly. If you receive a “SENS ERR” error message on the LED display, this information may help you determine where the problem originates.

The following sensor information is available:

- SEN1 - view whether the fixed color wheel, cyan color wheel, and lens wheel sensor is obstructed (“OFF”) or is not obstructed (“ON”)
- SEN2 - view whether the magenta color wheel, yellow color wheel, and frost wheel sensor is obstructed (“OFF”) or is not obstructed (“ON”)
- SVCC - view whether the sensor is receiving power (“ON”) or is not receiving power (“OFF”)
- TIME - *Factory use only*

To view the specified sensor information:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

INFO

2. Using the <Up> and <Down> arrow buttons, scroll to the “INFO” menu and press the <Enter> button to select the “INFO” menu.

SENS

3. Using the <Up> and <Down> arrow buttons, scroll to the “SENS” menu and press the <Enter> button to select the “SENS” menu.

4. Using the <Up> and <Down> arrow buttons, scroll to the desired sensor option (listed above) and press the <Enter> button to select the desired option to view its sensor information.

# Test Menu (TEST)

The Test menu allows you to manually home the fixture, place the fixture in setup mode, perform fixture self tests, store new boot code information, and manually turn the lamp on or off. If you are experiencing problems that you suspect are mechanical, performing fixture self tests will help to determine where the problem originates. The procedures below are listed in the order that they appear on the menu map.

Note: To see the effects of the self tests, the lamp must be on. If the lamp is off when you run the self test, the LED will display “STRK” to indicate that the lamp is not struck, and the fixture will attempt to strike the lamp automatically.

## Homing the Fixture (HOME)

To manually home the fixture:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

TEST

2. Using the <Up> and <Down> arrow buttons, scroll to the “TEST” menu and press the <Enter> button to select the “TEST” menu.

HOME

3. Using the <Up> and <Down> arrow buttons, scroll to the “HOME” option. (This will be the first option displayed.)

4. Press the <Enter> button to select the “HOME” option. The LED will alternately display “RST” and “HOME” while the fixture homes.

## Placing the Fixture in Setup Mode (S/UP)

This menu item allows you to place the fixture in setup mode so that you can mechanically home your fixture. A fixture that is out of home (i.e., the dim flags lose position), will emit an unusually loud clicking noise when strobing or electronically homing. For more information on how to mechanically home the fixture, contact High End Systems customer service.

To place the fixture in setup mode:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

TEST

2. Using the <Up> and <Down> arrow buttons, scroll to the “TEST” menu and press the <Enter> button to select the “TEST” menu.

S/UP

3. Using the <Up> and <Down> arrow buttons, scroll to the “S/UP” option and press the <Enter> button to select the “S/UP” option.

4. When the LED displays “SET NOW,” mechanically home the fixture.

5. After mechanically homing the fixture, press any button. This causes the fixture to electronically home.

## Performing Self Tests (SELF)

This menu item performs the appropriate self tests for the following:

- ALL - performs all of the self tests listed below
- COLR - tests fixed color wheel movement
- MAGN - tests magenta color wheel movement
- YELW - tests yellow color wheel movement
- CYAN - tests cyan color wheel movement
- LENS - tests lens wheel movement
- FRST - tests frost wheel movement
- SHUT - tests strobe functions
- DIM - tests dim flag movement

To perform a self test:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

TEST

2. Using the <Up> and <Down> arrow buttons, scroll to the “TEST” menu and press the <Enter> button to select the “TEST” menu.

SELF

3. Using the <Up> and <Down> arrow buttons, scroll to the “SELF” menu and press the <Enter> button to select the “SELF” menu.

4. Using the <Up> and <Down> arrow buttons, scroll to the desired option (listed above). Press the <Enter> button to select the desired option. The fixture will perform the selected self test.

5. Press the <Menu> button to exit the test.

Note: The self tests will run continuously until you press the <Menu> button to exit the test.

## Copying the Boot Code (BOOT)

When you upload new software to EC-1 fixtures, the new software may contain a new boot code which must be copied to each fixture. This is apparent if the LED displays a “BOOT DIFF” error. *Do not remove power from the fixture while performing a boot copy.* You can copy the new boot code using either the TEST menu or the SET menu.

To accept and store the new boot code using the TEST menu:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

TEST

2. Using the <Up> and <Down> arrow buttons, scroll to the “TEST” menu and press the <Enter> button to select the “TEST” menu.

BOOT

3. Using the <Up> and <Down> arrow buttons, scroll to the “BOOT” option and press the <Enter> button to select the “BOOT” option. The fixture will store the new boot code, then automatically home.

## Turning the Lamp On or Off (LAMP)

You can manually turn the lamp on and off using either the TEST menu or the SET menu.

To manually turn the lamp on or off via the TEST menu:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

TEST

2. Using the <Up> and <Down> arrow buttons, scroll to the “TEST” menu and press the <Enter> button to select the “TEST” menu.

LAMP

3. Using the <Up> and <Down> arrow buttons, scroll to the “LAMP” menu and press the <Enter> button to select the “LAMP” menu.

4. Using the <Up> and <Down> arrow buttons, choose the “ON” option to strike the lamp, the “OFF” option to extinguish the lamp, or the “STAT” option to view the lamp status (for information on lamp status options, see “Viewing the Lamp Status (LAMP)” on page 6.

5. Press the <Enter> button to select the desired option.

## Testing the LED Display (DISP)

To perform a self-test on the LED display:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

TEST

2. Using the <Up> and <Down> arrow buttons, scroll to the “TEST” menu and press the <Enter> button to select the “TEST” menu.

DISP

3. Using the <Up> and <Down> arrow buttons, scroll to the “DISP” option and press the <Enter> button to select the “DISP” option. The LED will run through its self test.

4. Press the <Menu> button to exit the test.

Note: The self test will run continuously until you press the <Menu> button to exit the test.

## Mode Menu (MODE)

The Mode menu allows you to set the fixture type to either EC-1 or ES-1 and crossload software versions from one fixture to all other EC-1, ES-1, Studio Spot 575, and Studio Color 575 fixtures (with preset programming ability) on the link. The procedures below are listed in the order that they appear on the menu map.

## Crossloading Fixture Software (XLD)

EC-1, ES-1, Studio Color 575, and Studio Spot 575 fixtures (with preset programming ability) use the same software. Therefore, if you have a fixture with a newer software version, you can crossload the newer software to all other EC-1, ES-1, Studio Color 575, and Studio Spot 575 fixtures on the link.

To crossload software:

1. Disconnect or bypass any controllers, serial data distributors, data line optoisolators, and any fixtures using RS-422 communications (such as Dataflash® AF1000 xenon

strokes, Intellabeam® fixtures, and Emulator® laser simulators). These devices will block communication between your crossloading fixture and any other EC-1, ES-1, Studio Color 575, or Studio Spot 575 fixtures on the link.

ADDR

2. On the crossloading fixture *only*, press and hold the <Menu> button until “ADDR” appears on the LED display.

MODE

3. Using the <Up> and <Down> arrow buttons, scroll to the “MODE” menu and press the <Enter> button to select the “MODE” menu.

XLD

4. Using the <Up> and <Down> arrow buttons, scroll to the “XLD” option and press the <Enter> button to select the “XLD” option. The fixture will upload its software to all other EC-1, ES-1, Studio Color 575, and Studio Spot 575 fixtures on the link.

The Transmit LED on the crossloading fixture will remain on (or flicker). The Transmit and Receive LEDs on receiving fixtures will flicker while the crossload is in progress, and “UPLD” will appear on the alphanumeric display as each fixture receives the software upload. When the crossload has finished successfully, “DONE” will appear briefly in the LED display of the crossloading fixture, and all other fixtures will home.

Note: If a new boot code was included with the latest software, the LED will display a “BOOT DIFF” error. To correct the boot code, you must copy the new boot code for each fixture (see “Copying the Boot Code (BOOT)” on page 12).

## Setting the Fixture Type (TYPE)

Use this menu item to change the fixture type to either EC-1 or ES-1. All fixtures are shipped from the factory set to the correct fixture type. However, if the fixture’s logic board is replaced, you must ensure the new board is set to the correct fixture type.

To set the fixture type:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

MODE

2. Using the <Up> and <Down> arrow buttons, scroll to the “MODE” menu and press the <Enter> button to select the “MODE” menu.

TYPE

3. Using the <Up> and <Down> arrow buttons, scroll to the “TYPE” menu. (This will be the first menu displayed). Press the <Enter> button to select the “TYPE” menu.

EC1

or

ES1

4. Using the <Up> and <Down> arrow buttons, choose the “EC1” option for EC-1 fixtures, or the “ES1” option for ES-1 fixtures. Press the <Enter> button to select the desired option.

## Set Menu (SET)

The Set menu allows you to change the control method from a fixture number to a DMX start channel or vice versa, and either set all factory options to their default settings or change the factory options individually. The procedures below are listed in the order that they appear in the menu map.

## Setting Factory Defaults (FACT)

EC-1 fixtures are shipped from the factory with the following preset options set to the following defaults:

- LED display = on
- LED display invert = off
- shutdown = 5 min.

To return *all* preset options to their factory defaults settings:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

SET

2. Using the <Up> and <Down> arrow buttons, scroll to the “SET” menu and press the <Enter> button to select the “SET” menu.

FACT

3. Using the <Up> and <Down> arrow buttons, scroll to the “FACT” menu. (This will be the first menu displayed.) Press the <Enter> button to select the “FACT” menu.

4. Using the <Up> and <Down> arrow buttons, choose “ON” to set the factory option defaults on and press the <Enter> button to select the desired option.\*

\*Note: Although “OFF” is an available option in the FACT menu, selecting the “OFF” option will have *no effect* on the individual preset values. To change the value of any of the individual presets listed above, you must access each preset’s corresponding menu item. When you change any of the preset default values individually, this menu item will *automatically* be turned off.

## Changing the Control Method (CHNL)

Use this menu item if your fixture is currently set to the fixture number control method and instead, you want to use the DMX start channel control method, or vice versa. To simply change an existing fixture number to a different fixture number (or DMX start channel to a different DMX start channel), see "Address Menu (ADDR)" on page 5.

To change the control method:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

SET

2. Using the <Up> and <Down> arrow buttons, scroll to the “SET” menu and press the <Enter> button to select the “SET” menu.

CHNL

3. Using the <Up> and <Down> arrow buttons, scroll to the “CHNL” menu and press the <Enter> button to select the “CHNL” menu.

DMX

or

ADDR

4. Using the <Up> and <Down> arrow buttons, choose either the “DMX” option to address the fixture using a DMX start channel, or the “ADDR” option to address the fixture using a fixture number. Press the <Enter> button to select the desired option.

Note: After changing the control method, you must assign a specific DMX start channel (C001 - C512) or fixture number (F 01 - F xx) to each fixture (see "Address Menu (ADDR)" on page 5).


## Changing the Display Output (DSPL)

This menu item allows you to change the appearance of the fixture's alphanumeric LED display. You can set the display on or off, or you can dim the display to reduce visibility.

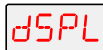
To change the display output:



1. Press and hold the <Menu> button until “ADDR” appears on the LED display.



2. Using the <Up> and <Down> arrow buttons, scroll to the “SET” menu and press the <Enter> button to select the “SET” menu.



3. Using the <Up> and <Down> arrow buttons, scroll to the “DSPL” menu and press the <Enter> button to select the “DSPL” menu.
4. Using the <Up> and <Down> arrow buttons, choose the “ON” option to set the LED display to normal intensity, the “OFF” option to turn the LED display off, or the “DIM” option to reduce the LED display visibility. Press the <Enter> button to select the desired option.

Note: If you set the LED display off, the LED display will be turned off only when you exit the menu system.

## Inverting LED Characters (D/IN)

This menu item allows you to invert the orientation of the LED display's alphanumeric characters. This option is useful if your fixture is standing upright (i.e., resting on its bottom panel on the floor).

To invert the LED display:



1. Press and hold the <Menu> button until “ADDR” appears on the LED display.



2. Using the <Up> and <Down> arrow buttons, scroll to the “SET” menu and press the <Enter> button to select the “SET” menu.



3. Using the <Up> and <Down> arrow buttons, scroll to the “D/IN” menu and press the <Enter> button to select the “D/IN” menu.
4. Using the <Up> and <Down> arrow buttons, choose the “ON” option to invert the fixture's alphanumeric characters, or the “OFF” option to return the fixture's alphanumeric characters to normal orientation. Press the <Enter> button to select the desired option.

## Setting the Fixture Shutdown Time (S/DN)

Use this menu item to set the fixture to automatically shutdown (or deactivate) either 5 or 10 minutes after DMX data is removed. When a fixture is in shutdown mode, the lamp is extinguished, power to the motors is disabled, and the LED display is turned off. Once a fixture is in shutdown mode, you must home the fixture to bring it back into operation.

To set fixture shutdown:



1. Press and hold the <Menu> button until “ADDR” appears on the LED display.



2. Using the <Up> and <Down> arrow buttons, scroll to the “SET” menu and press the <Enter> button to select the “SET” menu.



S/DN

3. Using the <Up> and <Down> arrow buttons, scroll to the “S/DN” menu and press the <Enter> button to select the “S/DN” menu.
4. Using the <Up> and <Down> arrow buttons, choose the “5 MN” option to enable shutdown after 5 minutes, or the “10MN” option to enable shutdown after 10 minutes. Press the <Enter> button to select the desired option.

## Turning the Lamp On or Off (LAMP)

You can manually turn the lamp on and off using either the TEST menu or the SET menu.

To turn the lamp on or off via the SET menu:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

SET

2. Using the <Up> and <Down> arrow buttons, scroll to the “SET” menu and press the <Enter> button to select the “SET” menu.

LAMP

3. Using the <Up> and <Down> arrow buttons, scroll to the “LAMP” menu and press the <Enter> button to select the “LAMP” menu.
4. Using the <Up> and <Down> arrow buttons, choose the “ON” option to strike the lamp, the “OFF” option to extinguish the lamp.
5. Press the <Enter> button to select the desired option.

## Copying the Boot Code (BOOT)

When you upload new software to EC-1 fixtures, the new software may contain a new boot code which must be copied to each fixture. This is apparent if the LED displays a “BOOT DIFF” error. *Do not remove power from the fixture while performing a boot copy.* You can copy the new boot code using either the TEST menu or the SET menu.

To accept and store the new boot code using the SET menu:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

SET

2. Using the <Up> and <Down> arrow buttons, scroll to the “SET” menu and press the <Enter> button to select the “SET” menu.

BOOT

3. Using the <Up> and <Down> arrow buttons, scroll to the “BOOT” option and press the <Enter> button to select the “BOOT” option. The fixture will store the new boot code, then automatically home.

## Preset Menu (PRST)

The Preset menu allows you to turn preset playback off or on, view which scene is currently playing, and create/edit a scene using the on-board memory to program the fixture for stand-alone operation. This menu also allows you to copy a scene within the fixture’s on-board memory, capture a scene from your DMX controller to the fixture’s on-board memory, and enable the fixture’s factory-programmed preset sequence (self demo).

## Setting Preset Playback (PLAY)

This menu option allows you to turn preset playback on or off and view which scene is currently playing in preset playback mode.

To set preset playback on or off, or to view the current scene:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

PRST

2. Using the <Up> and <Down> arrow buttons, scroll to the “PRST” menu. Press the <Enter> button to select the “PRST” menu.

PLAY

3. Using the <Up> and <Down> arrow buttons, scroll to the “PLAY” menu. (This will be the first option displayed). Press the <Enter> button to select the “PLAY” menu.

4. Using the <Up> and <Down> arrow buttons, scroll to the “ON” option to set preset playback on, the “OFF” option to set preset playback off, or the “SCN” option to display which scene is currently playing. Press the <Enter> button to select the desired option.

Note: Scene 1 *must* be programmed before the fixture can play back scenes.

## Editing or Creating an On-Board Memory Scene (EDIT)

This menu item allows you to edit or create a scene using the fixture’s on-board scene memory. Using this menu option, you can change the value of any construct in any of the on-board scenes. For detailed information on editing or creating a scene, see "Preset Programming" on page 21.

To edit/create a scene:

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

PRST

2. Using the <Up> and <Down> arrow buttons, scroll to the “PRST” menu and press the <Enter> button to select the “PRST” menu.

EDIT

3. Using the <Up> and <Down> arrow buttons, scroll to the “EDIT” menu and press the <Enter> button to select the “EDIT” menu.

SN01

4. Using the <Up> and <Down> arrow buttons, scroll to the scene (“SN01” to “SN16”) that you want to edit or create and press the <Enter> button to select the desired scene.

to

SN16

## Copying an On-Board Memory Scene (COPY)

ADDR

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

PRST

2. Using the <Up> and <Down> arrow buttons, scroll to the “PRST” menu and press the <Enter> button to select the “PRST” menu.

COPY

3. Using the <Up> and <Down> arrow buttons, scroll to the “COPY” menu and press the <Enter> button to select the “COPY” menu.

FROM

4. The LED will display “FROM.” Press the <Enter> button to enter the “FROM” menu.

F001

5. Using the <Up> and <Down> arrow buttons, scroll to the scene (“F001” - “F016”) that you want to copy from (source scene). Press the <Enter> button to select the desired scene.

to

F016

6. The LED will display “TO.” Press the <Enter> button to enter the “TO” menu.

7. Using the <Up> and <Down> arrow buttons, scroll to the scene (“T001” - “T016”) that you want to copy to (destination scene). Press the <Enter> button to select the desired scene.

The fixture will copy the desired scene to the selected scene location. When the fixture finishes the copy successfully, “DONE” will appear briefly in the fixture’s LED display.

## Capturing a Preset Scene (CAPT)

Preset capturing is a way to automate the creation of scenes on multiple EC-1 fixtures connected to a DMX 512 link. Use a DMX controller to create a scene, then save (capture) the scene into a fixture’s presets to play back the scene without the controller.

After creating a scene with your DMX controller, follow the instructions below for each fixture on which you want to capture preset scenes:

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

2. Using the <Up> and <Down> arrow buttons, scroll to the “PRST” menu and press the <Enter> button to select the “PRST” menu.

3. Using the <Up> and <Down> arrow buttons, scroll to the “CAPT” menu and press the <Enter> button to select the “CAPT” menu.

4. Using the <Up> and <Down> arrow buttons, scroll to the scene you want to copy the preset scene to (destination scene) and press the <Enter> button.

Pressing the <Enter> button will copy the DMX-512 controller’s preset scene to the selected scene on your fixture’s on-board 16 scene memory. When the fixture finishes the capture successfully, “DONE” will appear briefly in the fixture’s LED display.

Note: You must use the fixture’s on-board scene memory to *manually* select values for the XFAD, DLAY, and TIME constructs, since a DMX controller will not transmit those construct values. For more information on preset programming, see "Preset Programming" on page 21.

## Enabling the Preset Default (DFLT)

This menu item enables the factory-programmed 16 preset sequence or fixture self demo.

Enabling this menu item will *erase any pre-programmed scenes* or construct values on your fixture’s on-board memory.

To enable the self-demo:

1. Press and hold the <Menu> button until “ADDR” appears on the LED display.

2. Using the <Up> and <Down> arrow buttons, scroll to the “PRST” menu and press the <Enter> button to select the “PRST” menu.

3. Using the <Up> and <Down> arrow buttons, scroll to the “DFLT” menu and press the <Enter> button to select the “DFLT” menu. The LED display will show “OK?”

4. Press the <Enter> button to enable the self-demo or press <Menu> to exit the menu option.

Note: To play the fixture's self-demo, you must set preset playback on (see "Setting Preset Playback (PLAY)" on page 18).

# Programming Overview

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Before programming your fixtures, you must be aware of some programming terms and definitions. These terms are defined in this section.

## Scene

A scene is a combination of the different construct values you choose. A *construct* is a unique fixture feature; for example, focus, color, or rotating effects. Each scene consists of all of the construct values you select and can be as simple or complex as you want.

When you play back more than one scene, it becomes a *sequence*. A sequence that continuously repeats is called a *loop*.

EC-1 fixtures always play back all contiguously-programmed scenes in a continuous loop. The loop plays back until you either turn the fixture off or stop scene playback. You must create the scenes contiguously (in other words, scene 1, scene 2, scene 3, and so on without skipping a scene) because the fixture automatically repeats when it encounters the first unprogrammed scene.

## DMX Controller vs. Stand Alone Operation

You may save time by programming your fixtures using a DMX controller, and then capturing the scene to the on-board memory of multiple EC-1 fixtures. However, because controllers cannot transmit crossfade (XFAD), delay (DLAY), or time (TIME) construct values, you must use preset programming to manually set those construct values for each fixture.

You can use either a controller or the fixture's on-board memory to create and play back scenes, but not both at the same time. In other words, you cannot create a scene using the on-board memory and play it back using a controller. You also cannot use a controller at the same time onboard scenes are playing.

When using a DMX controller, you can program an unlimited number of sequences and retain direct control over the EC-1 fixtures at all times. Using preset programming, you can build one sequence (up to 16 preset scenes) per fixture. You can also synchronize scene playback for all fixtures on the link while operating in stand-alone mode. However, in stand-alone mode, once you begin playing back the sequence, you *do not* have direct control over the fixtures.

## MSpeed vs. Full Speed

Some constructs allow you to choose either full speed or MSpeed (motor speed) changes. A full speed change means the change is completed in the shortest length of time after the wheel starts

moving. An *MSpeed* (motor speed) change occurs smoothly over the entire *MSpeed* time value you assign.

For example, if you choose a value of 10 seconds for an *MSpeed* fixed color wheel change from position 2 to position 4, the fixed color wheel will take 10 seconds to move from position 2 to position 4. However, if your *MSpeed* value is longer than the crossfade or delay time, the color change will not be complete before the next scene starts.

All fixtures that have the same *MSpeed* value will reach their destination at the same time, regardless of the distance travelled. A DMX table of *MSpeed* times is shown in Appendix B of the *EC-1™ User Manual*.

## Forward and Reverse Spins

A forward spin on all wheels and positions means the wheel or position spins clockwise as you are looking at the projected image. A reverse spin means the wheel or position spins counter-clockwise.

# Preset Programming

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This section provides a step-by-step example of how to program your fixtures for stand-alone operation using the on-board memory in each fixture to create, store, and play back scenes. Preset programming involves accessing the fixture's menu system. For more information on how to access the menu system, see page 4-1 of the *EC-1™ User Manual*. For a complete menu map of the preset programming options, see "Menu Map" on page 1.

## Creating a Scene - Step By Step Example

Follow the example below to create a sample scene using the fixture's menu system to choose a value for each of the fixture's available constructs.

### Choosing a Scene to Create/Edit



1. Press and hold the <Menu> button until "ADDR" appears on the LED display.



2. Using the <Up> and <Down> arrow buttons, scroll to the "PRST" menu and press the <Enter> button to select the "PRST" menu.



3. Using the <Up> and <Down> arrow buttons, scroll to the "EDIT" menu and press the <Enter> button to select the "EDIT" menu.



4. Using the <Up> and <Down> arrow buttons, scroll to the scene you want to create (in this example, "SN01") and press the <Enter> button to select the desired scene.

### Opening the Shutter (SHUT)



1. Using the <Up> and <Down> arrow buttons, scroll to the "SHUT" construct. (This will be the first construct displayed.) Press the <Enter> button to select the shutter construct.

2. Using the <Up> and <Down> arrow buttons, scroll to the desired shutter value (in this example, “OPEN”) and press the <Enter> button to select the desired value.

## Selecting a Dim Value (DIM)

1. Using the <Up> and <Down> arrow buttons, scroll to the “DIM” construct and press the <Enter> button to select the dim construct.

2. Using the <Up> and <Down> arrow buttons, scroll to the desired dim value (in this example, “D255”) and press the <Enter> button to select the desired value.

## Choosing a Color Control Value (COLC)

1. Using the <Up> and <Down> arrow buttons, scroll to the “COLC” construct and press the <Enter> button to select the color wheel control construct.

2. Using the <Up> and <Down> arrow buttons, scroll to the desired color wheel control value (in this example, “FS”) and press the <Enter> button to select the desired value.

## Selecting a Color Wheel Position (COL)

1. Using the <Up> and <Down> arrow buttons, scroll to the “COL” construct and press the <Enter> button to select the Color wheel position construct.

2. Using the <Up> and <Down> arrow buttons, scroll to the desired Color wheel position value (in this example, “M056”) and press the <Enter> button to select the desired value.

## Selecting a Cyan Wheel Position (CYAN)

1. Using the <Up> and <Down> arrow buttons, scroll to the “CYAN” construct and press the <Enter> button to select the cyan color wheel position construct.
2. Using the <Up> and <Down> arrow buttons, scroll to the desired cyan color wheel position value and press the <Enter> button to select the desired value (in this example, a cyan color wheel position is not available because a COL value of “M056” was chosen) .

## Selecting a Magenta Wheel Position (MAGN)

1. Using the <Up> and <Down> arrow buttons, scroll to the “MAGN” construct and press the <Enter> button to select the magenta color wheel position construct.
2. Using the <Up> and <Down> arrow buttons, scroll to the desired magenta color wheel position value and press the <Enter> button to select the desired value (in this example, a magenta color wheel position is not available because a COL value of “M056” was chosen).

## Selecting a Yellow Wheel Position (YELW)

YELW

1. Using the <Up> and <Down> arrow buttons, scroll to the “YELW” construct and press the <Enter> button to select the yellow color wheel position construct.
2. Using the <Up> and <Down> arrow buttons, scroll to the desired yellow color wheel position value and press the <Enter> button to select the desired value (in this example, a yellow color wheel position is not available because a COL value of “M056” was chosen).

## Selecting a Lens Wheel Position (LENS)

LENS

1. Using the <Up> and <Down> arrow buttons, scroll to the “LENS” construct and press the <Enter> button to select the Litho wheel control construct.

D160

2. Using the <Up> and <Down> arrow buttons, scroll to the desired lens wheel position (in this example, “D160”) and press the <Enter> button to select the desired value.

## Selecting a Frost Wheel Position (FRST)

FRST

1. Using the <Up> and <Down> arrow buttons, scroll to the “FRST” construct and press the <Enter> button to select the litho wheel position construct.

D160

2. Using the <Up> and <Down> arrow buttons, scroll to the desired frost wheel position value (in this example, “D160”) and press the <Enter> button to select the desired value.

## Setting an MSPEED Value (MSPD)

MSPD

1. Using the <Up> and <Down> arrow buttons, scroll to the “MSPD” construct and press the <Enter> button to select the MSPEED construct.

1.5

2. Using the <Up> and <Down> arrow buttons, scroll to the desired MSPEED time in decimal seconds and press the <Enter> button to select the desired value.

In this example, you do not need to enter an MSPEED value because no constructs with MSPEED values were selected.

## Setting a Crossfade Value (XFAD)

XFAD

1. Using the <Up> and <Down> arrow buttons, scroll to the “XFAD” construct and press the <Enter> button to select the crossfade construct.

X 1.5

2. Using the <Up> and <Down> arrow buttons, scroll to the desired crossfade value in increments of 0.1 or 1 (in this example, “1.5”) and press the <Enter> button to select the desired value.

Note: The crossfade value affects the DIM construct. Set the unit of time used for crossfade (seconds, minutes, or hours) using the TIME construct.

## Setting a Delay Value (DLAY)

dLAY

1. Using the <Up> and <Down> arrow buttons, scroll to the “DLAY” construct and press the <Enter> button to select the delay construct.

d 6.0

2. Using the <Up> and <Down> arrow buttons, scroll to the desired delay value in increments of 0.1 or 1 (in this example, “6.0”) and press the <Enter> button to select the desired value.

Note: The delay value determines the length of the scene. If you want all motor transitions to be completed before the next scene begins, XFAD must be less than or equal to DLAY. If XFAD is longer than DLAY, the transition will not be completed before the next scene begins. Set the unit of time used for delay (seconds, minutes, or hours) using the TIME construct.

## Setting the Time Unit (TIME)

TIME

1. Using the <Up> and <Down> arrow buttons, scroll to the “TIME” construct and press the <Enter> button to select the time construct.

SEC

2. Using the <Up> and <Down> arrow buttons, scroll to the desired time value (in this example, “SEC”) and press the <Enter> button to select the desired value.

Note: This construct sets the unit of time used in for the XFAD values.

## Erasing the Scene (ZERO)

ZERO

1. Using the <Up> and <Down> arrow buttons, scroll to the “ZERO” construct and press the <Enter> button to select the zero construct.

OK?

2. The LED will display “OK?” (In this example, press the <Menu> button.) Pressing the <Menu> button will exit this construct and leave the current scene as programmed. Pressing the <Enter> button will erase the scene and mark the end of a loop.

## Creating a Loop

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A loop is a series of programmed scenes that continuously plays in sequential order. To create a loop, you must first create two or more contiguous scenes (see "Creating a Scene - Step By Step Example" on page 21). After you have created at least two scenes, go to the *next available* scene and choose the “ZERO” menu option to erase any programmed construct values and mark the end of a loop.

Note: If you program all available on-board scenes, you do not have to mark the end of the loop. When preset playback is set on, the fixture will automatically loop after playback of all programmed scenes.



# Playing Back a Loop

To play back a loop, you must set preset playback mode on for each fixture (see "Setting Preset Playback (PLAY)" on page 18). When preset playback is set on, your fixture will automatically begin playing back the first scene and continue through the loop.

Note: You *must* program scene 1 to enable preset playback.

The fixture has two ways to indicate that preset playback is on. First, the LED will display a dot in the lower right corner (see Figure 1). Second, during normal operation, the alphanumeric LED cycled information will be changed to display "PRST" instead of the fixture's software version ("Vxxx").

If power is removed during playback, when power is reapplied, the fixture will home and begin playback at the first scene. To stop playback, you must manually set playback mode off (see "Setting Preset Playback (PLAY)" on page 18).

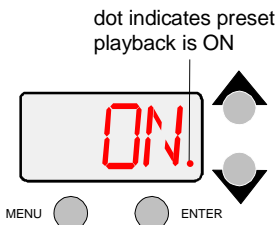


Figure 1. Preset playback indicator.

# Synchronizing Preset Playback

After you have created one or more scenes for your fixtures, you can synchronize the preset scene playback for all ES-1, EC-1, Studio Color 575, Studio Spot 575, Studio Color 250, Studio Spot 250, Technobeam, Technopro, or Technoray fixtures in the link.

Note: Synchronizing preset playback is applicable for fixtures operating in stand-alone mode only. Do not include a DMX controller in the link while synchronizing preset scene playback.

Synchronizing playback allows you to set all applicable fixtures to a "master clock" so that all fixtures have a definite, synchronized starting point when playing back their sequences (or loops). It is the master fixture which determines the sequence length for *all* the fixtures in the link, regardless of the number of programmed scenes or the sequence length of the individual slave fixtures.

When the master fixture reaches the end of its last scene, *all* fixtures will restart at scene 1 (regardless of whether the slave fixtures have finished playing their scenes) and *all* the "clocks" will be reset to zero. For example, if a slave fixture has a shorter sequence length, it will continuously

repeat its sequence until the master fixture resets all the clocks (see Figure 2). If a slave fixture has a longer sequence length, it will restart at scene 1 before it completes its entire sequence.

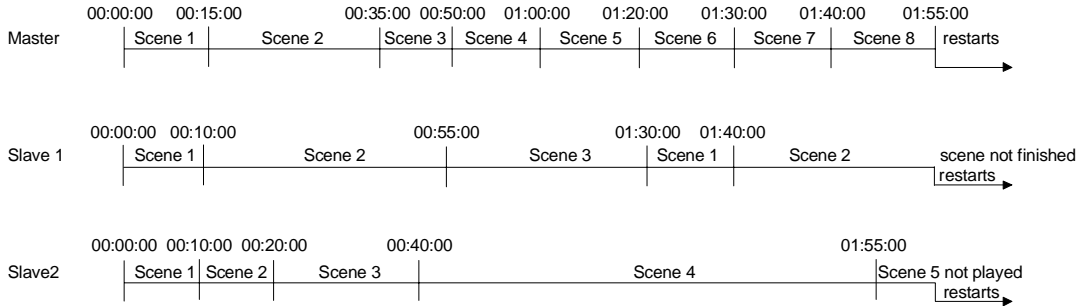


Figure 2. Example of synchronized playback.

To enable synchronized playback:

1. Link the fixtures you want to synchronize. Make sure you terminate the last fixture in the link and that there are no DMX controllers on the link.
2. Assign one fixture as the master fixture by assigning it a unique DMX start channel 1 or fixture number 1. Make sure *no other fixture* on the link is assigned DMX start channel 1 or fixture number 1.
3. Set preset playback on for all fixtures on the link (see "Setting Preset Playback (PLAY)" on page 18).

Note: If there is a controller on the link, or if more than one fixture is assigned a DMX start channel 1 or fixture number 1, the master fixture's LED will display "LINK BUSY ERR," wait for two minutes, then try to transmit the time code again.