AutoScroll

OPERATIONS MANUAL

Strand Lighting

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An unbound version of this manual is available as 2-450055-010 through Strand Lighting Engineering, but is not intended for general distribution.

No abbreviated version of this manual is available.

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SYSTEM INFORMATION

This section provides specifications and control layout information for AutoScroll.

QUICK REFERENCE

This section is a quick reference to command keystroke sequences used in AutoScroll, and not a comprehensive tutorial for inexperienced users. A step by step tutorial on AutoScroll operations starts with Chapter 6 of this manual.

TUTORIAL

This section is a tutorial for AutoScroll use. Use a controller with this manual to follow the steps outlined here and observe the results. Experienced users who do not wish to follow the tutorial should turn to Chapter 5 ("Command Formats") for a quick reference to available commands.

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INTRODUCTION

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1. ABOUT THIS MANUAL

This manual provides information on the operating procedures for AutoScroll.

1.1 Manual Organization

This manual contains 5 major sections as shown below.

INTRODUCTION

Manual organization, and definitions and conventions (chapter 1)
How to get help (chapter 2)

SYSTEM INFORMATION

Specifications (chapter 3)
Control Layout (Chapter 4)

QUICK REFERENCE

Command summaries for reference by experienced operators (chapter 5)

TUTORIAL

Step by step tutorial for detailed information and first time operators (chapters 6 through 9)

APPENDICES

Appendices A and B

1.2 Definitions

This manual uses the following definitions to avoid confusion.

Fixture

Any Strand Lighting color scroller or movable lighting fixture compatible with the Strand Lighting Motion Control Bus protocol.

Preset

A pre-defined setup of fixture intensities, positions, colors, etc., stored in memory for later replay.

Memory

Storage location for preset information.

Cue

The process of recalling a preset from its memory location and putting the result on stage.

Note: "Preset," "Cue," and "Memory" are often used interchangeably. This manual uses "Memory" throughout for consistency with console labeling.

Chase

A pre-defined series of memories called in sequence automatically, and continuously repeated.

Channel

The basic control unit used in AutoScroll. AutoScroll can control all 99 channels addressable on the Motion Control Bus. Fixtures respond to the channel number matching their fixture number (thumbwheel switch setting). A channel controls all fixtures set to the same fixture number.

Color

A single color frame in a Strand Lighting color scroller.

1.3 Conventions

The following conventions of capitalization apply in this manual:

[SEQ] (All capital Helvetica type face, surrounded by [ ]) Refers to the actual push-button labeled "SEQ." A sequence of button pushes is thus shown as [1][+][2][+][3] etc.

[SEQ]LED is the LED in [SEQ].

[CHAN-CLEAR] means "push [CHAN] and then push [CLEAR] while [CHAN] is pushed."

[list] refers to a single channel or list of channels formulated using [+] or [THRU].

{SPEED} (All capital Helvetica typeface, surrounded by { }) Refers to a motion control wheel or trackball.

ON (All capital Helvetica typeface) Refers to the status of a function or switch, as in "Turn the switch ON."

150 (Courier Bold type face) Refers to a number in a display window.

2. TECHNICAL ASSISTANCE

2.1   Problems

If equipment fails to operate properly upon installation, or under normal load and temperature conditions, and basic trouble-shooting procedures are not effective, please contact Strand Lighting Field Service at the office serving your area. Strand Lighting will issue an RGA (Return Goods Authorization) before the return of any defective materials.   This allows tracking of returned equipment, and speeds its return to you.

2.2   Technical Questions

For technical questions regarding setup, operation, or maintenance of this equipment, please contact the Strand Lighting Field Service office serving your area (see reverse side of manual title sheet for addresses and phone numbers).

2.3   Parts Purchases

For purchase of spare parts or documentation, Please contact Strand Lighting Customer Service in the Rancho Dominguez office.

2.4   Comments and Suggestions

For comments regarding equipment functions and/or possible improvements, please call or write to the Automated Fixuture Product Manager at the Rancho Dominguez office.

For comments on this manual, please write to the Documentation Manager at the Rancho Dominguez office.

SYSTEM INFORMATION

AutoScroll Operations Manual

This section provides specifications and control layout information for AutoScroll.

3. SPECIFICATION

AutoScroll uses solid-state memory for rapid storage and retrieval of up to 99 presets. Data is accessible at any time for playback or modification. The system is micro-processor based, and programmed specifically for control of Strand Lighting ShowChanger series automated color scrollers. It is available as a stand-alone controller, or as a drop-in module for LightBoard M consoles.

AutoScroll can control the color changing function on up to 99 channels of color scrollers and up to 16 color frames. A single 9-pin output connector provides for transmission of all power and control data.

Both a Live and a Preset are available in AutoScroll. Normal operation is in Preset Mode. 99 preset memories are available for recording color changes.

A single keypad allows random selection and recording of channels and colors in the 99 presets.

[+] ("and," or "plus") and [>] ("through") allow multiple channel control.

A Sequence Function allows a channel to use a sequence of colors rather than an individual color.

{SCROLL SPEED} and {SEQUENCE RATE} allow color change speed and sequence rate speed control.

4. CONTROLS AND DISPLAYS

The AutoScroll keyboard layout is shown below. All operator feedback (display) is via LEDs in the push-buttons, and two numeric LED displays.
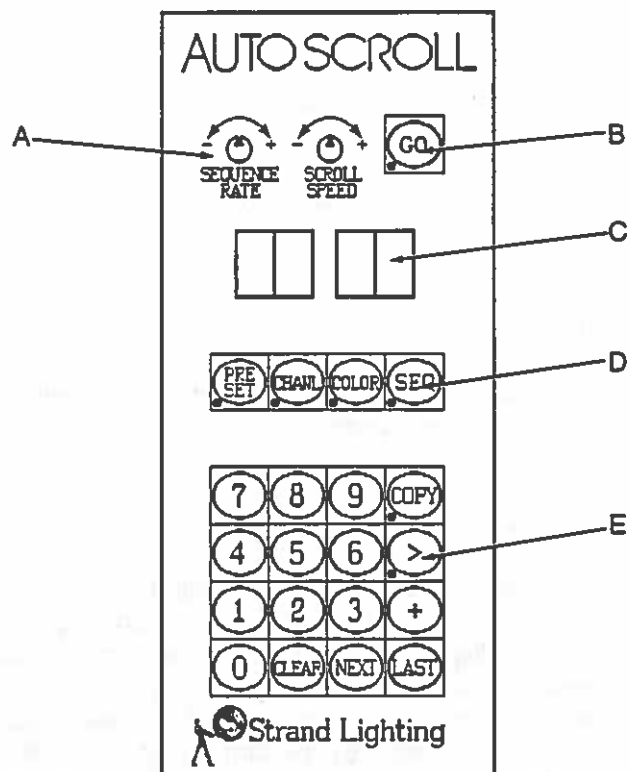

Figure 1. AutoScroll Control Layout

A.   **Speed Control**

Figure 2. Speed Control

Sets Sequence Rate (time between color changes) and Scroll Speed (speed of color string movement) via separate rotary controllers ({SCROLL SPEED} and {SEQUENCE RATE}). Clockwise controller motion increases the speed of both functions.

{SEQUENCE RATE} should remain in its fully clockwise position when sequences are not in use, since it also sets the interval between data updates to the scrollers.

B.   **[GO]**

Sends selected commands to fixtures, initiating the control sequence selected by the operator.

C.   **Numeric Displays**

AutoScroll has two (Left and Right) Numeric Displays, which have various modes during operation. Each display has two numeric LED segment displays, which mimic the actions being taken, and allow previewing of certain functions. Items displayed here follow the LEDs in the Mode Select switches. The Left Numeric Display shows the status of the mode controlled by the farthest left hand Mode Select switch with a lit LED. The Right Numeric Display shows the status of the mode controlled by the farthest right hand Mode Select switch with a lit LED. When only one Mode Switch LED is lit, the Right Numeric Display is blank. The various display modes are shown below.

1)   Preset Mode

-    [PRESET]LED is ON. [CHAN]LED is flashing.
-    Left Numeric Display shows selected preset number.
-    Right Numeric Display shows channel number. Default channel number is last channel addressed.

2)   Channel Mode

        -       [CHANL]LED is ON.
        -       [COLOR]LED or [SEQ]LED flashes to show whether the
                Right Numeric Display is a color or sequence number.
        -       Left Numeric Display shows last channel entry.
        -       Right Numeric Display shows color or sequence number
                (1-16).

3)   Color Mode

        -       [CHANL]LED and [COLOR]LED are ON.
        -       Left Numeric Display shows last channel entry.
        -       Right Numeric Display shows color assigned to channel.

4)   Sequence Mode

        -       [CHANL]LED and [SEQ]LED are ON.
        -       Left Numeric Display shows sequence number assigned
                to channel.
        -       Right Numeric Display shows color sequence assigned
                to channel.

5)   Program Sequence Mode

        -       [CHANL]LED and [SEQ]LED are ON.
        -       Left Numeric Display shows selected sequence.
        -       When this mode is first selected, Right Numeric Display
                is blank (if sequence has not been programmed) or
                shows first color number assigned to the sequence.
                While programming the sequence, this display shows
                the number being selected.

D. Mode Selection

Mode Selection Buttons determine the Control Keypad and Numeric Display functions. Push-button LEDs show Mode Selection status.

Figure 3. Mode Selection Buttons

1) [PRESET]

   Causes the next control keypad entry to select the preset for modification. All changes made after preset selection will modify information stored in the preset.

2) [CHANL] (Channel Button)

   Causes the next control keypad entry to select the channel for modification.

3) [COLOR]

   Causes the next control keypad entry to select fixture color.

4) [SEQ] (Sequence Button)

   Causes the next control keypad entry to select a sequence number rather than a color number. Used with [COLOR] to record sequences. Sequences 1 through 4 must be set in each preset before use. Sequences 5 through 16 are global sequences, and are the same in all presets. They may be set in any preset.
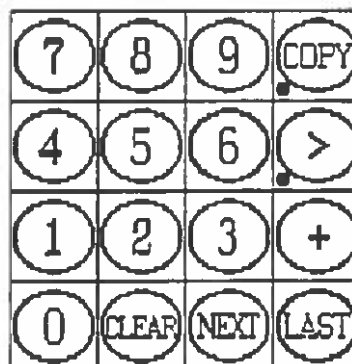
E.   **Control Keypad**

Figure 4. Control Keypad

1)   [0] through [9]

       Allows numeric value entry. Status of the Mode Selection section determines the meaning of these entries.

2)   [CLEAR]

       Clears current entry from display to allow entry of a new or corrected number.

3)   [NEXT]

       Increments the number in certain displays to allow easy cue recording, preview, and modification.

4)   [LAST]

       Decrements the number in certain displays to allow easy cue recording, previewing, and modification.

5)   [+] ("and," or "plus")

       Allows control of multiple channels (i.e. [1][+][2][+]...etc.), and color sequences recording. Used with [>] to select multiple channels (i.e. [1][+][4][>][6][+][1][0]).

6)   [>] (Through Button)

       Allows control of multiple channels (i.e. 1 > 10). May be used with [+] in some modes of operation.

7)   [COPY]

Allows copying of entire cues (including all sequences) from one preset to another. It does not allow copying information from one sequence to another, or copying individual channel information betwen presets or sequences.

QUICK REFERENCE

AutoScroll Operations Manual

This section is a quick reference to command keystroke sequences used in AutoScroll, and not a comprehensive tutorial for inexperienced users. A step by step tutorial on AutoScroll operations starts with Chapter 6 of this manual.

5. _COMMAND FORMATS_

5.1 _Select A Preset_

Key Entry: [PRESET][#]
Example: [PRESET][1][0]

> Selects the preset number to work in. All fixture motion in AutoScroll is done in a preset. Preset 0 (Zero) is a special preset which sends commands immediately to the stage, and is equivalent to a Live Mode.

Key Entry: [NEXT]

> While in Preset Mode, selects the next preset for modification. Will skip Live Mode (Preset 0).

Key Entry: [LAST]

> While in Preset Mode, selects the last preset for modification. Will skip Live Mode (Preset 0).

5.2 _Select Channel(s)_

Key Entry: [CHANL][#]
Example: [CHANL][2][5]

> Selects a channel for color change.

Key Entry: [CHANL][#][+][#]
Example: [CHANL][1][+][5][+][2][0]

> Selects random multiple channels for color change.

Key Entry: [CHANL][#][>][#]
Example: [CHANL][1][>][1][2]

> Selects a range of channels for color change.

Key Entry: [NEXT]

> While in Channel Mode, selects the next channel for modification.

Key Entry: [LAST]

> While in Channel Mode, selects the last channel for modification.

5.3   Select Color

Key Entry: [COLOR][#]
Example: [COLOR][1][6]

> Selects a color for the current channel.

Key Entry: [NEXT]

> While in Color Mode, selects the next color for modification.

Key Entry: [LAST]

> While in Color Mode, selects the last color for modification.

5.4   Record/Modify A Preset

The procedure for modifying presets is the same as initial recording.   Entering new channel information automatically updates the selected preset.

5.5   Copy A Preset

Key Entry: [PRESET][#][COPY][#][COPY]
Example: [PRESET][5][COPY][1][6][COPY]

> Copies the contents of the first preset number into the second preset.

5.6   Play Back A Preset

Key Entry: [PRESET][#][GO]
Example: [PRESET][5][GO]

> Plays back the selected preset on stage.

Key Entry: [NEXT][GO]

> Plays back the next preset on stage.

Key Entry: [LAST][GO]

> Plays back the last preset on stage.

5.7 Assign A Sequence To A Channel

Key Entry: [PRESET][#][CHANL][#][SEQ][#]
Example: [PRESET][1][CHANL][3][4][SEQ][5]

Assigns a sequence to the selected channel in the selected preset. The procedure for changing assignment is identical. The procedure for changing a sequence to a color is the same as assigning a color to a channel.

5.8 Preview/Record/Modify A Sequence

Key Entry: [PRESET][#][CHANL][SEQ][#][SEQ-COLOR]
Example: [PRESET][1][CHANL][SEQ][#][SEQ-COLOR]

Assigns a sequence to a channel in the selected preset and puts system into Program Sequence Mode. This allows preview or modification of the selected sequence.

Key Entry: [NEXT]

In Program Sequence Mode, displays the next channel in the selected sequence.

Key Entry: [LAST]

In Program Sequence Mode, displays the previous channel in the selected sequence.

Key Entry: [+][#]
Example: [+][5]

In Program Sequence Mode, adds the selected channel (or channels) to the sequence.

Key Entry: [#][+][#][+]...[+][#]
Example: [1][+][3][+][8]

In Program Sequence Mode, clears all former channels from the sequence and inserts the new sequence. This format is necessary to delete a channel from a sequence.

Key Entry: Any Mode Button

Exits from Program Sequence Mode.

5.9   Speed Control

Movement: {SEQUENCE RATE}

Selects the time between changes in a sequence. Clockwise controller motion increases sequencing speed (decreases sequencing intervals).

{SEQUENCE RATE} should remain in its fully clockwise position when sequences are not in use, since it also sets the interval between data updates to the scrollers.

Movement: {SCROLL SPEED}

Selects the rate of color movement.   Clockwise controller motion increases color change speed.

5.10   Clear Memory

Key Entry: [PRESET-CLEAR]

Clears memory to a known state (i.e. all channels set at color 1 in all presets). This does not clear sequences.

Key Entry: [PRESET][#][CHANL-CLEAR]

Clears selected preset only (i.e. all channels set at color 1 in selected preset).

TUTORIAL

AutoScroll Operations Manual

This section is a tutorial for AutoScroll use. Use a controller with this manual to follow the steps outlined here and observe the results. Experienced users who do not wish to follow the tutorial should turn to Chapter 5 ("Command Formats") for a quick reference to available commands.

6. CONTROL FIXTURES LIVE

This chapter show Live Mode control of fixtures. No preset information is changed using these procedures.

This demonstration requires scrollers set to channels 1, 2, and 3, each with at-least 6 colors in the gel string. If not, scrollers will not follow the actions as described.

{SEQUENCE RATE} should remain in its fully clockwise position when sequences are not in use, since it also sets the interval between data updates to the scrollers.

6.1 Control A Single Channel

A. Push [PRESET].

[PRESET]LED lights. All other LEDs are OFF. Left Numeric Display shows 1 (current preset number). Right Numeric Display is blank.

B. Push [CLEAR].

Left Numeric Display shows L (for "Live Mode"). Right Numeric Display remains blank.

C. Push [CHANL].

[CHAN]LED lights, and [COLOR]LED flashes. Left Numeric Display shows 1 (current channel number). Right Numeric Display shows 1 (home color).

D. Push [2].

Channel 2 is active. Left Numeric Display shows 2 (new channel number).

E. Select scroll speed with {SCROLL SPEED}.

Clockwise controller motion increases scroll speed, and counterclockwise motion decreases scroll speed. Movement of the controller after a change starts does not influence the change in progress.

F. Push [COLOR].

[CHAN]LED and [COLOR]LED are ON.

G. Push [5].

Right Numeric Display changes to **5** and channel 2 scrollers move to color 5.

H. Push [6].

Right Numeric Display changes to **6** and channel 2 scrollers move to color 6.

I. Move {SCROLL SPEED} while color string is moving.

There is no effect on changes in progress.

J. Push [CHANL][3].

Left Numeric Display changes to 3, and channel 3 is active.   Right Numeric Display changes to **1** (home color).

K. Push [COLOR][5].

Right Numeric Display changes to **5**.

6.2   *Control Multiple Channels With [+]*

A. Push [CHAN][1][+][3].

[CHAN]LED is ON and [COLOR]LED is flashing. Left Numeric Display shows **3** (the last channel number entered).   Right Numeric Display shows **5** (current color number).

B. Push [COLOR][3].

[CHAN]LED and [COLOR]LED are ON. Right Numeric Display changes to **3** and channel 1 and 3 scrollers move to color 3. Channel 2 scrollers do not move.

6.3   *Control Multiple Channels With [>]*

A. Push [CHAN][1][>][3].

[CHAN]LED is ON and [COLOR]LED is flashing. Left Numeric Display shows **3** (the last channel number entered).   Right Numeric Display shows **3** (current color number).

B. Push [COLOR][1][0].

[CHAN]LED and [COLOR]LED are ON. Right Numeric Display changes to **10** and channel 1, 2, and 3 scrollers move to color 10.

7.   PRESETS

A preset is a color change recorded for later playback. Since [GO] starts all actions, presets (except zero) are always recorded blind.   Use [GO] to start changes after each color assignment if required.

This demonstration requires scrollers set to channels 1, 2, and 3, each with atleast 6 colors in the gel string. If not, scrollers will not follow the actions as described.

{SEQUENCE RATE} should remain in its fully clockwise position when sequences are not in use, since it also sets the interval between data updates to the scrollers.

7.1   Record A Preset

The procedure for recording and modifying presets is the same. The process of recording a preset is always a modification, even if it is a modification from a cleared memory.

A.   Push [PRESET][1].

AutoScroll is in Preset Mode and [PRESET]LED is ON.   Left Numeric Display shows 1 (new preset number). Right Numeric Display is blank. A preset number must always be chosen **before** any channel or color selections or changes can be made.

To select a different preset at this point, enter the new preset number on the Control Keypad.   The new preset number will appear in the Left Numeric Display.

B.   Push [CHANL].

AutoScroll is in Channel Mode and [CHANL]LED is ON. [COLOR]LED is flashing. Left Numeric Display shows 1 (current channel number). Right Numeric Display shows 1 (home color).

C.   Push [COLOR].

AutoScroll is in Color Mode and [COLOR]LED is ON.

D.   Push [2].

Right Numeric Display changes to 2. Color 2 is assigned to channel 1 in preset 1. Nothing happens on stage.

E.   Push [GO].

Channel 1 scrollers move to color 2.

F. Push [CHANL][2][COLOR][5].

Left Numeric Display changes to 2 and Right Numeric Display changes to 5. Color 5 is assigned to channel 2 in preset 1.

Nothing Happens on stage, since [GO] was not pushed.

G. Push [CHANL][3][COLOR][3].

Left Numeric Display changes to 3 and Right Numeric Display changes to 3. Color 3 is assigned to channel 1 in preset 1.

H. Push [PRESET][2][CHANNEL][1][COLOR][8].

A new preset is chosen and channel 1 color recorded.

I. Set other channels as follows without pushing [GO]:

Preset 2   - Channel 2 - Color 5
                - Channel 3 - Color 1
Preset 3   - Channel 1 - Color 5
                - Channel 2 - Color 6
                - Channel 3 - Color 3

7.2   *Play Back A Preset*

A. Push [PRESET][1].

AutoScroll is in Preset Mode and [PRESET]LED is ON. All other LEDs go OFF. Left Numeric Display shows 1 (selected preset number). Right Numeric Display is blank.

B. Set scroll speed with {SCROLL SPEED}.

Clockwise controller motion increases scroll speed, and counterclockwise motion decreases scroll speed. Movement of the controller after a change starts does not influence the change in progress.

C. Set sequence rate with {SEQUENCE RATE}.

Clockwise controller motion increases sequence rate (shorter sequencing intervals), and counterclockwise motion decreases sequence rate. Movement of the controller after a change starts will change the sequence rate.

D.   Note that no color movement has taken place yet.

Be careful when setting scroll speed and sequence rate. Each color change must have time to complete before the start of a new color change. Scrollers ignore color change commands received during a color change.

E.   Push [GO].

[GO]LED flashes to show that data has been sent to the fixtures. AutoScroll is now back in Preset Mode. [PRESET]LED is ON. All other LEDs go OFF. Left Numeric Display Shows 1.

Scrollers move to cue 1 colors.

F.   Push [NEXT][GO].

Scrollers move to preset 2 colors. Channel 2 scrollers do not move, since they are the same color in both presets.

G.   Push [NEXT][GO].

Scrollers move to preset 3 colors.

H.   Push [LAST][GO].

Scrollers move to preset 2 colors.

7.3   *Copy A Preset*

Copying a previously recorded preset to a new location can be very handy when two presets are to be almost, but not quite, identical.

A.   Push [PRESET][1].

AutoScroll is in Preset Mode and [PRESET]LED is ON. All other LEDs go OFF. Left Numeric Display shows 1 (selected source preset). Right Numeric Display is blank.

B.   Push [COPY].

[COPY]LED lights. The source preset number remains in the Left Numeric Display.

D.   Push [5].

Left Numeric Display changes to 5 (selected destination preset).

E. Push [COPY].

  [COPY]LED goes OFF. Left Numeric Display changes back to 1 (source preset number).

  Preset 5 is now the same as preset 1.

7.4 *Clear A Preset*

A. Push [PRESET][5]

  Preset 5 is selected for modification.

B. Push [CHANL-CLEAR] (push [CHANL] and hold, then push [CLEAR] while holding [CHANL]).

  AutoScroll clears preset 5. All channels in preset 5 are set to channel 1.

7.5 *Clear All Presets*

Do not do the following if you are going to continue with the tutorial.

To clear all presets, push [PRESET-CLEAR] (push [PRESET] and hold, then push [CLEAR] while holding [PRESET]).

8. SEQUENCE

Sequences are multiple color changes used instead of a single color assignment. Sequences run through assigned colors in ascending numerical order regardless of entry order. Sequences 1 through 4 are unique to each preset. Sequences 5 through 16 are global.

This demonstration requires scrollers set to channels 1, 2, and 3, with at least 6 colors in the gel string. If not, scrollers will not follow the actions as described.

8.1 Record A Sequence

Sequences must be recorded in a non zero preset. Sequence numbers 1 through 4 are unique to their preset and must be set in the target preset. Sequences 5 though 16 are global. It does not matter what preset they are set in.

A. Push [PRESET][1] to select preset 1.

    [PRESET]LED is ON. Left Numeric Display shows 1 (new preset number). Right Numeric Display is blank. **Always choose a preset number before making channel or color selections or changes.**

B. Push [CHANL][2] to select channel 2.

    [CHANL]LED is ON and [COLOR]LED is flashing. Left Numeric Display shows 2 (selected channel number). Right Numeric Display shows 1 (current color number).

    Warning! If this step is omitted, the sequence will not record, even though a channel number appears by default in the Right Display Window in the next step.

C. Push [SEQ].

    [SEQ]LED is ON.

D. Push [1].

    Sequence 1 is active. Right Numeric Display shows 1 (selected sequence number).

E. Push [SEQ-COLOR].

    [SEQ]LED and [COLOR]LED go ON. [PRESET]LED and [CHANNEL]LED go OFF. Left Numeric Display shows 1 (selected sequence number). Right Numeric Display is blank, since there is no sequence 1 yet. If there were a sequence 1, the Left Numeric Display would show the first color number in the sequence.

F.   Push [1][+][3][+][6][+][7].

AutoScroll records the sequence in the current preset. **No color movement has taken place.**

G.   Set scroll speed with {SCROLL SPEED}.

Clockwise controller motion increases scroll speed, and counterclockwise motion decreases scroll speed. Movement of the controller after a change starts does not influence the change in progress.

H.   Set sequence rate with {SEQUENCE RATE}.

Clockwise controller motion increases sequence rate (shorter sequencing intervals), and counterclockwise motion decreases sequence rate. Movement of the controller after a change starts will change the sequence rate.

Be careful when setting scroll speed and sequence rate. Each color change must have time to complete before the start of a new color change. Scrollers ignore color change commands received during a color change.

I.   Push [GO].

The [GO]LED flashes onc, to show that data has been sent to the fixtures. [PRESET]LED goes ON. All other LEDs go OFF. AutoScroll is back in Preset Mode. Left Numeric Display shows 1 (current preset number). Right Numeric Display is blank.

Channel 2 scrollers begin sequencing. Channel 1 and 3 scrollers move to preset 1 colors.

8.2   *Stop A Sequence*

Push [PRESET][2][GO].

Scrollers move to colors in new preset and sequencing stops.

9.   PREVIEW

Using [PRESET], you can look at (preview) previously recorded cues and se-
quences without changing them.

9.1   Preview Channel Assignments

A.   Push [PRESET][2].

AutoScroll is in Preset Mode, and [PRESET]LED is ON. All other LEDs
go OFF. Left Numeric Display shows 2 (selected preset number). Right
Numeric Display is blank.

B.   Push [CHANL].

AutoScroll is in Channel Mode. [CHAN]LED is ON and [COLOR]LED is
flashing. Left Numeric Display shows 1 (current channel number). Right
Numeric Display shows 8 (channel 1 color number).

C.   Push [NEXT].

Left Numeric Display shows 2 (new channel number). Right Numeric
Display shows 5 (channel 2 color number).

D.   Push [LAST].

Left Numeric Display shows 1 (new channel number). Right Numeric
Display shows 8 (channel 1 color number).

E.   To change assignments during previewing, push [COLOR] or [SEQ]
and select the color or sequence number on the Control Keyboard.

9.2   Preview Sequences

A.   Push [PRESET][1].

AutoScroll is in Preset Mode and [PRESET]LED is ON. All other LEDs
are OFF. Left Numeric Display shows 1 (selected preset number). Right
Numeric Display is blank.

B.   Push [CHANL][2].

AutoScroll is in Channel Mode, and [CHAN]LED is ON. [SEQ]LED is
flashing, since a sequence is assigned to channel 2 in preset 1. Left
Numeric Display shows 2 (selected channel number). Right Numeric
Display shows 1 (current sequence number).

C.   Push [SEQ].

       [SEQ]LED stops flashing and turns ON. Right Numeric Display shows 1 (current sequence number).

D.   Push [SEQ-COLOR].

       [SEQ]LED and [COLOR]LED go ON. Left Numeric Display shows 1 (current sequence number). Right Numeric Display is blank.

E.   Push [NEXT].

       The first color number in the sequence appears in the Right Numeric Display.

F.   Push [NEXT].

       The second color in the sequence appears in the Right Numeric Display.

G.   Use [NEXT] and [LAST] to continue displaying the colors assigned to the sequence.

Appendix A

INSTALLATION RULES

AutoScroll Operations Manual

GENERAL

When installing automated fixtures, all normal precautions associated with lighting equipment installation must be observed. Remember that lamp dimming power and fixture control power are separate connections.

FANOUT

Fanout is the number of devices which can be hooked into an output. For ShowChanger components, fanouts for 120VAC, +24VDC (ParScan only), and Control signal must all be considered.

A.   **120VAC Fanout To Scrollers and Motorized Yokes**

120VAC fanout from any source device is 6 devices.

Sources are:

     1)   All controllers
     2)   Analog or Multiplexed Interface
     3)   Buffer box on "LOCAL" power
     4)   LiteScan Distro Box

Devices are:

     1)   All Scrollers
     2)   Motorized Yokes
     3)   Buffer Box on "REMOTE" power

B.   **120VAC And +24 VDC Fanout To ParScans**

+24 VDC Fanout applies only to Power Supply Boxes as a source and only ParScans as a device. 6 ParScans are allowed per Power Supply Box. Power Supply Boxes must connect to a local power source.

C.   **Control Signal Fanout**

Control signal fanout is 6 devices per active source. **Power Supply and Splitter Box outputs are** <u>not</u> **active sources, or devices.**

Active sources are:

     1)   Buffer Output
     2)   Analog or Multiplexed Interface Output
     3)   Control Console Output

Devices are:

     1)   All fixtures
     2)   Buffer Boxes

ALLOWED CABLE LENGTHS

Allowable distances between ShowChanger components are as follows:

Controller, Interface, or Buffer Box to next buffer point = 250 feet max.

Controller, Interface, or Buffer Box to Motorized Yoke = 250 feet max.

Controller, Interface, or Buffer Box to the last scroller when daisy chained = 100 feet max.

Splitter Box output to Scroller = 20 feet maximum.

Each ParScan must be connected to a Power Supply Box output. Power Supply Box to ParScan = 20 feet max.

Combined length of output cable per Power Supply Box = 100 feet max.

ONCE FIXTURES ARE INSTALLED, SET THUMBWHEEL SWITCHES TO THE ASSIGNED FIXTURE NUMBERS. **MAKE CERTAIN THAT FIXTURES ARE NOT CONNECTED WHILE SETTING THE THUMBWHEEL SWITCH, SINCE SUDDEN MOTION MAY RESULT.**

Appendix B

MOTION CONTROL DATA BUS

AutoScroll Operations Manual

ShowChangers use two types of cable for basic distribution. The following pin number assignments are made in the wire and on the connectors.

Pin #	Custom Atlas Cable (Green Cable) Wire Color	Pair #	Belden 9157 (Grey Cable) Wire Color	Pair #	Function
1	Yellow	2	Blue	2	+24 VDC
2	Green		Black	3	Transmit 0 Volts*
3	White		Black	4	AC Power Neutral
4	Red	2	Black	2	24 VDC Return
5	Black		Red	4	AC Power
6					Not Used
7	Brown	1	White	1	Transmit (0 volts idle)
8	Orange	1	Black	1	Transmit (5 volts idle)
9	Shield Drains		Green	3	Protective Ground

*Not used in later equipment, but useful for scope reference.
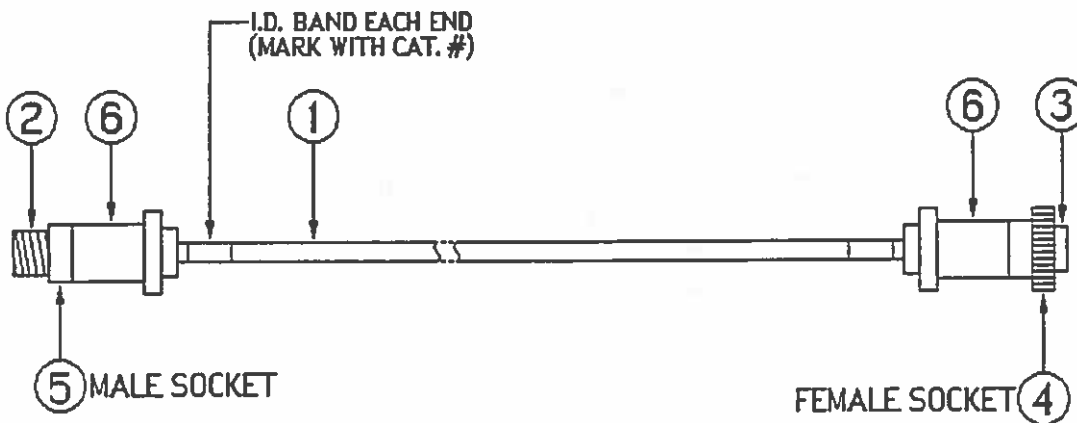
Item	Strand Part #	# Req.	Description
1	1-263157-000 or 6-263002-010		Belden #9157 Cable (Grey Cable) / Atlas Custom Cable (Green Cable)
2	1-411314-000	8	Crimp Pin, AMP 66098-9
3	1-411315-000	8	Crimp Socket, AMP 66100-9
4	1-229323-000	1	Plug Molding, AMP 206708-1
5	1-229444-000	1	Receptacle Molding, AMP 206705-2
6	1-141026-000	2	Connector Housing, AMP206966-1

Figure 5. ShowChanger Cable

GENERAL

The Strand Lighting Motion Control Data Bus is an 8 wire bus used for transmitting commands and power to ShowChanger automated fixtures.

TRANSMIT FORMAT

Rate = 62.5 Kbaud.

Format = 1 start bit, 8 data bits, 1 even parity bit, and 1.5 stop bits.

DATA FORMAT

Data is transmitted with a three byte header, followed by 100 data frames of 8 bytes each. Channel 1 is transmitted first and channel 99 last, followed by one blank channel frame.

FF	sync byte 1	)
FF	sync byte 2	)transmission header
AD	data stream identifier	)
XX	pan data	)
XX	tilt data	)
XX	color data	)
XX	speed data	)data frame per fixture
XX	gobo data	)
XX	iris data	)
XX	douser data	)
XX	focus data	)

CABLE

The control cable for Strand Lighting ShowChangers is a special prefabricated cable which carries signal, +24 VDC, and 120VAC. It does not carry AC power for fixture lamps. Fixture distribution must use this cable, which is available in several lengths, and can be connected end-to-end. Consult Strand Lighting Customer Service for available lengths and part numbers.

Transmit and T̄r̄ā̄n̄s̄m̄ī̄t̄ provide a differential signal for transmitting commands to Showchanger fixtures. Levels on these lines switch between 0 and 5 volts, out of phase with each other. Line drivers can drive up to 6 receiving units (fixtures or buffer boxes).

Receivers are opto-isolated. Transmit lines drive the opto-isolator LED. Early equipment used 8820 line receivers, and requires the transmit 0 volts (Pin 2).

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