Operation Manual

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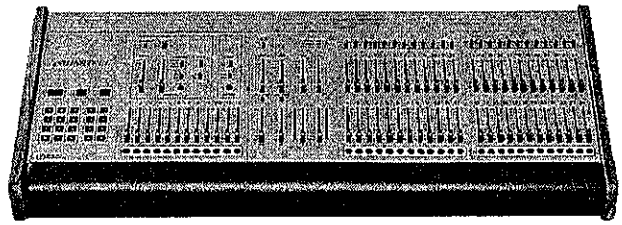


MINSTREL

Lighting Control Console

Table of Contents

This manual is supplied with your Minstrel lighting control console. Additional copies of this manual may be obtained from the factory for a nominal charge. It is recommended that you copy those portions of this manual applicable to your present use and preserve the original in a safe place.

NOTE:
Should you require assistance regarding the operation and/or service of this device, please call Electronic Diversified, Inc., during regular business hours.

Our toll free number is: **1-800-547-2690**
After hours Emergency Number: **(503) 645-5533** (Pacific Time Zone) Hillsboro, OR

WARNING:
Maximum ambient operation and storage environment for this equipment is 104°F (40°C), with 90% humidity, non-condensing. Extreme caution is advised when having liquids, food and cigarettes around any equipment. During severe electrical storms, equipment should be disconnected. Failure to adhere to these requirements may result in malfunction or serious damage.

1 Introduction

The Minstrel Lighting Control Console operates as a two-scene manual controller and as a memory console. The modular design allows for flexibility and is easily adapted to the user's control and space requirements. The Minstrel may control up to 512 dimmers from up to 48 channels.

The Minstrel is comprised of a crossfader module and at least one channel module containing 12 channels.

Up to four channel modules can be installed for 48 channels of control. Each channel can be assigned to Grand Master, Independent master or Independent control. A bump button is provided for each channel.

An optional proportional soft patch provides for operation of up to 512 dimmers. A digital display shows assigned channel and level assignments for dimmers.

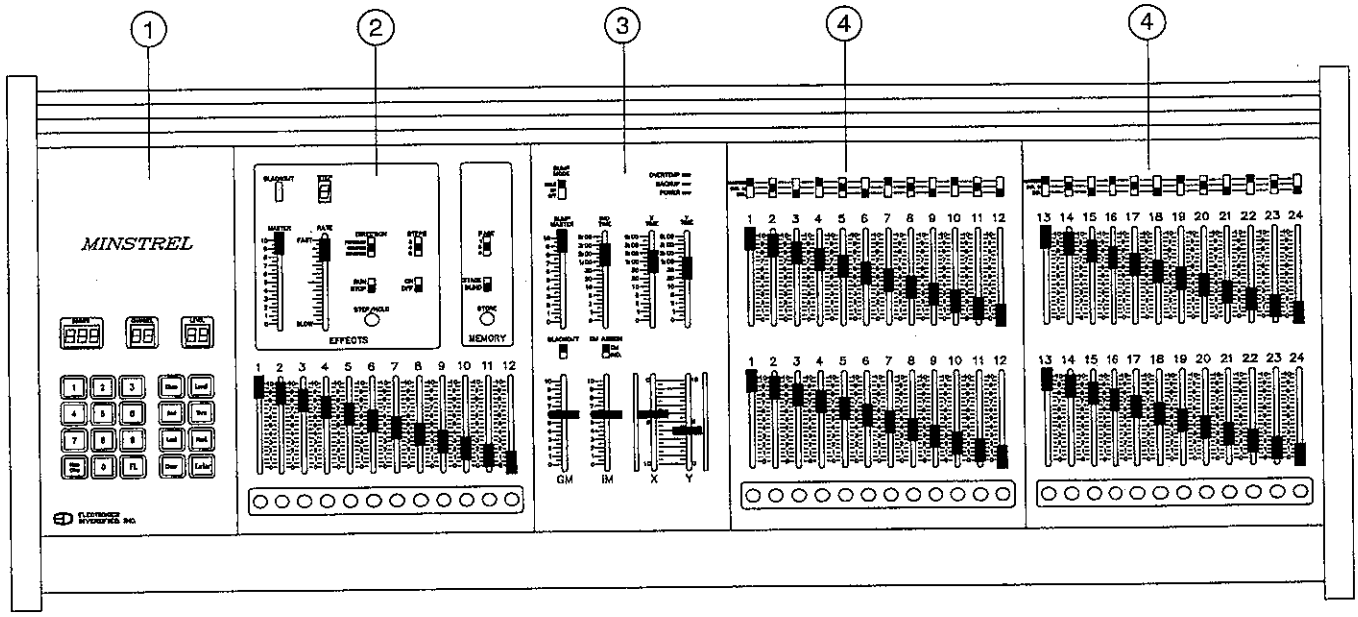
A memory/effects module with 12 sub masters may be added. This module has a 36-cue memory and blind submaster recording. Effects controls include 3-, 4- or 8-step chases, directional and rate controls, master effects control and a blackout switch.

The console provides USITT DMX-512 digital multiplex with an optional analog output. Programmed information is protected from power failure by a ten-year lithium battery.

Features

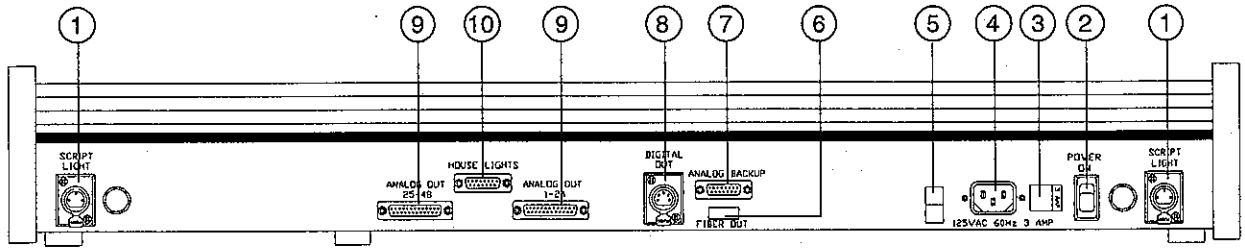
- Two-scene manual preset
- Modular design enables 12 to 48 channels of control
- X/Y crossfaders and independent masters with timers
- Operates as a two-scene manual control console
- Console outputs USITT DMX-512 digital multiplex signal
- Options include:
  - Three pages of 12 Submasters with special effects
  - Custom Houselight modules
  - Electronic proportional soft patch addresses up to 512 dimmers

Minstrel Front Panel Description



1. **Patch Module:** (Optional) Assigns dimmers to channels at proportional levels.
2. **Memory Effects Module:** Includes 12 submasters with bump buttons for simple memory load and playback features.
3. **Crossfader Module:** Allow preset scenes from the channel modules to be selected and played through the X/Y crossfader with variable times, or an Independent Master with timer.
4. **Channel Module:** Arranged in 2scenes of 12 channels each section, the channel module can be expanded to 48 channels.

Rear Panel Description



1. **Script Light and Dimmer** (Optional)
   An optional Script Light attaches here and is controlled by the corresponding dimmer.
2. **Power Switch** (ON/OFF)
   Supplies AC power to the console. The switch will light when the console is on, and the green power indicator LED on the front panel will also light.
3. **Circuit Breaker**
   In the event of a power surge or overload, the circuit breaker will open, protecting the console from damage. All programmed information is protected from loss by a ten-year lithium battery.
4. **AC Power Receptacle**
   Connects 120V AC power to console.
5. **Backup Switch**
   Provides capability to switch from multiplexed signal to analog back-up.
6. **Analog Backup** Output
   This connector supplies the 0-10V Analog backup outputs.
7. **Fiber-Link Output** Connector
   Connector for Fiber-Link signal.
8. **DMX-512 Output** Connector
9. **0-10 V Analog Output** Connnector
10. **Houselights** Connector (optional)

Options:

Patch Module:
Offers the capacity to assign dimmers to channels at porportional levels. An LED display allows information assigned to be altered or reviewed.

Script Lights:
Script lights are available for the Minstrel. The console comes standard with connectors and dimmer control.

Analog Backup:
If you have a complete EDI system, there may be an analog back-up option in the dimmer cabinet. This allows the first ten submaster sliders, when the console is switched to back-up, to control whatever stage dimmers have been assigned to those channels at the dimmer cabinet. The console is provided with a separate cable for the 0-10 +VDC for this system. The indicator light on the face of the crossfader module panel will light when the back-up function is turned on.

Houselights Module:
The custom houselights module integrates houselight controls into the control chassis.

2 Operation

Location Selection:
A desktop-size space that allows room for the console is all that's required. A single 110VAC (regular 3-prong) household outlet is necessary to supply power to the console.

Initial Setup:
If the console is part of a new EDI package, the system will be set up for connection when it is installed.

Setting up the Minstrel is a simple procedure. Connect the power cord to 120 VAC power.

Connect a dimmer cable control cable from the dimmer unit to the appropriate output on the rear panel (DMX, Fiber-Link or Analog).

Switch On the console POWER SWITCH.

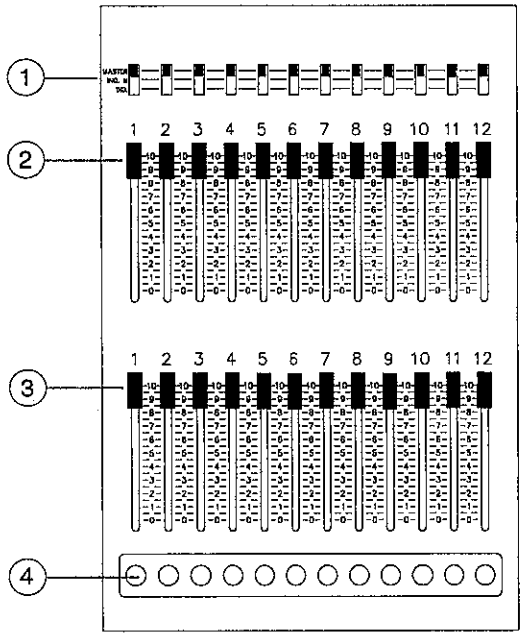
Settings:
If you are not familiar with the Minstrel console's operation, set the switches and sliders as illustrated on page 3.

NOTE: The Blackout switch in the blackout position or the Backup switch in the backup position will disable all channels. Always check the position of these switches if the console seems to malfunction.

Main Control Sliders:

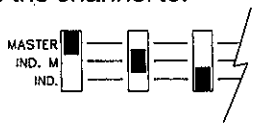
Individual control sliders set the channel intensities for each scene.

Channel Module Description



1. **Channel Mode Switch**
   This switch determines how an individual channel is affected by the Crossfader, Grand Master, and Independent Master.
2. **X-Channel Sliders**
   These sliders set the levels for the first scene and are mastered by the X Crossfader. They also control the levels for channels configured as Independent.
3. **Y-Channel Sliders**
   These sliders set the levels for the second scene and are mastered by the Y Crossfader. They are also used to set levels for blind programming of submasters.
4. **Bump Buttons**
   When pressed, these buttons affect individual channels, depending upon the Bump Master slider and Bump Mode switch.

A three-position selector switch above each channel assigns the channel to:



DETAIL OF ITEM (1), ABOVE

MASTER: Both Scene I and Scene II sliders are active, and are controlled by the crossfaders and timers, the Grand Master (GM) and the Blackout switch.

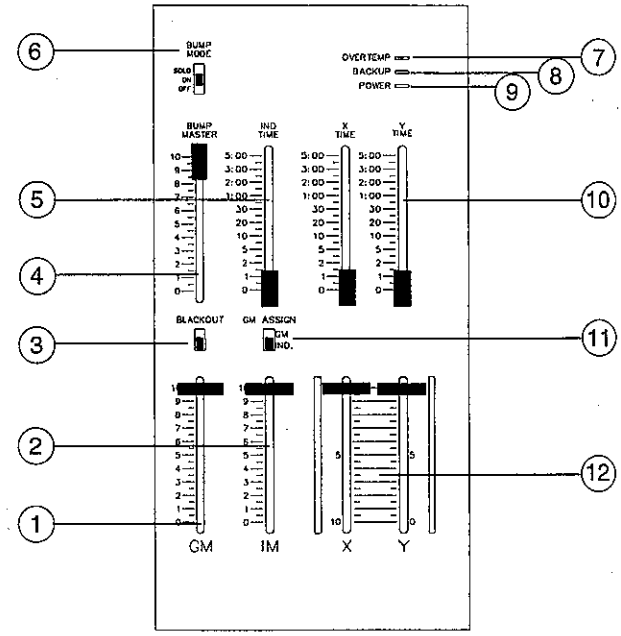
INDEPENDENT MASTER: Only Scene I sliders are active. They are controlled by the Independent Master (IM) and timer, and the Blackout switch. With the Grand Master Assign switch set to GM, the Grand Master also controls these channels.

INDEPENDENT: Only Scene I sliders are active, and no other controls except the Blackout switch affect the channels.

Crossfaders:

Only channels whose selector switches are in the Master position are controlled by the Crossfaders.

Crossfader Module Description



1. **Grand Master (GM)**
   ...allows the operator to proportionally reduce the levels of all control channels.
2. **Independent Master (IM)**
   ...allows the operator to proportionally reduce the levels of all control channels assigned to Independent.
3. **Blackout Switch**
   ...when activated (switch UP) will instantly black out the stage. When DOWN, all outputs to the stage will be unaffected.
4. **Bump Master**
   ...controls the level to which a channel or submaster goes when its corresponding bump button is pressed.
5. **Independent Master Timer**
   ...is provided on the Independent master. Fade time is adjustable from 0 to 5 minutes.
6. **Bump Mode Switch**
   ...alters the way the bump buttons work via a 3-position switch: ON, OFF, SOLO.
7. **Overtemp Indicator (red)**
   ...will light if an overtemperature condition is present in a remote dimmer.
8. **Backup Indicator (amber)**
   ...will light whenever the console is in the Analog Backup mode.
9. **Power Indicator (green)**
   ...will light whenever the console is turned on.
10. **Crossfader Timers**
    ...controls the fade rate for each fader.
11. **Grand Master Assign Switch (GM ASSIGN)**
    ...determines if the Independent Master is affected by the Grand Master.
12. **Crossfader (X - Y)**
    ...is a split dipless 2-scene fader with individual timers and fade progress indicators.

Crossfaders X - Y

The X slider controls the top row of channel sliders and the Y slider controls the bottom row. Bargraph LEDs indicate the status of the fade for each scene.

With both the X and Y faders up, Scene I is on stage; with both faders down, Scene II is on stage. As the faders are moved, each channel fades smoothly from one scene to the other.

The crossfaders are positioned back-to-back so that they may be moved together for a normal crossfade or separately for lead/lag or pile-on fades.

For a lead/lag, move both faders in the same direction, one faster than the other. Each scene will fade to match the settings of its side of the crossfader.

For a pile-on, move each fader toward 10. The intensity of each channel will be the greater of the two settings for each channel.

Timers:

Three timers are provided, one each for X and Y faders and one for the Independent Master (as shown in Item 5 and 12, Figure 4).

Timers are calibrated from 0 to 5 minutes. To use them, set the slider to the time desired and move the crossfader (or Independent Master) FULL up. The stage will fade to the preset levels in the time set. Move the crossfader (or Independent Master) FULL down, and the stage will fade in the preset time.

The fade time may be changed at any time by moving the slider. To regain manual control during a timed fade, return the timer setting to 0.

Grand Master (GM):

The Grand Master controls all channels assigned to the faders (GRAND MASTER ASSIGN switch set to GM position). When the control is at 10, all channels will be unaffected. When the control is at 0, all channels will operate at 0 intensity. At 5, all channels will operate at half intensity. With the GRAND MASTER ASSIGN switch set to GM, it also controls channels assigned to the Independent Master.

Independent Master (IM):

The Independent Master controls all channels assigned to it (GRAND MASTER ASSIGN switch set to IND position). When the control is at 10, all channels are unaffected. When the control is at 0, all channels are at zero.

Bump Modes:

SOLO: When one or more bump buttons are pressed, the corresponding channels will instantly assume the level of the Bump Master. All other channels except to channels assigned as an independent channel will be blacked out.

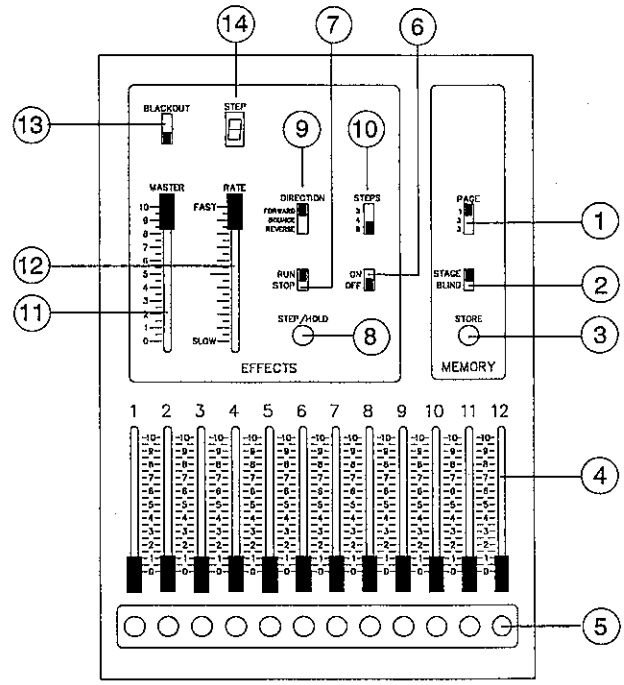
ON: When a bump button is pressed, the channel will be brought up to the level on the Bump Master slider. This level is not affected by the crossfader. Bump buttons pile on to the outputs of the crossfader. If the crossfader output for the channel being bumped is greater than the level set by the Bump Master, the bump button will have no effect.

OFF: When the Bump Mode is set to off, all submaster and channel bump buttons are disabled.

Memory Functions:

The Memory module provides effects and submaster memories.

Memory / Effects Module Description



MEMORY FUNCTIONS

1. **Page Switch**
   One of three different pages of submaster memories may be selected.
2. **Stage/Blind Switch**
   When this switch is in the Stage position, the Submaster memories are stored with the Live Stage intensities. When in the Blind position, the levels of the bottom row of channel sliders may be stored into a submaster memory.
3. **Store Button**
   This is used to store a scene to an individual submaster on a memory page, selected by the Page switch.
4. **Submasters**
   The 12 submaster sliders are used to store pre-recorded scenes, using any or all of the channels, into the memory. There are three pages of the 12 submasters, totalling 36 memories.
5. **Bump Buttons**
   Submaster bump buttons act like channel bump buttons, but bump the information recorded in that submaster. The submaster bump buttons are affected by the Bump Master.

(continued)

Memory/Effects Module (cont'd)

EFFECTS FUNCTIONS:

6. **On/Off Switch**
   This switch turns the effects on and off.
7. **Run/Stop Switch**
   This switch starts and sops the effect.
8. **Step/Hold Button**
   Pressing this button when an effect is running will hold a step for as long as it is pressed down. Pressing this button when the effect is stopped will cause the effect to advance to the next step.
9. **Direction Switch**
   This switch alters the direction of effect. In the FORWARD position, the effect will run in the order that is was recorded at the rate set by the Rate slider. In the REVERSE position, the same happens, only backwards. When set to BOUNCE, the effect will go forward and then backwards (1-2-3-2-1-2-3...).
10. **Steps Switch**
    This switch selects the number of steps in the effect. Three, four, or eight steps are possible. Each step corresponds to the like-numbered submaster.
11. **Master Slider**
    This slider varies the intensity of the effect which is running.
12. **Rate Slider**
    This slider varies the speed of the effect which is running.
13. **Blackout Switch**
    This switch blacks out the current effect. When activated (in the UP position), the effects stage instantly blacks out. Non-effect setting remain unaffected.
14. **Step Display**
    This display shows the current effect step.

Submaster Memories:

There are three sets of memories which are selected by the position of the PAGE switch. You can access and store levels by placing the PAGE switch in the desired position (1, 2 or 3).

The STAGE / BLIND switch allows recording of all levels either ON STAGE (Scene I sliders and all other controls), or of the "blind" levels (Scene II sliders only).

To store a scene:

1. Select a page using the PAGE select switch.
2. To record the levels ON STAGE, set the STAGE / BLIND switch to STAGE, hold down the STORE button and press the desired submaster bump button.
3. To record the levels NOT ON STAGE, set the STAGE / BLIND switch to BLIND, hold down the STORE button and press the desired submaster bump button.

The recorded levels of the submasters can be displayed on stage by moving the desired submaster slider or by pressing the corresponding bump button.

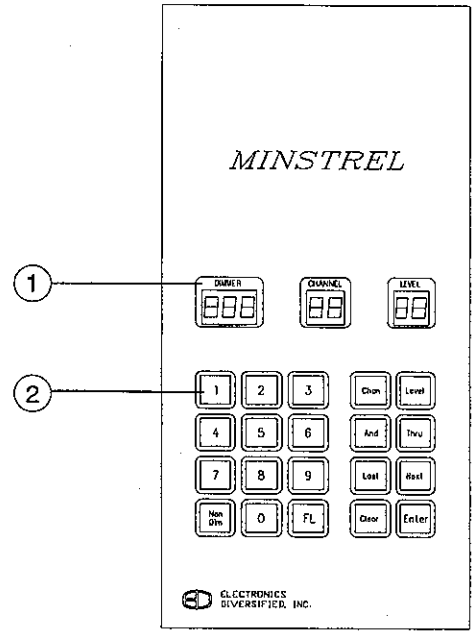
Effects:

Levels set into the submasters may also be used as effects. The Minstrel will cycle through the submasters just as if you raised each of the submaster sliders up one at a time. The number of steps in an effect is selected by the 3 - 4 - 8 switch. Direction is controlled by the DIRECTION and RUN / STOP switches

Patch Operation (optional)

The Patch module allows dimmers to be assigned to channels in other than a 1 - 1 manner. Each dimmer may be assigned to a channel. The dimmer may also be assigned a proportional patch level. When a dimmer is patched at a level less than FL (100%), the dimmer will only reach that level when the control level slider is at FULL.

Patch Module Description



1. **Displays**
   ...show the current Dimmer, Channel, and Level information.
2. **Keyboard**
   ...sets Dimmer, Channel and Level assignments.

The Patch has three sets of displays:
Dimmer-The dimmer number being accessed.
Channel-The channel assigned to the displayed dimmer.
Level-The proportional level assigned to the displayed dimmer.

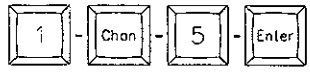
You can check on the channel level of any dimmer by entering the dimmer number and pressing ENTER. At this point, you can check other dimmers by pressing the NEXT and LAST keys to step through dimmer numbers.

Assigning Dimmers to Channels

To program a dimmer to a desired channel:

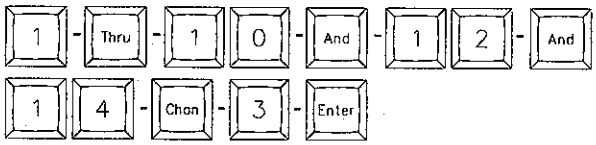
1. Enter the Dimmer number.
2. Press CHAN.
3. Enter the Channel number.
4. Press ENTER.

Example: To assign Dimmer 1 to Channel 5, type in the following sequence:



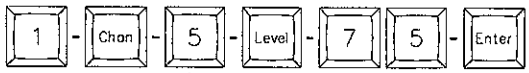
Assigning Dimmers to Channels (cont'd)

Multiple dimmers may be programmed at the same time by using the AND and THRU keys, for example:



Assigning Proportional Patch Levels:

The Level key is used to patch a Dimmer to a proportional level, for example:



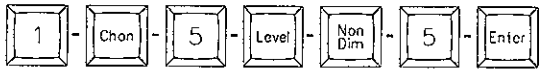
Use the 

key to patch a Dimmer to 100%.

Assigning Non-Dims:

When a dimmer is assigned as a NON-DIM, it will switch on to FULL when the control channel meets a specific level.

To assign a Dimmer as a non-dimmer, add the NON-DIM key into the patch sequence as follows:



This will assign Dimmer 1 to Channel 5 and cause the dimmer to come on FULL when Channel 5 is greater than 50%.

Special Commands

Several Special Patch commands may be activated by using dimmer numbers above 512.

To activate these functions, type in the dimmer number and press ENTER.

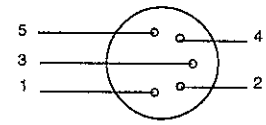
DIMMER NUMBER	FUNCTION
7XX (701-742)	Set the number of dimmers (times 12) that the patch will output. For examle, 701 will output 12 dimmers, 716 will output 192 dimmers, and so on.
900	CLEAR ALL will erase all the memories, and assign the dimmers to channels in a 1-1 relationship. Dimmers with numbers higher than the highest channel number will be assigned to channel 0.

NOTE: Blackout must be active (UP position) for these special commands to work.

Control Connections

The output is a 5-pin XLR type, and the mating connector is a Cannon #XLT-5-11C. The output connections and signal names are listed below:

DMX DIMMER OUTPUT:



WIRING CONNECTIONS:

1. Signal Ground
2. Dimmer Data -
3. Dimmer Data +
4. No connection
5. Overtemp*

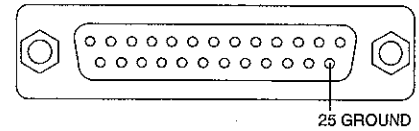
*Grounding to overtemp line will cause the overtemp indicator on the console to light.

Analog Backup

When the console is in analog backup mode, the amber LED is lit. DMX. Fiber-Link, and 0-10V analog outputs are disabled and the Analog backup outputs are enabled.

The analog backup output supplies ten 0 - 10V signals, which are controlled by the first ten submaster sliders. When the switch is returned to the Normal position, regular operation resumes. There are two analog output connectors . One drives dimmers 1-24, and the other drives dimmers 25-48. The output is a 25D and the mating connector is a D B-25-P.

ANALOG BACKUP OUTPUT: 25-PIN D TYPE



PIN #	1-24	25-48
1	1	25
2	2	26
3	3	27
4	4	28
5	5	29
6	6	30
7	7	31
8	8	32
9	9	33
10	10	34
11	11	35
12	12	36
13	13	37
14	14	38
15	15	39
16	16	40
17	17	41
18	18	42
19	19	43
20	20	44
21	21	45
22	22	46
23	23	47
24	24	48
GROUND	GROUND	GROUND