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Installation and Service Manual

SHOWMATION

Automation Control System
Version 4.xx

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SHOWMATION Automation Control System Ver. 4.xx

Table of Contents

SMART products are designed to deliver unsurpassed quality in workmanship and performance. The following information gives detailed instructions on the installation and operation of the SMART SHOWMATION automation. We strongly encourage new owners of the SHOWMATION to thoroughly read this entire manual before placing their new SMART product into service. This will ensure that the SHOWMATION will be operated properly to give the superior performance that it was designed to deliver.

For service or installation assistance,
please call our Technical Support Department
between the hours of 8 AM and 5 PM E.S.T., Monday - Friday
at 1-800-45-SMART

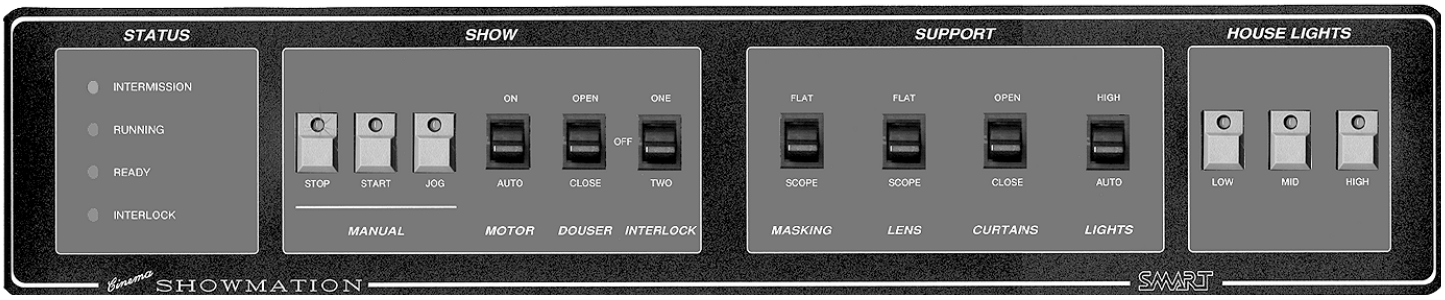
Installation, Service, and Operation Manual
Showmation Automation Ver. 4.xx

INTRODUCTION

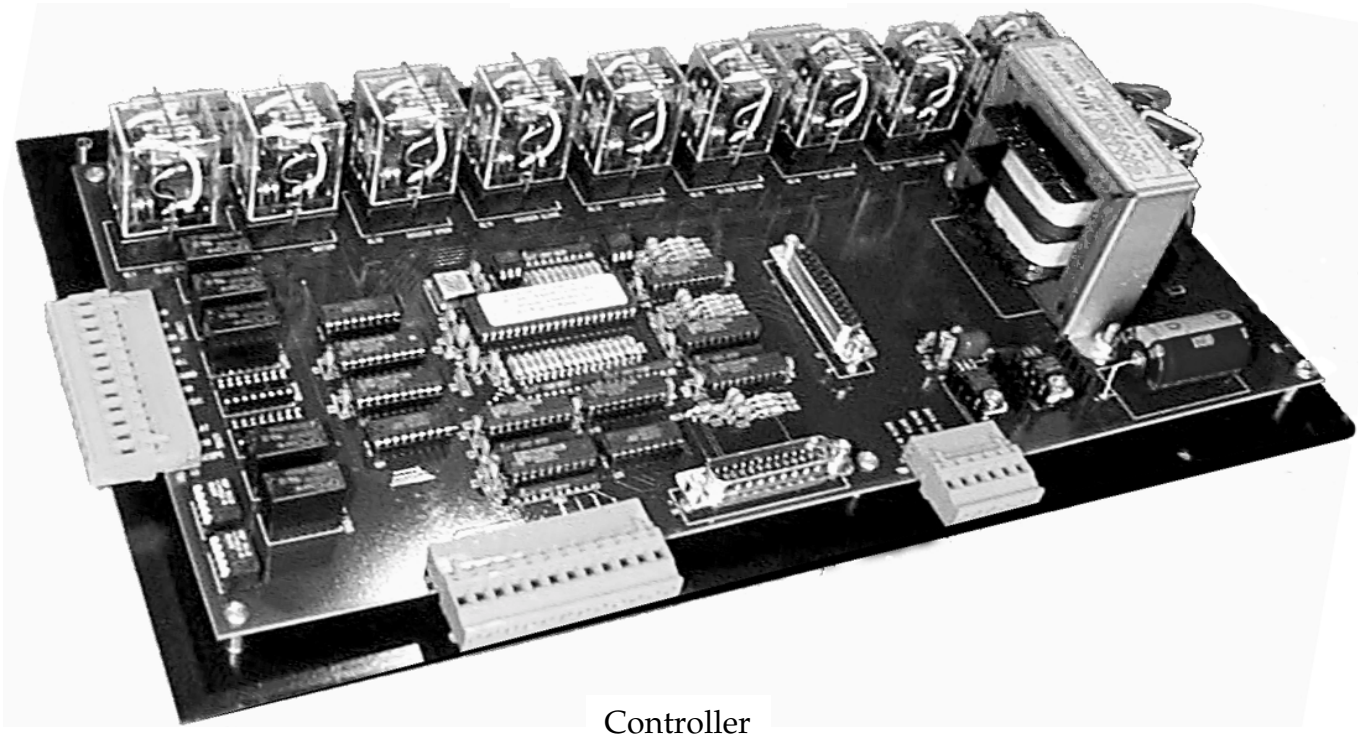
The SMART SHOWMATION is a full featured automation control system which controls all aspects of your presentation when used in conjunction with the SMART SHOWGRAMMER II. It is also available as a simpler stand alone automation which does not require the SHOWGRAMMER II. The OPERATOR PANEL and the CONTROLLER are separate pieces which mount at any convenient place in your console. A wall mount package is also available which houses the OPERATOR PANEL and the CONTROLLER if console mounting is not desired or is not available.

A unique Annunciator Panel is available which utilizes a very simple 4 wire plus ground hookup, unlike other panels which require multiple conductors and complicated hookups. This panel, called the WATCHDOG may be used in multiples by simply extending the wiring from one to the next.

Companion Light Dimmer packages are also available which will handle 3 kiloWatts of lighting.



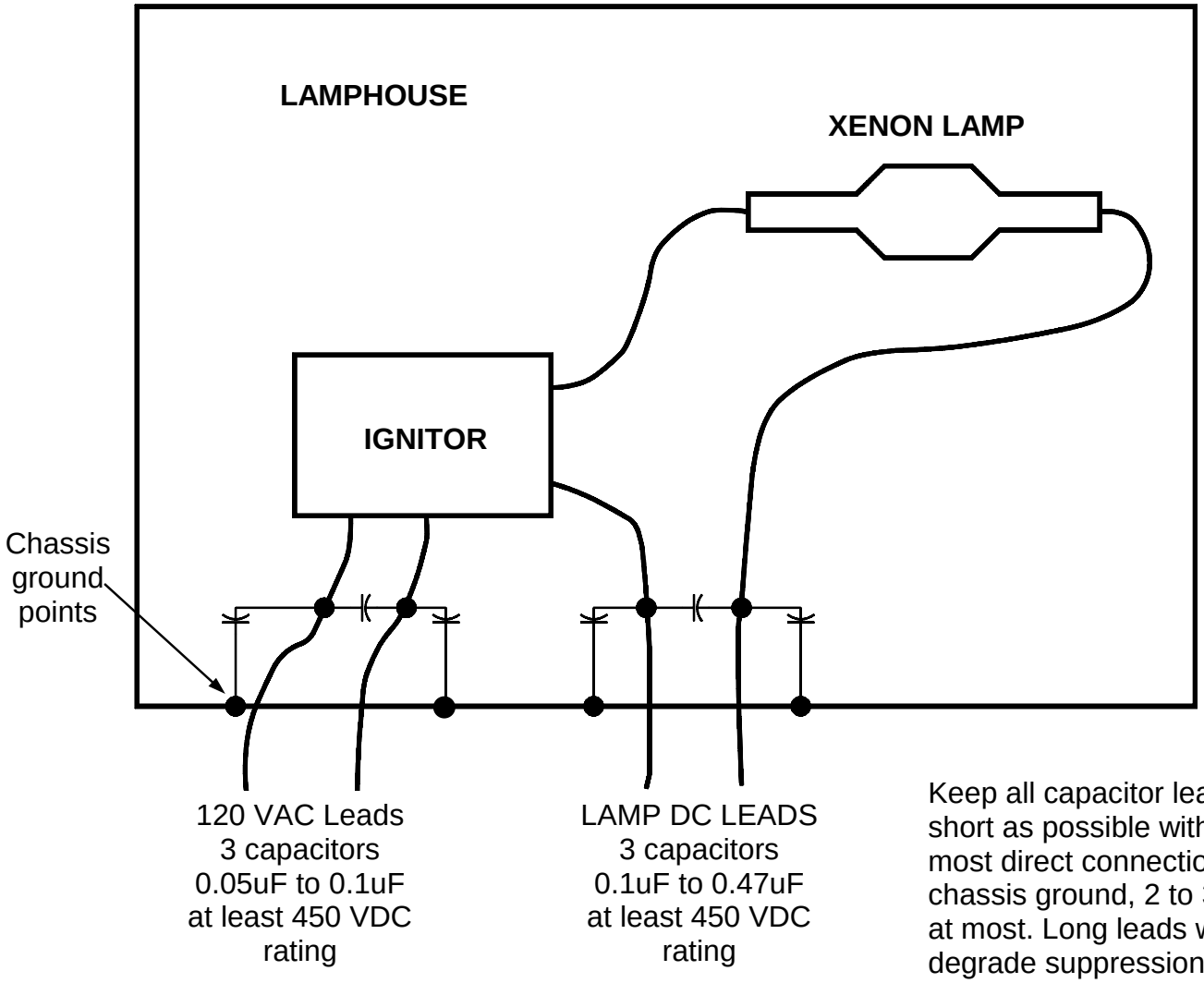
Operator Panel



Controller

ELECTRICAL INTERFERENCE WARNING

This device utilizes sophisticated computerized micro-controller devices and other parts which may be susceptible to externally produced electro-magnetic interference (EMI).This type of interference may be found in and around projector lamphouses which are not very clean electrically and magnetically. It is imperative to make certain that all sources of EMI are properly suppressed if this device is to perform to its full potential. By far, the worst offender is the Xenon lamp ignitor, and many lamphouses, especially older ones, have extremely electrically dirty ignitors. Please see the diagram below for suggested ways to clean up the lamphouse. Having an EMI suppressed system is your responsibility, and SMART assumes no responsibility for failures due to excessive interference.



Keep all capacitor leads as short as possible with the most direct connection to chassis ground, 2 to 3 inches at most. Long leads will degrade suppression. Mount all capacitors as close as possible to where leads exit lamphouse.

FEATURES

Micro-Controller based

Simple Installation

All wiring on pluggable terminal strips and Faston connectors and DB25 computer type cables

Heavy duty 10 Amps continuous service relays for high current loads

1 Amp continuous service relays for low current loads

When several automations are wired together for interlock, two different interlocks may run simultaneously

Each SHOWMATION has setup switches to properly identify itself to the WATCHDOG annunciator panels

The OPERATOR PANEL has a scratchproof Lexan overlay which matches the SHOWGRAMMER II

All pushbuttons are high quality Schadow switches

A JOG pushbutton will run the motor as long as it is held in for ease of checking film threading. This relieves wear and tear on the motor manual bypass switch

Light dimmer pushbuttons are available on the OPERATOR PANEL

Manual bypass switches are available for motor, douser, masking, lens, curtains, and lights

DESCRIPTION

This automation consists of two separate items, the Controller and the Operator Panel.

The Controller is the internal device which mounts inside the console. It contains all the relays, wiring connectors for hookup to all the projector and console devices, the power supply, and the micro-controller computer chip and associated circuitry which performs all the automation functions. It also contains connectors for hookup to the Operator Panel and to an optional SHOWGRAMMER II. This is all on a large printed circuit board which is mounted on a metal back plate. The back plate has four mounting holes which will pass #8 machine screws for securing the Controller to the inside of the console. Alternatively, the Controller may also be mounted in the optional Wall Mount Package.

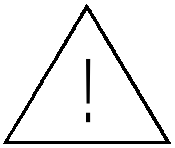
The Operator Panel is a 3½" high by 19" wide rack mount assembly which mounts in any standard EIA rack mount opening. Many consoles have provision for mounting such equipment. The Operator Panel contains all the pushbuttons and manual bypass switches for normal operation of a typical booth. It also contains LED indicators for the pushbutton switches and the system status. The Operator Panel has a reverse silk-screened Lexan overlay which is very scratch resistant and aesthetically appealing. It contains all the legends for the switches, pushbuttons, and system status. The look matches that of the optional SHOWGRAMMER II.

Connection from the Operator Panel to the Controller is through a DB25 Male to Female cable for normal functions and through several wiring harnesses for the manual bypass functions. The harnesses are terminated to Faston connectors on the Operator Panel end for ease of connection. The Controller end of the harnesses are terminated on Faston connectors for some functions and bare tinned wires for connection to the pluggable connectors for other functions. These pre-made harnesses make for an easy installation which was an important consideration in the design.

Ease of operation was also a very important design factor, and the SHOWMATION is very straightforward and easy to use. System Status is easily discernible at a glance, and the operator will appreciate the simplicity of operation.

Interlock capability is a part of the system and goes beyond that of conventional automation systems. The SHOWMATION has a three position Interlock selector switch with the center position being OFF, or no interlock. The UP position is Interlock 1 and the DOWN position is Interlock 2. Several automations can be wired for interlock, and two different interlocks can be run simultaneously with virtually any number of screens participating. For example, lets say that 6 screens are wired together for interlock. Screens 1, 2, and 3 can run on Interlock 1 while screens 5 and 6 are running on Interlock 2, and Screen 4 is running standalone. This is accomplished by simply setting the Interlock selector switch on each Operator Panel to the appropriate position. You can set up any combination of screens for interlock in this way. While running, the Interlock state can not be changed accidentally. The only time the Interlock state can be altered is in STOP mode. This prevents a condition in which film might be broken if one projector were to stop for some reason.

INSTALLATION



Take extra precautions when installing this piece of equipment. Remember that you are dealing with dangerous voltages present inside the console. These voltages can be lethal. Even 120 VAC can KILL. Remove ALL power from the console preferably by shutting off the breakers at the main or sub panels that feed this console. Take care when attaching high voltage wiring to the pluggable terminal strips on the automation. Do not leave any strands of wire hanging loose which may short to the console case. Make sure that ALL connections are TIGHT and SECURE. Leave NOTHING to chance. Remember what Murphy said: If anything can go wrong, you will probably DIE. Well, that wasn't exactly what he said, but you get the point. Be careful!

Now that we have that out of the way, let's get on to the installation.

First, we are assuming a console mounting which will probably cover most situations. If you are installing in a Wall Mount Package, the steps are similar except that the Controller and Operator Panel will be in the Wall Mount Package and you will be running wires between the console and the Wall Mount Package.

Controller

Please refer to the diagrams that follow the Installation section for additional information on mounting and connections to the Controller.

Find a suitable location in the console to mount the Controller. This is not particularly critical except for attempting to stay as far as possible away from sources of EMI as described on Page 3 of this manual. **If you have not read Page 3, please do so NOW. The success of this installation may well depend on how well you have cleaned up the console electrically.**

The Controller does not generate an appreciable amount of heat, but as with all electronic equipment, the cooler the better. So if airflow is available, take advantage of it and mount the Controller in the airflow path. Also try to locate the Controller in close proximity to the majority of the electrical connections to minimize the wire lengths to the Controller.

Position the Controller so that the power transformer is at the TOP or to the RIGHT. Use the mounting holes on the metal back plate to mark the hole positions for drilling. Drill the appropriate holes in the console mounting location and secure the metal back plate and controller with #8 machine screws, lockwashers, and nuts.

Follow the diagrams following the installation section of this manual and locate the various connection points for the Xenon Ignitor, motor, slide projector, douser, etc. and wire each of these items from the pluggable terminal strips to the appropriate points in the console wiring. Use wire sizes appropriate for the load you are controlling.

Even with all the proper precautions taken to minimize interference from the Ignitor, you may still experience interference problems . If so, contact the factory for an external relay/ cable set to use in the Ignitor circuit.

Configuration

Pulse or latch operation (Diagram on Page 11)
The Controller has several functions which may be configured for either pulse or latch operation: lens, masking, and lights. The Douser function is always pulse mode, and the Curtains function is always latch mode. There are 5 DIP switches in the DIP switch package labeled SW2 which are used to set these functions to either pulse or latch modes. If the switch is UP (off) then the mode is pulse. If the switch is DOWN (on), then the mode is latch. In the pulse mode, the appropriate relay(s) will close for one second and then open. In the latch mode, the relay(s) will close and remain closed as long as that function is selected.

In Version 4.00 of the software, only the lens, masking, and lights are selectable as pulse or latch. The douser function is ALWAYS pulse mode. The curtains function is ALWAYS latch mode. Future versions of the software will allow the douser and curtains to be either pulse or latch. The software version is listed on the label on top of the micro-controller IC labeled U8 on the Controller printed circuit board.

Annunciator ID (Diagram on Page 11)
There is another DIP switch package labeled SW1 on the Controller printed circuit board. These DIP switches set the Identification Code for each Controller to allow proper communication with the optional WATCHDOG Annunciator Panel(s). **Each Controller must be set to a <u>unique</u> ID Code so that the WATCHDOG Annunciator Panel(s) will be able to tell which Controller is sending information about the system status.**

There are 32 possible codes which can be selected. To set a code, push the appropriate switches DOWN (on). Use the following table to determine the ID Codes for each Controller.

SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	ID Code
UP	UP	UP	UP	UP	1
UP	UP	UP	UP	DOWN	2
UP	UP	UP	DOWN	UP	3
UP	UP	UP	DOWN	DOWN	4
UP	UP	DOWN	UP	UP	5
UP	UP	DOWN	UP	DOWN	6
UP	UP	DOWN	DOWN	UP	7
UP	UP	DOWN	DOWN	DOWN	8
UP	DOWN	UP	UP	UP	9
UP	DOWN	UP	UP	DOWN	10
UP	DOWN	UP	DOWN	UP	11
UP	DOWN	UP	DOWN	DOWN	12
UP	DOWN	DOWN	UP	UP	13
UP	DOWN	DOWN	UP	DOWN	14
UP	DOWN	DOWN	DOWN	UP	15
UP	DOWN	DOWN	DOWN	DOWN	16
DOWN	UP	UP	UP	UP	17
DOWN	UP	UP	UP	DOWN	18
DOWN	UP	UP	DOWN	UP	19
DOWN	UP	UP	DOWN	DOWN	20
DOWN	UP	DOWN	UP	UP	21
DOWN	UP	DOWN	UP	DOWN	22
DOWN	UP	DOWN	DOWN	UP	23
DOWN	UP	DOWN	DOWN	DOWN	24
DOWN	DOWN	UP	UP	UP	25
DOWN	DOWN	UP	UP	DOWN	26
DOWN	DOWN	UP	DOWN	UP	27
DOWN	DOWN	UP	DOWN	DOWN	28
DOWN	DOWN	DOWN	UP	UP	29
DOWN	DOWN	DOWN	UP	DOWN	30
DOWN	DOWN	DOWN	DOWN	UP	31
DOWN	DOWN	DOWN	DOWN	DOWN	32

You should set each Controller's ID Code to match the screen number. This way the WATCHDOG Annunciator Panel(s) will indicate the system status properly for each screen

Operator Panel

Find a suitable place in the console for the Operator Panel to mount. The panel is a 3½" high by 19" wide rack mount which will fit any stan-

dard EIA rack opening. Plug the supplied DB25 male to female cable into the connector on the Operator Panel circuit board. Plug the other end of the cable into the connector on the Controller. There are six wiring harnesses supplied which are used to connect the Operator Panel manual switches to the Controller. Each harness is labeled at each end. The ends that are labeled F1-PANEL through F16-PANEL go to the FASTON connectors on the Operator Panel circuit board. **It is very important to attach these harnesses to the correct points at each end. Incorrect connections could result in dangerous voltages being applied to places they should not be. This could result in disastrous consequences. Please use the table on PAGE 12 for a complete listing of all the harness connections.**

After connecting these harnesses to the Operator Panel, connect the other ends to the appropriate points on the Controller. Two of the harnesses have bare tinned wires on the Controller end for connection to the pluggable terminal strips. These harnesses are for high lights and lens flat or scope manual functions. They will be wired to the terminal strips together with the wires from the lens change controller and the light dimmer unit(s).

SHOWGRAMMER II
Mount the SHOWGRAMMER II close to the Operator Panel, preferably directly below it. Plug the DB25 cable into the DB25 connector on the Controller. Plug the other end of the DB25 cable into the DB25 connector on the Showgrammer II. See the SHOWGRAMMER II manual for hookup information regarding connections to the sound processor.

On all DB25 connectors, secure the connectors with the two thumb screws provided on each connector.

Interlock Wiring
All interlock wiring should use 2 conductor plus shield cable. Refer to the diagram on Page 11 for the pluggable terminal strip labeled as TB3. You will need 2 of the 2 conductor plus shield cables to connect between each automation that you desire to wire for interlock. The first cable will connect Interlock 1 Start, Interlock 1 Stop, and Interlock Common together. The second cable will connect similar terminals for Interlock 2. Use the the 2 conductors for the Start and Stop functions, and the shield for the Interlock Common. If several automations are wired together for Interlock the cables will just daisy chain from one to the next and so on.

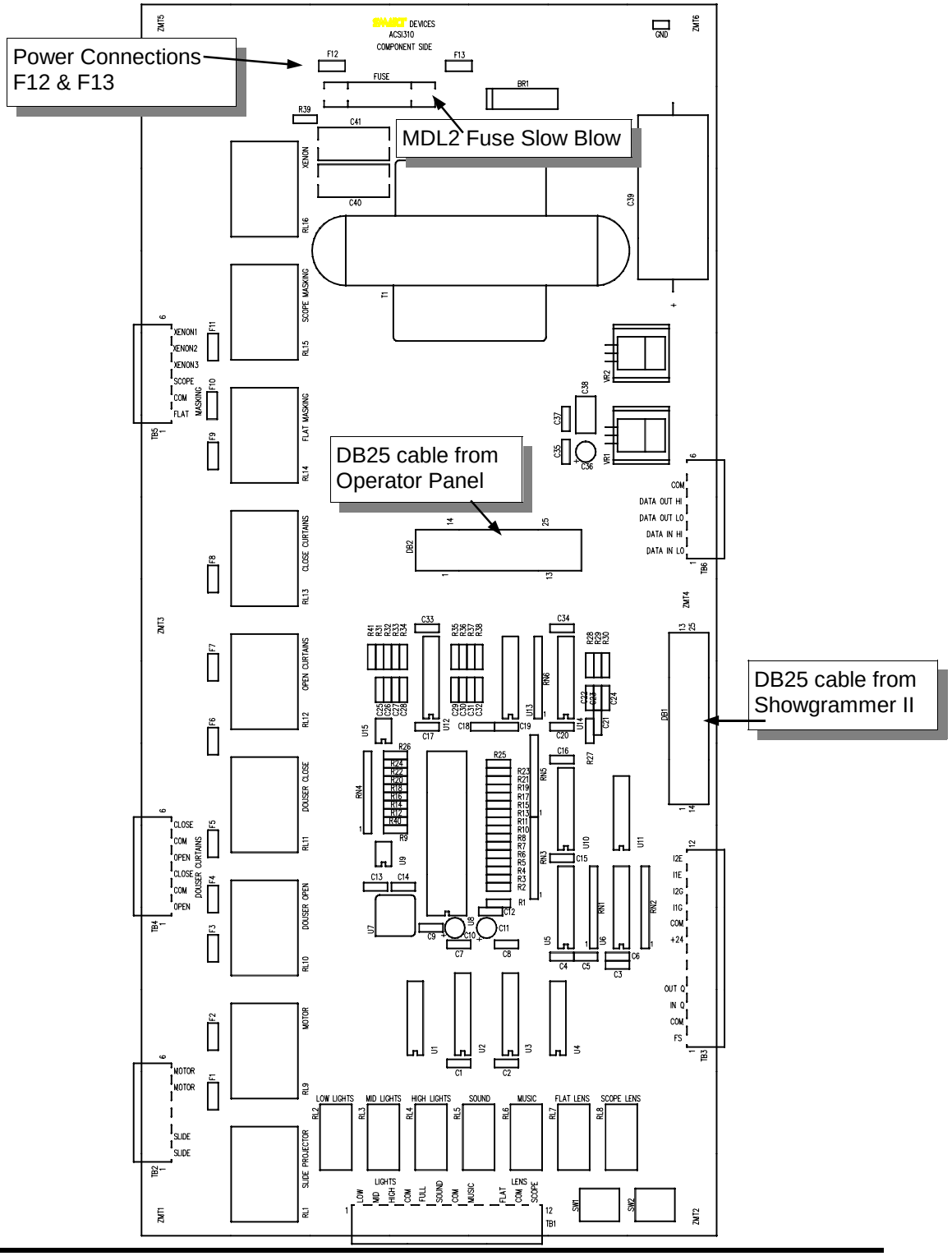
Annunciator Panel Wiring
The Annunciator Panel wiring is done similarly to the Interlock wiring. You may use the same 2 conductor cable as for the interlock wiring if you like.

The shields of the cables will connect to the Com terminal on TB6 of each automation. The hot conductors will attach to the Data terminals on TB3 of each automation. Wire one cable to the DATA IN LO and DATA IN HI terminals. Wire the other cable to the DATA OUT LO and DATA OUT HI terminals.

You may only wire up to 32 automations together. Run cables from any of the automations to the location where the Annunciator panel will be mounted.

Controller Installation

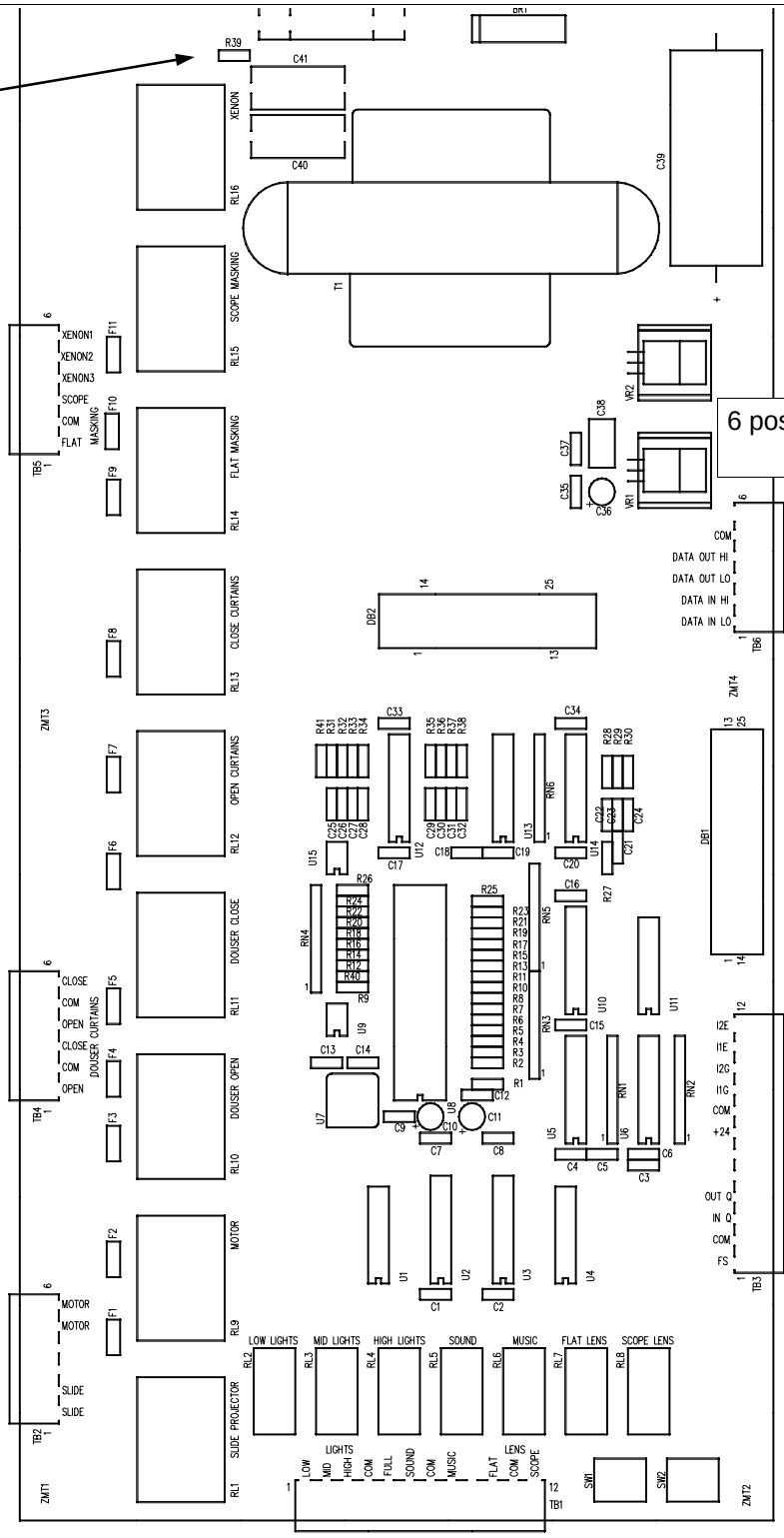
Mount the Controller in the console as shown in this diagram. The power transformer should be at the TOP or RIGHT. Please note that the the metal back plate is NOT symmetrical and cannot be turned upside down. The PC board will only mount one way on the panel. There are four mounting holes on the metal back plate which will pass #8 machine screws. These are accessible without removing the PC board from the metal panel. The power cord may be plugged in or the plug may be cut off for direct wiring to a 120VAC source.



Controller Wiring Information

This page shows the functions for the 6 position pluggable terminal strips. All relays are rated at 10 Amps. If you are controlling a higher current device, then use an external relay of the proper capacity controlled by the on board relay. Use wire size appropriate for the load to be controlled.

R39 NOT installed unless directed by the factory.



6 position connector - TB5

Xenon 1
Xenon 2
Xenon 3
Masking Scope
Masking Common
Masking Flat

Use the XENON 1 and XENON 2 terminals for the Ignitor control circuit. Do NOT use XENON 3 except in special cases as directed by the factory.

6 position connector TB6

N/C
Com
Data Out Hi
Data Out Lo
Data In Hi
Data In Lo

6 position connector - TB4

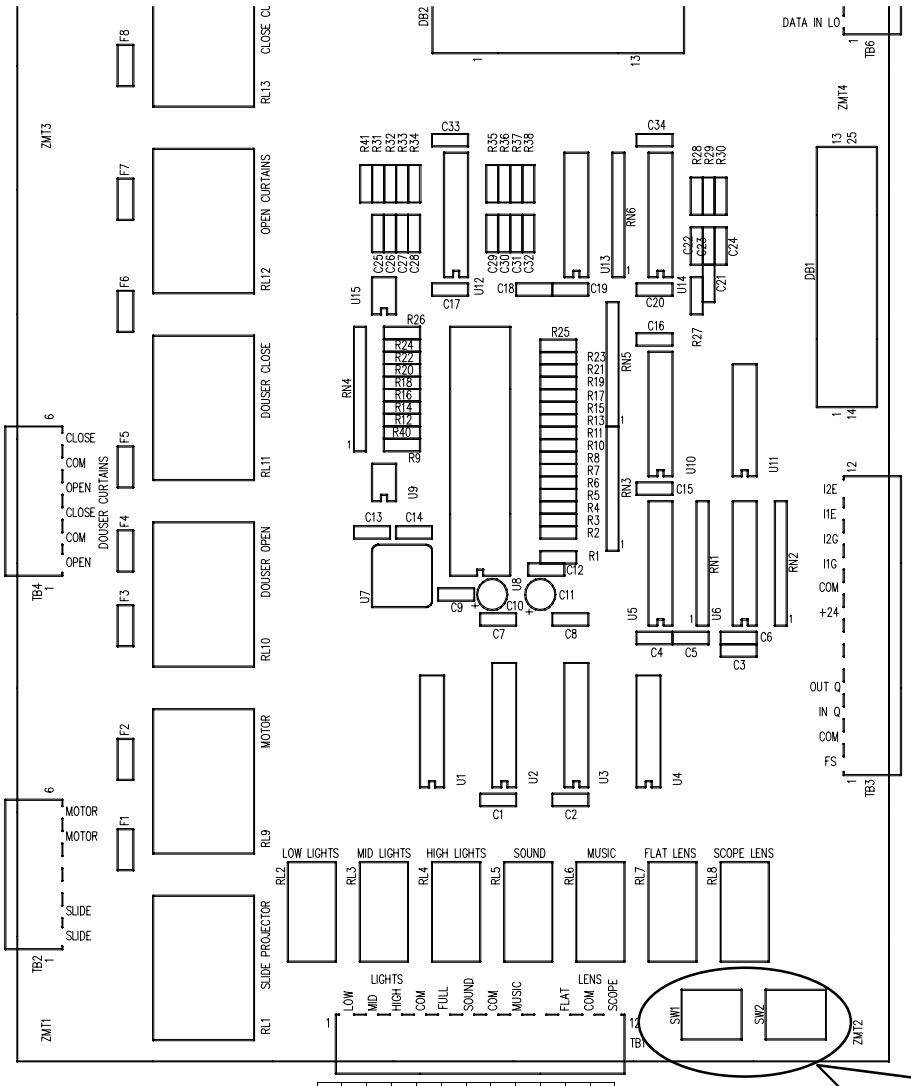
Curtains Close
Curtains Common
Curtains Open
Douser Close
Douser Common
Douser Open

6 position connector - TB2

Motor
Motor
N/C
N/C
Slide Projector
Slide Projector

Controller Wiring Information

This page shows the functions for the 12 position pluggable terminal strips. Lights and Lens relays are rated at 1 Amp. If you are controlling a higher current device, then use an external relay of the proper capacity controlled by the on board relay. The Interlock functions on TB3 will be wired in the field. Use one 2 conductor shielded cable for each of the two interlock functions. Connect the shields to Interlock Common. Connect all like terminals together on the projectors you wish to be interlocked.

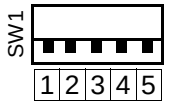


12 position connector - TB3

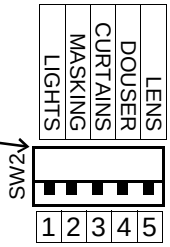
Interlock 2 Stop
Interlock 1 Stop
Interlock 2 Start
Interlock 1 Start
Interlock Common
+24
N/C
N/C
Outboard Cue
Inboard Cue
Common
Failsafe Switch (Open when **not** threaded)

Lights Low	Lights Mid	Lights High	Lights Com	Lights Full	Future 1	Com	Future 2	N/C	Lens Flat	Lens Com	Lens Scope

12 position connector - TB1



DIP Switch for selecting ID Number



DIP Switch for selecting Pulse or Latch

Operator Panel and Showgrammer Installation

Mount the Operator Panel and optional Showgrammer in the space provided in the console. Mount the Operator Panel on top with the optional Showgrammer below it. Plug a Male to Female DB25 cable into the DB25 connector on the Showgrammer. Plug the other end into the DB25 connector marked DB1 on the Controller. Plug the other Male to Female DB25 cable into the DB25 connector on the Operator Panel. Plug the other end into the DB25 connector marked DB2 on the Controller.

There are several wiring harnesses with Faston connectors supplied. These must be attached between the Operator Panel and the Controller (Main Board). These harnesses are color coded to show the appropriate points of connection at each end. Please refer to the chart below for the correct connections. Note that some wires are 16 Gauge and some are 24 Gauge.

Operator Panel Terminal Designator and Cable Color		**Controller (Main Board)** Terminal Designator and Cable Color		**Bypass Function**
F1	BLUE 24 W/FASTON	TB1-4	BLUE 24 STRIPPED	Lights Common
F2	RED 24 W/FASTON	TB1-5	RED 24 STRIPPED	Lights Full
F3	ORANGE 16 GA W/FASTON	F6	ORANGE 16 GA W/FASTON	Curtains Open
F4	WHITE 16 GA W/FASTON	F7	WHITE 16 GA W/FASTON	Curtains Common
F5	BROWN 16 GA W/FASTON	F8	BROWN 16 GA W/FASTON	Curtains Close
F6	BROWN 24 GA W/FASTON	TB1-10	TB1-10-MAIN STRIPPED	Lens Flat
F7	WHITE 24 GA W/FASTON	TB1-11	TB1-11-MAIN STRIPPED	Lens Common
F8	GREY 24 GA W/FASTON	TB1-12	TB1-12-MAIN STRIPPED	Lens Scope
F9	VIOLET 16 GA W/FASTON	F9	VIOLET 16 GA W/FASTON	Masking Flat
F10	GREEN 16 GA W/FASTON	F10	GREEN 16 GA W/FASTON	Masking Common
F11	PINK 16 GA W/FASTON	F11	PINK 16 GA W/FASTON	Masking Scope
F12	BLUE 16 GA W/FASTON	F3	BLUE 16 GA W/FASTON	Douser Open
F13	GREY 16 GA W/FASTON	F4	GREY 16 GA W/FASTON	Douser Common
F14	YELLOW 16 GA W/FASTON	F5	YELLOW 16 GA W/FASTON	Douser Close
F15	BLACK 16 GA W/FASTON	F1	BLACK 16 GA W/FASTON	Motor
F16	RED 16 GA W/FASTON	F2	RED 16 GA W/FASTON	Motor

OPERATING INSTRUCTIONS

Operation of the SHOWMATION is very straightforward and simple. See the OPERATOR PANEL QUICK REFERENCE on Page 15 for a quick explanation of the Indicator LED's, Pushbuttons, and Switches.

Cues
When used in conjunction with a SHOWGRAMMER II, you have complete control of the film presentation. This is done by setting the various switches on the SHOWGRAMMER II and by placing cues on the film at the appropriate places to initiate the desired format, lens, masking, and lighting changes.

All cues are to be placed on the **inboard** side of the film when the SHOWMATION and SHOWGRAMMER II are used together. (When the SHOWMATION is used as a standalone system, then cues may also be placed on the outboard side of the film. This is a special situation which will be detailed in a separate manual for the standalone SHOWMATION.)

This SHOWMATION system ALWAYS requires a cue at PICTURE START. The douser will **not** open until the PICTURE START cue passes. This is also a requirement for Interlock Operation, so placing a cue at PICTURE START will serve both purposes.

See the SHOWGRAMMER II manual for details on programming the desired format, lens and masking, and lighting changes. In addition to the cue at PICTURE START, one cue will be required at every point in the film where you desire to make any change. Format, lens and masking, and lighting changes may be done in any combination on any cue. The START cue will open the douser and advance the SHOWGRAMMER II to the START position. Format, lens and masking, and lighting changes which have been programmed on the SHOWGRAMMER II START position will go into effect on the FIRST cue. There may be **four** more cues after the Start cue to control format, lens and masking, and lighting changes.

For example, the START cue could be set up for MONO, FLAT and MID lights. The next cue could change to STEREO A, SCOPE, and MID lights, the next cue could change to STEREO SR, SCOPE, and LOW lights. The next cue could be at the credits and could just change the house lights to MID for early house lights.The next cue placed at the end of the credits could change the SHOWGRAMMER II to end of show which will bring up MUSIC format and close the douser. Then when the failsafe drops, the system will stop and be ready for re-threading for the next show.

If you have used **all five** available cues (PICTURE START plus four more) for format, lens and masking, and lighting changes, there is one more available cue which will tell the SHOWGRAMMER II that the end of show is here. This cue is not programmable on the SHOWGRAMMER II, but the SHOWGRAMMER II will recognize this sixth cue and initiate an end of show condition. This cue will be placed at the end of credits.

As with other systems, make sure the cues are properly applied and are in good condition. A good presentation depends on the cues, and failure to pay good attention to this part of preparing your film will result in poor performance.

Operation
When the SHOWMATION is in intermission mode, the INTERMISSION LED will be on. As

the film is threaded and the failsafe is raised, the READY LED will come on. The system will not start unless the READY LED is on. The RUNNING LED will be off at this point. In addition the LED in the STOP pushbutton will be on. The INTERLOCK LED will be off unless you have selected an interlock mode with the INTERLOCK switch.

As an aid in threading, the SHOWMATION provides a JOG function. When you push the JOG pushbutton, the motor will run. When you release the JOG pushbutton, the motor will stop. Use this feature rather than the MOTOR manual switch. This saves wear and tear on the manual switch.

The STOP pushbutton will not normally be used except when there is a problem. If you start the show and the film is not feeding properly, for example, you may push the STOP pushbutton to stop the projector. After the problem is corrected, push the START pushbutton to re-start the show.

Once the film is threaded and you are ready to start the show, push the START pushbutton. The INTERMISSION LED and the STOP pushbutton LED will go off and the RUNNING LED and the START pushbutton LED will come on. The projector will start running and the lamp will strike. When the PICTURE START cue comes along, the douser will open.

At this point, no further attention is required unless a film break occurs. If the film breaks, the LED in the STOP pushbutton will blink rapidly. Simply repair the film and re-thread. Then push the START button to re-start the show. After a 7 second delay, the douser will open automatically. If you wish the douser to open sooner, press the JOG pushbutton which doubles as a timer bypass switch.

The manual switches are there in the event that the SHOWMATION is not functioning correctly. These are self-explanatory. Normally you should not have to use the manual switches unless there is a problem such as the lens and masking are not in the correct format. In that case use the manual switches to correct the problem.

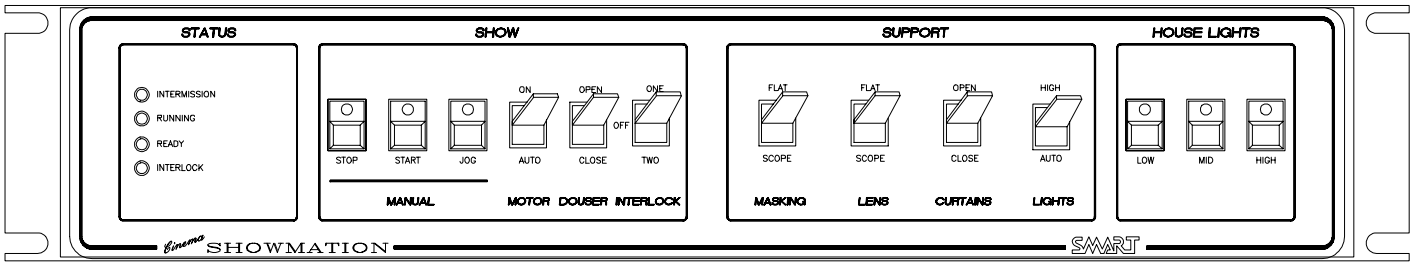
The HOUSE LIGHTS pushbuttons may be used at any time to change the house lights levels. Normally, the house lights levels are controlled by the SHOWGRAMMER II programming and the cues on the film, so it is usually not necessary to use these pushbuttons unless there is a problem. The LED's in these pushbuttons will change as the SHOWGRAMMER II programming dictates so you may tell at a glance what the house lights levels are.

The LIGHTS switch should always be in the AUTO position so that the SHOWMATION can control the lights. However, in an emergency this switch can be used to **override** the programmed house lights levels, and when placed in the HIGH position will bring the house lights to full brightness.

Interlock

The SHOWMATION has a three position INTERLOCK selector switch with the center position being OFF, or no interlock. The UP position is Interlock 1 and the DOWN position is Interlock 2. Two different interlocks can be run simultaneously with virtually any number of screens participating. For example, lets say that 6 screens are wired together for interlock. Screens 1, 2, and 3 can run on Interlock 1 while screens 5 and 6 are running on Interlock 2, and Screen 4 is running standalone. This is accomplished by simply setting the Interlock selector switch on each Front Panel to the appropriate position. You can set up any combination of screens for interlock in this way. While running, the Interlock state can not be changed accidentally. The only time the Interlock state can be altered is in STOP mode. This prevents a condition in which film might be broken if one projector were to stop for some reason.

OPERATOR PANEL QUICK REFERENCE



The STATUS LED's indicate the current state of the system.

The READY led is on when the failsafe is up.The system will not start unless the READY LED is on.

The RUNNING LED comes on when the show is started.

The INTERMISSION LED is on between shows.

The INTERLOCK LED is on when one of the two Interlocks is selected

These switches and pushbuttons control the major show functions.

The START pushbutton is used to begin the show. The START LED will be on while the show is running.

The STOP pushbutton will stop the show, but will not normally need to be pushed. The STOP LED will be on during intermission and will be rapidly blinking during a film break.

The JOG pushbutton is used to momentarily run the motor to feed film as an aid in threading up. Hold it in to run the motor, and release it to stop the motor. The JOG pushbutton is also used as a timer bypass for the 7 second douser open timer.

The MOTOR and DOUSER toggle switches are for manual operation and will not normally be used.

These toggle switches control the show support functions.

The MASKING and LENS switches are for manual operation and will not normally be used unless the masking or lens is set to the incorrect format. Push these switches to the FLAT or SCOPE positions to select the correct format.

The CURTAINS and LIGHTS switches are for manual operation of the curtains and for bringing the house lights to maximum in an emergency situation.

The HOUSE LIGHTS pushbuttons can be used to manually select the lighting levels desired.

The LED's in the pushbuttons indicate the selected level.

Normally, the levels are controlled by the SMART SHOWGRAMMER which operates in conjunction with the automation system.

In a film break, the automation will shut down the projector. The STOP pushbutton will blink rapidly. After repairing the break and re-threading, push the START pushbutton to re-start the show. Wait briefly to see that all is running OK and then push the DOUSER toggle switch to the OPEN position to open the douser.