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PANALOGIC

CA1400

CINEMA AUTOMATION SYSTEM
OPERATION MANUAL

SOFTWARE VERSION 2

CONTENTS

THE PANALOGIC CA1400 AUTOMATION SYSTEM

OVERVIEW

The Panalogic CA1400 automation system provides complete and comprehensive control of all cinema electronic and electrical equipment. The RC140 control panel contains all of the controls necessary to operate all of the equipment in a single cinema. The automation system is similar in concept to the old pin matrix automation systems in that a program is divided into rows of switches (or pins) which determine what happens at each step in the program. An external pulse (such as a foil sensor on the projector) is used to move the program from one row down to the next row. A major difference however between a pin matrix system and the Panalogic automation system is that the switching is controlled by computer rather than by using pins.

It is possible to set up 10 different programs. The 10 programs are called **SHOWS**. Each show can be made up of one or more **SEGMENTS** and each Segment can consist of up to 16 **EVENTS**. An Event is a single step in the program and is equivalent to one row in a pin matrix system. Each Event stores the settings for all of the switches that control the equipment in the cinema, plus the sound format selection and the volume setting.

Each Event has a programmable **TRIGGER** setting which determines what will cause the Event to take place. This can be one of three film foil cues, a last slide cue from the slide projector, a time delay after the previous Event or a manual cue. An Event can be triggered manually by pressing the **NEXT EVENT** button on the control panel. (This is handy if you have forgotten to place a foil cue on the film, or if you want to pre-empt a cue). It is also possible to step backwards in a program if necessary and to pause and re-start a Show. The system can be programmed to use just one foil cue position, two positions or all three for compatibility with other screens in a complex that may use an older two or three cue automation system.

Shows can be started manually or by setting a start time up to 24 hours ahead using the built-in real time clock. The start time can be set in increments of one minute and when a start time is set, a countdown is displayed showing exactly how long until the Show starts.

The CA1400 automation is a fully modular system allowing considerable flexibility for installation in a variety of situations. The control panel can be mounted in any convenient position and some distance from the relay cards using only a 4 wire connection between. The CA1400 also provides direct serial control of the Panastereo CX230 booth monitor including digital real time display of auditorium volume levels on the automation control panel.

The CA1400 can be interfaced with a variety of external equipment using standard RS232 protocol including Panastereo cinema processors. New software interface modules are being added to the CA1400 software as more serially controllable equipment becomes available. Check with your distributor for the latest software update to control your serial equipment.

DESCRIPTION OF CONTROLS

CONTROL PANEL LAYOUT

The Control panel is divided into 4 main areas. The central area around the LCD screen is the equipment control area. There are six control keys across the bottom. These keys select the equipment control screens and the menu screen.

The left area contains the automation controls. At the top are the Show select buttons and at the bottom are the Show control buttons.

On the right hand side of the LCD screen are the sound processor volume and mute controls.
To the far right, a separate area contains the monitor volume control and sound level meter for the Panastereo CX230 cinema monitor.
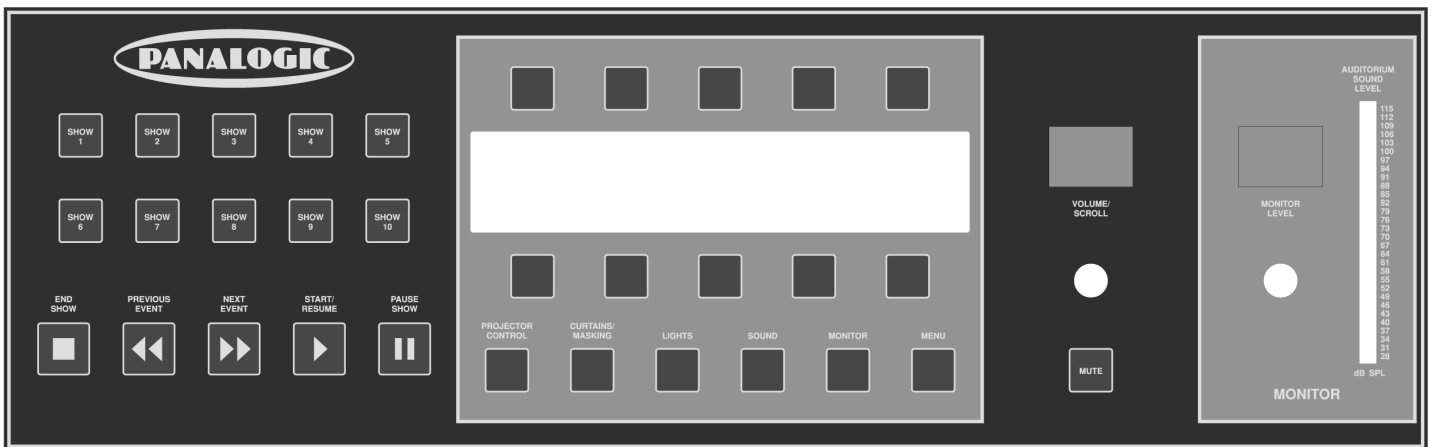
AUTOMATION CONTROL SECTION   EQUIPMENT CONTROL SECTION   SOUND PROCESSOR   MONITOR
                                                                       VOLUME & MUTE   VOLUME & METER

CA1400 CONTROL PANEL

INITIALISING SCREENS

On powering up the Panalogic CA1400 Automation, the following screen will be displayed for five seconds whilst the system performs self checking and initialisation:

PANALOGIC CA1400 CINEMA AUTOMATION
Initialising *******************
Software: SP140 Version 2.2
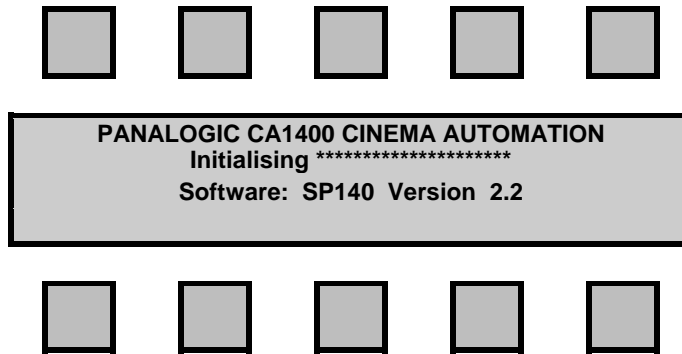
When initialisation is complete the next screen is displayed:

PANALOGIC CA1400 CINEMA AUTOMATION
Monday 11ᵗʰ January 1999   12:24:36
Software: SP140 Version 2.2
CINEMA #
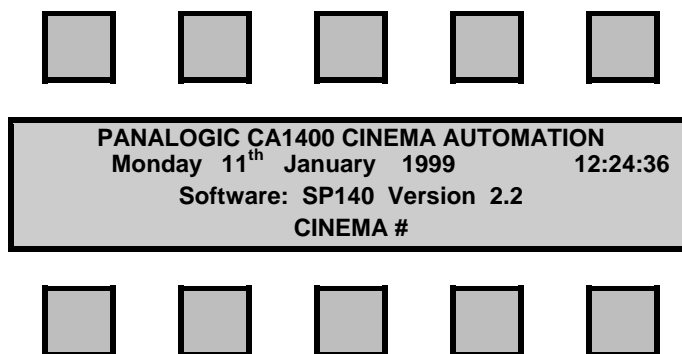
This screen displays the current date and time, shows the software version that is currently installed and displays the cinema number.

The Panalogic Automation system is now ready to use.

THE MAIN SCREEN

The MAIN SCREEN displays the current date and time.
It looks like this:

PANALOGIC CA1400 CINEMA AUTOMATION
Monday 11ᵗʰ   January   1999   12:24:36

CINEMA #

Surrounding the screen are ten "SOFTKEYS". These keys change their function depending upon which screen is displayed at the time.
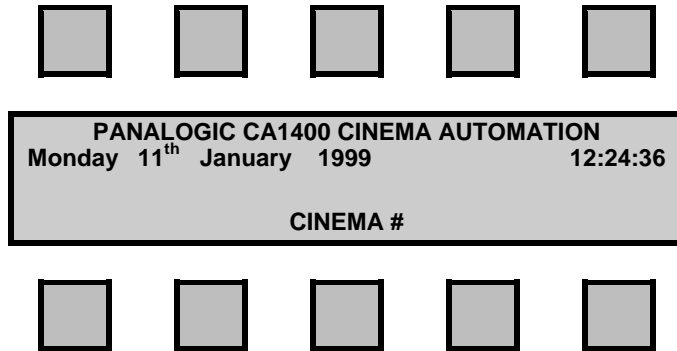
In the main screen, the softkeys have no effect.

THE PROJECTOR SCREEN

The **PROJECTOR CONTROL** key will display the following screen:

OFF	ON	OFF	ON	SLIDE
- PROJ MOTOR -		--- XENON ---		CONTROL
-- PICTURE --		--- LENS ---		
OFF	ON	WIDE	SCOPE	EXIT
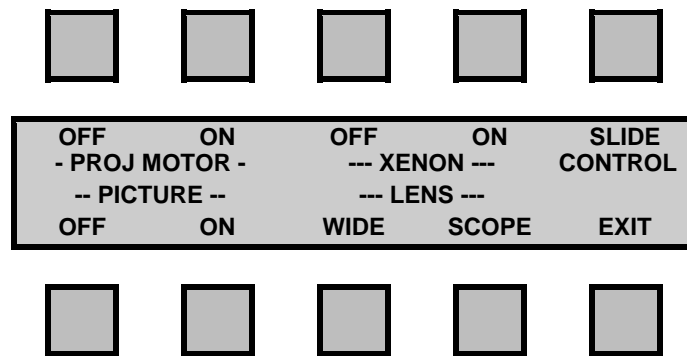
The softkeys control the projector functions and lens turret position. Pressing any one of the keys will turn the function on or off. The current setting for each function will be flashing.

The **SLIDE CONTROL** softkey displays the SLIDE CONTROL screen.

The **EXIT** softkey will return you to the main screen.

THE SLIDE CONTROL SCREEN

The **SLIDE CONTROL** screen is accessed from the PROJECTOR CONTROL screen.

```
  FWD       REV        IN        OUT
        -- SLIDE --           -- FOCUS --
        ------ SLIDE MACHINE ------
STANDBY    RESET      OFF        ON        EXIT
```
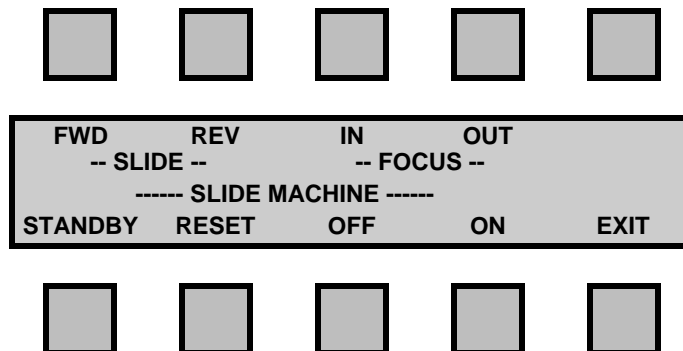
The top softkeys control the slide machine's slide position and lens focus.
The bottom softkeys control the Slide machine's lamp, shutter, and the carousel's return to zero .
The top softkeys and the "Standby" and "Reset" softkeys only work with serially controlled slide machines such as the Kodak Ektapro 5000.

The **FWD** softkey will advance slides on both serially and parallel controlled slide machines. Each press of this key will advance to the next slide in the carousel.

The **REV** softkey will revert to the previous slide on serially controlled slide machines only. Each press of the key will go back to the previous slide in the carousel.

The **FOCUS IN** and **OUT** softkeys only work with serially controlled slide machines. Press either key once to begin lens movement toward or away from the screen. Press the key a second time to stop the movement once focus has been achieved.

The **STANDBY** softkey will turn off the slide projector lamp and the cooling fan and close the shutter.

The **RESET** softkey will turn on the slide projector lamp and cooling fan, reset the carousel to the zero slide position and if a slide is in the zero position, open the shutter.

The **SLIDE OFF** and **ON** softkeys work with both serially and parallel controlled slide machines. For serially controlled slide machines, the OFF / ON softkeys open or close the shutter provided the machine is already turned on. For parallel controlled machines this softkey will turn the machine on or off. The current setting will be flashing.

The **STANDBY** and **RESET** softkeys interact with the **SLIDE ON** and **OFF** controls. Because the "Standby" softkey turns the slide machine off AND closes the shutter, the "off/on" display will also change to **OFF** if this softkey is pressed. Likewise, because the "Reset" softkey turns the machine on and also opens the shutter, the "Off/On" display will change to **ON** if this softkey is pressed.

The **EXIT** softkey will return you to the main screen.

THE CURTAINS/MASKING SCREEN

The **CURTAINS/MASKING** key will display the following screen:

```
STOP        PLAY        RWD
------------ TAPE/DISK ------------
     - CURTAINS -         - MASKING -
CLOSE       OPEN        WIDE      SCOPE      EXIT
```
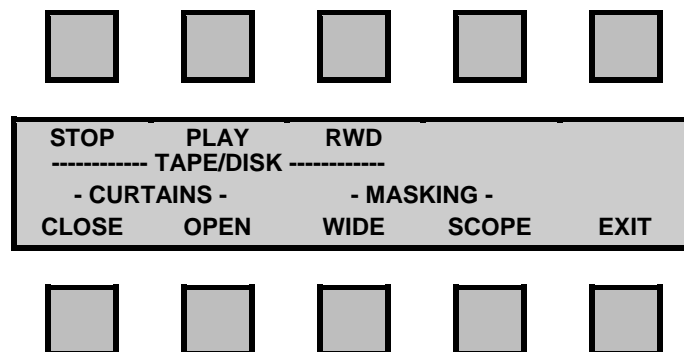
The top row of softkeys control the Tape machine or Mini-Disk Player used for the slide show.

The **STOP** softkey does not control the player and is only used for programming. Its use is discussed later in "Automation Programming".

The lower half of the screen contains the curtain and masking controls.

The **OPEN** softkey will open the curtains and the **CLOSE** softkey will close the curtains if installed.

The **WIDE** softkey will close the masking and the **SCOPE** softkey will open the masking. The masking is also controlled by the lens position. If the lens control is changed, the masking will follow. The separate masking keys are provided so that the masking can be set differently from the lens, for example for a slide presentation.

The **EXIT** softkey will return you to the main screen.

THE LIGHTS SCREEN

The **LIGHTS** key will display the following screen:

```
UP          PRE 1       PRE 2       DOWN
----------------- HOUSE LIGHTS ------------------
---------------- CURTAIN LIGHTS -----------------
UP          PRE 1       PRE 2       DOWN        EXIT
```
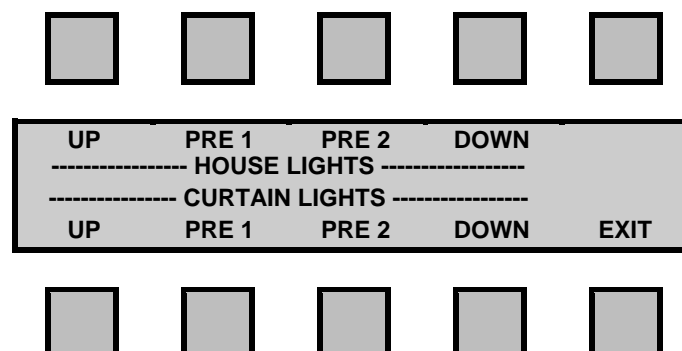
The upper half of the screen controls the House light's dimmer and the lower half controls the Curtain or Stage light's dimmer. There is provision for dimmers with up to two preset levels as well as fully up and fully down. The selected level will be flashing.

The **EXIT** softkey will return you to the main screen.

THE SOUND SCREEN

The **SOUND** key will display the following screen:

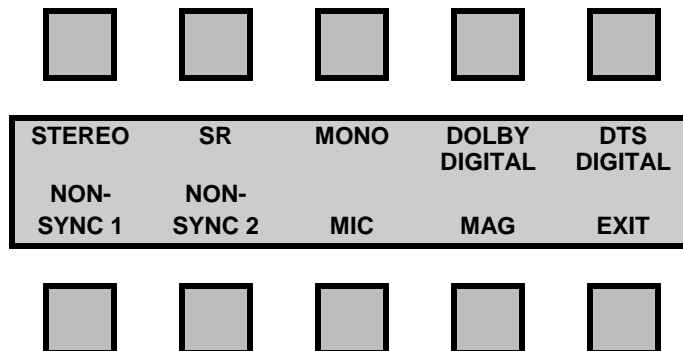|				
STEREO	SR	MONO	DOLBY DIGITAL	DTS DIGITAL
NON-SYNC 1	NON-SYNC 2	MIC	MAG	EXIT

This screen controls the sound format selection of the sound processor. Whilst all the formats displayed are available with Panastereo processors, not all of the formats are supported by competitor's processors. The format currently selected will be flashing.

Both Digital softkeys will pulse the digital relay for parallel controlled sound processors.

The **EXIT** softkey will return you to the main screen.

THE MONITOR SCREEN

The **MONITOR** key will display the following screen:

LEFT	CENTRE	RIGHT	LEFT	RIGHT
			- SURROUND -	
		- SOURCE -		
SUBBASS	MIX	PROC	AMPS	EXIT

The softkeys select the various inputs to the Panastereo CX230 monitor unit.

The **MIX** softkey selects a mix of left, centre and right channels.

The **AMPS** and **PROC** softkeys select either the outputs from the amplifiers (**AMPS**) or the outputs from the sound processor (**PROC**). The softkeys for this screen only work if a Panastereo CX230 monitor is installed.

The **EXIT** softkey will return you to the main screen.

THE MENU SCREEN

The **MENU** key will display the following screen:

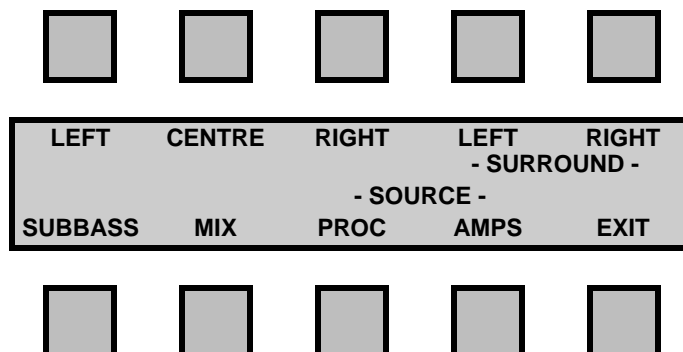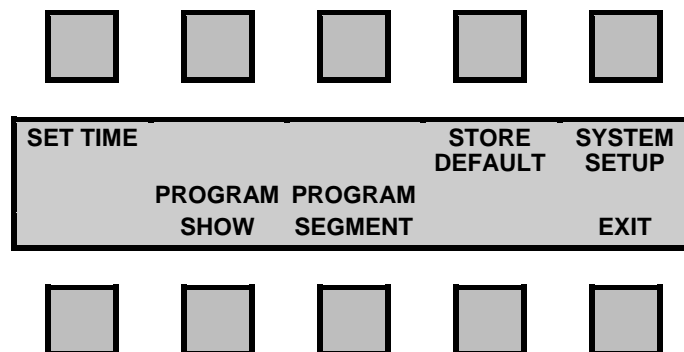| SET TIME			STORE DEFAULT	SYSTEM SETUP
	PROGRAM SHOW	PROGRAM SEGMENT		EXIT

The softkeys are discussed later in this manual.

The **EXIT** softkey will return you to the main screen

THE VOLUME CONTROLS

The **VOLUME/SCROLL CONTROL** controls the volume of the attached sound processor, except in some system setup and programming modes when it acts as a SCROLL control.

The volume level is indicated by the numeric display directly above the control. Level 7.0 corresponds to standard Dolby fader level 7 (85dB).

When the Volume/Scroll control is in "SCROLL" mode, the volume indicator changes to two dashes (– –) to indicate that the control is in scroll mode.

The **MONITOR VOLUME CONTROL** controls the volume of the Panastereo CX230 monitor unit if it is installed. It also controls a variable DC voltage that can be used to control any item of equipment that uses voltage control.

If a CX230 monitor is installed, the auditorium sound level is displayed on the **AUDITORIUM VOLUME** bargraph to the right of the MONITOR VOLUME CONTROL. The bar graph is calibrated in dB SPL and (provided the monitor has been correctly installed and aligned) gives an accurate indication of sound levels in the auditorium.

THE MUTE CONTROL

The **MUTE CONTROL** is located directly below the VOLUME/SCROLL CONTROL. This key toggles the sound processor MUTE function ON and OFF.

If MUTE is active the numeric volume indicator will flash, indicating that the attached sound processor is currently MUTED. The MUTE is cancelled anytime you change formats on the sound processor controls.

SYSTEM SETUP

SETTING THE TIME AND DATE

From the Main Screen press the **MENU** key.

The **SET TIME** softkey will display the following screen and is used to set the Automation real time clock.

DAY	DATE	MONTH	YEAR	
Monday	**7th**	**September**	**1998**	
12	**24**	**36**		
HOUR	**MINUTE**	**SECOND**	**STORE**	**EXIT**

The time will be displayed and will update normally. To change any field press the appropriate softkey and the label will flash.

For example, press the **DATE** softkey and the DATE label will flash. To change the date, turn the Volume / Scroll knob. You can turn the SCROLL control in either direction to increase or decrease the date. When you have the correct date press the **STORE** softkey to save the setting. Set the other fields the same way.

IMPORTANT:
Be sure to press the STORE softkey after each field is set. If you go directly to another field without pressing the STORE softkey the last field that you changed will not be saved.

Press the **EXIT** softkey when the date is correct.

THE DEFAULT SETTINGS

The DEFAULT SETTINGS are the settings (or state) of all of the equipment controls when the cinema is not running a show (session). Usually this would include the projector turned off, slide machine off, curtain closed, house lights up and the sound processor selected to Non Sync 1 to allow background music to play. In other words, these are the equipment settings that are used in-between sessions.

The DEFAULT SETTINGS are used by automation system for several tasks:

1. When a Show is paused by the projectionist, the automation reverts to the Default Settings.

2. When programming, the Default Settings are used as a starting point each time we begin to program a new Segment.

Before storing the Default Settings it is first necessary to check that all of the equipment control switches are set exactly as they would be when a show is not running. Check each of the **PROJECTOR CONTROL**, **SLIDE CONTROL, CURTAINS/MASKING**, **LIGHTS** and **SOUND** screens in turn to check all of the settings. Change any settings that are incorrect as you go.

When you are satisfied that all of the settings are correct press the MENU key to enter the MENU screen.

SET TIME			STORE	SYSTEM
			DEFAULT	SETUP
	PROGRAM	PROGRAM		
	SHOW	SEGMENT		EXIT

Now press the STORE DEFAULT softkey and the following screen will appear for 2 seconds:

Default Settings Stored !!!

This indicates the Default Settings have been stored. You can now press **EXIT** to return to the Main screen.

STORE DEFAULT SETTINGS *TUTORIAL*

We suggest the following tutorial as a guide.

Press the **PROJECTOR CONTROL** key and set the defaults as…

OFF	ON	**OFF**	ON	SLIDE
- PROJ MOTOR -		--- XENON ---		CONTROL
-- PICTURE --		--- LENS ---		
OFF	ON	**WIDE**	SCOPE	EXIT

Press the **SLIDE CONTROL** softkey and set the defaults as…

FWD	REV	IN	OUT	
-- SLIDE --		-- FOCUS --		
------ SLIDE MACHINE ------				
STANDBY	RESET	**OFF**	ON	EXIT

Press the **CURTAINS / MASKING** key and set the defaults as…

STOP	PLAY	RWD		
---------------- TAPE/DISK ----------------				
- CURTAINS -		- MASKING -		
CLOSE	OPEN	**WIDE**	SCOPE	EXIT

Press the **LIGHTS** key and set the defaults as…

UP	PRE 1	PRE 2	DOWN	
------------------ HOUSE LIGHTS ------------------				
------------------ CURTAIN LIGHTS ------------------				
UP	PRE 1	PRE 2	DOWN	EXIT

Press the **SOUND** key and set the defaults as…

STEREO	SR	MONO	DOLBY DIGITAL	DTS DIGITAL
NON-SYNC 1	NON-SYNC 2	MIC	MAG	EXIT

Press the **EXIT** softkey. Press the **MENU** key then press the **STORE DEFAULT** softkey. Pressing this key causes the default settings to be stored and will display the following screen for two seconds.

Default   Settings   Stored !!!

The **EXIT** softkey returns you to the main screen.

FAULT HANDLING

The system can monitor and react to faults from three possible sources. These are Film Tension/Platter faults caused by loss of tension (usually due to a film break) or a head bind, Xenon/Exciter faults caused by failure of the xenon to ignite or the exciter lamp to illuminate and a signal from the Fire Alarm.

FILM TENSION/PLATTER FAULTS

A Film Tension or Platter fault will only occur when the projector motor is started or is already running AND a film tension or platter fault exists.   If a Show is not running a Film Tension/Platter fault will stop the projector and close the zipper.

If a show is running, a Film Tension/Platter fault will sound the alarm, cause a message to appear on the screen and pause the Show. The system will run the Platter Fault Segment (which needs to be pre-programmed to tell the system what you want it to do in the event of a platter or tension fault). If the Platter Fault Segment has not been programmed the system will revert to the default settings.   Under all circumstances the projector motor will be switched off and the zipper closed, however the settings for the lens and masking will remain unchanged.

When a Platter or Film Tension Fault occurs during a Show, the screen will look like this:

```
SHOW # 1                                    Time: 18:54:23
        ***** SHOW CANNOT START OR CONTINUE *****
               PLATTER OR FILM TENSION FAULT
OVERIDE
```

When the fault is cleared the alarm will stop and the screen will display a "Show Paused by Fault" message. The show can then be started or re-started by pressing the START/RESUME button. The show will then pick up exactly where it left off before the fault occurred.
Pressing the **OVERIDE** softkey will allow the Show to be started or to be re-started in spite of the existence of a fault condition. This is particularly useful if it is necessary to start a show before the projector is laced up. In this case, if the fault is not cleared by the time the projector start command is issued by the automation, the fault will be reinstated and the show will be halted. The **OVERIDE** softkey can also be used to silence the alarm whilst the fault is being rectified.

Note: Faults will not cause curtain, masking or lens changes.

XENON/EXCITER FAULTS

If the xenon and/or the exciter lamp (optional) is not illuminated when the zipper is about to open the alarm will sound, a message will appear on the screen and the Show will be paused. The system will run the Xenon Fault Segment (which must be pre-programmed). If the Xenon Fault Segment is not programmed the system will revert to the default settings. The settings for lens and masking positions which remain unchanged.

When a Xenon/Exciter Fault occurs, the screen will look like this:

```
SHOW # 1                                    Time: 18:54:23
        ***** SHOW CANNOT START OR CONTINUE *****
               XENON OR EXCITER NOT WORKING
OVERIDE
```

Pressing the **OVERIDE** softkey will allow the program to be re-started in spite of the existence of a fault condition. This is useful if the exciter lamp has failed but the Show can still be run in Digital. The **OVERIDE** softkey can also be used to silence the alarm whilst the fault is being rectified.

Note: Faults will not cause curtain, masking or lens changes.

FIRE ALARM

On receipt of a signal from the fire panel, the alarm will sound and the automation will run the Fire Fault segment (which must be pre-programmed). If the Fire fault segment has not been programmed the system will revert to the default settings. The lens and masking will remain unchanged. On removal of the fire signal, the show can be resumed.

When a Fire Alarm occurs, the screen will look like this:

```
SHOW # 1                              Time: 18:54:23
     ***** SHOW CANNOT START OR CONTINUE *****
        ***************FIRE ALARM***************
OVERIDE
```

Pressing the **OVERIDE** softkey will allow the program to be re-started in spite of the existence of a Fire Alarm condition. Pressing the **OVERIDE** softkey will silence the alarm whilst the Fire Alarm is being investigated. Should you be in programming mode and receive a fire signal, the 'FIRE FAULT' segment will be run and you will be taken out of programming mode and returned to the main screen.

Note: Faults will not cause curtain, masking or lens changes.

SETTING THE TURRET OPERATING MODE

There are two ways to control lens changes:

1. Program each and every lens change so each change is included as part of an Event.

2. Use a free-running Inboard Cue to initiate lens changes. Each time an Inboard Cue is encountered the lens will change. This method provides more flexibility when using many lens changes during a program or when moving prints between cinemas.

To select which mode you will use, it is necessary to enter the SYSTEM SETUP menu. This is accessed by first pressing the **MENU** control key and then pressing the **SYSTEM SETUP** softkey.

The System Setup screen looks like this:

```
                    SYSTEM SETUP

ZIPPER      TURRET
DELAY        MODE                              EXIT
```

Now press the **TURRET MODE** softkey and the screen will change to:

```
                    SYSTEM SETUP

INBOARD   PROGRAM
  CUE       CONTROL                            EXIT
```

To select Option 1 above press the **PROGRAM CONTROL** softkey

To select Option 2 above press the **INBOARD CUE** softkey

The selected option will flash.
Press the **EXIT** softkey to return to the System Setup Menu.

SETTING THE LENS TURRET DELAY

When the ZIPPER DELAY is set to a value other than zero, and a lens change occurs, the rotation of the lens turret will be delayed slightly to allow the zipper enough time to close. The turret delay is adjustable from 0.5 seconds to 2 seconds in 0.5 second increments. The delay is set by setting two DIP switches on the AS101 relay card. See the INSTALLATION section at the end of this manual for instructions on how to set this delay.

SETTING THE ZIPPER CLOSE DELAY

The system provides for automatic closing of the zipper during lens changes, a feature not provided by most projector manufacturers. This feature eliminates the need to splice in black film at each lens change point to avoid picture distortion and spurious light on the screen as the lens turret rotates. The time that the zipper remains closed during a lens change can be set between 0 and 9.9 seconds, in increments of 0.1 of a second. This allows the zipper close time to be exactly matched to the rotation time of individual lens turrets.

To set the zipper close time, it is necessary to enter the SYSTEM SETUP menu. This is accessed by first pressing the **MENU** control key and then pressing the **SYSTEM SETUP** softkey.

The System Setup screen looks like this:

```
              SYSTEM SETUP

   ZIPPER    TURRET
    DELAY     MODE                    EXIT
```
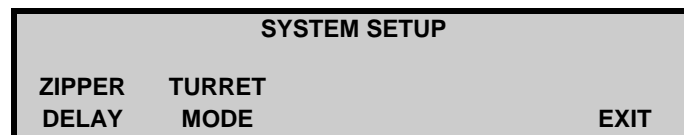
Now press the **ZIPPER DELAY** softkey and the screen will change to:
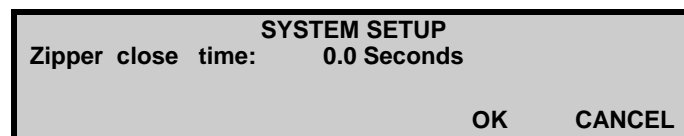
```
              SYSTEM SETUP
   Zipper  close  time:      0.0 Seconds


                            OK     CANCEL
```

The volume display will have changed to dashes to indicate that the SCROLL can be used to set the zipper close time. Rotate the scroll control until the desired time is displayed then press the **OK** softkey to save the new setting. If you change the setting and then decide to leave it as it was, press the **CANCEL** softkey and the changes will not be saved.

The screen will now revert to the System Setup screen.

Press the **EXIT** softkey to return to the Main Menu.

AUTOMATION OPERATION

RUNNING A SHOW

Shows can be started manually or by setting a timer.

TO START A SHOW WITHOUT THE TIMER

1. Press a **SHOW #** key to put the system in **SHOW READY** mode. The screen will look like this:

```
SHOW # 1 Ready to start.          Time: 18:54:19

                                     CHANGE
                                     SETTINGS
```

2. Press the **START/RESUME** key and the Show will start

TO START A SHOW USING THE TIMER

1. Press a **SHOW #** key to put the system in **SHOW READY** mode but **do not** press START/RESUME key.

2. Press the **CHANGE SETTINGS** softkey. The screen will change to look like this:

```
SHOW # 1  Show Setup Mode.        Time: 18:58:19

   START      SET #      SETUP
   TIME/R     SLIDES   INTERLOCK            EXIT
```

This screen allows you to set the start timer and change the number of slides in the slide show and setup the cinema interlock. The **START TIME/R** softkey displays the following screen:

```
SHOW # 1  Show Setup Mode.         Time: 18:58:19
          (Use SCROLL knob to set start time)
START TIME:  18:58
Start delay:  0:00:00            OK      CANCEL
```

At the top right corner of the display the current time is displayed. The Volume control changes to a Scroll control as indicated by the two digit volume display changing to dashes. Rotating the **SCROLL** control will change the start delay time in increments of one minute. The actual start time is calculated and displayed on the screen above the Start Delay.

When you have set the start time/delay press the **OK** softkey to return to the Show Ready screen. This will also start the timer. The screen will return to the Show Ready screen:

```
      SHOW # 1 Ready to start.      Time: 18.53:00

Start time:  18:59                     CHANGE
Starting in:  0:06:00                  SETTINGS
```

The timer will count down to the start time.

The **END SHOW** key will cancel the selected SHOW and will return you to the SYSTEM READY menu.

SKIPPING CUES IN A SHOW

The Panalogic automation will only react to film foils (or any other cue sources) that it is actually expecting for any given Event in a program All other cue sources will be ignored However should you realise that there is an extra cue on the film that the system will mistake for one that it is expecting, or if you don't want the automation to advance to the next event on the next cue, you can press the START/RESUME key and the automation will flash *IGNORE CUES*. The automation will beep repeatedly to remind you that you have this feature enabled. Pressing the START/RESUME key will return the automation to its normal running mode.

SKIPPING EVENTS IN A SHOW

Whilst a show is running it is possible to skip to the next event or back to the previous event using the **NEXT EVENT** and **PREVIOUS EVENT** keys. This is useful if you have forgotten to place a foil cue on the film, if you wish to pre-empt a cue, or if a phantom cue has caused the program to jump too far forward.

SETTING THE NUMBER OF SLIDES

The Number of Slides in the carousel that are to be included in a slide presentation can only be set after you enter Show Ready mode. The Number of Slides is "global" in that it applies to **ALL** Shows and will therefore continue to apply to all future sessions until it is changed.

To set the number of slides:

1. Press a **SHOW #** key to put the system in **SHOW READY** mode but **do not** press the START/RESUME key.

The display will look like this.

```
SHOW # 1 Ready to start.          Time: 18:54:19

                                  CHANGE
                                  SETTINGS
```

2. Press the **CHANGE SETTINGS** softkey. The screen will change to look like this:

```
SHOW # 1  Show Setup Mode.        Time: 18:58:19

  START      SET #     SETUP
  TIME/R     SLIDES  INTERLOCK            EXIT
```

The **SET # SLIDES** softkey will display the following screen.

```
SHOW # 1  Show Setup Mode.        Time: 18:58:19
          (Use Scroll Knob to set # of slides)
NUMBER OF SLIDES:  0
                                  OK      CANCEL
```

Use the scroll knob to set the number of slides then press the **OK** softkey.

INTERLOCKING CINEMAS

Cinemas can be interlocked together so that one print can be shown on more than one screen at the same time. When cinemas are interlocked together the projector Stop and Start controls, Show Start and Show Pause functions are locked together. Two or more cinemas can be interlocked together by assigning each cinema to the same INTERLOCK GROUP. It is possible to set up a maximum of 32 separate interlock groups.

To set up a cinema for interlock mode, enter Show Ready mode.

1. Press a **SHOW #** key to put the system in **SHOW READY** mode but **do not** press the START/RESUME key. The display will look like this.

> **SHOW # 1 Ready to start.**   **Time: 18:54:19**
>
>   **CHANGE**
>   **SETTINGS**

2. Press the **CHANGE SETTINGS** softkey. The screen will change to look like this:

> **SHOW # 1 Show Setup Mode.**   **Time: 18:58:19**
>
> **START   SET #   SETUP**
> **TIME/R   SLIDES   INTERLOCK**   **EXIT**

The **SETUP INTERLOCK** softkey will display the following screen.

> **SHOW # 1 Show Setup Mode.**   **Time: 18:58:19**
>
> **Interlocked to group: 0**
>   **EXIT**

3. Use the **scroll knob** to set the group that you want to be interlocked with, then press the **EXIT** softkey.

The following screen will be displayed when the cinema is interlocked to a group.

> **SHOW # 1 Ready to start.**   **Time: 18:58:19**
> **Interlocked with group: 3**
>   **CHANGE**
>   **SETTINGS**

If you don't want to interlock this cinema, set the interlock group to 0 and then press the **EXIT** softkey.

Pressing the **START/RESUME** key on any automation unit that is interlocked in a group will simultaneously start the Shows in all cinemas that are in Ready mode and are interlocked to the same group. Pressing either 'Projector Start' or 'Projector Stop' on any interlocked cinemas will start or stop all cinema projectors that are interlocked to the same group. Any fault occurring in an interlocked cinema will cause the Shows in all interlocked cinemas in that same group to pause and display 'SHOW PAUSED BY USER', except for the cinema which caused the fault which will display 'SHOW PAUSED BY FAULT'.

See '*Programming for interlock'* page 5.14

PAUSING A SHOW

Pressing the **PAUSE SHOW** key will stop the show that is currently running and the system will revert to the Default Settings.
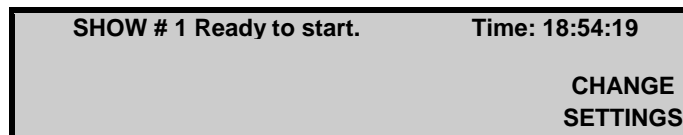
Pressing the **START/RESUME** key will restart the show where it left off. If the projector was running and there was a picture on the screen, the automation will first start the projector, light the xenon, dim the house lights and after three seconds it will put the picture back on the screen and turn the film sound back on.

Note: PAUSING A SHOW will not cause curtain, masking or lens changes.

STEPPING THROUGH A SHOW BEFORE STARTING

It is possible to step through a show without actually starting it. This can be useful if you wish to bypass the first part of a show and start from some point within the show.

To do this press a **SHOW #** key to display the Show Ready screen.

```
SHOW # 1 Ready to start.          Time: 18:54:19


                                    CHANGE
                                   SETTINGS
```

Now press the **NEXT EVENT** key to step into the show. Each press of the key will step to the next event. When you reach the point from which you wish to start (eg. after the slides) press the **START/RESUME** key and the show will start from that point.

You can step both forward and backward within the show using the **NEXT EVENT** and **PREVIOUS EVENT** keys.

PROGRAMMING SHOWS AND SEGMENTS WHILE A SHOW IS RUNNING

It is possible to program new Segments or Shows or make changes to existing Segments or Shows whilst a show is running. To do this simply follow the instructions for programming in the next chapter.

The only restriction is that whilst you are in programming mode, execution of the current running show will be suspended. That is, no new cues will be accepted and therefore the show will not step forward, until you exit from programming mode.

Therefore if you wish to program whilst a show is running it is advisable to do so during the feature when cues are few and far between.

You can also make changes to the program for current running show. Any changes that you make will take effect as soon as you exit programming mode.

AUTOMATION PROGRAMMING

There are two possible ways to set up a SHOW program.

The first and most simple method is to create a SHOW that contains just one SEGMENT. When the SHOW is run, each EVENT in the Segment causes various pieces of equipment to turn on or off or change settings. This is just like a pin matrix system and like a pin matrix there is no real limit to the number of things that can be turned on or off with each EVENT.

The second method is to create a SHOW that contains a sequence of several SEGMENTS. This allows for easier editing of SHOWS at a later time, as a SHOW can be sub-divided into several sections, such as the features, trailers, slides, start projector, closers, and faults, each of which can be individually edited. The one SEGMENT can also be used in several SHOWS…

PROGRAMMING A SEGMENT

A SEGMENT is a sequence of individual EVENTS. A Segment can contain up to 16 Events. Programming of a Segment involves programming each Event in order, starting at Event 1.

Each Event contains a TRIGGER setting which determines what will cause the event to happen. There are six Triggers to chose from:

MANUAL   The operator must manually press the **NEXT EVENT** key to execute the Event.

WAIT- xx   Wait xx seconds before executing the Event. The wait time (xx) can be between 0 and 99 seconds. In this case the Event will take place xx seconds after the previous Event. Events with a Wait-xx Trigger can be cascaded so that several Events will occur in succession, each one a given time later than the one before.

LAST-SL   LAST SLIDE cue. This Trigger is activated by the last slide in the carousel. It can be used to start the projector, or perform some other action, when the last slide is reached.

OUTCUE   Outboard foil film cue

CNTRCUE   Centre foil film cue

INCUE   Inboard foil film cue

The default trigger is MANUAL.

THE DISPLAY SYSTEM

Each Event stores the state of the switches for all of the attached equipment. However rather than show the state of every switch, the system is designed so that **only the switches that are to change** will be displayed. This simplifies the display making it easier to read. During programming, the switches that will change for each event are displayed as each Event is displayed.

SEGMENT PROGRAMMING *TUTORIAL*

This tutorial will lead you through all the steps to program a simple show that will turn the lights down, open the curtains, start the projector, light the lamp, put a picture on the screen and change the sound. At the end of the show we will program, the lights will come back up, the projector will shut down, the curtain will close and the intermission music will come back on.

Before starting to program make sure that the Default Settings have been stored so that all of the equipment is in the state that it will normally be in before the show starts. *See DEFAULTS STORED tutorial above…(pages 1.7 & 1.8)*

STEP 1. From the MAIN SCREEN, press the **MENU** button.

The display looks like this:

```
SET TIME                          STORE    SYSTEM
                                  DEFAULT   SETUP
              PROGRAM  PROGRAM
                SHOW    SEGMENT             EXIT
```

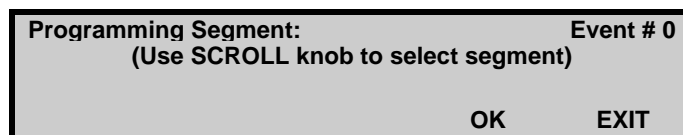The lower left section of the screen has two softkeys that allow access to the programming functions.

PROGRAM SHOW This softkey is for viewing and programming the Segments in a Show.

PROGRAM SEGMENT This softkey is for viewing and programming the Events in each Segment.

The first step in the programming process is to program one or more Segments. A Show can consist of a single Segment or multiple Segments.

STEP 2. Now press the **PROGRAM SEGMENT** softkey to enter the Segment programming screen.

The display now looks like this:

```
Programming Segment:                        Event # 0
     (Use SCROLL knob to select segment)


                               OK        EXIT
```

When you enter this screen the two-digit volume display changes to two dashes. This indicates that the volume knob is now functioning as a **SCROLL** control.   A message on the screen tells you to turn the **SCROLL** control to select a segment to program.

Turn the Volume/Scroll knob in either direction and you will see the names of the various segments displayed to the right of the words "Programming Segment:".

You will see that there are 32 segments called FEATURE1-15, TRAILER1-9, SLIDES1-2, START-PR, CLOSER1-2, PLAT-FLT, XEN-FLT and FIRE-FLT. These segments have different names for convenience, they each have the same programming capacity which is 16 events each.

Select the Segment called FEATURE14 then press the **OK** softkey.

If the segment **has not** been previously programmed the screen will look like this: Go to **STEP 3**

```
Programming Segment:  FEATUR14          Event # 1
        THIS EVENT NOT PROGRAMMED

TRIGGER   INSERT    DELETE    STORE     EXIT
```
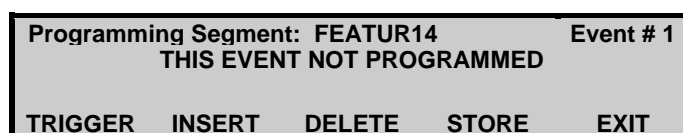
If the segment *has* been previously programmed the screen will look something like this:

```
┌────────────────────────────────────────────────────┐
│ Programming Segment: FEATUR14            Event # 1   │
│ MANUAL     PRJ1-ON    HSLT-P1                        │
│                                                      │
│ TRIGGER    INSERT    DELETE    STORE      EXIT       │
└────────────────────────────────────────────────────┘
```

Check to make sure that *you do not need this segment* for your current cinema operation, (ask another projectionist, if it is a new installation you need not worry) as we will delete it.

Press the **DELETE** softkey until the screen looks like this:

```
┌────────────────────────────────────────────────────┐
│ Programming Segment: FEATUR14            Event # 1   │
│            THIS EVENT NOT PROGRAMMED                 │
│                                                      │
│ TRIGGER    INSERT    DELETE    STORE      EXIT       │
└────────────────────────────────────────────────────┘
```

STEP 3. SELECTING A **TRIGGER**

If a Segment is the first, or only Segment in a SHOW, the Trigger in EVENT 1 of the Segment is ignored. This is because the only way to start the Segment is by pressing the START/RESUME key or by setting the Show Start timer. We are going to set the Trigger to MANUAL anyway.

Press the **TRIGGER** softkey to select a trigger for Event 1. Each time the trigger softkey is pressed a new trigger will be displayed.

Step through the TRIGGERS and select "MANUAL".

Press the **STORE** softkey to save the Trigger setting. The screen now looks like this:

```
┌────────────────────────────────────────────────────┐
│ Programming Segment: FEATUR14            Event # 1   │
│ MANUAL                                               │
│                                                      │
│ TRIGGER    INSERT    DELETE    STORE      EXIT       │
└────────────────────────────────────────────────────┘
```

STEP 4. SELECT THE EQUIPMENT TO TURN ON OR OFF FOR THIS EVENT.

To select which equipment is to be turned on or off by the first Event simply press the appropriate Control key such as the **PROJECTOR CONTROL** key.

The screen will change to the relevant equipment control screen and you can then set the equipment to the state that it should be in after the first Event occurs. The system uses abbreviated names to indicate things that will change when an Event occurs.

Press the **PROJECTOR CONTROL** key. The following screen will be displayed.

```
┌────────────────────────────────────────────────────┐
│  OFF        ON      OFF       ON        SLIDE        │
│ - PROJ MOTOR -      --- XENON ---      CONTROL       │
│   -- PICTURE --       --- LENS ---                   │
│  OFF        ON      WIDE     SCOPE       EXIT        │
└────────────────────────────────────────────────────┘
```

If you have done the *DEFAULT tutorial,* the displays will be flashing as shown (BOLD indicates flashing) If the display looks different you should exit programming and do it now!

Press the PROJ MOTOR **ON** softkey to turn "ON" the projector motor (it won't start the projector when you press it because we are in programming mode).

The screen will now have the following displays flashing.

```
OFF        ON        OFF        ON        SLIDE
- PROJ MOTOR -         --- XENON ---      CONTROL
  -- PICTURE --        --- LENS ---
OFF        ON        WIDE     SCOPE       EXIT
```

Now press the XENON **ON** softkey, the screen will now have the following displays flashing.

```
OFF        ON        OFF        ON        SLIDE
- PROJ MOTOR -         --- XENON ---      CONTROL
  -- PICTURE --        --- LENS ---
OFF        ON        WIDE     SCOPE       EXIT
```

Press the **EXIT** softkey, the display will look like this:

```
Programming Segment: FEATUR14              Event # 1
 MANUAL    PRJ1-ON    XEN1-ON


TRIGGER    INSERT    DELETE    STORE       EXIT
```

Each new setting is added to the right of the previous one until the line is full, then the entries continue onto the next line down.

Press the **CURTAIN / MASKING** key, the screen will change to…

```
 STOP      PLAY      RWD
---------------- TAPE/DISK ----------------
  - CURTAINS -            - MASKING -
CLOSE      OPEN      WIDE     SCOPE       EXIT
```

Press the CURTAIN **OPEN** softkey, it should now be flashing.
Press the **EXIT** softkey, the screen should look like…

```
Programming Segment: FEATUR14              Event # 1
 MANUAL    PRJ1-ON    XEN1-ON    CURT-OP


TRIGGER    INSERT    DELETE    STORE       EXIT
```

Now press the **LIGHTS** key, the screen will change to…

```
  UP       PRE 1     PRE 2     DOWN
------------------ HOUSE LIGHTS ------------------
----------------- CURTAIN LIGHTS -----------------
  UP       PRE 1     PRE 2     DOWN       EXIT
```

Press the HOUSE LIGHTS **PRE1** and the CURTAIN LIGHTS **DOWN** softkeys. These should now both be flashing. Press the **EXIT** softkey, the screen should look like…

```
Programming Segment: FEATUR14              Event # 1
 MANUAL    PRJ1-ON    XEN1-ON    CURT-OP    HSLT-P1
 CNLT-DN
TRIGGER    INSERT    DELETE    STORE       EXIT
```

If you make an error, you can go back to the Control screen and change the equipment back to the state what it was in before you changed it. The entry will then be removed from the list on the "Programming Segment" screen.

PROGRAMMING VOLUME CHANGES AND MUTE COMMANDS

If it is desired to have a volume change during an Event, just turn the volume control and an entry will appear that shows the volume as you change it. When you get the volume level that you want, press STORE and a "volume change" will be stored for the Event.

A volume change is displayed as **VOL-xx**, where xx is the volume that will be used after the change. You can modify the volume level at any time whilst you are programming an Event by rotating the volume control and pressing STORE.

If you wish to remove a volume change entry, just turn the volume control to "99" and the volume entry will disappear. Press to be STORE key to save the change.

You can also store a volume MUTE command by pressing the **MUTE** key below the volume knob. The volume numeric display will flash indicating that MUTE is activated.

Change the Volume control to 65, the screen will now look like this:

```
┌─────────────────────────────────────────────────────┐
│    Programming      FEATUR14            Event # 1     │
│  MANUAL    PRJ1-ON   XEN1-ON   CURT-OP   HSLT-P1      │
│  CNLT-DN    VOL-65                                    │
│  TRIGGER   INSERT    DELETE    STORE      EXIT        │
└─────────────────────────────────────────────────────┘
```

The volume level will change to "65" when this Event occurs in a running show.

Press the **MUTE** key (it is located below the volume control), the screen will now look as follows:

```
┌─────────────────────────────────────────────────────┐
│    Programming      FEATUR14            Event # 1     │
│  MANUAL    PRJ1-ON   XEN1-ON   CURT-OP   HSLT-P1      │
│  CNLT-DN    VOL-65    MUTE                            │
│  TRIGGER   INSERT    DELETE    STORE      EXIT        │
└─────────────────────────────────────────────────────┘
```

When you are satisfied with the first Event press the **STORE** softkey.

We can write down all of the above steps in a logical order.

SEGMENT: *FEATUR14*
EVENT#:   *1*

TRIGGER	MANUAL	this will be the first event in the Show
PROJECTOR	ON	turn the projector motor on
XENON	ON	turn the xenon lamp on
CURTAIN	OPEN	open the curtains
HOUSE LIGHTS	PRESET 1	take the house lights to preset 1
CURTAIN LIGHTS	DOWN	take the curtain lights down
VOLUME	65	change the volume to 65
VOLUME	MUTE	mute the sound

Always remember to press the STORE softkey before proceeding to the next Event or the changes you have made will not be saved.

STEP 5. PROGRAM THE NEXT EVENT

Proceed to Event 2 by pressing the **NEXT EVENT** key. Each time this key is pressed the Event number will increment by one. If Event 2 has not been previously programmed the screen will look like this:

```
Programming Segment:  FEATUR14          Event # 2
            THIS EVENT NOT PROGRAMMED


TRIGGER    INSERT    DELETE    STORE    EXIT
```

You can now program this Event the same way as you did Event 1.

Program the following settings.

SEGMENT:	*FEATURE14*	
EVENT#:	*2*	
TRIGGER	WAIT-7	wait 7 seconds before doing this event
PICTURE	ON	put the picture on the screen
SOUND	STEREO	(change the sound source to stereo
		(and take the mute off the sound

Step through the TRIGGERS and select "WAIT". When the Wait trigger is displayed, the volume display changes to dashes to indicate that the SCROLL can be used to set the delay (or Wait) time.

Turn the **SCROLL** control until a delay of 7 seconds is indicated.

Press the **STORE** key to save the Trigger and wait time setting.

The SCROLL reverts back to a volume control when the STORE softkey is pressed.

The screen now looks like this:

```
Programming Segment: FEATUR14          Event # 2
   Wait-7     PIC1-ON     STEREO


TRIGGER    INSERT    DELETE    STORE    EXIT
```

Now go to the Projector Control screen and set the Picture to **ON**, then go to the Sound screen and set the sound to **STEREO**. You can go straight from the Projector Control screen to the Sound screen without pressing EXIT first.

Now press the **EXIT** button in the Sound Screen.

The Event #2 screen should look like this if you have got it right…

```
Programming Segment: FEATUR14          Event # 2
   Wait-7     PIC1-ON     STEREO


TRIGGER    INSERT    DELETE    STORE    EXIT
```

Press **STORE** to save the settings for Event #2.

Now go on to Event #3 by pressing the **NEXT EVENT** key.

Program the following settings:

SEGMENT: *SPECIAL 8*
EVENT #:   *3*

TRIGGER   WAIT-10   wait 10 seconds before doing this event
PICTURE   OFF   take the picture off the screen
SOUND   NON SYNC 1   change the sound to non sync 1
HOUSE LIGHTS   UP   bring the house lights back up

The screen for Event #3 should look like this.

```
┌─────────────────────────────────────────────────────────┐
│ Programming Segment:  SPECIAL 8            Event # 3      │
│   Wait-10     PIC1-OF     NSYNC1     HSLT-UP             │
│                                                           │
│                                                           │
│ TRIGGER     INSERT     DELETE     STORE        EXIT      │
└─────────────────────────────────────────────────────────┘
```

Proceed to Event #4 and program the following changes:

Event 4

TRIGGER   WAIT 10   wait 10 seconds before doing this event
CURTAINS   CLOSE   close the curtains
PROJECTOR OFF   turn the projector motor off
XENON   OFF   turn the xenon off
LIGHTS   CURTAIN LIGHTS UP   raise the curtain lights

The screen for Event #4 should look like this*…*

```
┌─────────────────────────────────────────────────────────┐
│ Programming Segment:  FEATUR14            Event # 4      │
│   Wait-10   PRJ1-OF   XEN1_OF   CNLT-UP    CURT-CL       │
│                                                           │
│                                                           │
│ TRIGGER     INSERT     DELETE     STORE        EXIT      │
└─────────────────────────────────────────────────────────┘
```

Make sure you have pressed the STORE softkeys*.*
Now press the **EXIT** softkey.

You have now completed the segment programming for our short show.

You can view the programmed segment by going back to the start of this tutorial and step through each Event in the Segment we programmed. You can change the EVENTS if you have made a mistake, **remember to press the STORE softkey after you make any changes** otherwise your changes will not be remembered.

NOTE: Whilst you are programming a Segment, or checking a Segment, you can step both backwards and forwards between Events using the **NEXT EVENT** and **PREVIOUS EVENT** keys.

Before we can run the above program we need to program the segment into a SHOW. (*see SHOW PROGRAMMING*)

PROGRAMMING FOR SLIDES

There are four main ways to control slides.

1. Use the automation to turn on the slide projector. Advance each slide by using "WAIT" commands in the automation to "FWD" the slide projector. The automation "FWD" relay is connected to the slide advance input.

2. Use the automation to turn on the slide projector. Advance each slide using the built in timer in the slide projector or a separate timer connected to the "advance slide" input. Use a sensor on the slide machine carousel to detect the last slide for the automation to start the next event. The sensor is connected to the Last Slide input relay of the automation.

3. Use the automation to turn on the slide projector. Advance slides using a pre-recorded pulse from an audio source such as a tape deck or a Mini Disc player which is connected directly to the slide machine's "advance slide" input. Use a sensor on the slide machine carousel to detect the last slide for the automation to start the next event. The sensor is connected to the Last Slide input relay of the automation.

4. Use the automation to turn on the slide projector. Advance slides using a pre-recorded pulse from an audio source such as a tape deck or a Mini Disc player which is connected to the Last Slide input relay of the automation system. The automation advances the slide machine on each pulse and counts the number of pulses to determine when the last slide is in the gate and then the automation starts the next event.

PROGRAMMING FOR METHOD 1

A separate Event is used for each slide. Each Event consists of a **WAIT** command and an slide **FWD** command.

PROGRAMMING FOR METHOD 2 AND 3

Only one Event is used with a Last Slide trigger to start the next Event (usually the film projector). The Number of Slides must be set to "0". The automation will not forward the slide machine when set to "0". Should you wish to advance the slide on sensing the 'Last Slide', then set the number of slides to "1".

PROGRAMMING FOR METHOD 4

Only one Event is used with a Last Slide trigger to start the next Event (usually the film projector). The Number of Slides must be set to the correct number of slides in the carousel. The automation counts each pulse and when the number of slides counted matches the Number of Slides setting the next Event is triggered. The automation will advance the slide machine when the last slide's cue is counted. Once the Number of Slides value is set it remains the same until it is changed.

EDITING A SEGMENT

Once a Segment has been programmed it is possible to go back later and add or remove Events. This is done in the same way as programming a segment as follows:

To delete an Event from a Segment

Enter the PROGRAM SEGMENT screen and select the Segment that you wish to edit by following Steps 1 & 2 in PROGRAMMING A SEGMENT. The screen should look something like this:

```
Programming Segment: FEATUR14              Event #1
MANUAL   PROJ1-ON  XEN1-ON   CURT-OP   HSLT-P1
CNLT-DN    VOL-65
TRIGGER   INSERT    DELETE    STORE      EXIT
```

Press the **Event #** softkey until you find the number of the Event that you want to delete . Now press the **DELETE** softkey. All of the Events that were higher in number will now be shifted down by one. For example if you deleted Event number 1, Event 2 will become Event 1, Event 3 will become Event 2 and so on.

To Insert a new Event into a Segment:

Enter the PROGRAM SEGMENT screen and select the Segment that you wish to edit by following Steps 1 & 2 in PROGRAMMING A SEGMENT.

The screen should look something like this:

```
Programming Segment: FEATUR14              Event # 1
 Wait-30   PROJ1-ON  XEN1-ON   CURT-OP   SLID-OF
HSLT-DN    STEREO
TRIGGER   INSERT    DELETE    STORE      EXIT
```

Press the **Event #** softkey until you find the Event number **before** which you want to insert the new Event. For example, if your Segment contains 10 Events and you want to insert a new Event between Events 6 and 7 press the **Event #** softkey until you are displaying Event # 7.

Now press the **INSERT** softkey. A new Event #7 will be created and the display will look like this:

```
Programming Segment: FEATUR14              Event # 7
         THIS EVENT NOT PROGRAMMED

TRIGGER   INSERT    DELETE    STORE      EXIT
```

Now select the TRIGGER and the switches that you want to change for this event in the same way that you would if you were programming an Event. Then press the **STORE** and then the **EXIT** softkeys.

The Event that was previously Event 7 has been moved to Event 8, Event 8 has been moved to Event 9 and so on.

TUTORIAL END

<div style="border:1px solid; text-align:center">PROGRAMMING A SHOW</div>

A Show consists of one or more Segments. The next step is to select which Segments will make up a Show.

<div style="border:1px solid; text-align:center">PROGRAMMING A SHOW TUTORIAL</div>

We will now go through the steps needed to put the Segment that we programmed into a SHOW so that we can run it.

Press the **PROGRAM SHOW** softkey in the Menu screen.
The screen will look like this:

```
Press a SHOW button to select which
show you wish to program
                                    EXIT
```

Now press one of the 10 SHOW keys in the left area of the control panel to select the Show that you are going to program, (or press the **EXIT** softkey to return to the Menu screen).
If the Show that you select has not been previously programmed, the screen will now look like this:

```
Programming Show #                    Segment #
 Segment Name:  SEGMENT NOT PROGRAMMED

                      DELETE    STORE    EXIT
```

The volume display will have changed to dashes to indicate that the SCROLL can be used to select a Segment as the first Segment in the Show. Rotate the scroll control until the desired Segment is displayed next to "Segment Name:"

For our Tutorial we will select FEATUR14 ,which we programmed in the *segment tutorial.*
Press the **STORE** softkey to save this Segment as the first Segment.

As you selected "FEATUR14" as the first segment, the screen will now look like this:

```
Programming Show #  1                 Segment #
Segment Name:FEATUR14

                      DELETE    STORE    EXIT
```

If you only want to use one Segment for this Show you can now press the **EXIT** softkey. If you want to add additional Segments press the softkey above the Segment # 1 label to select the next Segment. Repeat the procedure just described for programming additional Segments.

TUTORIAL END

	A SAMPLE PROGRAM WITH ONLY ONE SEGMENT	

The following program runs a slide show, then trailers in wide screen, stereo which is followed by a feature in scope, SR. At the end of the feature it shuts everything down, closes the curtains, raises the lights and resets the lens and masking to wide screen. It rewinds the tape and resets the slides ready for the next show.

This program assumes that your Default Settings have been stored as the following:

PROJECTOR	OFF	XENON	OFF
PICTURE	OFF	LENS	WIDESCREEN
SLIDE	OFF	TAPE	STOPPED
CURTAIN	CLOSED	MASKING	WIDESCREEN
HOUSE LIGHTS	UP	CURTAIN LIGHTS	UP
SOUND	NON-SYNC 1	VOLUME	50

Event 1

TRIGGER	MANUAL	manual or timer start
SLIDE	SLI-RST	reset the slide machine's carousel to position "o". Open the shutter if a slide is there
TAPE	TAPE-PL	play the tape
CURTAIN	CURT-OP	open the curtain
LIGHTS	HSLT-P1	dim house lights to preset 1
LIGHTS	CNLT-DN	fade curtain lights out
SOUND	NSYNC-2	switch the sound processor to the tape input
VOLUME	VOL-45	set the volume to 45

Event 2

TRIGGER	LAST SL	detect the last slide
PROJECTOR	PRJ1-ON	turn the projector motor on
XENON	XEN1-ON	turn the xenon on

Event 3

TRIGGER	CNTRCUE	detect the centre cue on the film at start of trailer
PICTURE	PIC1-ON	put the picture on the screen
SLIDE	SL-STBY	turn off the slide machine
TAPE	TAPE-RWD	rewind the tape
LIGHTS	HSLT-P2	dim the house lights to preset 2
SOUND	STEREO	change the sound to film stereo
VOLUME	VOL-60	set the volume to 60

Event 4

TRIGGER	CNTRCUE	detect centre cue at the start of the feature on the film
LENS	LENS-SC	change the lens and masking to scope for the feature
LIGHTS	HSLT-DN	turn the house lights down
SOUND	STEREOSR	set the sound processor to stereo SR
VOLUME	VOL-70	set the volume to 70
TAPE	TAPE-STP	stop the tape player

Event 5

TRIGGER	CENTRE CUE	detect the centre cue at the start of the credits on the film
LIGHTS	HSLT-P2	raise the house lights to preset 2

Event 6

TRIGGER	CENTRE CUE	detect the centre cue before the end of the credits on the film
CURTAIN	CURT-CL	close the curtains
LIGHTS	HSLT-UP	turn the house lights up
LIGHTS	CNLT-UP	turn up the curtain lights

Event 7

TRIGGER	CENTRE CUE	detect the centre cue at the end of the feature's credits
PICTURE	PIC1-OF	take the picture off the screen
LENS	LENS-WS	change the lens back to wide screen
MASKING	MASK-WS	change the masking back to wide screen
SOUND	NSYNC 1	change the sound back to non sync 1
VOLUME	VOL-50	set the volume to 50

Event 8

TRIGGER	WAIT-30	wait 30 seconds for the film to run out of the projector
PROJECTURE	PRJ1- OF	turn the projector motor off
XENON	XEN1-OF	turn off the xenon lamp

END

A SAMPLE PROGRAM WITH SEVERAL SEGMENTS

This is the same program as above, but broken into 4 Segments – Slides, Trailers, Feature and Closer.
Programming for multiple segments makes later editing easier and allows many show combinations to be set up with just a few Segments. This method is easier to understand if you check the each of the equipment control screens while you are programming to ensure that the equipment is in the correct state for each Event.

SEGMENT 1   SLIDES1

Event 1

TRIGGER	MANUAL	manual or timer start
SLIDE	SLI-RST	reset the slide machine's carousel to "0" , open the shutter if a slide is there
TAPE	TAPE-PL	play the tape
CURTAIN	CURT-OP	open the curtain
LIGHTS	HSLT-P1	dim house lights to preset 1
LIGHTS	CNLT-DN	fade curtain lights out
SOUND	NSYNC-2	switch the sound processor to the tape input
VOLUME	VOL-45	set the volume to 45

SEGMENT 2   START-PR

Event 1

TRIGGER	LAST SL	detect the last slide
PROJECTOR	PRJ1-ON	turn the projector motor on
XENON	XEN1-ON	turn the xenon on

SEGMENT 3   TRAILER1   (Wide screen, Stereo)

Event 1

TRIGGER	CNTRCUE	detect the centre cue on the film at start of trailers
SLIDE	SL-STBY	turn off the slide machine
TAPE	TAPE-RWD	rewind the tape
PICTURE	PIC1-ON	put the picture on the screen
CURTAIN	CURT-OP	open the curtain
LIGHTS	HSLT-P2	dim the house lights to preset 2
LIGHTS	CNLT-DN	fade curtain lights out
SOUND	STEREO	change the sound to film stereo
VOLUME	VOL-60	set the volume to 60

SEGMENT 4   **FEATURE3**   **(Scope, SR)**

Event 1
TRIGGER	CNTRCUE	detect the centre cue on the film at start of the feature
LENS	LEN1-SC	change the lens to Scope
MASKING	MASK-SC	change the masking to Scope
PICTURE	PIC1-ON	put the picture on the screen
SLIDE	SL-STBY	the slide machine should be off (in case you runfeature3
TAPE	TAPE-ST	stop the tape without trailers..)
LIGHTS	HSLT-DN	fade the house lights out
LIGHTS	CNLT-DN	the curtain lights should be off
SOUND	STEREOSR	change the sound to film stereo SR
VOLUME	VOL-60	set the volume to 70

Event 2
TRIGGER	CNTRCUE	detect the centre cue on the film at start of the credits
LIGHTS	HSLT-P2	raise the house lights to preset 2

Event 3
TRIGGER	CNTRCUE	detect the centre cue on the film before the end of the credits
LIGHTS	HSLT-UP	raise the house lights
CURTAIN	CURT-CL	close the curtain
LIGHTS	CNLT-UP	raise the curtain lights
PICTURE	PIC1-OF	turn the picture off
SOUND	NSYNC1	change the sound to non sync 1
VOLUME	VOL-40	set the volume of the non sync to 40

SEGMENT 5   **CLOSER1**

Event 1
TRIGGER	CNTRCUE	detect the centre cue on the film at end of the credits
MASKING	MASK-WS	set the masking back to wide screen
LENS	LENS-WS	set the lens back to wide screen

Event 2
TRIGGER	WAIT-30	wait for the film to run out of the projector
PROJECTOR	PRJ1-OF	turn the projector motor off
XENON	XEN1-OF	turn the xenon off

END

At the end of the show, the settings for the equipment should be the same as they were before the show started.

PROGRAMMING for INTERLOCK

There are several things to keep in mind when programming for interlocked shows.

The first cinema to reach a 'Start Projector' command in it's program will start the projectors in all interlocked cinemas. It will normally be necessary to progressively delay the start of the Show in each cinema along the interlocked film chain. Because the Shows in ALL interlocked cinemas will start simultaneously, delaying the start of each cinema's normal program can easily be achieved by inserting a WAIT command as the second Event in each cinema's Show program. To do this, make the first Event a MANUAL trigger with no other commands. Then for the second Event use a WAIT command as the trigger along with the other commands that you would normally have in the first Event. When the Show is started, the automation will wait for the programmed number of sends before executing the other commands.

If you are running a slide show prior to the film presentation you need to ensure that each slide show will finish before the first film cue passes through each projector, otherwise the film cues will not be seen. (The automation will still be looking for a last slide cue and not a film cue if the slide show hasn't finished). The slide shows can be timed to finish just before the film foil passes through the projectors by using WAIT commands to delay the start of the slide shows .

You need to make sure that only the last cinema in the film chain has a 'Projector Stop' command at the end of it's program. This is to ensure that the film is not stopped until the last cinema reaches the end of the feature. For this purpose, you can program the CLOSE 2 Segment without a 'Projector Stop' command for use in the interlock programs for all but the last cinema.

If you have film break detectors fitted to each projector, there needs to be enough leader on the end of the film so that the last film cue can go past every projector before the film runs out of the first projector and stops it… (because, if one stops, they all stop!)

Any fault on any interlocked cinema in a group will stop all the interlocked cinemas in the same group.

The show can be started, paused or stopped at any console that is interlocked within the same group.

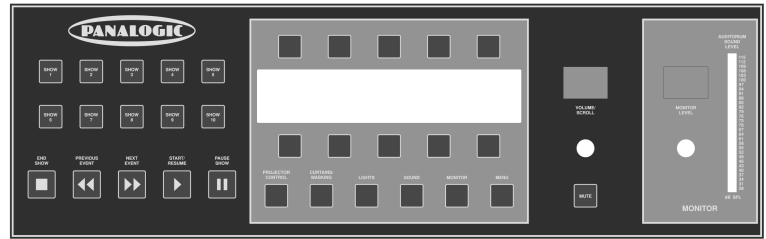The use of some form of film accumulator is recommended between each projector.

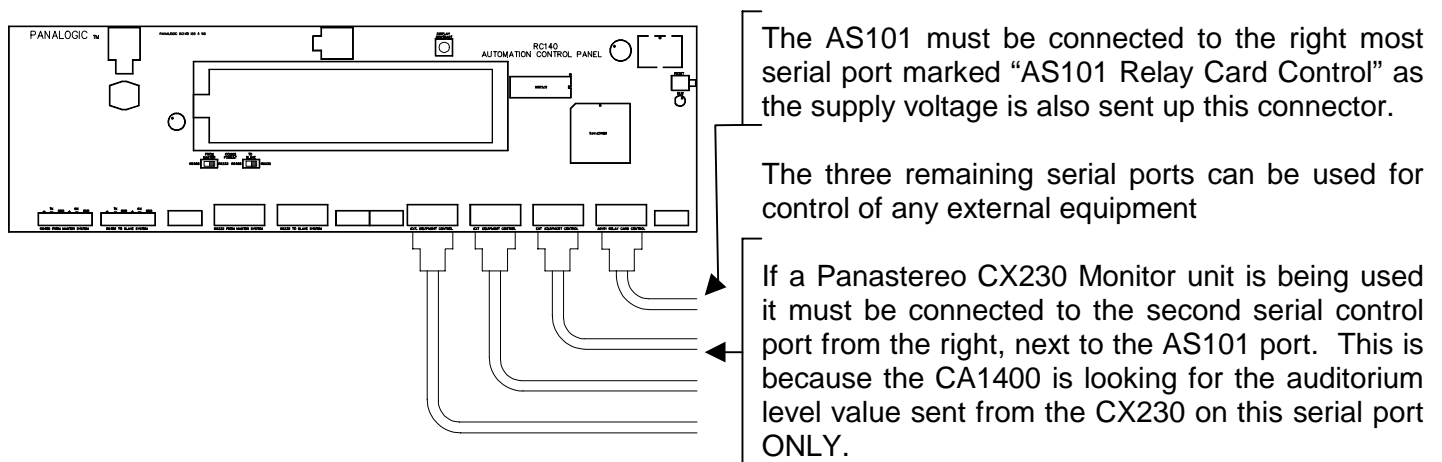All the projectors must run at the same speed.

SYSTEM INSTALLATION

The CA1400 automation card set has been designed for high immunity from external interference and can be installed in virtually any location. An optional metal case is available for installation in open areas. Care should be taken however when connecting to the A-D inputs and D-A outputs, as external noise may be permitted to enter the AI² system via external connecting wires. All A-D and D-A connections should be made sing shielded cable. The cable shield should be connected to an external ground. If the AI² is mounted in the optional metal case the shield can be connected to the case.

When high current inductive loads are being switched by the output relays, some cross-talk into the relay drive circuitry may occur due to inductive coupling between relay contacts and coil.   Under such circumstances it is advisable to connect a suppression capacitor across the relay contacts to reduce the energy of the switching spike.

SYSTEM CONNECTION

The standard CA1400 system consists of two relay cards, an AS101 and an AS102 as well as the RC140 Control Panel.   The system is connected as shown in Figure 1.

The main power supply for the system is located on the AS101 relay card, the AS101 requires a mains voltage of either 115 or 240 volts. This is supplied to the AS101 via the supplied IEC mains lead.

CAUTION: Mains voltage present on the underside of the AS101 card.

The AS102 Relay Expander card is connected to the AS101 relay card via a 26 pin IDC cable, which is also supplied.

Additional Expander relay cards may be required in some installation and are also connected by a 26 pin IDC cable which will be supplied with the additional card.

The RC140 Control Panel is connected to the AS101 card using the supplied 9 pin serial cable, the cable connects between the "RELAY CARD CONTROL" 9 Pin D-connector on the RC140 Control panel and the "SERIAL INPUT" 9-Pin D-connector on the AS101 Relay Card.

IMPORTANT: Do not connect any other equipment to the AS101 Relay Card serial connector "J5" as the voltage present on Pin 1 may damage the serial port on the other equipment.

115 / 240Vac

Figure 1 – CA1400 Connection Diagram

RC140 CONTROL PANEL

The connectors on the rear of the RC140 Control Panel are used for serial communication of external equipment, they are divided into two groups, Local which controls the cinemas serially controlled equipment and Network which allows communication between CA1400s, status panels or a PC.

LOCAL SERIAL CONNECTIONS

The CA1400 supports serial control of many Cinema related products including dimmers, slide machines, sound processors and monitors. Protocols are continually being added to the CA1400 as more serially controlled equipment becomes available. See the supported serial equipment list in the appendix of this manual.

The AS101 must be connected to the right most serial port marked "AS101 Relay Card Control" as the supply voltage is also sent up this connector.

The three remaining serial ports can be used for control of any external equipment

If a Panastereo CX230 Monitor unit is being used it must be connected to the second serial control port from the right, next to the AS101 port. This is because the CA1400 is looking for the auditorium level value sent from the CX230 on this serial port ONLY.

Figure 2 – RC140 Local Connections

Connection to the AS101 Relay Control Card.

If a new RC140-AS101 cable needs to be made because the supplied cable is not long enough or the cable needs to be threaded through ducting, please take note of the following connection information.

The AS101 Relay Control card is connected to the RC140 control panel via a shielded four core cable. The cable must be wired for one to one connection of pins 1, 2, 3 and 5. Pins 2 and 3 carry the TX and RX data signals for communication between the RC140 and the AS101. Pin 1 carries the 15 volt power supply for the RC140 and Pin 5 is the ground circuit. A standard serial cable that has all 9 pins connected may also be used.

Serial Connection to External Equipment.

Most RS232 serially controlled equipment is configured as a DCE device (Data Circuit Terminating Equipment) and can be connected using a pin for pin, male to female 9 pin standard computer serial cable. However DTE devices (Data Terminal Equipment) such as Personal Computers or laptop computers will require a 'null modem' cable connection.

NETWORK CONNECTIONS

Up to 32 individual CA1400 automation systems may be connected together in a network loop to allow interlocking, control and monitoring from a central computer and/or multi-cinema status display.

Each RC140 panel includes two network serial data ports each of which may be configured to use either 3 wire RS232 or 4 wire RS485 protocol. RS485 provides superior transmission quality and immunity to noise compared with RS232, particularly over long cable runs, due to the fact that it uses balanced low impedance lines. However RS232 is more than adequate for typical cinema to cinema connections where the cable length does not exceed about 15 metres.

SELECTING NETWORK SERIAL PORT PROTOCOL

The two network serial ports are located at the rear of the RC140 control panel, at the end furthest from the microprocessors. The two ports are labelled "From Master" and "To Slave". The "From Master" port has a female D9 connector and the "To Slave" port has a male D9 connector. Both ports also each have a 6 pin Phoenix RS485 connector.

There are two slide switches marked "COMMS FORMAT", one for each port. Each switch allows protocol selection for that port. The switches only affect the data receive function, the transmit functions are active for both protocols at all times.

INTER-CONNECTING AUTOMATION UNITS

Multiple automation systems are connected together using a "**Daisy-chained**" loop arrangement.

The "To Slave" port of the first unit should be connected to the "From Master" port of the second unit, and the "To Slave" port of the second unit should be connected to the "From Master" port of the third unit, and so on.

Both ports ("From Master" and "To Slave") are functionally identical, however the RS232 transmit and receive pins are reversed. Therefore, if the above connection method is used, a standard pin-for-pin cable may be used. However if a "To Master" RS232 port is connected to another "To Master" RS232 port, or if a "To Slave" RS232 port is connected to another "To Slave" RS232 port, the TX and RX pins (2 & 3) must be reversed at one end of the cable (null modem cable).

The RS232 serial port of a PC (Personal Computer) or a laptop computer may be connected to either end of the Daisy chain, however if the connection is to a "To Slave" port it will require a D9 female to female cable with pins 2 & 3 crossed over at one end (female null modem cable).

A status panel may also be connected to either end of the Daisy chain, however if the connection is to a "To Master" port it will require a D9 male to male cable with pins 2 & 3 crossed over at one end (male null modem cable).

USING MIXED PROTOCOLS

It is possible to use mixed protocols anywhere in the loop provided the protocol is the same at both ends of each cable connection. For example a PC may be connected to the first automation using RS232 whereas the rest of the daisy chain from one automation to the next may be connected using RS485.

CONNECTING A STATUS PANEL TO THE MIDDLE OF THE DAISY CHAIN.

A Panalogic status panel may be connected to any automation along the daisy chain loop, provided the loop has been wired using RS485 protocol. The status panel cable should be connected to the "To Slave" RS232 connector and only to the transmit function (pins 3 and 5). Pin 2 must remain disconnected. The protocol select switch for the "To Slave" port should remain in the RS485 position.

A status panel connected in this way will operate normally except if the power to the status panel is interrupted, in which case the status panel will only display the status of cinemas that have changed their status since power was restored to the status panel.

CABLE SELECTION AND WIRING

It is recommended that **4 conductor shielded cable** be used for both RS232 or RS485 connections.

RS232 CONNECTIONS

Use the first conductor for Transmit Data (pin 3), the second conductor for Receive Data (pin 2) and the third conductor for Ground (pin 5). The fourth conductor is unused. Connect the shield also to pin 5 but only at one end of the cable.

Cables should use a Male D9 connector at one end and a Female D9 connector at the other end.
If the connectors are the same sex at each end, pins 2 & 3 should be crossed over at one end (null modem cable).

The female Network connector, marked "RS232 FROM MASTER SYSTEM" is connected to the previous CA1400 or central computer and the male Network connector marked "RS232 TO SLAVE SYSTEM" is connected to the next CA1400 or monitor panel.
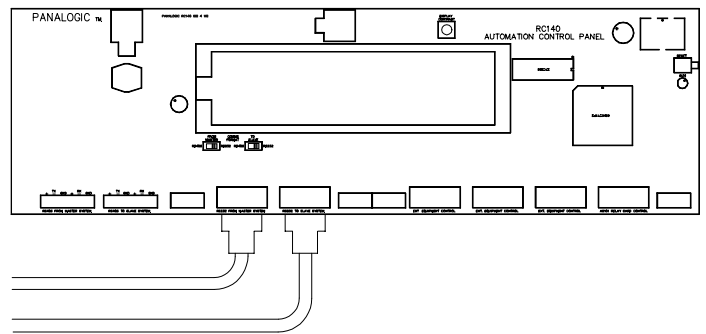
Figure 3 – Network RS232 Connections

RS485 CONNECTIONS

Use the first conductor for Transmit "+ ", the second conductor for Transmit "-", the third conductor for Receive "+" and the fourth conductor for Receive "-". The shield should be connected to the "E" terminal at one end of the cable only.

The **Transmit pins** for each port should be connected to the corresponding **Receive pins** of the port at the other end of the cable. i.e The TX positive and negative from the Master connect to RX positive and negative at the Slave and vice versa.

The RS485 Network connector, marked "RS485 FROM MASTER SYSTEM" is connected to the previous CA1400 and the RS485 Network connector marked "RS485 TO SLAVE SYSTEM" is connected to the next CA1400.
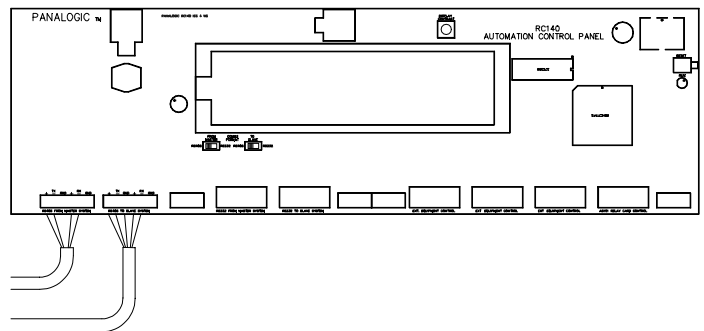
Figure 4 – Network RS485 Connections

AS101 & AS102 INPUT AND OUTPUT INFORMATION

Input Relay Connection Options

The input relays can be driven by the internal power supply or by any external 17 - 30V power supply. If the internal supply is to be used, select the INT/EXT switch located adjacent to the relay to the INT position. Shorting the relay input terminals will then activate the relay.

If an external supply is to be used, switch the INT/EXT switch to EXT. Applying 17 - 30 volts across the relay input terminals will activate the relay. The external voltage can be either positive or negative.
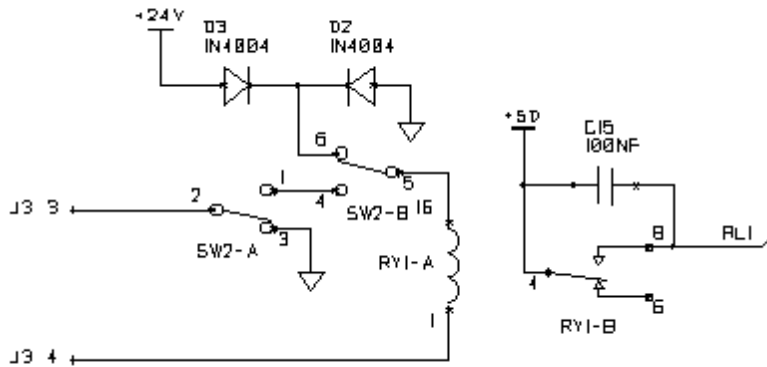
Figure 5 – Input Relay Circuit

A-D Input Connections

Each A-D input terminal has an associated voltage reference output terminal immediately above it and a ground terminal immediately below. The A-D input voltage range can be adjusted using the SPAN trimpot. With the span control at maximum, an input voltage of 5 volts will produce a digital value of 255 (max). If higher input voltages are to be accommodated the SPAN control should be turned counter-clockwise so that the maximum input voltage produces a digital value of 255.

D-A Output Connections

Each D-A output terminal has a ground terminal immediately below it. The SPAN control sets the output voltage when the digital code is at maximum (255). The SPAN control can be adjusted for an output voltage at maximum code of between 0 and +10 volts. The OFFSET adjustment sets the output voltage when the digital code value is at minimum (zero). The OFFSET control can be adjusted for an output voltage at minimum code of between 0 and +10 volts.

The SPAN and OFFSET adjustments are non-interactive so each can be adjusted without affecting the other. For a voltage span of 0 to +10v the OFFSET control should be set fully anticlockwise and the SPAN control fully clockwise. If these positions are reversed the output voltage will range from +10V to 0V (ie. reduce with increasing digital code).

Output Relay Connections

Each high power output relay (Outputs 1-8) has one set of change-over contacts. These are (from the top down) common, normally open and normally closed. The relay contacts are rated at 5A 250Vac or 150Vdc.

SETTING THE OPTIONS SWITCHES ON THE AS101 RELAY CONTROL CARD

OPTIONS SWITCH BANK "A"

The Options Switch Bank "A" is marked "OPTIONS SWITCHES A" and is the top switch bank on the AS101 control card.

Switches 1-5 set the cinema number.
Switch 6 switches Panastereo Monitor to surround in Non-Sync.
Switch 7 enables the Monitor Sound level meter from Panastereo Monitor.
Switch 8 is not used.

Cinema Number - Switches 1-5

Switches 1-5 select the Cinema Number (see table below). The cinema number appears on the bottom line of the RC140 LCD screen whenever the main screen is displayed. The cinema number is used as the address of the automation for inter-cinema communication in linked multi-screen systems. Cinemas can be numbered 1 to 32. The cinema number is also used in systems that employ a status panel.
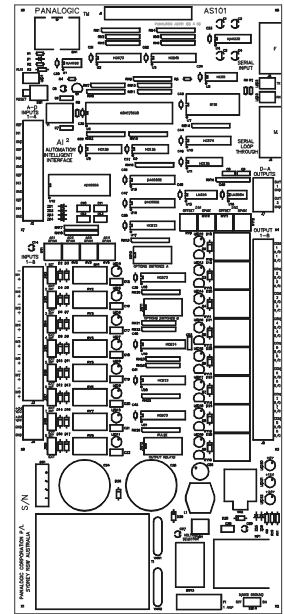
Address	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Address	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5
1	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	9	OFF	OFF	OFF	ON	OFF
2	ON	OFF	OFF	OFF	OFF	10	ON	OFF	OFF	ON	OFF
3	OFF	ON	OFF	OFF	OFF	11	OFF	ON	OFF	ON	OFF
4	ON	ON	OFF	OFF	OFF	12	ON	ON	OFF	ON	OFF
5	OFF	OFF	ON	OFF	OFF	13	OFF	OFF	ON	ON	OFF
6	ON	OFF	ON	OFF	OFF	14	ON	OFF	ON	ON	OFF
7	OFF	ON	ON	OFF	OFF	15	OFF	ON	ON	ON	OFF
8	ON	ON	ON	OFF	OFF	16	ON	ON	ON	ON	OFF

Address	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Address	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5
17	OFF	OFF	OFF	OFF	ON	25	OFF	OFF	OFF	ON	ON
18	ON	OFF	OFF	OFF	ON	26	ON	OFF	OFF	ON	ON
19	OFF	ON	OFF	OFF	ON	27	OFF	ON	OFF	ON	ON
20	ON	ON	OFF	OFF	ON	28	ON	ON	OFF	ON	ON
21	OFF	OFF	ON	OFF	ON	29	OFF	OFF	ON	ON	ON
22	ON	OFF	ON	OFF	ON	30	ON	OFF	ON	ON	ON
23	OFF	ON	ON	OFF	ON	31	OFF	ON	ON	ON	ON
24	ON	ON	ON	OFF	ON	32	ON	ON	ON	ON	ON

"Monitor to Surround in Non-Sync" option - Switch 6

When Switch 6 is set to the "on" position, the attached Panastereo monitor will switch to Left Surround whenever Non-Sync 1 is selected. This is for use when the sound processor has been configured so that the house music (Non-Sync 1) is sent to the surround speakers only. This option ensures that the Non-Sync 1 sound is always audible in the monitor. When any other format is selected the monitor will switch back to the MIX position.

Enable Monitor Sound Level Meter from Panastereo Monitor – Switch 7

When Switch 7 is set to the ON position, the attached Panastereo monitor will send auditorium sound level information for display on the automation level meter.

OPTIONS SWITCH BANK "B"

The Options Switch Bank "B" is marked "OPTIONS SWITCHES B" and is the middle switch bank on the control card.

Switches 1-2 select the output relay pulse time.
Switches 3-4 select turret rotation delay time.
Switches 5-7 invert the fault sensing inputs.
Switch 8 selects single action lens turret.

Setting the Pulse Time – Switches 1-2

The Global Pulse Time can be varied from 1/4 second to 2 seconds by setting switches 1 and 2 on the Option Switches B switch bank. The Pulse Time options are as follows:

PULSE TIME	SWITCH 1	SWITCH 2
250mS	OFF	OFF
500mS	ON	OFF
1Sec	OFF	ON
2Sec	ON	ON

Setting the Turret Delay – Switches 3-4

This setting delays the start of the turret rotation from the start of the zipper closing. Some projectors, such as the Vic 5 and the Bauer U3 have a slow operating picture on / off mechanism (zipper). If the zipper has not closed fully before the lens starts to change, you may get a moving image on the screen. The turret rotation for lens changing needs to be delayed until the zipper has had time to close.

DELAY TIME	SWITCH 3	SWITCH 4
250mS	OFF	OFF
500mS	ON	OFF
750mS	OFF	ON
1Sec	ON	ON

Inverting Fault Sensing

Option B switches 5, 6 and 7 invert the fault sensing relays. This will require the relays to be ON for no fault.

Platter fault invert -- Switch 5

Xenon fault invert -- Switch 6

Fire fault invert   -- Switch 7

Single-Input Lens Turret Configuration – Switch 8

The automation will normally control a typical two-input lens turret such as the Kelmar unit. Single-input turrets such as Cinemeccanica can be controlled by setting Options B Switch 8 to the ON position. In this mode Relay 7 acts as a pulsing relay for both Wide Screen and Cinemascope. Relay 8 is inactive. The two lens sense input relays are required to be connected so that the automation knows which lens is selected. In addition, the flat lens relay needs to be set to pulse.

OUTPUT RELAY PULSE FEATURE

The Output Relays are normally turned on or turned off (latching) by the automation software. It is also possible to select pulsed operation for each relay by setting the PULSE switches on the control card and the I/O sub cards. Thus, when a "turn on" command is sent from the RC140, the relay will switch off again after a short period. To select output relay pulsing, set the appropriate PULSE switch to the ON position.

The Pulse selection switches are the red DIP switch bank at the bottom of the AS101 Relay Control card. The switch code is SW12 and is labelled "pulse output relays".

INSTALLING THE RELAY EXPANDER CARDS

In it's standard configuration the CA1400 incorporates one relay expander card, the AS102.

AS102

The AS102 expander card has 8 low power relay inputs (9-16), 16 low power relay outputs (17-32) and 8 high power relays outputs (9-16).

Each high power output relay has one set of change-over contacts. Each low power relay has two sets of change-over contacts. The outer terminal strip has one set of change-over contacts and the inner terminal strip (if loaded) has the other.
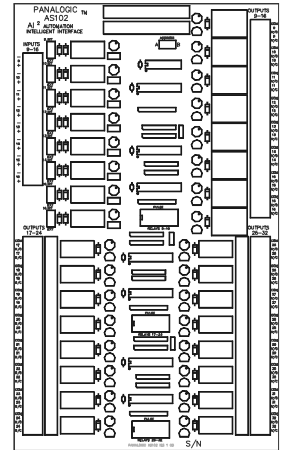
Card Address

Each relay expander card has an address switch that needs to be set, for the CA1400 system the AS102 card must be set to address A and the optional AS103 to address B if required. If the two cards are set to the same address they will mimic each others outputs, if they are both set to address B the inputs on the AS101 will work and the output 9-18 on the AS103 will not.

Output Relay Pulse Feature

Each relay expander card output relay has a output relay pulse feature the same as the output relays on the AS101. To select output relay pulsing, set the appropriate PULSE switch to the ON position.

INPUT RELAY ALLOCATION

MAIN CARD (AS101) INPUT RELAYS

1 = OUTBOARD FILM CUE
2 = INBOARD FILM CUE
3 = CENTRE FILM CUE
4 = LAST SLIDE CUE /
          SLIDE ADVANCE PULSE
5 = PLATTER/TENSION FAULT
6 = XENON/EXCITER FAULT
7 = FLAT LENS SENSE
8 = SCOPE LENS SENSE

EXPANDER CARD (AS102) INPUT RELAYS

1 = REMOTE START OF SHOW 1
2 = FIRE ALARM INPUT
3 = NOT CURRENTLY USED
4 = NOT CURRENTLY USED
5 = NOT CURRENTLY USED
6 = NOT CURRENTLY USED
7 = NOT CURRENTLY USED
8 = NOT CURRENTLY USED

ANALOGUE TO DIGITAL CONVERTERS

A TO D INPUTS

1 = NOT CURRENTLY USED
2 = NOT CURRENTLY USED
3 = NOT CURRENTLY USED
4 = NOT CURRENTLY USED

DIGITAL TO ANALOGUE CONVERTERS

D TO A OUTPUTS

1 = ANALOGUE VOLUME CONTROL
2 = ANALOGUE MONITOR VOLUME

OUTPUT RELAY ALLOCATION

MAIN CARD (AS101) OUTPUT RELAYS

1 = XENON ON
2 = XENON OFF
3 = PROJECTOR ON
4 = PROJECTOR OFF
5 = ZIPPER OPEN
6 = ZIPPER CLOSE
7 = WIDESCREEN LENS SELECT
8 = SCOPE LENS SELECT

EXPANDER CARD (AS102) OUTPUT RELAYS

9 = CURTAIN OPEN
10 = CURTAIN CLOSE
11 = MASKING OPEN
12 = MASKING CLOSE
13 = SLIDE MACHINE ON/OFF
14 = SLIDE ADVANCE
15 = TAPE MACHINE PLAY
16 = TAPE MACHINE REWIND

17 = HOUSE LIGHTS UP
18 = HOUSE LIGHTS PRE-SET 1
19 = HOUSE LIGHTS PRE-SET 2
20 = HOUSE LIGHTS DOWN
21 = CURTAIN LIGHTS UP
22 = CURTAIN LIGHTS PRE-SET 1
23 = CURTAIN LIGHTS PRE-SET 2
24 = CURTAIN LIGHTS DOWN

25 = MONO
26 = STEREO
27 = STEREO SR
28 = DIGITAL
29 = MAGNETIC
30 = NON-SYNC 1
31 = NON-SYNC 2
32 = MUTE

APPENDIX

INSTALLATION NOTES AND SUGGESTIONS

OUTPUT RELAY LOAD RESTRICTIONS

The high power output relays are quite suited for controlling 240 volt AC loads directly up to several amps. Zippers and mains contactors are fine. Small single phase projector motors rated less than 1 hp are fine but 3 phase motors, larger projector motors and large inductive loads will require external contactors suitably rated.

Variable speed motor controllers should be 'soft' controlled, as the mains inrush current when switched on can be very high .These controllers usually have internal contacts for turning the output on and off and these should be used.

Some slide projectors such as the Kodak SAV require additional relays or 'SAV adaptors' to switch their lamps .The lamp current can be 10 to 20 amps which is far in excess of the capacity of the Panalogic output relays.

GROUNDING REQUIREMENTS

It is most important that the lamp house, xenon rectifier units, projectors and dimmer units be properly earthed. The RF voltage generated by some ignition striker units has been known to cause problems with some types of external equipment. Projectors can make clicks and dimmers can generate buzzes in sound systems if not earthed properly.

SERIAL CONTROL OF THE DOLBY CP500

Dolby CP500 sound processors use a bi-directional single data line RS-232 protocol to communicate with the remote control. This feature can be used to interface with the Panalogic automation system using the following connection method:

```
RC140                RX DATA                          DATA
                     PIN 2                            PIN 4
EXT. EQUIPMENT                    D1
CONTROL              TX DATA                                        CP500
CONNECTOR            PIN 3                                          REMOTE
                                                                   DATA
                     GROUND                           GROUND       CONNECTOR
                     PIN 5                            PIN 5
```
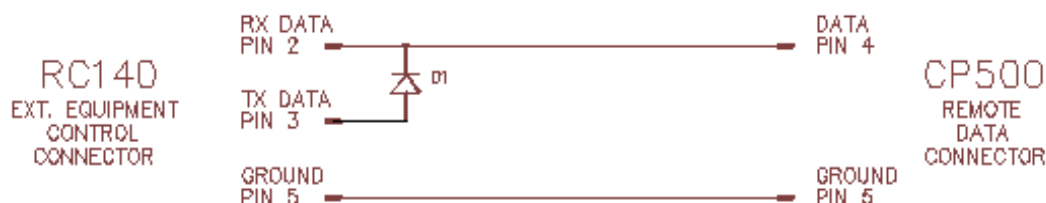
SERIAL CONTROL OF LIGHTING DIMMERS

The serial control of dimmers (RS-232 and DMX-512) is not currently supported by the CA1400.

MANUAL BACKUP SYSTEM

The AS101 and AS102 output relays are usually wired across (in parallel with) the existing manual control switches in the cinema equipment. We strongly recommend that manual controls should be available to the operators for all essential controls to allow emergency manual operation in the unlikely case of a failure of the automation system.

SERIAL CONTROL OF TASCAM MINI DISK PLAYERS

The serial control of Tascam Mini Disk players is currently supported however due to limitations of the Tascam protocol it is not recommended if other serial equipment is also being used on the same serial loop.

SLIDE MACHINE "LAST SLIDE" DETECTION

The CA1400 provide two alternative ways to detect when the last slide of a slide show is in the slide projector gate.

The first method involves physical detection using a foil sensor. With this method a proximity sensor is mounted on the slide machine in such a position as to detect a foil strip mounted on the slide carousel adjacent to the last slide. The sensor is connected to the Last Slide input relay and the "number of slides" in the automation Show Setup screen set to zero or one. The disadvantage of this method is that the foil strip must be moved whenever the number of slides in the carousel is increased or decreased.

The second method uses a connection from an external slide forward pulse unit to the Last Slide input relay. The "number of slides" in the automation Show Setup screen is then set to however many slides are currently in the carousel. The automation then counts the slide advance pulses from the pulse unit and issues a last slide cue when the last slide enters the gate. With serially controlled slide machines for each pulse the slide machine is advanced by the automation. This can also be done with parallel controlled machines using the slide advance output relay on the AS102 card. This eliminates the need for a direct pulse connection from the pulse unit to the slide machine and allows slide advance commands to be programmed into shows.

SERIAL DATA CABLES

It is important to make sure that the foil screens of any data cables are connected to ground at one end to enable the screens to be effective.