

## CHAPTER 18: THE PLEIADES BASIC COVE LIGHTING SYSTEM



### INTRODUCTION

The *Pleiades Basic Cove Lighting System* is a full dome multi-color lighting system available in either incandescent or LED models. The *Pleiades Basic Cove Lighting System* is composed of a series of RGB (Red, Green, Blue) light fixtures, a set of manual controls, and an *Intelligent Controller* that links the *Pleiades Basic* to rest of the *Universal Theater Control System (UTCS)*. The *Pleiades Basic* accepts all the standard UTCS lamp commands.

The major difference between the incandescent and LED models is the power requirements and the fixtures used. The incandescent model consumes significantly more power, and the fixtures need to be directly connected to dedicated 120 VAC circuits. The number of circuits needed varies with the number of fixtures used. The incandescent fixtures are a fixed size, so larger domes will require more fixtures. Each 20 Amp circuit can support up to 32 fixtures, and typical installation will use a minimum of 64 fixtures. The LED model includes a low voltage Power Supply Unit that is connected to the fixtures. The LED fixtures vary in length depending on the size of the dome, so a typical installation will require 64 fixtures for adequate lighting.

The *Pleiades Basic Cove Lighting System* can installed as a stand alone item for manual only operation, or it can be connected to the UTCS for automatic computer control.

The *Universal Theater Control System (UTCS)* can have up to 64 *Intelligent Controllers* attached to the communication network. This allows direct access to up to 256 devices. All functions can be automated using the *Hercules Central Processor*, or operated manually with the provided controls. The manual control panel comes in the form of either a free standing wedge box or a flat plate that mounts in a standard 19 inch equipment rack.

The *Pleiades Basic* and the other *Intelligent Controllers* in the UTCS are 'smart boxes' that can be periodically updated with newer internal software to enhance and/ or increase their capabilities. These upgrades are done over the UTCS network and can be performed by theater personnel. This means the theater can continue to expand without the need for downtime and expensive service calls.

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## COMMUNICATION NETWORK CONNECTORS

The *Pleiades Basic* need only be connected to the **UTCS** network if it is to be used with the *Hercules Central Processor* for automated control. If the *Pleiades Basic* is installed as a stand alone, manually operated system, there are no network connections to be made.

The *Pleiades Basic* can receive commands sent from the *Hercules Central Processor* or the *Cygnus Manual Control System* over the **UTCS** communication network. The communication network can support up to 64 *Intelligent Controllers*, but each *Intelligent Controller* must have a unique **Unit Number**. The **Unit Number** is set with internal DIP switches by **ECCS** at the factory and labeled on the rear panel of its enclosure.

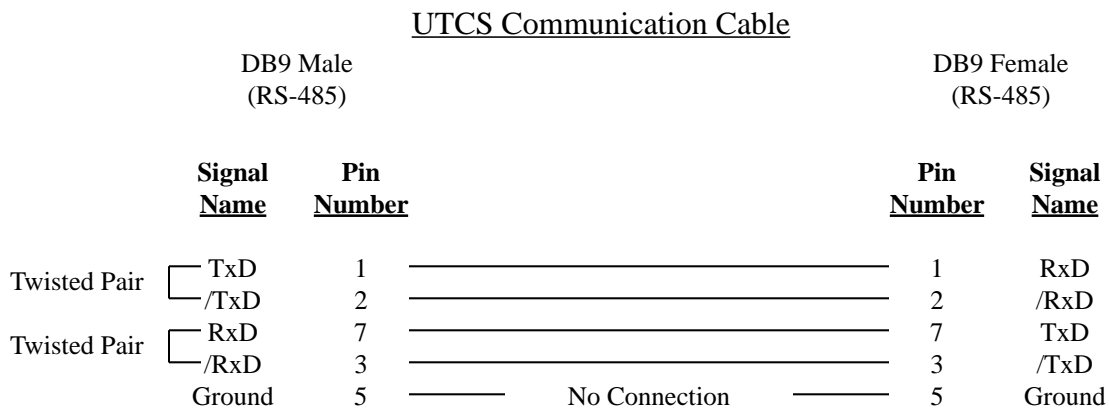
The communication network connectors are located on the *Pleiades Basic* rear panel. There are two **DB9** connectors, a male and a female, labeled '**UTCS Communication**'. In a typical installation, the male connector will connect towards the *Hercules Central Processor*, and the female will connect towards the next *Intelligent Controller*.

The *Pleiades Basic* can be 'inserted' anywhere in the existing communication network **Daisy Chain**, or as the last *Intelligent Controller* in the **UTCS** network. Placement of the unit is dependent only convenience and ease of operation.

## COMMUNICATION CABLE WIRING

All communications are four conductor cables with a male **DB9** connector at one end and a female **DB9** connector at the other.

Communication cables are wired straight through, with pin 1 on the male end tied to pin 1 on the female end, pin 2 to pin 2, pin 3 to pin 3, and pin 7 to pin 7. For optimal performance, the wires should be twisted pairs with one pair on pins 1 and 2 and the other on pins 3 and 7. The pin diagram is illustrated below.



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## UNIT SETUP CHECKLIST

Use the following checklist to insure that the *Pleiades Basic* is installed into the theater **UTCS** and ready to be added to the system *Configuration File*.

1. The manual controls have been installed in a convenient location for operation.
2. The manual controls have been connected to the *Intelligent Controller*. The *Intelligent Controller* for the incandescent model may be located in separate rack mount box. The LED model *Intelligent Controller* is located in the Power Supply Unit.
3. The **UTCS** communication network connections have been made. The **UTCS** connectors will be located with the *Intelligent Controller*.
4. The **Basic Pleiades Unit Number** has been noted for entry into the *Configuration File*.

**Note:** If the preset **Unit Number** is not unique to the **UTCS**, then a new **Unit Number** will need to be selected for either the *Pleiades Basic* or the other *Intelligent Controller* currently assigned that **Unit Number**. If the existing *Intelligent Controller* has an LCD and front panel buttons, then it will be easier to change that **Unit Number**. Any **Unit Number** changes should be noted so that the *Configuration File* can be updated. Do not attempt to change the **Unit Number** on the *Pleiades Basic* unless instructed to do so by **ECCS** personnel.

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## CONFIGURATION FILE EXAMPLE

The following example shows the entries needed to add a *Pleiades Basic* and its control options to the *Configuration File*.

<ALT> (N)ew (O)pen (S)ave Save(A)s (D)elete (P)rint (Q)uit Editor										
File: HERCMS.CFG										
Dvc#	DevCode	Description	Type	Unit#	Slot#	Branch	Bank	Scrn	Init	Max
49	REDCOVE	RED COVE LIGHTS	LO	32	1	0	-	-	0	100
50				0	0	0	-	-	0	100
51				0	0	0	-	-	0	100
52				0	0	0	-	-	0	100
53	GRNCOVE	GREEN COVE LIGHTS	LO	32	2	0	-	-	0	100
54				0	0	0	-	-	0	100
55				0	0	0	-	-	0	100
56				0	0	0	-	-	0	100
57	BLUCOVE	BLUE COVE LIGHTS	LO	32	3	0	-	-	0	100
58				0	0	0	-	-	0	100
59				0	0	0	-	-	0	100
60				0	0	0	-	-	0	100
61	WHTCOVE	WHITE COVE LIGHTS	GP	0	0	0	-	-	0	100
62				0	0	0	-	-	0	100
63				0	0	0	-	-	0	100
64				0	0	0	-	-	0	100

EDIT DEVICE CODE - Enter (1-8) alphanumeric characters (spaces are illegal).  
The first character must be alphabetic.

The **Unit Number** is preset by ECCS based on the existing *UTCS Intelligent Controllers*. The **Unit Number** is internally set and is limited to a range from 1 to 32. Do not change the preset **Unit Number** unless instructed to do so by ECCS.

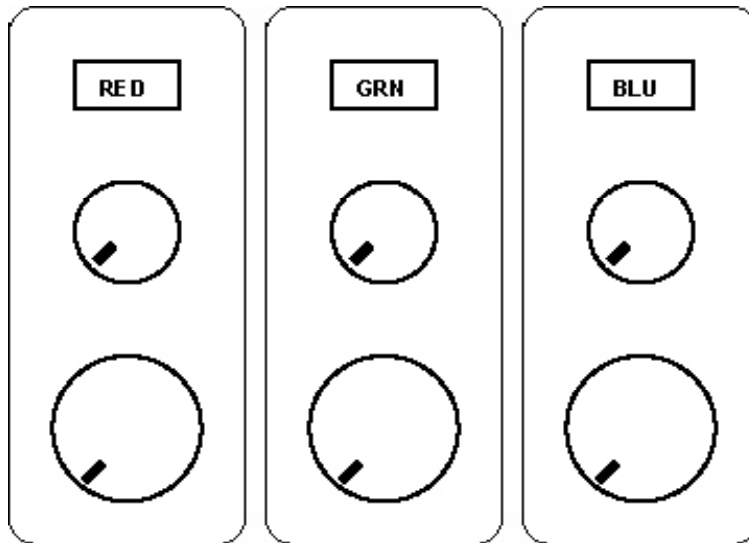
The **Device Code** and **Device Name** are user defined. The **Device Code** is limited to eight alphanumeric characters, but spaces are not allowed. The **Device Name** can be up to eighteen alphanumeric characters, and spaces are allowed. Both entries should be as descriptive as possible to make them easy to remember. ECCS recommends using the names provided in the example for compatibility with other *UTCS* installations. The spacing between entries have been intentionally left for future upgrade to the *Pleiades Advanced*, however, the spaces are not required.

The **Device Type** is set to **LO**, which means 'Lamp Control Only'. This allows the *Hercules Central Processor* to correctly display and update the device status. See Chapter 4 for more information about **Device Types**.

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## PLEIADES BASIC MANUAL OPERATION

The individual color control is accomplished manually via the included manual controls. The manual controls may be on a stand alone wedge box or mounted on a flat plate for installation in a standard 19 inch equipment rack. The typical control cluster is illustrated below.



Each of the three colors can be controlled independently, using a control cluster that is comprised of a button and two knobs.

At the top of each cluster is a rectangular button which acts as an <AUTO/MAN> indicator. When the indicator is bright, the control channel is in **MANUAL MODE** and will respond to the settings of the control knobs. When the indicator is dim, the control channel is in **AUTOMATIC MODE** and the settings of the knobs will be ignored. Pressing the button will cause the **MODE** to toggle from **MANUAL** to **AUTOMATIC** and back again.

At the bottom of each cluster is a large knob. This is the brightness **LEVEL** control which sets the final brightness level for that color. Fully rotating the knob to the left, counterclockwise, will turn the color off. Fully rotating the knob to the right, clockwise, will set the color to the maximum brightness.

At the center of each cluster is a small knob. This is the lighting **DELAY** control which sets the rate at which the brightness will change from the current level to the new level when the **LEVEL** control is moved. Fully rotating the knob to the left, counterclockwise, will set the **DELAY** to the minimum. At this setting, the brightness will change immediately with the **LEVEL** control. Fully rotating the knob to the right, clockwise, will set the **DELAY** to the maximum. At this setting, it will take about 15 minutes to go from full brightness to complete darkness, and vice versa.

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## PLEIADES BASIC AUTOMATED OPERATION

Automated color control is accomplished via computer using the *Hercules Central Processor*. Automated control includes 101 brightness levels, 10,000 rates of change, lamp commands including flash capability, and SMPTE synchronization.

The following examples show automated control of the *Pleiades Basic*.

Example 1:

Cue#	Dev Cmd	Cmd Description	Dev Code	Device Name	Limit
-----					
----					
0000	MQ	>>> MANUAL CUE <<<			
0001	LN	Lamp On	REDCOVE	RED COVE LIGHTS	+100
0002	LN	Lamp On	GRNCOVE	GREEN COVE LIGHTS	+100
0003	LN	Lamp On	BLUCOVE	BLUE COVE LIGHTS	+100
0004	TIME	00:00:20.00			
0005	5F	5 Sec Dissolve Off	REDCOVE	RED COVE LIGHTS	
0001	5F	5 Sec Dissolve Off	GRNCOVE	GREEN COVE LIGHTS	
0007	20F	20 Sec Dissolve Off	BLUCOVE	BLUE COVE LIGHTS	

Once the pre-show preparations were completed, the cove lights could be turned on with a MQ or MANUAL CUE command. The next *Cue Block* will execute when the TIME CUE is reached, causing the cove lights to begin to fade to black. Red and green will fade down together in 5 seconds. Blue will begin to fade at the same time as red and green, but it will not be completely down for an additional 15 seconds. This allows the audience to be gradually introduced to darkness as if they were witnessing a sunset.

Example 2:

Cue#	Dev Cmd	Cmd Description	Dev Code	Device Name	Limit
-----					
----					
4223	TIME	00:35:20.00			
4224	10N	10 Sec Dissolve ON	BLUCOVE	BLUE COVE LIGHTS	+030
4225	W5.00	Wait 5.00 Sec			
4226	20N	20 Sec Dissolve On	REDCOVE	RED COVE LIGHTS	+030
4227	20N	20 Sec Dissolve On	GRNCOVE	GREEN COVE LIGHTS	+030
4228	TIME	00:39:12.00			
4229	20N	20 Sec Dissolve On	REDCOVE	RED COVE LIGHTS	+100
4230	20N	20 Sec Dissolve On	GRNCOVE	GREEN COVE LIGHTS	+100
4231	20N	20 Sec Dissolve On	BLUCOVE	BLUE COVE LIGHTS	+100

At the end of the show the audience would be gradually brought back to a lighted room. Blue is brought up first to a low level with red and green added in. Finally at the end of the show, the theater is brought to its original brightness level for audience exit.

# PLEIADES BASIC COVE LIGHTING SYSTEM

## PLEIADES BASIC AUTOMATED OPERATION CONTINUED

The **FLASH** command, **fx,y** flashes the selected cove color at regular intervals. Value **x** is lamp **ON** time in system heartbeats, and value **y** is lamp **OFF** time in system heartbeats. Values of **f50, 50** will flash the selected cove color **ON** for 1/2 second and then **OFF** for 1/2 second. A value of **f0,0** will disable the flashing. Both values can range between 0 and 99. This command is a layered command, so the cove color must be turned on via a **LN** or **#N** command in order for the effect to be seen.

Example 3:

Cue#	Dev Cmd	Cmd Description	Dev Code	Device Name	Limit
----					
0000	MQ	>>> MANUAL CUE <<<			
0001	F50,50	Flash Lamp 50,50	REDCOVE	RED COVE LIGHTS	
0002	W5.00	Wait 5.00 Sec			
0003	2N	5 Sec Dissolve On	REDCOVE	RED COVE LIGHTS	+100
0004	MQ	>>> MANUAL CUE <<<			
0005	5F	5 Sec Dissolve Off	REDCOVE	RED COVE LIGHTS	
0001	W5.00	Wait 5.00 Sec			
0007	F0,0	Flash Lamp 0,0	REDCOVE	RED COVE LIGHTS	

The **FLASH** command has been assigned to the **RED COVE** which will turn **ON** for 1/2 second then **OFF** for 1/2 second. The effect does not become visible until the **RED COVE** is faded up. The **RED COVE** is then faded off, and the **FLASH** effect disabled.

The effect will remain in effect until it is disabled with the values **f0,0**. Even if the **RED COVE** is given a **LF** command the **FLASH** command is still active. The next time the **RED COVE** is faded up, the **FLASH** command will continue.

**Note:** The selected cove does not need to be at full brightness for the **FLASH** effect to be visible. Nor do all three colors need to have the same values set for the effect. Each color can be simultaneously set to **FLASH** at a different rate and different brightness.

# PLEIADES BASIC COVE LIGHTING SYSTEM

## PLEIADES BASIC COMMANDS

All UTCS lamp commands are valid.

Hercules Command	Command Name	Command Description
#A	# Sec Alternate (0.1 ≤ # ≤ 999.9)	Changes state of lamp (on to off or off to on) in a ramp of # seconds duration.
#D	# Sec Dissolve (0.1 ≤ # ≤ 999.9)	Changes state of lamp in ramp of # seconds duration.
#N	# Sec Dissolve On (0.1 ≤ # ≤ 999.9)	Lamp dims up in a ramp of # seconds duration to a lamp level of % (Limit). Can be used to ramp from one % (Limit) to new % (Limit).
#F	# Sec Dissolve Off (0.1 ≤ # ≤ 999.9)	Lamp dims down in ramp of # seconds duration.
#FNF	# Sec Dissolve Off (No Forward) (0.1 ≤ # ≤ 999.9)	Lamp dims down in ramp of # seconds duration.
FA	Fast Alternate	Changes state of lamp (on to off or off to on) instantly.
HC	Hard Cut	Changes state of lamp (on to off or off to on) instantly.
LN	Lamp On	Turns lamp on to a level of % (Limit).
LF	Lamp Off	Turns lamp off.
FZ	Freeze	When issued during a lamp ramp, the ramp will freeze at that level. When issued again, the lamp ramp will resume.
PLMP	Pulse Lamp	Triggers ½ second lamp pulse.
F#, #	Flash Lamp #1, #2 (0 ≤ # ≤ 99)	Flashes lamp at regular intervals. #1 represents 'on' time in system heartbeats; #2 represents 'off' time in system heartbeats. FO,0 disables flashing. This command is a layered command. The lamp must be ramped on with another command to see the effect. After the lamp is faded down, a FO,0 cue must be entered to disable the flash.

**Note:** Only the LAMP and FLASH status of the *Pleiades Basic* are updated when *Hercules* is in FOLLOW MODE.



# PLEIADES BASIC COVE LIGHTING SYSTEM

## PLEIADES BASIC MAINTENANCE

The incandescent model requires not maintenance other than periodic bulb replacement.

The LED model utilizes a fan in the Power Supply Unit which must be kept clean for optimal air flow. Every six months, more often in dusty conditions, the fan filter on the Power Supply Unit should be cleaned. The following procedure should be followed in order to clean the filter.

1. Remove the fan filter cover. No tools are required.
2. Remove the spongy filter medium.
3. Gently wash the filter medium with warm, soapy water, then rinse.
4. Squeeze the excess water from the filter medium and let it dry.
5. Reinstall the filter medium and snap the cover back in place.