CHAPTER 9:
THE AQUILA TIME CODE CONTROLLER

INTRODUCTION

The ***Aquila Time Code Controller*** is a general purpose *Time Code* box capable of reading and writing many industry standard *Time Code* formats. It can operate as a stand alone unit controlling external devices through switch closures, or as part of a synchronized playback system. The ***Aquila*** is also an important component in the ***Universal Theater Control System*** (**UTCS**), providing synchronization between presentation soundtracks and the rest of the *Intelligent Controllers* installed in a theater.

The main features of the ***Aquila Time Code Controller*** include the following:

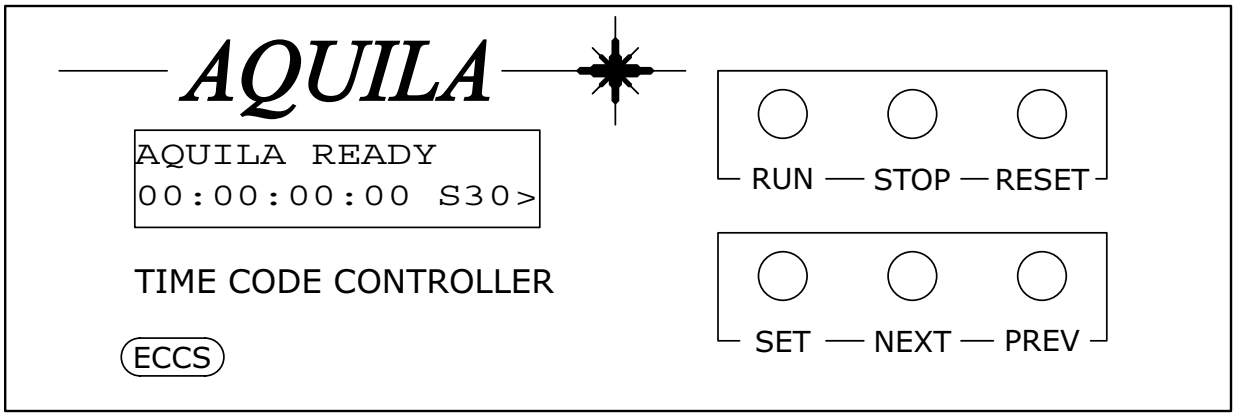
1. The ability to read and write several *Time Code* formats.
2. Front panel LCD display with menu and controls for stand alone operation and monitoring.
3. Eight dry contract switch closures for user defined purposes.
4. One serial port for connection to the ***Hercules Central Processor***.
5. Desktop or rackmount packaging.

The connections between the ***Aquila*** and the source/ destination of the *Time Code* are electrically isolated. This increases reliability by eliminating common-mode noise problems, and insures that the ***Aquila*** will not create any grounding problems such as ground loops and hums.

The ***Aquila*** 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.

THE AQUILA FRONT PANEL LCD DISPLAY AND CONTROLS

During normal operation and depending *Time Code* format selected on, the LCD display will appear as illustrated below:



LCD Display:
During *Time Code* operations, LCD display shows current input (read) time, or current output (write) time, whichever is appropriate. This time is displayed on the bottom line of the display along with the type of *Time Code* in use and direction of *Time Code* (in or out). For example, when reading SMPTE time code at 30 frames per second, the time value can be seen in the leftmost 15 characters, while the 4 rightmost characters will display '**>S30**' indicating '**IN SMPTE 30**'. If *Time Code* is being written instead of read, the 4 rightmost characters will display '**S30>**' indicating '**SMPTE 30 OUT**'.

The top line of the display is used to present the current status of the **Aquila**. Usually, this area will display the message '**AQUILA READY**' to signify normal operation or the successful completion of a command from the serial port. Any error message generated by an incorrect serial port will also be displayed here. Error messages will be visible until the successful execution of a subsequent command takes place, or until the front panel menu is accessed.

In addition to the ***Aquila*** status, the 2 rightmost characters of the top line are used to display the quality of any *Time Code* being read. The actual value of the two digits is not significant. What is important is the rate the numbers change as *Time Code* is read. A good *Time Code* will have few changes, while poor quality *Time Code* will cause the digits to increment at a quicker rate. These characters are only present when incoming *Time Code* is being read.

LCD Display Backlight:
The LCD display is equipped with a backlight to make it easier to read. When the ***Aquila*** is in the **Normal Mode** of operation, not the **Settings Mode**, the backlight can be turned on by pressing the <NEXT> button. Pressing the <PREV> button turns the backlight off.

The LCD display backlight can also be controlled with commands issued from the host computer.

AQUILA TIME CODE CONTROLLER

USING THE FRONT PANEL BUTTONS FOR LOCAL CONTROL OF THE AQUILA

The front panel buttons are divided into two functional groups. The top trio of buttons provide a basic amount of 'local' control over *Time Code* operations. Pressing the <RUN> button will activate *Time Code* output and start the Aquila writing *Time Code* in the currently selected format. Pressing the <STOP> will halt *Time Code* output, but will not reset the time to 0. Pressing the <RUN> button will reactivate *Time Code* output from the point it was halted. Pressing the <RESET> button will halt *Time Code* and reset the time to 0.

USING THE FRONT PANEL CONTROLS TO CONFIGURE THE AQUILA

The lower trio of buttons, in conjunction with the LCD display, provide a convenient menu-driven method for setting the operating characteristics of the ***Aquila***. Menu settings may be viewed or altered at any time, except when the ***Aquila*** is writing *Time Code*.

To view or change menu selections, enter **Settings Mode** by pressing the <SET> button. The top line of the LCD display shows the current setting selected, while the bottom line shows the current option selected for the setting. The <NEXT> and <PREV> buttons navigate through the options for the current setting. To select a particular option, press the <SET> button. This keeps the current option displayed for the setting and moves to the next menu setting. Pressing <RESET> once, will exit the **Settings Mode** without stepping through all the settings.

After stepping through all the settings, the ***Aquila*** will return to operating in **Normal Mode**. Any changes made will be maintained until they are changed again, even if the ***Aquila*** is powered down between uses.

If while attempting to change a setting, the '**LOCKED!!**' message appears, the setting must be 'unlocked' before any changes may be made. Press the <SET> button until the last setting, '**SET LOCK:**', is reached. Press either the <NEXT> or <PREV> button to 'unlock' all settings. The bottom line in the '**SET LOCK:**' setting should say '**EDIT SETTINGS OK**' when 'unlocked', and '**SETTINGS LOCKED**' when 'locked'.

The table on the next page provides a list of the settings, options for each setting, and a description for each option available through the ***Aquila*** front panel menu. When used with ***Hercules*** and the **UTCS,** some settings have must be set to specific options. These settings are noted with asterisks in the table below. Also refer to the section '**USING THE AQUILA WITH THE UTCS**' later in this manual.

AQUILA SETTINGS AND OPTIONS

Setting		Option	Description
SET MODE:		CONTINUOUS	Time is reported to the host on every time change.
		POLLED	Time is reported upon request. An '**Alarm**' may be set.
		EPOCH - ASCII	Time is reported on the second in the normal protocol.
	***	ECCS - UTCS	Time is reported on the second in **ECCS** protocol.
		ZEISS - SPECIFIC	Time is reported in a Zeiss compatible mode.

AQUILA SETTINGS AND OPTIONS (CONTINUED)

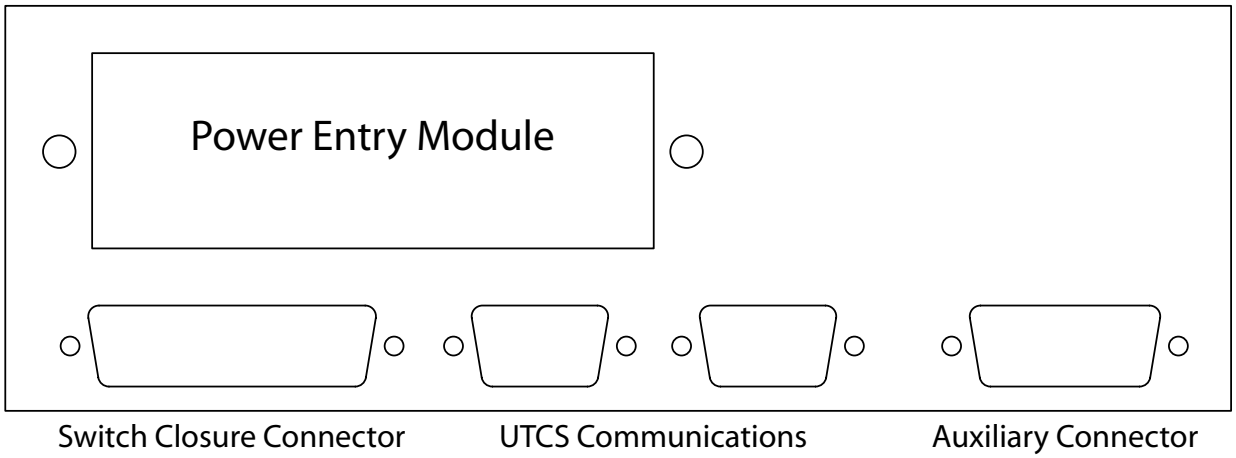
Setting		Option	Description
SET CLOCK IN:		BCD10	Binary Coded Decimal - 10 frames per second.
		SMPTE 10	**SMPTE** - 10 frames per second.
		SMPTE 24	**SMPTE** - 24 frames per second. (Motion Pictures)
		SMPTE 25	**SMPTE** - 25 frames per second. (European TV)
		SMPTE DF	**SMPTE** Drop Frame - 30 frames per second. (US TV)
		SMPTE 30	**SMPTE** - 30 frames per second.
		AVL 10	Audio Visual Labs proprietary - 10 frames per second.
SET CLOCK OUT:		BCD10	Binary Coded Decimal - 10 frames per second.
		SMPTE 10	**SMPTE** - 10 frames per second.
		SMPTE 24	**SMPTE** - 24 frames per second. (Motion Pictures)
		SMPTE 25	**SMPTE** - 25 frames per second. (European TV)
		SMPTE DF	**SMPTE** Drop Frame - 30 frames per second. (US TV)
		SMPTE 30	**SMPTE** - 30 frames per second.
SET FREEWHEEL:		NONE	*Time Code* operations stop immediately.
		30 FRAMES	'coast' for 30 frames when incoming Time Code stopped or lost.
		600 FRAMES	'coast' for 600 frames when incoming Time Code stopped or lost.
		INFINITE	*Time Code* operation continue until <RESET> is pressed.
SET CLOCK REGEN:		REGENERATION OFF	*Time Code* Regeneration/ Conversion disabled.
		REGENERATION ON	*Time Code* Regeneration/ Conversion enabled.
SET BAUD RATE:		300	
		600	
		1200	
		2400	Lowest Baud Rate to report every frame at 10 frames per sec.
		4800	
		9600	Lowest Baud Rate to report every frame at 30 frames per sec.
	***	19200	Use with **UTCS**.
		38400	Use at own risk.
		76800	Use at own risk.
SET COMM ECHO:	***	ECHO OFF	Characters from host not echoed back to host.
		ECHO ON	Characters from host echoed back to host.
SET PLAYBACK:		PLAYBACK OFF	**Keepfile** or **SMPTE** playback disabled.
		FROM KEEPFILE	Playback from **Keepfile**.
		FROM SMPTE BITS	Playback from **SMPTE** user bits.
		FROM SMP + KPFL	Playback from **SMPTE** user bits and **Keepfile**.
SET AUTO REST:		AUTO REST OFF	Auto Rest disabled.
		AUTO REST ON	Auto Rest enabled.
SET LOCK:		EDIT SETTINGS OK	Allows settings to be changed.
		SETTINGS LOCKED	Prevents settings from being changed.

REAR PANEL CONNECTIONS

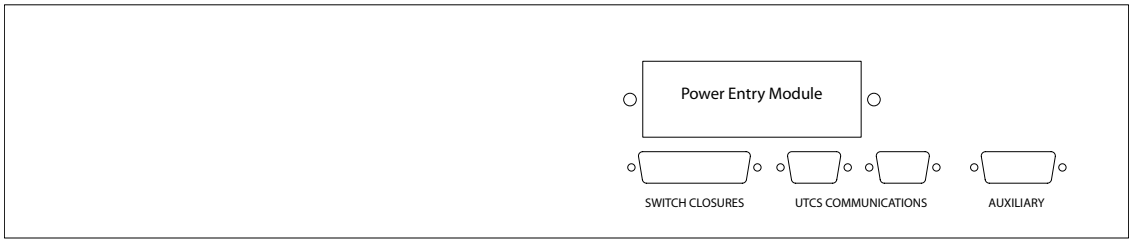
The ***Aquila*** has four wedge-shaped (**DB**) connectors on the rear panel. All input and output connections are made here. Port one closest to the power module. The two **DB9** connectors, one male and one female, below the power entry module are the **UTCS** communication network connectors.

The male 25-pin (**DB25**) connector provides access to the eight dry contact switch closures. The female 15-pin (**DB15**) connector is the auxiliary connector.

Desktop version rear panel.



Rackmount version rear panel.



AQUILA TIME CODE CONTROLLER

COMMUNICATION NETWORK CONNECTORS

The ***Aquila*** sends time information and receives commands sent from the ***Hercules Central Processor*** on a dedicated communication channel. The ***Aquila*** **Unit Number** is set to **Unit 99** by the ***Aquila*** software and cannot be changed by the user.

The communication network connectors are located on the ***Aquila*** rear panel. There are two black **DB9** connectors, a male and a female, mounted horizontally in the center of the rear panel. In a typical **UTCS** installation, the male connector will connect directly to the ***Hercules Show Control Card***, and the female will be unconnected.

The ***Hercules Show Control Card*** has two female **DB9** connectors. One should be labeled '**AQL**' for connection to the ***Aquila***. The other should be labeled '**GEM**' for connection to the ***Cygnus Manual Control System*** or other *Intelligent Controller*. If the ***Aquila*** is connected to the '**GEM**' **DB9** by mistake, the ***Hercules Central Processor*** will not be able to read the incoming *Time Code* or communicate properly with other *Intelligent Controllers* in the system.

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 wiring diagram is illustrated below.

UTCS Communication Cable

	DB9 Male (RS-485) Signal Name	DB9 Male (RS-485) Pin Number		DB9 Female (RS-485) Pin Number	DB9 Female (RS-485) Signal Name
Twisted Pair	TxD	1	———	1	RxD
	/TxD	2	———	2	/RxD
Twisted Pair	RxD	7	———	7	TxD
	/RxD	3	———	3	/TxD
	Ground	5	——— No Connection ———	5	Ground

SWITCH CLOSURE CONNECTOR (MALE DB25)

The male **DB25** connector on the rear panel of the ***Aquila*** provides eight dry contact switch closure outputs for user defined applications. **Normally Open** and **Normally Closed** contacts are available for each of the eight switches. Each switch is capable of carrying up to ½ amp of a resistive load.

These switches can be operated by commands sent by ***Hercules*** via **UTCS** communication network or host computer via serial port.

The pin assignment for this connector is listed in the following table.

Pin	Signal	Description	Pin	Signal	Description
1	NC1	Normally Closed Switch 1	14	NO1	Normally Open Switch 1
2	C1	Common Switch 1	15	NC2	Normally Closed Switch 2
3	NO2	Normally Open Switch 2	16	C2	Common Switch 2
4	NC3	Normally Closed Switch 3	17	NO3	Normally Open Switch 3
5	C3	Common Switch 3	18	NC4	Normally Closed Switch 4
6	NO4	Normally Open Switch 4	19	C4	Common Switch 4
7	NC5	Normally Closed Switch 5	20	NO5	Normally Open Switch 5
8	C5	Common Switch 5	21	NC6	Normally Closed Switch 6
9	NO6	Normally Open Switch 6	22	C6	Common Switch 6
10	NC7	Normally Closed Switch 7	23	NO7	Normally Open Switch 7
11	C7	Common Switch 7	24	NC8	Normally Closed Switch 8
12	NO8	Normally Open Switch 8	25	C8	Common Switch 8
13	GND	Frame Ground			

AUXILIARY CONNECTOR (FEMALE DB15)

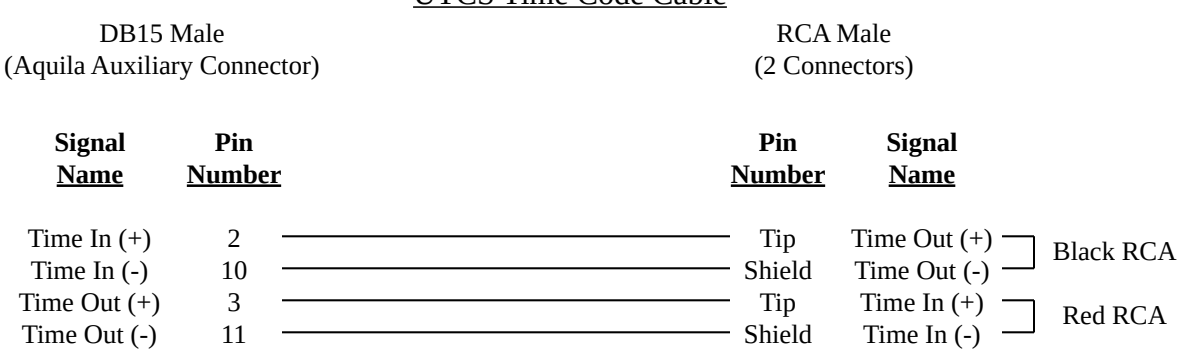
The female **DB15** connector on the rear panel of the ***Aquila*** is the Auxiliary Connector. Several signals available through this connector, including the *Time Code In* and *Time Code Out* signals. These are balanced, floating, high impedance signals that allow direct connection with most *Time Code* sources without worrying about ground loops and hums.

Note: The Frame Ground (pin 9) cannot be used as a signal ground. Use the both (+) and (-) pins for *Time Code In* and *Time Code Out* signals to insure proper operation.

The pin assignment for this connector is listed in the following table.

Pin	Signal	Description	Pin	Signal	Description
1	Ext Sync	External Sync	9	GND	Ground
2	Time In (+)	Time Code In (+)	10	Time In (-)	Time Code In (-)
3	Time Out (+)	Time Code Out (+)	11	Time Out (-)	Time Code Out (-)
4	+5V OUT	+5 Volts Out (250 mA maximum)	12	PB0	Run
5	PB1	Stop	13	PB2	Reset
6	PB3	Set	14	PB4	Next
7	PB5	Prev	15	PB6	Unassigned
8	PB7	Unassigned			

The wiring diagram for the standard *Time Code* cable supplied with the ***Aquila*** is shown below.



CONFIGURATION FILE EXAMPLE

The example below uses from a default ***Configuration File*** which is distributed with new ***Hercules*** program disks. *Intelligent Controllers* and their devices do not need to added to the ***Configuration File*** in any particular order, but the default ***Configuration File*** should be used as a guide to help create some sort of consistency between installations.

The default ***Hercules Configuration File*** assigns the ***Aquila*** to **Device Number** 255. The **Device Name** is '**AQUILA**'. The **Device Description** is '**TIME CODE CONTROL**'. The **Device Type** is left blank. The **Unit Number** must be set to 99. All other entries should blank or unchanged.

```
<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

241                                        0     0      0      -    -   0   100
242                                        0     0      0      -    -   0   100
243                                        0     0      0      -    -   0   100
244                                        0     0      0      -    -   0   100
245                                        0     0      0      -    -   0   100
246                                        0     0      0      -    -   0   100
247                                        0     0      0      -    -   0   100
248                                        0     0      0      -    -   0   100
249                                        0     0      0      -    -   0   100
250                                        0     0      0      -    -   0   100
251                                        0     0      0      -    -   0   100
252                                        0     0      0      -    -   0   100
253                                        0     0      0      -    -   0   100
254   DUMMY     DUMMY FOR BLANKS           0     0      0      -    -   0   100
255   AQUILA    TIME CODE CONTROL          99    0      0      -    -   0   100
256   CYGNUS    MANUAL CONTROL             65    0      0      -    -   0   100


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

AQUILA TIME CODE CONTROLLER

USING THE AQUILA WITH THE UTCS

The ***Aquila*** is used with the ***Universal Theater Control System*** as the time code synchronizing unit. The ***Aquila*** shipped for use with the **UTCS** includes a *Time Code* cable for connection to the *Time Code* source/ destination, and a serial communication cable for connection to the ***Hercules Central Processor***. This provides a turn key package that includes everything necessary to synchronize theater presentations.

For optimum performance, the *Aquila* settings should be as follows. Use the front panel menu to make any necessary changes.

Setting	Option	Description
SET MODE:	ECCS - UTCS	This Mode must be used.
SET CLOCK IN:	SMPTE 30	Recommended, but format selected must match source.
SET CLOCK OUT:	SMPTE 30	Recommended.
SET FREEWHEEL:	30 FRAMES	Recommended.
SET CLOCK REGEN:	OFF	Recommended.
SET BAUD RATE:	19200	Must use this baud rate.
SET COMM ECHO:	ECHO OFF	Must be off.
SET PLAYBACK:	PLAYBACK OFF	Recommended.
SET AUTO REST:	AUTO REST OFF	Recommended.
SET LOCK:	SETTINGS LOCKED	Recommended.

AQUILA TIME CODE CONTROLLER

TIME CODE OPERATIONS

The ***Aquila*** is simple to operate. The most commonly used functions are accessible from the front panel menu to facilitate stand-alone operation, while all functions can be activated from the ***Hercules Central Processor***.

Time Code Cable Hookup:
The *Time Code* cable supplied by **ECCS** consists of a **DB15** connector attached to a pair of RCA audio connectors. The **DB15** attaches to the Auxiliary Connector on the rear panel of the ***Aquila***, while the RCA connectors attach to the *Time Code* source and/ or destination.

The red RCA connector provides the *Time Code* output signal from the ***Aquila*** and should be attached to the *Time Code* destination. This connection is used to record a *Time Code* track for synchronized presentation playback.

The black RCA connector supplies the *Time Code* input signal to the ***Aquila*** and should be attached to the *Time Code* source. This is the connection that will synchronize the soundtrack to the *Show File* currently loaded into the ***Hercules Central Processor***.

Recording Time Code:
Once the ***Aquila*** is attached to the *Time Code* destination, select the type of *Time Code* to be recorded on the media with the front panel menu controls. Unless the presentation specifically calls for something else, the usual *Time Code* selection is **SMPTE 30**.

Once the appropriate *Time Code* selection has been made, put the recording device into the '**RECORD**' mode. When ready, start the ***Aquila*** writing *Time Code* by pressing the <**RUN**> button.

If an analog recorder is being used, such as a cassette deck, set the record level on the recording media to about **+3dB**. If recording to digital media, such as ADAT or hard disk recorder, set the level to approximately **-10dB** to **-20dB**. The ***Aquila*** should function reliably on any signal between **-20dB** and **+5dB**.

After the *Time Code* signal input level is adjusted, press the <**RESET**> button on the ***Aquila*** to stop and reset the output clock to 0. Prepare to start the recording process again by rewinding the media if necessary and putting the recording device into '**RECORD**' mode. When ready, press <**RUN**> on the ***Aquila***. The ***Aquila*** will show the outgoing *Time Code* on the front panel LCD display. When the media has been 'striped', stop the recording process and press the <**RESET**> button on the ***Aquila***.

Reading Time Code:
To read the incoming *Time Code*, the **Time Code In** connector must be attached to the source of *Time Code*. Set the format of the incoming *Time Code* to be read with the front panel menu.

Note: The ***Aquila*** must be set to read the correct format of *Time Code*. Failure to match the ***Aquila*** '**CLOCK IN**' setting to the expected incoming *Time Code* format may result in erratic operation or failure to read *Time Code*.

The ***Aquila*** is always ready to read, unless it's writing, and will start reading the *Time Code* as soon as it begins. The ***Aquila*** will automatically display the incoming *Time Code* on the front panel LCD display.

TIME CODE OPERATIONS (CONTINUED)

Freewheeling:
In order to prevent the false triggering of events, the ***Aquila*** constantly tests the quality of the incoming *Time Code* stream. Should the *Time Code* data not pass every test, the ***Aquila*** enters a fault tolerant mode called '**Freewheeling**', which allows the ***Aquila***, and the presentation, to '**Coast**' past the *Time Code* fault.

The length of time that the freewheeling will occur is adjustable from the front panel menu. The selections are as follows:

Setting	Description
NO FREEWHEEL	Use when the presentation must stop with the *Time Code*.
30 FRAMES	Recommended for most applications.
600 FRAMES	Use when *Time Code* dropouts exceed 30 frames.
INFINITE	Use when *Time Code* is very dirty. Only <RESET> will stop it.

Time Offsets:
The ***Aquila*** can add or subtract a given offset to the *Time Code* that is being read. This offset may be temporary, or can be stored in nonvolatile memory for 'permanent' installations. These time offsets cannot be changed by means of the front panel menu. Only software commands from the serial port may affect them.

Note: Only *Time Code* reading is affected by time offsets. *Time Code* writing is never affected.

Time Code Regeneration and Conversion:
The ***Aquila*** can convert one format of *Time Code* as it is being read to another format of *Time Code* as it is being written. This conversion is synchronized to maintain presentation timing.

This capability is available from the front panel menu selections. Set the '**CLOCK IN**' to match the *Time Code* source. Set the '**CLOCK OUT**' to match the desired *Time Code*. Set '**CLOCK REGEN**' to '**REGENERATION ON**'.

If using the **ECCS** supplied *Time Code* cable, connect the black RCA plug to the *Time Code* source and the red RCA plug to the *Time Code* destination. The ***Aquila*** is now ready to perform *Time Code* conversions, and will begin as soon as *Time Code* input starts.

If the '**CLOCK IN**' and '**CLOCK OUT**' are set to the same *Time Code*, the ***Aquila*** will perform a **Regeneration** of the original signal.

If time offsets are programmed into the ***Aquila***, the *Time Code* output will be offset from the *Time Code* input by the offset amount.

AQUILA TIME CODE CONTROLLER

AQUILA TIME CODE COMMANDS

The ***Aquila*** will accept certain commands from ***Hercules***. This gives the user the ability to start and stop *Time Code* from within a *Show File*.

Remember that all commands must be issued from the ***Hercules*** and directed at a particular device, which is in this case is the ***Aquila***. The following table lists all the commands available to operate *Time Code* operations:

Hercules Command	Command Name	Command Description
PLAY	Play	Starts writing *Time Code* from current **Time** location.
STOP	Stop	Stops writing *Time Code*. Does not reset to 0.
REWIND	Rewind	Stops writing *Time Code* and resets Time to 0.
FTIME	Find Time (hh:mm:ss)	Find time (hh:mm:ss). The ***Aquila*** will continue to display current **Time** value and not Find Time value. Once ***Aquila*** receives command to start writing *Time Code*, **Time** will start from Find Time value.

AQUILA SWITCH CLOSURES

As mentioned earlier, each ***Aquila*** contains eight dry contact switch closures. These devices do not require any **Mode:** or **Type:** setting through the front panel menu.

In order to send commands to these devices, the ***Configuration File*** must contain **Device Number** assignments for the each of the eight switches. Each should be set as **Device Type** '**S1**' with the associated ***Aquila*** **Unit Number** and **Slot Numbers** as shown in the following example.

```
<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

241   SW1       SWITCH CLOSURE 1     S1    99    1     0      -    -    0   100
242   SW2       SWITCH CLOSURE 2     S1    99    2     0      -    -    0   100
243   SW3       SWITCH CLOSURE 3     S1    99    3     0      -    -    0   100
244   SW4       SWITCH CLOSURE 4     S1    99    4     0      -    -    0   100
245   SW5       SWITCH CLOSURE 5     S1    99    5     0      -    -    0   100
246   SW6       SWITCH CLOSURE 6     S1    99    6     0      -    -    0   100
247   SW7       SWITCH CLOSURE 7     S1    99    7     0      -    -    0   100
248   SW8       SWITCH CLOSURE 8     S1    99    8     0      -    -    0   100
249                                    0     0     0      -    -    0   100
250                                    0     0     0      -    -    0   100
251                                    0     0     0      -    -    0   100
252                                    0     0     0      -    -    0   100
253                                    0     0     0      -    -    0   100
254   DUMMY     DUMMY FOR BLANKS     0     0     0      -    -    0   100
255   AQUILA    TIME CODE CONTROL    99    0     0      -    -    0   100
256   CYGNUS    MANUAL CONTROL       65    0     0      -    -    0   100


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

SWITCH CLOSURE COMMANDS (TYPE S1)

Remember that all commands must be issued from the ***Hercules*** and directed at a particular device, which is in this case a switch. The following table lists all the commands available to operate the switch closures:

Hercules Command	Command Name	Command Description
SN	Switch On	Activates ***Aquila*** switch closure.
SF	Switch Off	Deactivates ***Aquila*** switch closure.
SPLS	Switch Pulse	Triggers ½ second switch pulse.

USING THE BOB BREAK OUT BOX

The switch closures may be used directly from the **DB25** connector on the rear of the ***Aquila*** for low power applications. For higher powered applications, or for the sake of convenience, the ***BOB Break Out Box*** can be used as a *Device Interface*.

The ***BOB*** is available in three versions.

1. The ***BOB 8P*** provides 8 powered 120 VAC receptacles for directly supplying switched power to eight devices.

2. The ***BOB 4P4S*** supplies 4 powered 120 VAC receptacles and 4 higher power switch closures realized as 4 chassis mounted 2 pin Jones plugs.

3. The ***BOB 8S*** provides 8 higher power switch closures realized as 8 chassis mounted 2 pin Jones plugs.

ALL AQUILA COMMANDS

The following table lists all valid ***Hercules*** commands for use with the ***Aquila***:

Hercules Command	Command Name	Command Description
PLAY	Play	Starts writing *Time Code* from current **Time** location.
STOP	Stop	Stops writing *Time Code*. Does not reset to 0.
REWIND	Rewind	Stops writing *Time Code* and resets Time to 0.
FTIME	Find Time (hh:mm:ss)	Find time (hh:mm:ss). The ***Aquila*** will continue to display current **Time** value and not Find Time value. Once ***Aquila*** receives command to start writing *Time Code*, **Time** will start from Find Time value.
SN	Switch On	Activates ***Aquila*** switch closure.
SF	Switch Off	Deactivates ***Aquila*** switch closure.
SPLS	Switch Pulse	Triggers ½ second switch pulse.