COMET II QUICK OPERATION

Start by pressing the Back key several times to get to the top Menu: the screen shows "**Theatrelight NZ**":

SETTING DMX MODE AND LOCKING THE KEYS

The current DMX Start Channel is shown on the top Menu page. To change the start address:

1. **In the top Menu, press Menu twice to arrive at "Control Mode"**
2. **If the mode reads "Local", press Right ▸ to set "DMX"** ***(see page 18 for Local Chase settings).***
3. **Press Down ▾ to move to "DMX start chn". Press Left ◂ or Right ▸ to adjust the DMX address.**
4. **Press Back twice: the screen shows "Changes saved to flash memory".**
5. **To lock the keypad, hold ◂ + ▸ + ▲ for 2 seconds. To unlock the keypad, hold ◂ + ▸ + ▾ for 8 seconds.**

SETTING DMX DIMMER OR CHASE MODE

To set the DMX Mode to either "Dimmer" or "Chase" mode::

1. **In the top Menu, press Menu twice to arrive at "Control mode".**
2. **Press Down ▾ twice to move to "DMX mode". Press Right ▸ to change the mode to "Dimmer" or "Chase".**
3. **Press Back twice: the screen shows "Changes saved to flash memory".**

SETTING DIMMER PARAMETERS

To set Test, Minimum, and Maximum levels, Non-Dim mode, or Softstart time for each dimmer:

1. **In the top Menu, press Menu, select "Change Dimmer Setup", press Menu.**
2. **Press Up ▲ or Down ▾ to select the dimmer parameter to change (2 pages), press Menu.**
3. **Press Left ◂ or Right ▸ to select the dimmer, Up ▲ or Down ▾ to adjust the level or parameter.**
4. **Press Back three times: the screen shows "Changes saved to flash memory".**

RESETTING ALL DMX, DIMMER, AND CHASE PARAMETERS

1. **In the top Menu, press Menu, select "Change Dimmer Setup", press Menu.**
2. **Press Up ▲ or Down ▾ to move to "Reset All" (page 2).**
3. **Press Menu twice: the screen shows "Resetting", then restarts in Local Chase mode.**

COMET II TABLE OF CONTENTS

COMET II INTRODUCTION 3

FRONT PANEL LEGEND 4

COMET II OVERVIEW 5
- LCD display 5
- Keys 5
- LEDs 5
- Cooling 6
- Local control 6
- DMX control 6
- Dimmer parameters 6
- Dimmer settings priority 8
- Levels display 8
- Default Comet II parameters 9

COMET II OPERATION 11
- Connecting a DMX cable 11
- Unlocking the keys 11
- Locking the keys 11
- Setting DMX start address 13
- Setting DMX fail mode 13
- Setting DMX dimmer mode 13
- Setting DMX chase mode 15
- DMX chase control 15
- Setting local control mode 17
- Setting local chase speed 17
- Setting local chase direction 17
- Setting local chase pattern 19
- Setting local chase profile 19
- Setting local chase snap/fade 19
- Setting local chase master level 19

COMET II DIMMER SETTINGS 21
- Setting dimmer test/set levels 21
- Setting dimmer minimum levels 21
- Setting dimmer maximum levels 21
- Setting non-dim selection 23
- Setting soft-start times 23
- Resetting all Comet parameters 23

DISPLAYING LEVELS 25
- Displaying DMX or Chase control levels 25
- Displaying final dimmer levels 25
- Displaying chase settings 25

COMET II CHASE SETTINGS 26
- Chase speed 26
- Chase direction 27
- Chase pattern 27
- Chase profile 28
- Chase snap/fade 28
- Chase level 28

MAINTENANCE 29

DIMENSIONS 30

SPECIFICATIONS 31

GLOSSARY 33

INDEX 35

COMET II INTRODUCTION

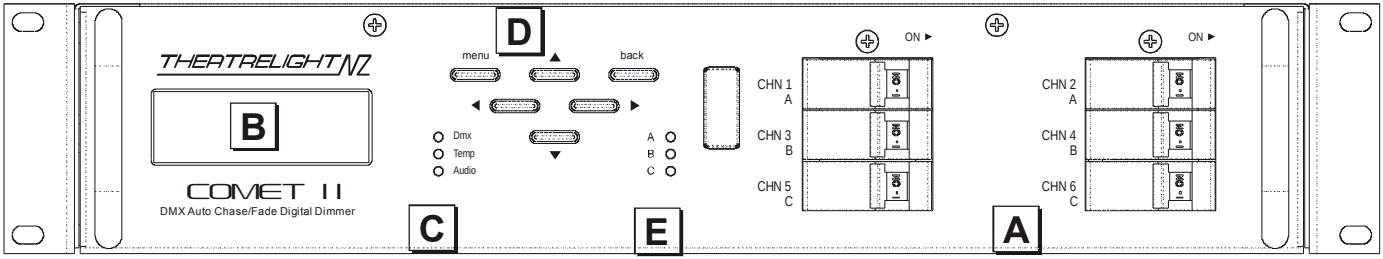
The Theatrelight Comet II is a dimmer pack incorporating 6 dimmers, a chase pattern generator, and a built in microphone. The Comet can provide a wide variety of chase and sound to light effects, either set up locally using the keys and LCD, or controlled remotely by any DMX controller. This versatile dimmer pack is ideally suited to clubs and dance parties or anywhere that required an entertaining lighting background. The automatic pattern generator is also suited to window displays, product displays at exhibitions, and sign lighting..

Simple to set up and use, the Comet II has a number of improvements over the original Theatrelight Comet. The new design uses the latest microprocessor and components chosen for reliability and long MTBF (Mean Time Before Failure). The isolated DMX input presents only 1/10th standard loading, reducing the possibility of DMX errors. Additionally, zero-cross noise filters ensure correct triggering and immunity to mains interference even in the most adverse environment. The wide input voltage and frequency range afforded by Theatrelight's in house designed switch-mode power supply allows the Comet II to work on any voltage from 90 volts AC to 265 Volts AC, making it suitable for use in any country. Single and 3 phase versions are available. The Comet II is also available fitted with terminals for permanent installation. Different socket versions can be made to order.

COMET II FEATURES

- **Simple and easy to use menu system with large 4 line, 20 character auto dimming LCD display**
- **Programmable DMX Start address and DMX fail modes**
- **Individual Minimum, Maximum, and Test levels per dimmer**
- **Individual Soft-start Time and Non-Dim setting per dimmer.**
- **Wide variety of chase and fade effects by local or DMX control**
- **All dimmer parameters held in non-volatile flash memory**
- **Gold plated DMX-512 in and through connectors**
- **Variable speed cooling fan for low acoustic noise and long life**
- **Protection by Thermal/Magnetic circuit breakers**
- **Amorphous iron powder toroidal chokes for low EMI**
- **High immunity to Mains interference and low DMX signal**
- **Isolated DMX input, 1/10th standard RS-485 load**

FRONT PANEL LEGEND



Model 660 (3 phase model):

A: Thermal/Magnetic Circuit Breakers rated at 13 amps protect each dimmer in the event of a lamp failure or short-circuit.

B: 4 row x 20 character LCD display with large clear characters for easy readabilty.

C: The DMX LED shows the presence of DMX signal, and any errors. The Temp LED flashes on an over-temperature condition. The Audio LED indicates a sound trigger from the built-in microphone.

D: Simple keyboard and easy to understand menu system allow quick setup of DMX Start Address, dimmer parameters, and other functions.

E: A B C Phase LEDs indicate presence of mains power on each phase: A (MCBs 1, 2), B (MCBs 3, 4), C (MCBs 5, 6).

Model 610 (single phase model):

Model 610 (not shown) is fitted with one 13 amp MCB, and one Phase LED.

COMET II OVERVIEW

The following description provides an overview of the capabilities of the Comet II.

LCD DISPLAY

The 4 line, 20 character per line blue LCD display has white LED backlighting, giving excellent contrast and readability under all lighting conditions. The brightness of the display goes to full at the first key press, and reduces after 10 minutes.

KEYS

The Comet is operated by a small keypad of 6 keys. The key operation is designed to be simple and to allow the operator fast and easy access to all functions. The Menu key steps down through the menu tree, while the Back key steps back. The keys Up ▲ , Down ▼ , Left ◀ , and Right ▶ are used for navigation, and to adjust values. In most menus the function of the key is indicated in the bottom line of the LCD, making for easy understanding. If a value is changed, the new value will be saved automatically to flash memory after a timeout period of 10 minutes. Alternatively the new value can be saved immediately by pressing the Back key to return to the top menu. The keys may also be locked to prevent unauthorised operation.

LEDS

Front panel LEDs are provided for display of DMX signal, over-temperature indication, and proper mains presence. All LEDs are initially turned on at power up before assuming their correct status.

DMX LED

The Green DMX LED is on continually On if DMX is enabled and the DMX signal is good. The LED flashes regularly if DMX is enabled but the DMX signal is disconnected. The DMX LED switches off or flashes irregularly if the DMX signal has errors, or if the DMX signal is wrongly phased. Disabling DMX sets the DMX LED off regardless of the state of the DMX signal.

Audio LED

The Audio Led flashes each time the built-in microphone is triggered by the ambient sound level.

A B C LEDs

Green LEDs A B C indicate presence of mains power on each pair of MCBs. Model 610 (single phase) is fitted with one LED.

Temperature LED

The Red temperature LED is normally off. In the event that the internal temperature of the Comet reaches 50 degrees Centigrade, the LED starts blinking. The LED turns on fully when the temperature reaches 60 degrees. If the internal temperature reaches 70 degrees the Comet forces a fade out over 7 seconds of all dimmer levels. The levels are faded in again over 7 seconds when the temperature drops below 70 degrees.

COOLING

The Comet II is cooled by a long life, low voltage, speed controlled fan. Fan speed is proportional to temperature. The fan starts at half speed at 30 degrees Centigrade and increases to full speed at 35 degrees. The fan remains on for 10 minutes after the temperature has dropped below 30 degrees. Air is blown through the Comet II case from the left side to the right. This arrangement allows the operator to provide a cool filtered air supply on the left of the rack cabinet. Air must be allowed to exit the cabinet on the right, with no re-circulation.

LOCAL CONTROL

The Comet II has a chase pattern generator which can be set to operate stand-alone (**Local Control**), or controlled from a DMX line (**DMX Control**). In **Local Control** mode, the chase Speed, Pattern, Direction, Profile, Snap/Fade, and Master level may be set using the LCD and keys, and the Comet will provide a standalone display of continual changing lighting patterns. The Comet has a built in microphone which can be programmed to trigger the chase generator for sound to light displays. The various chase parameters are described in detail on page 26.

DMX CONTROL

In **DMX Control** mode, the Comet can be controlled from any standard DMX controller. In **DMX Chase** mode,. all chase parameters may be controlled from 6 faders on the DMX control desk. In **DMX Dimmer** mode, the Comet behaves as a normal DMX controlled 6 channel dimmer, with the built chase and sound to light facilities disabled.

In DMX Control mode, the Comet may be set to any DMX start address between 1 and 512 (or off). The start number means the DMX address to which Dimmer 1 responds. The DMX addresses of the following dimmers are then set automatically: the address of Dimmer 2 to the DMX Start number plus 1, and so on. The Comet is programmed to ignore all DMX packets except those using a value of zero for DMX Channel 0. DMX control is disabled in Local Chase mode, or may disabled by setting the DMX Start Address to zero. The Comet provides two options in case the DMX signal fails, or the DMX signal is turned off, as for example when the control panel is turned off at the end of a show. The options are **Fade to blackout** — the dimmer levels are faded out over a time of 8 minutes, or **Hold last DMX levels** — the last DMX levels are held until the next DMX input (or the pack is switched off).

DIMMER PARAMETERS

The dimmer channels in the Comet have a number of parameters which may be set individually for each dimmer.

Test/Set Dimmer levels

Normally each dimmer receives control from DMX line in DMX mode, or the built-in Chase controller in DMX Chase or Local Control mode. However the Test/Set options allow each dimmer to be set to a level which overrides the input from any of these sources. This override level can be set to any level between Off and Full. An "All" function allows all Test/Set levels to be faded up

or down at the same time. Each dimmer can also be flashed instantly to Full. The "All" function may also be used with Flash, allowing all dimmers to be flashed to Full at the same time.

The Test/Set function is of use during set-up to help check lamps or wiring problems without the use of a control panel, and to set permanent lighting levels such as working lights. ***Note that any test level above zero will disable normal dimmer control.***

Minimum and Maximum Dimmer levels

Each dimmer may be set to its own minimum level, and its own maximum level. An "All" function allows either all minimum or all maximum levels to be set at the same time. The minimum setting can be used to keep lamp filaments warm for fast response time, or for example to maintain lighting at a minimum level of illumination, a requirement often needed by orchestra lighting and working lights. The maximum setting can be used for example to prolong lamp life, which is very sensitive to over-voltage conditions. For this reason, the maximum setting has higher priority than the minimum setting.

As both Minimum and Maximum levels may be set to anywhere from Off to Full, ***care needs to taken in setting these levels***.

Dimmer curves

Each dimmer may be set to Incandescent or Non-Dim. An "All" function allows all dimmer curves to be set at the same time.

The Incandescent dimmer curve is suitable for most applications using incandescent bulbs whether normal tungsten or tungsten halogen type. The curve is specially tailored to provide linear apparent light under these conditions.

The Non-Dim curve selection is for use with loads which must be switched on and off, such as motors, smoke machines, and other effects. Each dimmer using the Non-Dim curve switches on at 60%: any control level at this level or above will switch the dimmer to Full instantly. Once On, the dimmer will stay on until the control level goes below 40%. An "All" function allows all Non-Dim switch levels to be set at the same time. The Non-Dim facility may be combined with the Minimum and Maximum settings to switch the dimmer output between any two selected output voltages.

Softstart Fade Times

Each dimmer may be set to its own softstart fade time. An "All" function allows all softstart times to be set at the same time. A softstart fade up limits the inrush current into cold tungsten filament bulbs. This initial current may be as much as 12 times the normal working current of the filament—limiting this current greatly prolongs lamp life.

The softstart time for each dimmer can be set from 0 to 1 second in 100 millisecond steps. A shorter time gives a faster response; a longer time gives longer lamp life. For many lighting requirements using larger wattage bulbs, a time of 200 to 400 milliseconds (0.2 to 0.4 seconds) is suitable. When using the Comet for fast chases, the time should be set to zero (instant). The softstart time is applied after processing of Non-Dim switch levels. This allows limiting high starting currents during start-up of cap-start motors or other capacitive loads. If this facility is not required, then Non-Dim channels should have their softstart times set to zero. Note that a softstart time of 2 seconds is applies to all channels at power on (excepting Non-Dim channels).

DIMMER SETTINGS PRIORITY

The dimmer settings described above are processed in a fixed priority. A DMX level or Chase generator level is processed and passed to the dimmer in the following order (of increasing priority):

1/ The source control level may be either a DMX channel level in DMX Dimmer mode, or the output of the built-in Chase generator in Local or DMX Chase mode.

2/ If the Test/Set level for the dimmer is set between Off and Full (or flashed using the Menu key), the Test/Set level replaces the dimmer level. If no Test level is set for that dimmer, no change is made. All Test/Set levels are disabled after a Reset command.

3/ If the dimmer is set to Non-Dim, the level will be switched to Full if over 60%, and switched off if under 40%. If Non-Dim is not selected for that dimmer, no change is made is made to the level.

4/ If the Minimum setting for the dimmer is set above 0%, the dimmer level cannot be lower than that level. If the Minimum setting is zero for that dimmer, no change is made to the level. All Minimum settings are reset to zero by the Reset command.

5/ If the Maximum setting for the dimmer is set below 100%, the dimmer level cannot be higher than that level. If the Maximum setting is Full for that dimmer, no change is made. Giving Minimum and Maximum a higher priority than Non-Dim permits switching between any two voltages to suit the application. All Maximum settings are reset to Full by the Reset command.

Note that the normal Incandescent curve is used to define any Minimum or Maximum voltage limits imposed on dimmers selected to Non-Dim, allowing the choice of a minimum and a maximum voltage to be set for such loads if required.

6/ Finally, the fade up rate of the resulting level is limited by the Softstart Time programmed for the dimmer channel. If the Softstart time is set to zero for that dimmer, no change is made to the fade up rate. The Softstart time applies only to the Up fade rate- it does not affect the Down fade rate of the control level applied to any dimmer. All Comet II softstart times are set to Instant by the Reset command.

7/ The phase On time for each dimmer is then calculated from the final dimmer level according to the Incandescent Dimmer Curve. All dimmer curves are set to the default Incandescent curve by the Reset command.

LEVELS DISPLAY

The LCD screen may be used to read either Input DMX levels, or Final Dimmer Levels—the final dimmer level after processing through Test/Set, Non-Dim switching, Minimum and Maximum limiting, and Softstart fades. The current internal temperature of the dimmer pack is also shown at the top right of the LCD screen in both display modes. If the Comet is set to either Local or DMX Chase mode, the current Chase settings can also be viewed on the LCD screen.

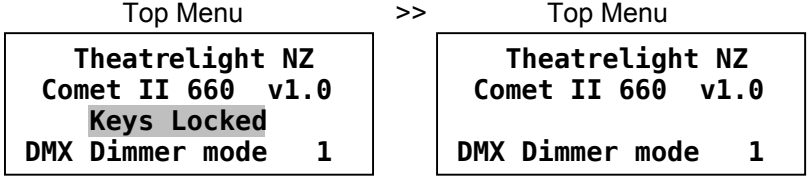
DEFAULT COMET II PARAMETERS

All Comet II parameters may be reset to a default value (see page 25) . These default values are as follows:

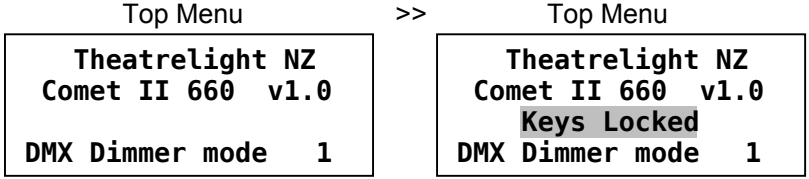
CONTROL MODE SETTING	**Range**	**After Reset**	**Notes**
DMX/Local mode	DMX/Local	Local	For all Local Chase settings see page 26
DMX SETTINGS	**Range**	**After Reset**	**Notes**
Dimmer/Chase mode	Dimmer/Chase	Chase	For all DMX Chase settings see page 26
DMX Start Channel	Off, 1-512	1	“Off” sets last DMX levels to black
DMX Fail Fade to Black	On/Off	On	8 minute fade of last DMX levels to black
Hold Last Levels	On/Off	Off	Last DMX levels held, levels reset at power up
LOCAL CHASE SETTINGS	**Range**	**After Reset**	**Notes**
Speed	16 values, see page 26	Bass speed	For all Local Chase settings see page 26
Direction	4 values, see page 27	Bass reverse	For all Local Chase settings see page 26
Pattern	8 values, see page 27	Bass pattern	For all Local Chase settings see page 26
Profile	4 values, see page 28	Bass step/fade	For all Local Chase settings see page 26
Snap/Fade	Snap/Fade, see page 28	Fade mode	For all Local Chase settings see page 26
Chase Level	0-100%, see page 28	100%	For all Local Chase settings see page 26
DIMMER SETTINGS	**Range**	**After Reset**	**Notes**
Test/Set Levels	Disabled, 0-100%	Disabled	*Must be disabled for normal operation*
Minimum Levels	0-100%	0%	*Must be set to 0% for normal operation*
Maximum Levels	0-100%	100%	*Must be set to 100% for normal operation*
Non-dim setup	In, ND	In	In = Incandescent, ND = Non-Dim
Soft Start Times	0-1.0 second	Instant	Up time only (Down time always instant)
KEY LOCK	**Range**	**After Reset**	**Notes**
Key Lock	On/Off	Off	Only accessible in the top Menu

- **All dimmer and chase parameters are held in permanent flash memory**

Unlocking the keys:



Locking the keys:



COMET II OPERATION

- ***Before powering on, ensure that Mains and Load connections are connected correctly, and make sure the unit is properly earthed.***

CONNECTING A DMX CABLE

If the Comet is to be controlled by a DMX controller, connect the DMX line to the Comet. The standard DMX 5 pin XLR connector must be wired using shielded twisted pair cable. Wire as follows:

1. **Connect the shield to pin 1.**
2. **Connect the black wire to pin 2 (DMX -)**
3. **Connect the red wire to pin 3 (DMX +)**

The wiring must be correctly phased for proper operation, and the shield must be connected. You can link a large number of Comet II dimmer packs together since each presents just 1/10th of a standard RS-485 load. Do not use a star connection—connect all packs in a line for best signal. Remember to terminate the line with a 120 ohm resistor at the last pack.

The examples below assume a start from the top menu level- pressing the Back key several times always goes to the top Menu Level: the screen shows "**Theatrelight NZ**", together with the model (610 or 660—1 or 3 phase), the software version, and the current mode- Local, or DMX, with the DMX Start number. If the keys are locked, the LCD will show "Keys Locked".

UNLOCKING THE KEYS

The keys may be unlocked as follows:

1. **To unlock the keypad, hold ◀ + ▶ + ▼ until the message "Keys Locked" disappears (about 8 seconds).**
2. **Release all keys: the screen shows "Changes saved to flash memory".**

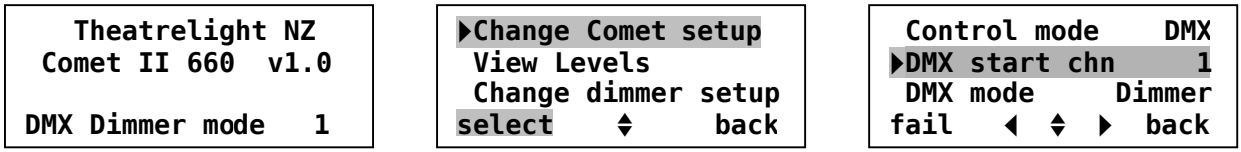
LOCKING THE KEYS

After changing any settings, you can disable the keys to prevent unauthorised changes as follows.

1. **Press the Back key several times to get the top Menu. This also saves the latest changes.**
2. **To lock the keypad, hold ◀ + ▶ + ▲ until the message "Keys Locked" appears (about 2 seconds).**
3. **Release all keys: the screen shows "Changes saved to flash memory".**

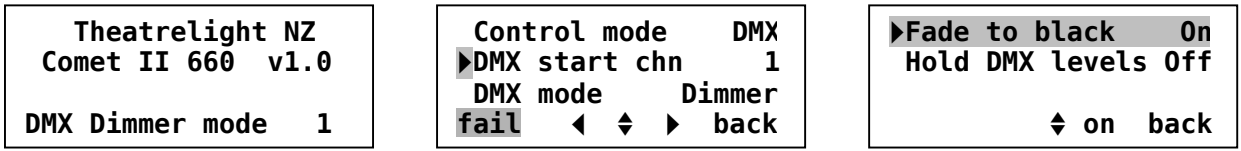
Setting DMX mode start address:

Top Menu >> Menu Level 1 >> Control Mode Menu



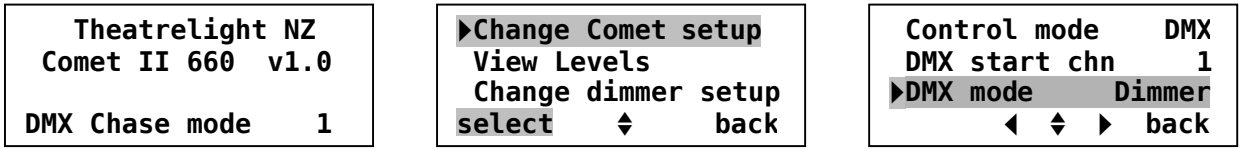
Setting DMX fail mode:

Top Menu >> Control Mode Menu >> DMX Fail Menu



Setting DMX Dimmer mode:

Top Menu >> Menu Level 1 >> Control Mode Menu



SETTING DMX START ADDRESS

In DMX control mode, the current DMX Start Channel is shown on the top Menu page. To change the start address:

1. **In the top Menu, press Menu twice to arrive at "Control Mode".**
2. **If Control mode shows "Local" press Right ▸ to change from Local to DMX control**
3. **The DMX menu appears—press Down ▾ to move to "DMX start chn".**
4. **Press or hold Left ◂ or Right ▸ to adjust the DMX address.**
5. **Press Back twice: the screen shows "Changes saved to flash memory".**

SETTING DMX FAIL MODE

In DMX control mode, the DMX Fail Mode may be set to "Fade to Black" or "Hold DMX levels" :

1. **In the top Menu, press Menu twice to arrive at "Control Mode".**
2. **If Control mode shows "Local" press Right ▸ to change from Local to DMX control**
3. **Press Down ▾ to move to the DMX address line- the word "fail" appears above the Menu key.**
4. **Press Menu to arrive at the Fail Mode menu.**
5. **Press Up ▴ or Down ▾ to select the mode, then press Right ▸ to set the mode On if it is Off.**
6. **Press Back three times: the screen shows "Changes saved to flash memory".**

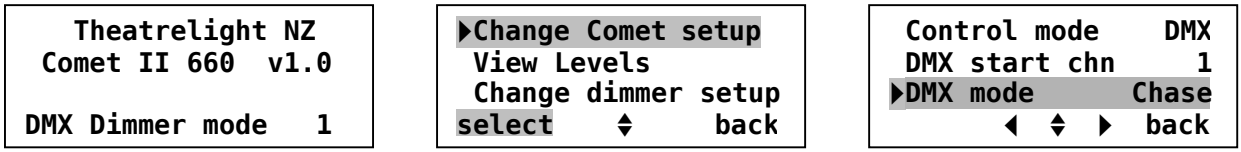
SETTING DMX DIMMER MODE

In DMX control mode, the DMX levels can be set to DMX Dimmer mode, where the DMX levels control the 6 dimmers directly, or set to DMX Chase mode where the DMX levels control the chase pattern, speed and fade times of the 6 dimmers. To set DMX Dimmer mode:

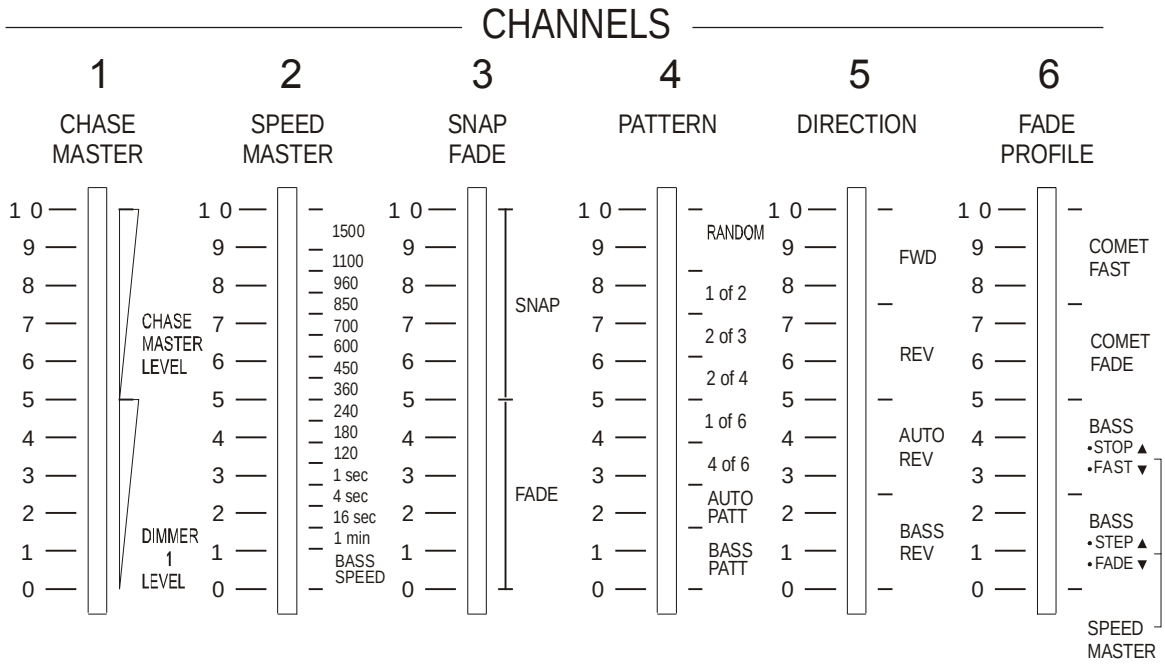
1. **In the top Menu, press Menu twice to arrive at "Control Mode".**
2. **If Control mode shows "Local" press Right ▸ to change from Local to DMX control.**
3. **Press Down ▾ twice to move to "DMX mode" (line 3).**
4. **Press Right ▸ to change from DMX Chase to DMX Dimmer mode.**
5. **Press Back three times: the screen shows "Changes saved to flash memory".**

Setting DMX Chase mode:

Top Menu >> Menu Level 1 >> Control Mode Menu



DMX Chase mode control functions:



SETTING DMX CHASE MODE

When set to DMX Chase mode, the DMX levels can be used to control the chase pattern, speed and fade times of the 6 dimmers. To set DMX Chase mode

1. **In the top Menu, press Menu twice to arrive at "Control Mode".**
2. **If Control mode shows "Local" press Right ▸ to change from Local to DMX control.**
3. **Press Down ▾ twice to move to "DMX mode" (line 3).**
4. **Press Right ▸ to change from DMX "Dimmer" to DMX "Chase" mode.**
5. **Press Back three times: the screen shows "Changes saved to flash memory".**

DMX CHASE CONTROL

In DMX Chase mode, the DMX levels control the chase settings built into the Comet II. Any DMX controller may be used for this purpose, however Theatrelight manufacture a companion Comet controller to simplify operation. The front panel of the Theatrelight Comet controller is pictured opposite, and makes clear the various options and settings available.

DMX Channel 1: Dimmer/Chase mode. Above 50%, this fader sets the Comet II to Chase mode, and acts as a master for all Chase levels. Below 50%, the fader sets the Comet II to Dimmer mode, and controls Dimmer 1 level from 0-100% directly.

DMX Channel 2: Speed. This fader controls Comet II chase speeds up to 1500 beats per minute. If fader 1 is below 50% level (Dimmer mode), this fader controls Dimmer 2 level directly.

DMX Channel 3: Snap/Fade. This fader controls whether a chase snaps or fades levels between steps. If fader 1 is below 50% level (Dimmer mode), this fader controls Dimmer 3 level directly.

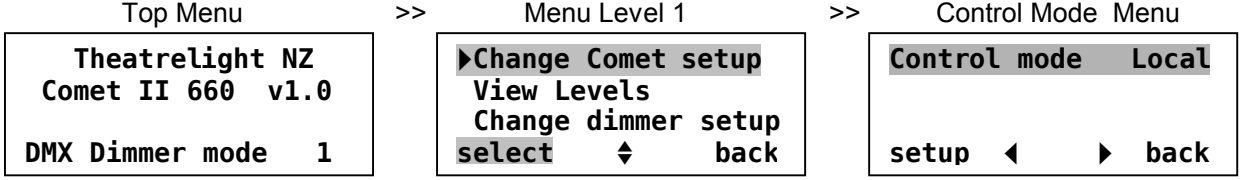
DMX Channel 4: Pattern. This fader changes the chase pattern. If fader 1 is below 50% level (Dimmer mode), this fader controls Dimmer 4 level directly.

DMX Channel 5: Direction. This fader. changes the chase direction. If fader 1 is below 50% level (Dimmer mode), this fader controls Dimmer 5 level directly.

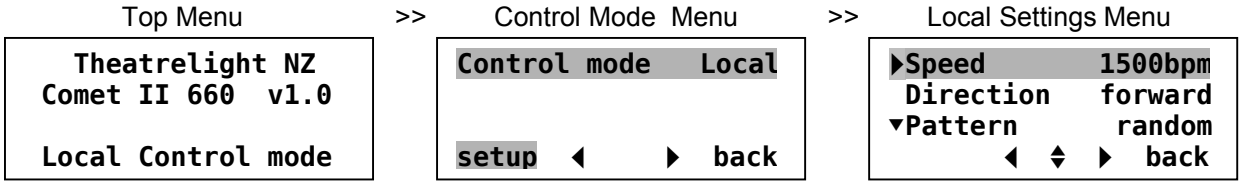
DMX Channel 6: Fade profile. This fader changes the fade profile of the chase. If fader 1 is below 50% level (Dimmer mode), this fader controls Dimmer 6 level directly.

- **DMX Chase functions and levels are described in detail on page 26.**

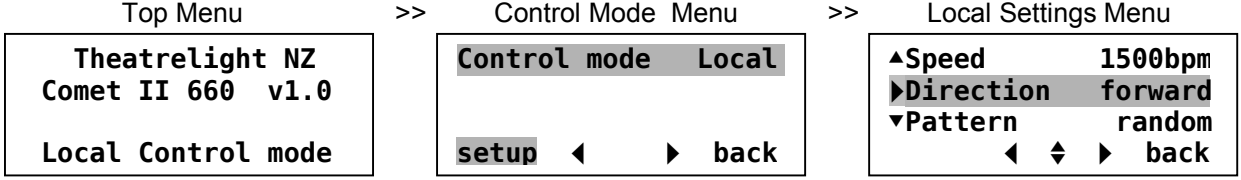
Setting Local Control mode:



Setting local Chase Speed:



Setting local Chase Direction:



SETTING LOCAL CONTROL MODE

In Local control mode, the Comet can be set to do automatic chases, with menu control over chase speed, direction pattern, profile, snap/fade, and master level. DMX control is disabled in this mode. To set the Comet to Local Control:

1. **In the top Menu, press Menu twice to arrive at "Control Mode".**
2. **If Control mode shows "DMX" press Right ▸ to change from DMX to Local control.**
3. **Press Back twice: the screen shows "Changes saved to flash memory".**

SETTING LOCAL CHASE SPEED

In local control mode, to change the chase speed:

1. **From the top menu, press Menu three times to arrive at the local chase settings menu.**
2. **On the Speed line, press Left ◂ or Right ▸ to change the speed.**
3. **Press Back three times to reach the top menu: the screen shows "Changes saved to flash memory".**

Local Chase parameters are described on page 26.

SETTING LOCAL CHASE DIRECTION

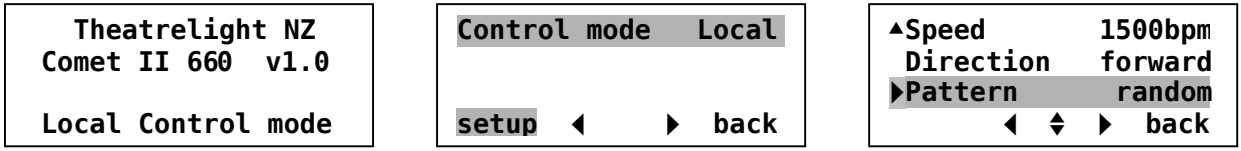
In local control mode, to change the chase direction:

1. **From the top menu, press Menu three times to arrive at the local chase settings menu.**
2. **Press Down ▾ to move to "Direction". Press Left ◂ or Right ▸ to change the direction.**
3. **Press Back three times to reach the top menu: the screen shows "Changes saved to flash memory".**

- After Reset, the Comet II is always set to Local Mode, with Chase Speed, Direction, Pattern and Profile set to Bass Mode, so the Comet will run its display automatically to music (see page 9).

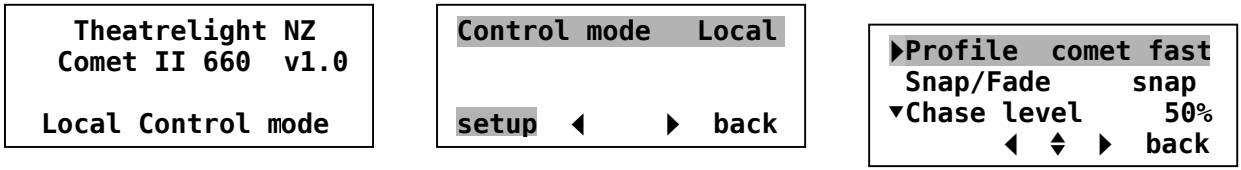
Setting local Chase Pattern:

Top Menu >> Control Mode Menu >> Local Settings Menu



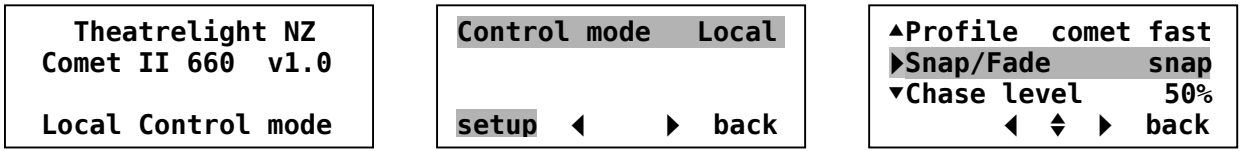
Setting local Chase Profile:

Top Menu >> Control Mode Menu >> Local Settings Menu



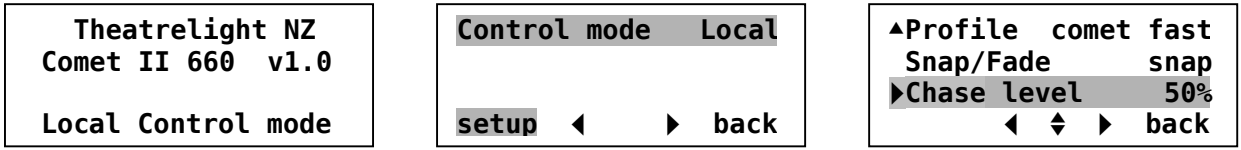
Setting local Chase Snap/Fade:

Top Menu >> Control Mode Menu >> Local Settings Menu



Setting local Chase Master Level:

Top Menu >> Control Mode Menu >> Local Settings Menu



SETTING LOCAL CHASE PATTERN

In local control mode, to change the chase pattern:

1. **From the top menu, press Menu three times to arrive at the local settings menu.**
2. **Press Down▼ twice to move to "Pattern". Press Left◀ or Right▶ to change the pattern.**
3. **Press Back three times to reach the top menu: the screen shows "Changes saved to flash memory".**

Local Chase parameters are described on page 26

SETTING LOCAL CHASE PROFILE

In local control mode, to change the chase profile:

1. **From the top menu, press Menu three times to arrive at the local settings menu.**
2. **Press Up▲ or Down▼ to move to "Profile" (page 2). Press Left◀ or Right▶ to change the profile.**
3. **Press Back three times to reach the top menu: the screen shows "Changes saved to flash memory".**

Local Chase parameters are described on page 26.

SETTING LOCAL CHASE SNAP/FADE

In local control mode, to swap chase snap/fade modes:

1. **From the top menu, press Menu three times to arrive at the local settings menu.**
2. **Press Up▲ or Down▼ to move to "Snap/Fade" (page 2). Press Right▶ to swap snap/fade.**
3. **Press Back three times to reach the top menu: the screen shows "Changes saved to flash memory".**

Local Chase parameters are described on page 26

SETTING LOCAL CHASE MASTER LEVEL

In local control mode, to change the playback master level of any chase whether snap or fade:

1. **From the top menu, press Menu three times to arrive at the local settings menu.**
2. **Press Up▲ or Down▼ to move to "Chase Level" (page 2). Press Left◀ or Right▶ to change the level.**
3. **Press Back three times to reach the top menu: the screen shows "Changes saved to flash memory".**

Local Chase parameters are described on page 26

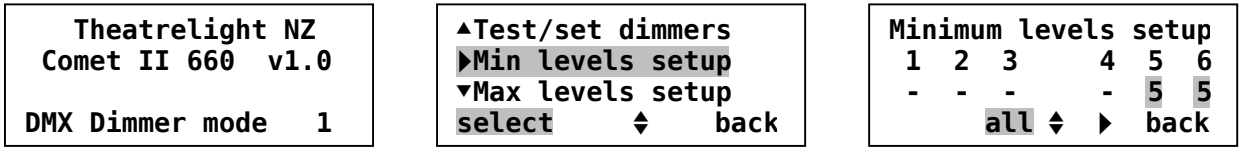
- Note that any changes made to local chase parameters will be saved automatically 10 minutes after the last key press.

Testing or setting dimmer levels:

Top Menu >> Dimmer Setup Menu >> Test/Set Menu

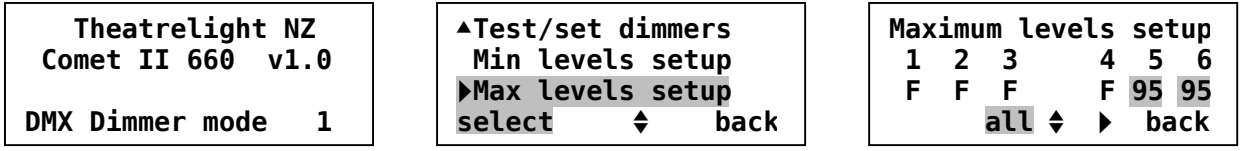
Setting dimmer minimum levels:

Top Menu >> Dimmer Settings Menu >> Minimum levels Menu



Setting dimmer maximum levels:

Top Menu >> Dimmer Settings Menu >> Maximum levels Menu



COMET II DIMMER SETTINGS

All control levels whether from DMX or the built chase generator, are modified by the following settings before being applied to the dimmers. As these settings can modify or interfere with the control levels, care must be taken to set them correctly.

SETTING DIMMER TEST/SET LEVELS

Test/Set levels can take over control from any DMX or Chase level. To set Test/Set levels for each dimmer:

1. **In the top Menu, press Menu, select "Change Dimmer Setup", press Menu.**
2. **Select "Test/set dimmers", press Menu.**
3. **Press Left ◂ or Right ▸ to select the dimmer, Up ▲ or Down ▼ to adjust the level.**
4. **Press 'All" (Left key) with Up ▲ or Down ▼ to adjust all test levels.**
5. **Press "Flash" (Menu key) to flash the dimmer if required to identify the channel.**
6. **Press 'All" (Left key) with "Flash" (Menu key) to flash all dimmers.**
7. **Press Back three times: the screen shows "Changes saved to flash memory".**

SETTING DIMMER MINIMUM LEVELS

To set Minimum levels for each dimmer:

1. **In the top Menu, press Menu, select "Change Dimmer Setup", press Menu.**
2. **Select "Min level setup", press Menu.**
3. **Press Left ◂ or Right ▸ to select the dimmer, Up ▲ or Down ▼ to adjust the level.**
4. **Press 'All" (Left key) with Up ▲ or Down ▼ to adjust all levels.**
5. **Press Back three times: the screen shows "Changes saved to flash memory".**

SETTING DIMMER MAXIMUM LEVELS

To set Maximum levels for each dimmer:

1. **In the top Menu, press Menu, select "Change Dimmer Setup", press Menu.**
2. **Select "Max level setup", press Menu.**
3. **Press Left ◂ or Right ▸ to select the dimmer, Up ▲ or Down ▼ to adjust the level.**
4. **Press 'All" (Left key) with Up ▲ or Down ▼ to adjust all levels.**
5. **Press Back three times: the screen shows "Changes saved to flash memory".**

Setting non-dim selection:

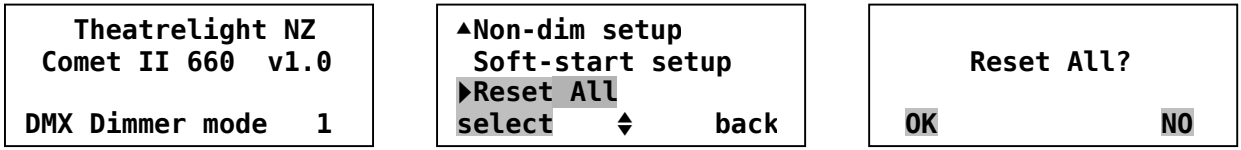
Top Menu >> Dimmer Settings Menu >> Non-Dim Menu

Setting soft-start times:

Top Menu >> Dimmer Settings Menu >> Soft-start Menu

Resetting to default parameters:

Top Menu >> Dimmer Settings Menu >> Reset Menu



SETTING NON-DIM SELECTION

Dimmers are normally set at "In" – the normal incandescent dimmer curve. To set any dimmer to Non-dim::

1. **In the top Menu, press Menu, select "Change Dimmer Setup", press Menu.**
2. **Select "Non-dim setup" (page 2), press Menu.**
3. **Press Left ◂ or Right ▸ to select the dimmer, Up ▲ or Down ▼ to set *ND* for Non-Dim**
4. **Press 'All" (Left key) with Up ▲ or Down ▼ to adjust all dimmers.**
5. **Press Back three times: the screen shows "Changes saved to flash memory".**

SETTING SOFT-START TIMES

To set Soft-start times from 0 (Instant) to 1 second for each dimmer:

1. **In the top Menu, press Menu, select "Change Dimmer Setup", press Menu.**
2. **Select "Soft-start setup" (page 2), press Menu.**
3. **Press Left ◂ or Right ▸ to select the dimmer, Up ▲ or Down ▼ to adjust the time (in 100ms steps).**
4. **Press 'All" (Left key) with Up ▲ or Down ▼ to adjust all times.**
5. **Press Back three times: the screen shows "Changes saved to flash memory".**

RESETTING ALL COMET PARAMETERS

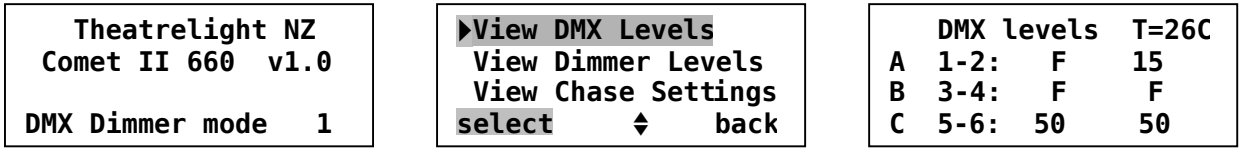
To reset all Comet II DMX, chase, and dimmer parameters:

1. **In the top Menu, press Menu, select "Change Dimmer Setup", press Menu,.**
2. **Select "Reset All" (page 2), press Menu. Press "OK" to reset all dimmers.**
3. **The screen shows "Resetting", then restarts in Local Chase mode.**

- Note that any changes made to Dimmer parameters will be saved automatically 10 minutes after the last key press.

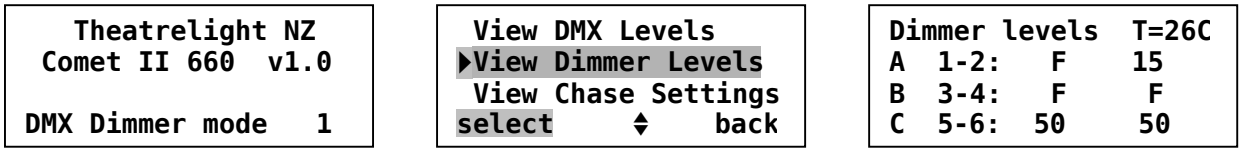
Displaying DMX levels:

Top Menu >> View Levels Menu 2 >> View DMX Levels Menu



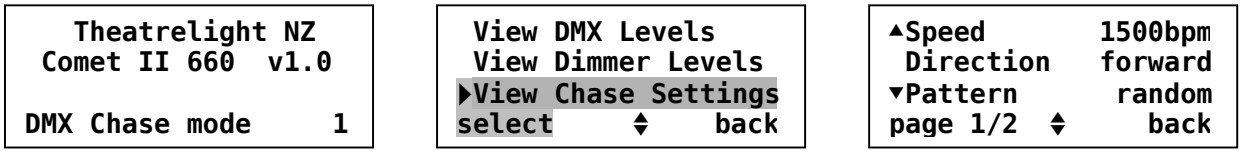
Displaying Dimmer levels:

Top Menu >> View Levels Menu 2 >> View Dimmer Levels Menu



Displaying Chase Settings:

Top Menu >> View Levels Menu 2 >> View Chase Settings Menu



DISPLAYING LEVELS

The Comet II can display continually updated levels of DMX or Chase control levels, final dimmer levels, or chase settings.

DISPLAYING DMX OR CHASE CONTROL LEVELS

To display DMX control levels (or Chase control levels in DMX Chase or Local modes) (updated every 100msec):

1. **From the top menu, press Menu once, select "View Levels" , press Menu.**
2. **Press ▲/▼ to select View DMX/Chase Levels, press Menu. The display shows the current control levels.**
3. **Press Back three times to reach the top menu.**

The display also shows the current temperature in degrees Centigrade. The display remains live for 10 minutes before reverting to the top menu. In DMX Chase mode (see page 15), the displayed levels (and title) change from DMX Control levels if DMX Channel 1 is below 50%, to DMX Chase levels if DMX Channel 1 is above 50%.

DISPLAYING FINAL DIMMER LEVELS

To display the final Dimmer levels—the levels after applying Test, Min, Max, etc (updated every 100msec):

1. **From the top menu, press Menu once, select "View Levels" , press Menu.**
2. **Press ▲/▼ to select View Dimmer Levels, press Menu. The display shows the current dimmer levels**
3. **Press Back three times to reach the top menu.**

The display also shows the current temperature in degrees Centigrade.

DISPLAYING CHASE SETTINGS

To display the 6 different Chase settings viz. Speed, Direction, Pattern, Profile, Snap/Fade and Chase level:

1. **From the top menu, press Menu once, select "View Levels" , press Menu.**
2. **Press ▲/▼ to select View Chase Settings, press Menu. The display shows page 1 of the chase settings.**
3. **Press ▲/▼ to change between page 1 and page 2 of the chase settings display.**
4. **Press Back three times to reach the top menu.**

The levels are updated every 100msec. If neither Local Chase mode or DMX Chase mode is currently active, the display shows "**Chase mode not set**". Note that if set to DMX Chase mode, the Comet only behaves as a DMX controlled chaser if DMX Chn 1 level is over 50% (see pages 9 and 28) The display always remains live for 10 minutes before reverting to the top menu.

COMET II CHASE SETTINGS

This section describes the functions of the built-Comet II chase generator which can be controlled either from the Comet menu system keys (**Local Control Mode** see page 17), or controlled by DMX level (**DMX Chase Mode** see page 15).

In the lists below, the **Local** heading describes the Chase parameter and its value when setup using the Comet menu system under Local Control Mode. The **DMX Chase** heading lists the DMX channel which controls the chase parameter in DMX Chase mode, followed by the DMX level (in percent) for each value of the parameter. The **Description** heading adds additional explanation where needed. After Reset All, the Comet II is always set to Local control, auto Bass mode (see page 9).

CHASE SPEED

The *speed* of the chase can be controlled through 16 values as follows (bpm = beats per minute).

Local	DMX Chase	Description
1500 bpm	Chn 2, 94-100%	Fast speeds suitable for very fast chases of LED displays
1000 bpm	Chn 2, 87-93%	Fast speeds suitable for very fast chases of LED displays
960 bpm	Chn 2, 81-87%	Fast speeds suitable for very fast chases of LED displays
850 bpm	Chn 2, 75-80%	Fast speeds suitable for very fast chases of LED displays
700 bpm	Chn 2, 69-74%	Fast speeds suitable for very fast chases of LED displays
600 bpm	Chn 2, 63-68%	Medium fast speeds suitable for pygmy lamp chases
450 bpm	Chn 2, 56-62%	Medium fast speeds suitable for pygmy lamp chases
360 bpm	Chn 2, 50-55%	Medium fast speeds suitable for pygmy lamp chases
240 bpm	Chn 2, 44-49%	Medium fast speeds suitable for pygmy lamp chases
180 bpm	Chn 2, 38-43%	Suitable speeds for dance music
120 bpm	Chn 2, 31-37%	Suitable speeds for dance music
1 sec	Chn 2, 25-30%	Suitable speeds for dance music
4 sec	Chn 2, 19-24%	Slower speeds suitable for exhibitions, product and window displays
16 sec	Chn 2, 13-18%	Longer fade times for slow colour changes for environmental lighting
1 min	Chn 2, 6-12%	Longer fade times for slow colour changes for environmental lighting
bass spd	Chn 2, 0-5%	Chase speed is increased with every bass beat, then faded to slow

CHASE DIRECTION

The *direction* of the chase can be controlled through 4 values as follows.

Local	DMX Chase	Description
forward	Chn 5, 75-100%	Chase direction is fixed forward
reverse	Chn 5, 50-74%	Chase direction is fixed reverse
auto rev	Chn 5, 25-49%	Chase direction reverses direction automatically every 24 chase steps
bass rev	Chn 5, 0-24%	Chase is reversed every second bass beat

CHASE PATTERN

The type of chase *pattern* can be controlled through 8 values as follows.

Local	DMX Chase	Description
random	Chn 4, 88-100%	Chase pattern is a random selection of all patterns
1 of 2	Chn 4, 75-87%	Chase pattern is 1 on, 1 off over each pair of dimmers 1-2, 3-4, 5-6
2 of 3	Chn 4, 63-74%	Chase pattern is 2 on, 3 off over each set of 3 dimmers 1-3, 4-6
2 of 4	Chn 4, 50-62%	Chase pattern is 2 on, 2 off over dimmers 1-4. Dimmers 5 and 6 not used
1 of 6	Chn 4, 38-49%	Chase pattern is 1 on, 5 off over all 6 dimmers.
4 of 6	Chn 4, 25-37%	Chase pattern is 4 on, 2 off over all 6 dimmers
auto	Chn 4, 13-24%	Chase pattern is changed automatically every 2 seconds
bass	Chn 4, 0-12%	Chase pattern is changed every 4th bass beat

CHASE PROFILE

The *profile* of the chase can be controlled through 4 values as follows.

Local	DMX Chase	Description
comet fast	Chn 6, 75-100%	The new step is snapped up, the last step is faded down fast, leaving a “comet tail”
comet fade	Chn 6, 50-74%	The new step is faded up, the last step is faded down slowly, leaving a “comet tail”
bass stop/fast	Chn 6, 25-49%	If the chase speed is up (not set at Bass Speed), a bass beat will *stop* the chase. If the speed is set to Bass Speed, the chase *speed* is increased by the bass beat
bass step/fade	Chn 6, 0-24%	If the chase speed is up (not set at Bass Speed), every bass beat will *step* the chase. If the speed is set to Bass Speed, the chase *level* is increased with every bass beat, then faded down

CHASE SNAP/FADE

The *snap/fade* action of the chase can be controlled as follows.

Local	DMX Chase	Description
Snap	Chn 3, 50-100%	Chase levels snap instantaneously from one chase step to the next
Fade	Chn 3, 0-49%	Chase levels fade from one chase step to the next

CHASE LEVEL

The maximum *level* of either a snap or fade chase can be controlled as follows.

Local	DMX Chase	Description
0-100%"	Chn 1, 50-100%	In Local mode, Chase Level sets the maximum chase level of all dimmers. in DMX Chase mode, the chase level is controlled by DMX chn 1. If DMX chn 1 is at full, all chases output at full level, reducing to zero level as DMX chn1 is reduced to 50%. This enables master control over chases, and using the same fader, control between DMX levels and auto chase levels.
	Chn 1, 0-49%	If the Comet is set to DMX Chase mode, and DMX Chn 1 is below 50%, then Chase mode is cancelled, and DMX Channels 1-6 control the Comet dimmers 1-6 directly. In this case, Comet Dimmer 1 will reach full when DMX Ch 1 is set to 49%.

MAINTENANCE

To keep your Comet working well take note of these points:

- Keep the dimmer pack in a clean air environment: dust is detrimental to electronic insulation and fan life.
- Ventilate dimmer cabinets and dimmer rooms adequately: heat is detrimental to electronic components.
- Use a damp cloth to keep the dimmer pack clean. Do not use solvents, or solvent based pens.
- Touring dimmer packs should travel in a sturdy road case with adequate protection from dust and vibration.
- Use rear support plates on each dimmer pack when touring.
- Take care that all power connections are firmly screwed down when operating the dimmer pack.
- Ensure the dimmer packs are properly earthed to a low impedance earth system.
- Use DMX splitters/reconditioners to ensure a clean DMX signal.
- Terminate the last pack in the DMX line with a 120 ohm resistor for reliable operation.

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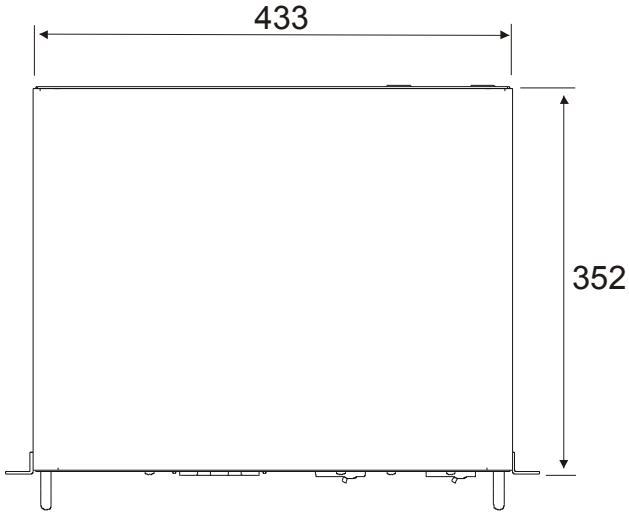
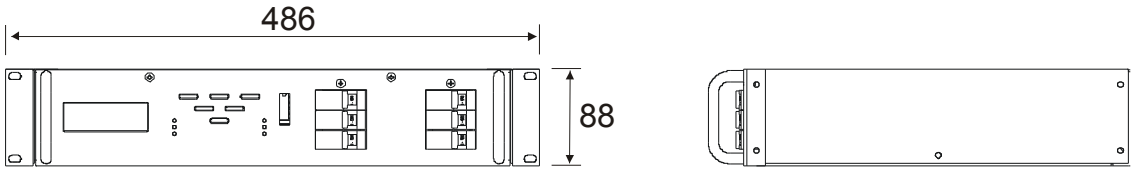
DIMENSIONS





Weight 9 kg

SPECIFICATIONS

CONSTRUCTION

Epoxy powder coat over zinc plated steel case. Legend silk-screened in solvent and abrasion resistant two pot epoxy ink.

FORM

2u high, 19 inch rack wide, with removable mounting wings. Rear support wings are available for touring cabinets.

ELECTRONICS

Flash microprocessor with internal EEPROM for long life storage of all parameters. Digitally controlled, pulse transformer driven SCR dimmers. The internal Switch Mode power supply is rated at 90 vac to 265 vac, 45 to 65 hertz, and uses long-life 105 degree rated capacitors for long life.

LCD DISPLAY

4 line, 20 character display, STN Blue with auto-dimming super-bright white LED backlight.

PUSH BUTTONS

“Alps” brand computer keys with custom moulded keycaps.

MCBs

6KA rated thermal magnetic MCBs provide full overload and short-circuit protection of SCR power devices.

FILTERING

Iron powder toroidal chokes for linear current rise and minimum EMI. Theatrelight can provide filtering to customer standard on request.

COOLING

Long life low voltage speed controlled fan. Fan speed is proportional to temperature.

DMX CONNECTION

USITT DMX-512 1990 Digital multiplex system requiring twin twisted shielded cable approved for RS-422/485 of up to 600 metres. Dimmer refresh rate is every 22 milliseconds. Each Comet presents 1/10th normal RS-485 unit load, allowing reliable DMX operation.

DMX SPLITTERS

DMX-512 splitters can be supplied by Theatrelight for larger installations. The splitter re-shapes and buffers the received DMX and drives a number of isolated DMX transmitters. Splitters may be cascaded. Theatrelight DMX Splitters are available in either 19 inch, 1 U rack mounting configuration, or as a standalone portable version.

POWER SUPPLY

Input: 90 to 265 volts AC, single phase or 3 phase and Neutral, 45 to 65 Hz. The single phase Comet model 610 has a maximum load rating of 10 amps. The 3 phase Comet model 660 has a maximum load of 10 amps on each of the 6 dimmers. Power consumption at no load is less than 5 watts. Reliable operation of SCR dimmer packs requires a low impedance and noise free power supply.

EXTERNAL CONNECTIONS

Terminations: Moving cage terminals, or cable input with socket outputs depending on model and destination country

DMX Control Input: DMX-512 via gold plated 5 Pin XLR In/thru connectors

Diagnostic socket: Front panel socket for programming and diagnostic purposes (Theatrelight technicians only).

GLOSSARY

ADD MODE	Mode in which pressing a channel Flash key adds the channel to the other lighting.
ANALOGUE	A smooth changing voltage (as opposed to digital)
BLACKOUT	All lights out on stage.
BLIND	Not showing on stage.
BO	Blackout; all lights out on stage.-
BPM	Beats per minute: applied to music rhythms.
CHANNEL	One of the controlled output lines from a lighting desk; or a dimmer channel.
CHASE	A repetitive pattern of lighting changes.
CROSS-FADE	A smooth change from one lighting state to another.
CUE	An action or time event which results in new lighting on stage; the lighting state following the cue
DBO	Dead Black-out: no light on stage.
DIMMER	A power controller which changes the brilliance of lights connected to it.
DIPLESS	Applied to a cross-fade where a dimmer up at the same level on both the new and the old lighting states does not change level during the cross-fade.
DMX-512	A method of transmitting dimmer levels digitally over a two wire cable. (Digital MultipleX, 512 dimmers)
EEPROM	Electrically Erasable Programmable Read Only Memory: otherwise know as Flash Memory.
EMI	Electro-Magnetic Interference. Electrical noise.
ERASE	To clear and reset the memory.
FADER	A slider control.
FADE TIME	The time taken to complete a fade from full off to full on.
FLASH KEY	Any key which flashes a channel or scene to Full. Sometimes called Bump keys (USA).
GRAND MASTER	A master fader which controls the final output levels of a lighting desk.
HTP	Highest Takes Precedence: the highest command level is used as the controlling level

KILL	Turn off a light.
KILL MODE	Mode in which pressing a Flash key turns off all other lighting. Sometimes called Solo or Swap mode.
LCD	Liquid Crystal Display
LED	Light Emitting Diode.
LEVEL	The brightness of a channel or dimmer as a number from 0 (off), to 10 (full on), or from 0% to 100%.
LTP	Latest Takes Precedence: the latest command level is used as the controlling level
MASTER	A fader which has overall control of a number of levels or some other major function.
MCB	Miniature Circuit Breaker- a re-settable current protection device.
MIMIC DISPLAY	A display often using Light Emitting Diodes (LEDs).
NON-DIM	A dimmer set to Non-dim acts like a switch: on or off
PRESET	A row of faders representing all the channels in a scene; to set up faders in advance of a cue.
PREVIEW	To view a set of recorded levels without showing on stage.
SCENE	A recording which stores a single set of all channel levels.
SCENEMASTER	A master fader which controls the playback of a scene of recorded levels.
SCR	Silicon Controlled Rectifier. A unidirectional power switch used in dimmers
SEQUENCE	A repetitive pattern of lighting changes.
SHOW	A performance. In Theatrelight control panels, a Scenemaster which stores a sequence of cues.
SOFTSTART	A minimum fade up time programmed into a dimmer to enhance lamp life.
SOLO MODE	Another name for Kill mode.
SNAP FADE	An instant change from one lighting state to another.
STEP	To change from one scene or cue to another. Also, one scene of a Show or Chase.
TRIAC	A bi-directional power switch. Dimmers using triacs should be used with care on inductive loads.
USITT	United States Institute of Theatre Technicians. Arbiters of the DMX-512 standard.

INDEX

Audio LED 5
Chase control 6
Chase direction 15, 27
Chase master level 15, 19, 28
Chase mode 25, 26
Chase pattern 15, 27
Chase profile 15, 28
Chase snap/fade 15, 28
Chase speed 15, 26
Cooling 6
Dimensions 30
Dimmer settings 1, 9
DMX chase mode 15
DMX control 6
DMX dimmer mode 13
DMX fail mode 1, 5, 13
DMX settings 9
DMX start address 5, 13
Fan 5
Features 3
Front panel legend 4
Glossary 33
Introduction 3
Keys 5
Levels display 8, 25
Local control mode 17
Locking keys 1, 11
Maintenance 29
Maximum levels 7, 21
Minimum levels 7, 21
Non-dim settings 7
Reset command 1, *9*, 11, 23
Softstart 7, 23
Soft-start 7
Specifications 31
Temperature LED 5
Test levels 7, 21
Unlocking keys 1, 11