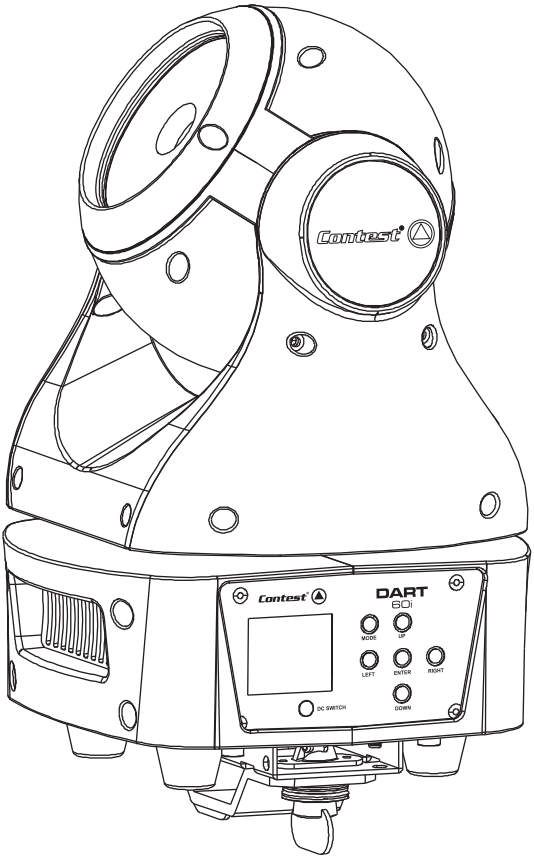
Contest®

60W 4-IN-1 BEAM MOVING HEAD WITH INFINITY MOVE



DART60i

USER GUIDE

10490 - Version 1 / 06-2016

1 - Safety information

Important safety information

This unit is intended for indoor use only. Do not use it in a wet, or extremely cold/hot locations. Failure to follow these safety instructions could result in fire, electric shock, injury, or damage to this product or other property.

Any maintenance procedure must be performed by a CONTEST authorised technical service. Basic cleaning operations must thoroughly follow our safety instructions.

This product contains non-isolated electrical components. Do not undertake any maintenance operation when it is switched on as it may result in electric shock.

Symboles utilisés

Le symbole IMPORTANT signale une recommandation d'utilisation importante.

Le symbole WARNING signale un risque d'atteinte à l'intégrité physique de l'utilisateur et de toute autre personne présente.
Le produit peut de plus être endommagé.

Le symbole CAUTION signale un risque de dégradation du produit.

WARNING: This unit contains no user-serviceable parts. Do not open the housing or attempt any maintenance by yourself. In the unlikely even your unit may require service, please contact your nearest dealer.
In order to avoid any electrical malfunction, please do not use any multi-socket, power cord extension or connecting system without making sure they are perfectly isolated and present no defect.

Warning

This product is equipped with Class 2 LEDs.
Please avoid looking directly at the beam as it may cause severe eye injuries.

Recycling your device

• As HITMUSIC is really involved in the environmental cause, we only commercialise clean, ROHS compliant products.
• When this product reaches its end of life, take it to a collection point designated by local authorities. The separate collection and recycling of your product at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

Instructions and recommendations

1 - Please read carefully :
We strongly recommend to read carefully and understand the safety instructions before attempting to operate this unit.

2 - Please keep this manual :
We strongly recommend to keep this manual with the unit for future reference.

3 - Operate carefully this product :
We strongly recommend to take into consideration every safety instruction.

4 - Follow the instructions:

Please carefully follow each safety instruction to avoid any physical harm or property damage.

5 - Avoid water and wet locations :

Do not use this product in rain, or near washbasins or other wet locations.

6 - Installation :
We strongly encourage you to only use a fixation system or support recommended by the manufacturer or supplied with this product. Carefully follow the installation instructions and use the adequate tools. Always ensure this unit is firmly fixed to avoid vibration and slipping while operating as it may result in physical injury.

7 - Ceiling or wall installation :
Please contact your local dealer before attempting any ceiling or wall installation.

8 - Ventilation :
The cooling vents ensure a safe use of this product, and avoid any overheating risk.
Do not obstruct or cover these vents as it may result in overheating and potential physical injury or product damage. This product should never been operated in a closed non-ventilated area such as a flight case or a rack, unless cooling vents are provided for the purpose.

9 - Heat exposure :

Sustained contact or proximity with warm surfaces may cause overheating and product damages. Please keep this product away from any heat source such as a heaters, amplifiers, hot plates, etc...

10 - Electric power supply :
This product can only be operated according to a very specific voltage. These information are specified on the label located at the rear of the product.

11 - Power cords protection:
Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at lugs, convenience receptacles and the point where they exit from the fixture.

12 - Cleaning precautions :
Unplug the product before attempting any cleaning operation. This product should be cleaned only with accessories recommended by the manufacturer. Use a damp cloth to clean the surface. Do not wash this product.

13 - Long periods of non use :
Disconnect the unit's main power during long periods of non use.

14 - Liquids or objects penetration :
Do not let any object penetrate this product as it may result in electric shock or fire.
Never spill any liquid on this product as it may infiltrate the electronic components and result in electric shock or fire.

15 - This product should be serviced when :
Please contact the qualified service personnel if :
- The power cord or the plug has been damaged.
- Objects have fallen or liquid has been spilled into the appliance.
- The appliance has been exposed to rain or water.
- The product does not appear to operate normally.
- The product has been damaged.

16 - Inspection/maintenance :
Please do not attempt any inspection or maintenance by yourself.
Refer all servicing to qualified personnel.

17 - Operating environment :
Ambient temperature and humidity: +5 - +35°C, relative humidity must be less than 85% (when cooling vents are not obstructed).
Do not operate this product in a non-ventilated, very humid or warm place.

2 - Introduction

Thank you for purchasing the DART60i moving head. You now have in your possession a high-quality, powerful and intelligent device absolutely perfect for parties, animations, live events...

3 - Technical specifications

Light source
- 1x60W RGBW LED
- 4-in-1: Red, Green, Blue, and White within the same source

Colours
- Colour macro
- Colour presets

Effects:
- Adjustable strobe: 1-20 flashes per second, random strobe and pulse effect
- Adjustable dimmer: 0-100%

Control
- Standard DMX-512
- Assignable patch to every channel
- 7 built-in programs accessible from the DMX and customisable
- Built-in musical and auto programs
- Automatic detection of the DMX, slave or master mode
- Colour LCD drop-down menu to choose and assign the different modes
- Battery-operated memory system to address and choose modes without the 230V power supply
- Compatible with RDM for console feedbacks

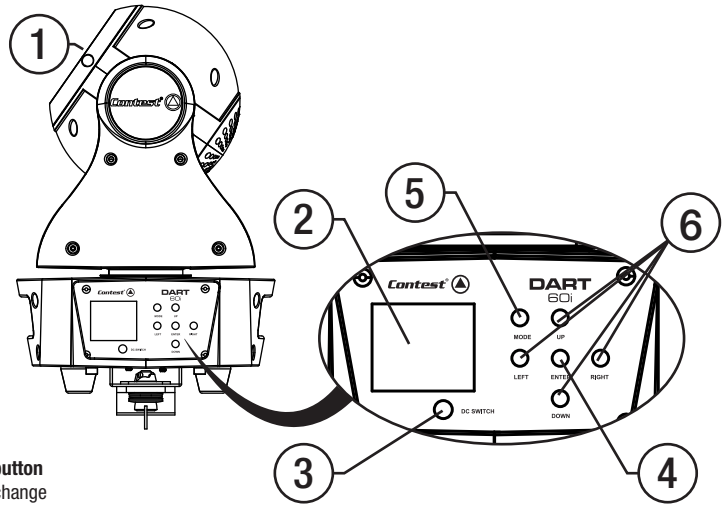
Movements
- 8 or 16 bits Pan and Tilt resolutions
- Ranges: Pan 540 or 630° - Tilt 270°
- Infinite movement allowing a non-stop Pan and Tilt rotation
- Adjustable speed via the DMX
- Position memory and auto-repositioning

Optical
- Beamwidth:
  - 4° original
  - 10° with Flood lens
  - 15° with Frost lens

Additional characteristics
- Power consumption : 80W max.
- Power supply: AC 100/230V - 50/60Hz
- Fixation bracket
- Dimensions: 300 x 170 x 170 mm
- Net weight: 5.2 Kg

NOTE:
The internal software can be upgraded via the DMX port, using a specific tool.
This update can only be performed by a qualified technician.

4 - Description



1 - Bar with lenses

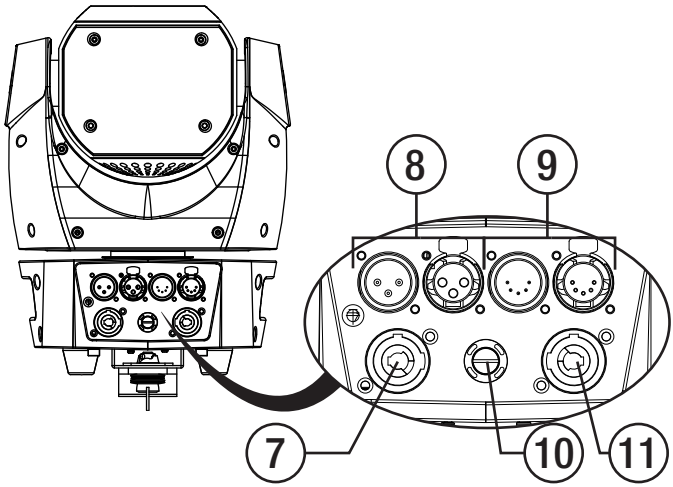
2 - Display
Allows you to visualise menus.

3 - DC SWITCH button
Switches the menu on when the moving head is not plugged in.

4 - ENTER button
Selects functions and saves changes.

5 - MODE button
Allows you to browse through menus.
Allows you to browse through menus and change values.

6 - UP / DOWN / LEFT / RIGHT Navigation button
Allows you to browse through menus and change values.



7 - Power input
Powercon© Neutrik© socket

8 - DMX Inputs via 3-pin/5-pin XLR

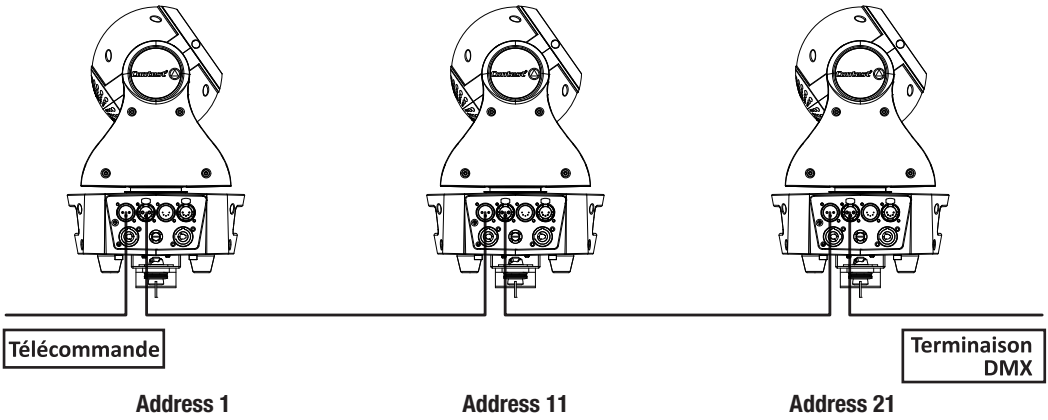
9 - DMX Inputs via 3-pin/5-pin XLR

10 - Fuse
Fuse : T2A - 250V ; 5 x 20 mm

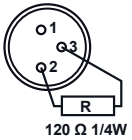
11 - Power output
Powercon© Neutrik© socket

5 - Cabling, addressing and daisy chaining

Connecting the DMX remote control :
Connect the female plug of your XLR cable to your DMX remote control XLR output, then connect your cable male output to the moving head. Daisy chain your moving heads with XLR cables.



Using a DMX line termination :
When long runs of cable are used (more than 100m, you may need to use a terminator on the last unit to avoid erratic behavior. A terminator is a 110-120 ohm 1/4 watt resistor which is connected between pins 2 and 3 of a male XLR connector. This unit is inserted in the female XLR connector of the last unit in your daisy chain to terminate the line.



Addressing the units :
Every unit must have a DMX address in order to respond to DMX signals. The address corresponds to the channel number on which the unit receives an incoming DMX signal sent by the DMX remote control. The DMX addressing can be performed by programming the channel number via the display located on the base of the unit.
You can either assign the same address to your units so they all react to the same signal, or assign a unique address per unit to control them independently.

In the example above, the DART60i uses 15 channels (standard mode).
You must skip 15 channels between each address you assign.
The address of the first unit will be 1, the second unit will be 16 (1+15), the third unit will be 31 (17+16) and so on.

NB : Once switched on, the DART60i automatically detects any incoming DMX signal and the display indicates the unit DMX address. If the unit does not receive any DMX signal, the display will flash. In such a case, please make sure the cable is properly plugged into the DMX input of your moving head, your remote control is switched on and the cables used are not defective.

Daisy chaining :
The POWERCON© input/output system allows you to daisy chain several DART60i units.

Warning: You cannot use the same chain to supply more than 10 DART60i at 220V.
When using a 11th moving head, please use a new power source.

7 - Menus

The DART60i features many menus allowing you to configure its every move and function.
Press **MODE** to access the main menu.
Use the navigation keys to browse through submenus. Then press **ENTER** to access a submenu.
Use the ⇧ and ⇩ navigation keys to change values.
Press **ENTER** to save changes.
Press **MODE** again to leave a submenu.

Notes:
- Values in bold are the default values.
- In order to access menus when the moving head is turned off (thanks to the internal battery), press **DC Switch** and hold for more than 2 seconds. If the buttons are not used and remain inactive for 1 minute, the display will automatically turn off.
- When browsing through menus, values in blue are values currently in use. When entering a new value, it will be written in red until you save changes by pressing **ENTER**.

7.1 FUNCTION

This menu allows you to change the initial DMX address, visualise the channels DMX values and select an operating mode.

Submenus	Lower menus	Values	Description
Address	Set Address	From **A001** to AXXX	Assigns a DMX address. The moving head automatically activates the DMX mode once the DMX address has been configured.
	Slave Set	**Slave 1**, Slave 2, Slave 3	Allows you to determine how the moving head will react when the slave mode is activated.
Program	Auto	**Alone**, Master	Once the Automatic mode is activated, the moving head can operate by itself or as a Master unit.
	Sound	**Alone**, Master	Once the Music-sensitive mode is activated, the moving head can operate by itself (Alone) or as a Master unit (Master).

7.2 INFORMATION

This menu allows you to visualise the moving head running time, its temperature, and the current version of the internal software.

Submenus	Lower menus	Values	Description
Time. Info	Current	XXXX (hours)	Current running time since the unit was last switched on.
	Total Time	XXXX (hours)	Overall running time since the very first time the device was switched on.
	Last Clear	XXXX (hours)	Running time since the last running time reset.
	Timer PIN	PIN = 038	Password allowing you to reset the Last Run Time.
	Clear Last	ON/OFF	Allows you to reset the Last Run Time.
Temp. Info	Head. Temp	XXX °C/°F	Temperature of the projector head (°C).
Software. V	1U01 V1.03 2U01 V1.03 3U01 V1.03 4U01 V1.03		Current version of the internal software.
Model. Info	FLAG25i		Displays the name of your product
Error. Info	Pan, Tilt, ...		Displays function error(s)

7.3 PERSONALITY

This menu allows you to configure the moving head reactions, adjust the ventilation, customise the display and reset all functions to factory settings.

Submenus	Lower menus	Values	Description
Status Setting	Remote. Add	**ON**/OFF	Activates the addressing via a DMX controller function.
	No DMX Status	Close Shutter/**Hold**/Auto Program/ Music Control	Configures the moving head reactions in case of DMX signal interruptions: • **Close Shutter**: The projector blacks out • **Hold**: The projector holds onto the last information received • **Auto Program**: The projector activates the Auto mode via built-in programs • **Music Program**: The projector activates the Music-sensitive mode via built-in programs
	Pan Reverse	ON/**OFF**	Reverses PAN movements.
	Tilt Reverse	ON/**OFF**	Reverses TILT movements.
	Pan Degree	**Pan 540** Pan 630	Determine the PAN movement range : • **Pan540** : 540° rotation (1, 5 turn) • **Pan630** : 630° rotation (1, 75 turn)
	Feedback	**ON**/OFF	The projector sends movement feedbacks
Submenus	**Lower menus**	**Values**	**Description**

7.3 PERSONALITY (continuation and end)

Status Setting (continuation)	Mov. Speed	Speed **1** ~ 4	Determines the AUTO mode movement speed : 1 = fastest ; 4 = slowest
	Mic Sens	0 ~ 99%	Configures the internal mic sensitivity when using the music-sensitive mode
	Stand By	OFF 01m ~99m **(05m)**	Sets a timer for the moving head to enter the sleep mode if no DMX signal has been received. The moving head will automatically resets when a DMX signal is detected again. The default value is 15 minutes.
Fan Set	Head Fan		**- Auto** : La ventilation est régulée automatiquement en fonction de la température de la tête de la lyre. - High : La ventilation est toujours au maximum
	Base Fan		Permet de régler la ventilation de la base sur les valeurs suivantes : **50**, 75 ou 90%
LCD Set	Shutoff time	02 ~60m **(05m)**	Timer after which the display shuts off when it remains inactive.
	Display Reverse	ON/**OFF**	Rotates the display on a 180° angle
	Key Lock	ON/**OFF**	Allows you to lock the keyboard after a 15-second period of inactivity. The keyboard can be unlocked by pressing the Menu button for 3 seconds.
	Disp Flash	ON/**OFF**	The display flashes when no DMX signal is detected.
Temp. C/F	**Celsius** / Fahrenheit		Allows you to choose which unit of temperature will be displayed.
Dim. Curve	• Standard • Stage • TV • Architectural • Theatre		The dimmer gradation speed depends on the mode used. Please refer to chapter 8.2 for more information about this.
Init. Status	Auto Program = XXX PAN = XXX ....etc		Allows you configure the initial state of each function when the projector is switched on.
Default	ON/**OFF**		Resets to factory settings. Please note that user programs will be erased.
ChannelValue	PAN, TILT, ...		Displays the value of each channel

7.4 Reset

This menu allows you to reset the motors step-by-step (e.g. if positioning errors are detected).

Submenus	Description
Reset ALL	Resets all motors.
ResetPanTilt	Resets PAN and TILT motors.

7.5 User Mode Set

This menu allows you to choose one of the preset DMX modes (number of channels used) or edit your own patch (order and number of channels used).
Next chapter will detail more precisely functions assigned to each channel depending on the mode used.

Submenus	Values	Description
User Mode	**Standard**	This default mode uses 19 DMX channels with the most frequently used functions.
	Basic	Uses 10 channels, this is the simplest mode.
	MDOT ST	This mode uses 17 channels, allowing you to separately control each colour of each LED independently
	User A	User Mode A
	User B	User Mode B
	User Mode C	User Mode C
Edit A	Max Channel = XX PAN = CHXX ...etc	User mode A editing : - Max Channel is the number of channels used. - PAN = CHXX is the channel used by the PAN function. When a function is moved to another channel, it will be replaced by the former function using the same channels.
Edit B	Max Channel = XX PAN = CHXX ...etc	Similar
Edit C	Max Channel = XX PAN = CHXX ...etc	Similar

7.6 Edit Program

This menu allows you to select the programs assigned to each of the 3 program groups, edit the 9 built-in programs and edit the 250 scenes forming these programs.
The DART60i can be assigned to 3 different slave groups (via the Slave mode function in the Function menu).
The designated Master unit sends programs containing slave groups information.
Programs are sent in a loop as follows :

Slave units receive every program but only reacts to those assigned to their group.
A unit assigned to the Slave 2 group will only react to the Auto Pro Part 2 program.

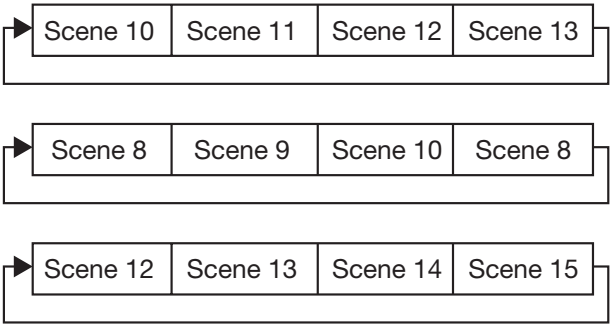
Submenus	Values		Description
Select. Pro	Pro Part1 = Program 1 ~ 10 (**Program 1)** Pro Part2 = Program 1 ~ 10 (**Program 2)** Pro Part3 = Program 1 ~ 10 (**Program 3)**		Allows you to assign one of the 9 internal programs to each Pro Part X
Edit. Pro	Program 1 Program 2 ... Program 10	• Pro Test • Step 01 ~ 64	Allows you to select the scenes assigned to each program. Press ENTER to assign one of the available scenes to each step. A single scene can be assigned to different steps. Assign the **End** scene to the last step of the program to set the end of the program. Use the **Pro Test** submenu to visualise the scenes assigned to the program you are currently editing.
Edit. Sce	Scene 001 Scene 002 .... Scene 250	• Auto Program, PAN, TILT Fine, ... • Scene Time • Fade Time • Input By Outside	This submenu allows you to edit one of the 250 scenes. Select a scene and press ENTER. Sélect each function (PAN, TILT, ...etc) and press ENTER, then assign a value included between 000 and 255 to each function. Then indicate the scene duration (in seconds) and the fade out duration. The Input By Outside function allows you to receive a scene sent by a DMX controller.
Sce. Input	XXX - XXX		This submenu allows you to automatically record a scene sent by a DMX controller. You can store up to 250 scenes. Indicate the number of scenes you want to save, precising the opening and ending scenes. The opening scene selection uses the left and right arrow buttons. The ending scene selection uses the up and down arrow buttons. Press ENTER. The moving head now awaits incoming scenes from the DMX controller.

More details about program groups sequencing and scenes they include:

Example:
Program 2 includes scenes 10, 11, 12 and 13
Program 4 includes scenes 8, 9 and 10
Program 6 includes scenes 12, 13, 14 and 15

Auto Pro Part 1 is assigned to program 2
Auto Pro Part 2 is assigned to program 4
Auto Pro Part 3 is assigned to program 6

The 3 slave groups will run the programs according to the same number of steps as follows:



7.7 Effect Adjust

This menu allows you to test and manually control each function, and recalibrate PAN and TILT movements.

Submenus	Values	Description
Test. Chan	AUTO PAN .... etc	Tests each function individually.
Manual. Ctrl	AUTO = XXX PAN = XXX .... etc	Controls each function manually.
Calibrate	-Password-	Password to unlock calibration = 050
	PAN = XXX TILT = XXX	Allows you to set very precisely the initial PAN and TILT positions (after a reset or when the moving head is turned on).

8 - Dmx channels and their functions

The DART60i moving head includes 3 preset DMX modes :
The Basic mode features 12 channels, the Standard mode features 19 channels and the MDOT ST mode features 17 channels.
The following chart indicates DMX values of each channels.
Note : St = Standard, Ba = Basique et MDOT = MDOT ST.

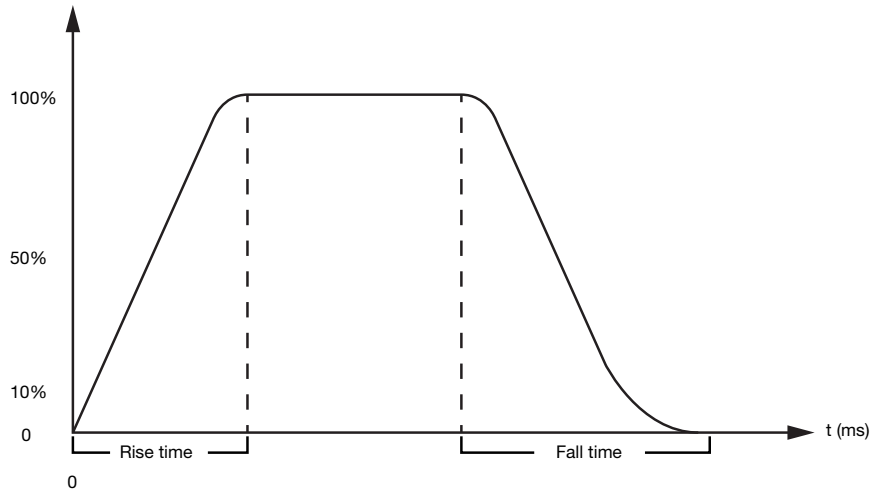
8.1 DMX channels

Modes / Channels			DMX values	Functions and effects
St	Ba	MDOT		
1	1	1	**PAN movement**	
			000 - 255	PAN movement
2		2	**16-bit PAN movement**	
			000 - 255	Very precise PAN movement settings
3	2	3	**TILT movement**	
			000 - 255	TILT movement
4		4	**16-bit TILT movement**	
			000 - 255	Very precise TILT movement settings
5	3	5	**PAN/TILT movements speed and reaction**	
			000 - 225	Fast to slow speed settings
			226 - 235	Black out during movements
			236 - 255	No function, max speed
6	4	6	**Non-stop PAN movement**	
			000 - 127	No function
			128 - 189	Clockwise fast-to-slow rotation
			190 - 193	No rotation
			194 - 255	Counterclockwise slow-to-fast rotation
7	5	7	**Non-stop TILT movement**	
			000 - 127	No function
			128 - 189	Clockwise fast-to-slow rotation
			190 - 193	No rotation
			236 - 255	Counterclockwise slow-to-fast rotation
8	6	12	**Strobe**	
			000 - 031	LEDs éteintes
			032 - 063	Pas de fonction, LEDs allumées
			064 - 095	Strobe de lent vers rapide
			096 - 127	Pas de fonction, LEDs Allumées
			128 - 159	Effet pulse de lent vers rapide
			160 - 191	Pas de fonction, LEDs Allumées
			192 - 223	Strobe aléatoire de lent vers rapide
			224 - 255	Pas de fonction, LEDs Allumées
9	7	13	**Dimmer**	
			000 - 255	Intensity: 0 - 100%
10	8	8	**Red**	
			000 - 255	000 : Black out - 255 : red 100%
11	9	9	**Green**	
			000 - 255	000 : Black out - 255 : green 100%
12	10	10	**Blue**	
			000 - 255	000 : Black out - 255 : bleu 100%
13	11	11	**White**	
			000 - 255	000 : Black out - 255 : blanc 100%

14		14	**Colour macros**	
			000 - 007	No function
			008 - 039	From Red to Yellow
			040 - 071	From Yellow to Green
			072 - 103	From Green to Cyan
			104 - 135	From Cyan to Blue
			136 - 167	From Blue to Magenta
			168 - 199	From Magenta to Red
			200 - 231	From Red to White
			232 - 255	Slow to fast Rainbow effect
15		15	**Preset colours**	
			000-004	No function
			005-009	White 2700°K
			010-014	White 3200°K
			015-019	White 4300°K
			020-024	White 5600°K
			025-029	White 6500°K
			030-034	White 8000°K
			035-039	Yellow
			040-044	Magenta
			045-049	Cyan
			050-054	Salmon
			055-059	Turquoise
			060-064	Light green
			065-069	Steel blue
			070-074	Orange
			075-079	Straw
			080-084	Light lavender
			085-089	Pink
			090-094	Green
			095-099	Red
			100-104	Blue
			105-109	White
			110-114	Rainbow Effect 1
			115-119	Rainbow Effect 2
			120-124	Rainbow Effect 3
			125-129	Rainbow Effect 4
			130-134	Rainbow Effect 5
			135-139	Rainbow Effect 6
			140-144	Rainbow Effect 7
			145-149	Rainbow Effect 8
			150-154	Rainbow Effect 9
			155-159	Rainbow Effect 10
			160-164	Rainbow Effect 11
			165-169	Rainbow Effect 12
			170-174	Rainbow Effect 13
			175-179	Rainbow Effect 14
			180-184	Rainbow Effect 15
			185-189	Rainbow Effect 16
			190-194	Rainbow Effect 17
			195-199	Rainbow Effect 18
			200-255	Rainbow Effect 19

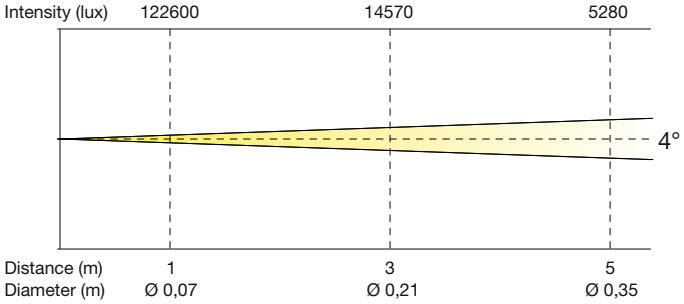
16		16	**Preset colours dimmer**	
			000 - 255	Intensity from 0 to 100%
17		17	**Rainbow effect speed**	
			000 - 255	Slow to fast
18		18	**Transition speed**	
			000 - 255	Fast to slow
19	12	19	**Internal programs and options**	
			000 - 079	No function
			080 - 084	Resets all motors
			085 - 087	Resets PAN and TILT motors
			088 - 099	No function
			100 - 119	Built-in program 1 - Scenes from 1 to 8
			120 - 139	Built-in program 2 - Scenes from 9 to 16
			140 - 159	Built-in program 3 - Scenes from 17 to 24
			160 - 179	Built-in program 4 - Scenes from 25 to 32
			180 - 199	Built-in program 5 - Scenes from 33 to 40
			200 - 219	Built-in program 6 - Scenes from 41 to 48
			220 - 239	Built-in program 7 - Scenes from 49 to 56
			240 - 255	Music-sensitive program - Program 1 scenes

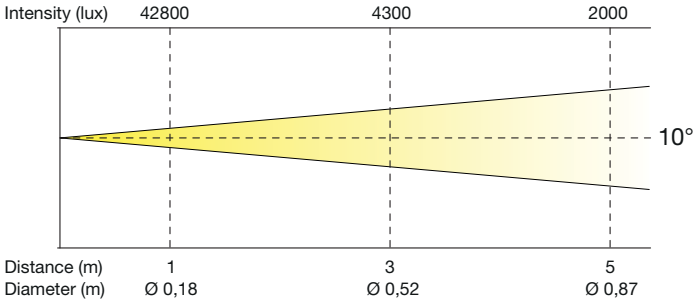
8.2 Different dimmer modes

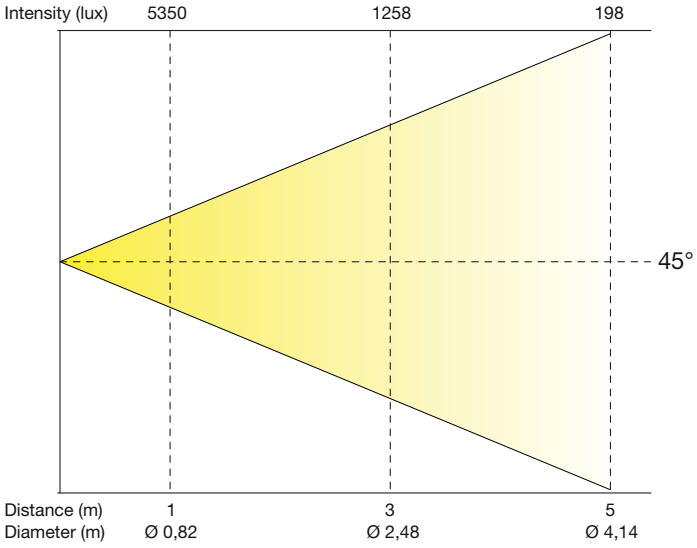


Dimmer modes	From 0 - 255 with a 0 second fading time		From 0 - 255 with a 1 second fading time	
	Rise time in millisecond	Fall time in millisecond	Rise time in millisecond	Fall time in millisecond
Standard	0	0	0	0
Scene	780	1100	1540	1660
Television	1180	1520	1660	1940
Architectural	1380	1730	2040	2120
Theatre	1580	1940	2230	2280

8 - Photometric datas







9 - Error messages

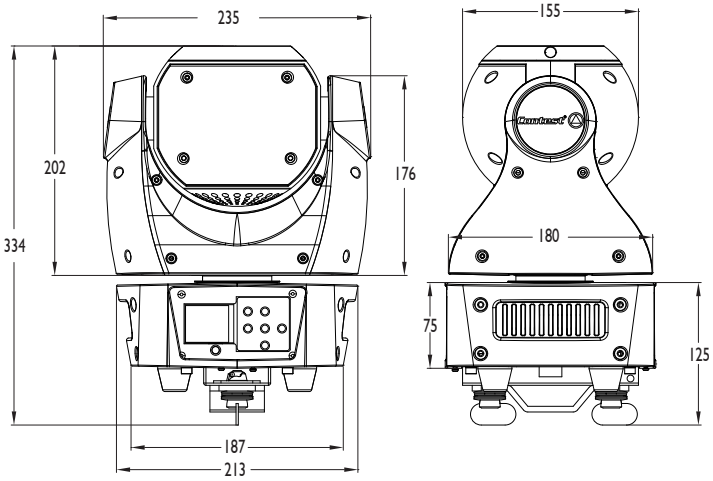
Once switched on the unit will launch an initialisation. The display will indicate «Error channel is XX» if a problem occurs with one or several channels.
The unit will then reset all its motors to their initial positions. The message may keeps appearing after 3 resets, meaning there are more than 3 errors. Channels cannot operate properly in the event of 3 errors or more, if they are less than 3 errors the defective channels will be disabled.

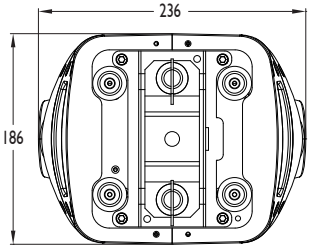
Error channel is 05: PAN movement error (yoke).
This message will appear upon initialisation if the PAN position magnetic sensor of your device is defective.

Error channel is 06: TILT movement error (head).
This message will appear upon initialisation if the TIL position magnetic sensor of your device is defective.

Errors may have various origins. Sensors are used to set the motors in their default position.
Either the magnetic sensors are defective, or the magnets have been displaced.
Problems might also come from a defective motor or the motor electronic management.
In any case, please write down the error displayed and contact your retailer to launch a maintenance procedure.

11 - Dimensions





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