SPOTLIGHT MOV
professional lighting for the performing arts





Automated Remote Control SYSTEM

(universal movement controlled by DMX)

DESCRIPTION

Spotlight have been designing and manufacturing motorized yokes since the early '70ies for the Film industry, TV and Theatres, using industrial components of the highest standards to grant performance and long lifespan.

The ARC Yokes of the Spotlight MOV range are versatile, precise and powerful devices for any type of fixtures, which makes them suitable for the most demanding professional requirements.

The ARC system is DMX-controlled, 8 or **16 bit**.

Absolutele-**Low noise** and a **very high positioning accuracy** make the ARC system the perfect device to add movement and focusing to professional Lighting Fixtures from any brand, Fog Machines, Video or Laser Projectors, Microphones, Antennas and Looudspeakers.

Safety-wise, a clutch-protection system allows the Yoke to be manually moved while power-off with no risk of damage. Same safety and precision is granted in case of unespected blackout or DMX-failure during live shows, to grant maintenace of the last memorized position.

KINEMATIC DATA

Very **high accurate positioning:**

- 0,70° (8 bit)
- 0,01° (16 bit)

Adjustable speed:

- Tilt
  - range: **max 350°**
  - speed: **min 1°/s - max 90°/s**
- Pan
  - range: **max 350°**
  - speed: **min 1°/s - max 90°/s**
- Beam
  - motorized zoom

PLUS

- high precision, especially when used in 16 bit
- ultra-silent when compared to moving heads
- no-reset, no initialization runs after power up
- custom solution for any fixture of any brand (up to 1m wide and 30kg)
- low maintenace needed

When switched on…

…ARC system always keeps the position of the fixture, even if it is **moved manually** with no power; **no-need for initialization reset** after power up thanks to the use of **absolute encoders.**

When the power goes out…

… ARC system maintains its position thanks to its **safety brakes** and memorizes the last position, with no requirement of a reset when switched on again

CONNECTIONS

- DMX connector: **XLR 5-pole In/Out** panel
- Power connector: chassis **PowerCON TRUE1 In/Out**
- Additional cable: 2m H05RN-F cable with powerCON TRUE1 female cable connector

HARDWARE and SOFTWARE

- Aluminium and steel structure with plastic covers
- **IP 20** protection rate
- Two side handles for transportation
- Graphic LCD backlit display
- Firmware upgrade via PC
- Diagnostic
- Remote access through RDM

MOUNTING

Floor or **truss mounting**.

For ceiling mounted installation.

- **1/4-turn fast-lock omega bracket** (provided with the unit).



- **Aliscaf clamp** (optional, on request)
- **Safety chain** (optional, on request)

ELECTRICAL

- Power consumption: 200 W
- Power supply: 100-240 V – 50/60 Hz
- PF>0.94/230VAC PF>0.98/115VAC at full load

PACKAGING

- Green **carton box**
- Size and weight depending on the mounted fixture
- **Flight case** (optional)

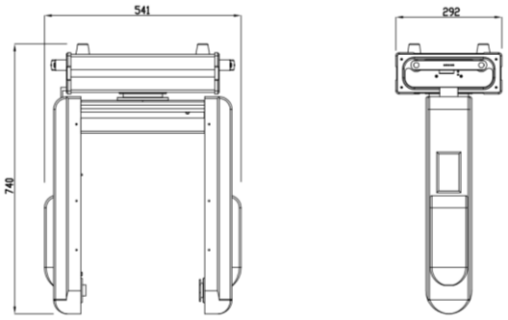
COMPLIANCE

This products complies with the European Directives:

- 2014/30/EU – Electromagnetic Compatibility (**EMC**)
- 2014/35/EU – Low Voltage Directive (**LVD**)
- 2011/65/EU – Restriction of the use of certain hazardous substance (**RoHS**)
- **Manufactured in Italy** with **Quality System ISO 9001:2015**
- Manufactured in accordance with Company's **Environment Sustainability Report** (available on request)

CE

DIMENSIONS



Standard (*for Spotlight PRO – Serie Hyperion*)

	ARC system	Fixture	
	Weight	Weight (max)	SPOTLIGHT PRO
S size	15 Kg	25 kg	100W
M size	20 Kg	30 kg	200W – 300W
L size	25 Kg	35 kg	700W

Custom (*for other products*)

Designed for all products…

Spotlight PRO series:

- Hyperion 100W (size: small)
- Hyperion 200W (size: medium)
- Hyperion 300W (size: medium)
- Hyperion 700W (size: large)
- Cyclorama 300W (size: medium)
- Cyclorama 600W (size: medium)

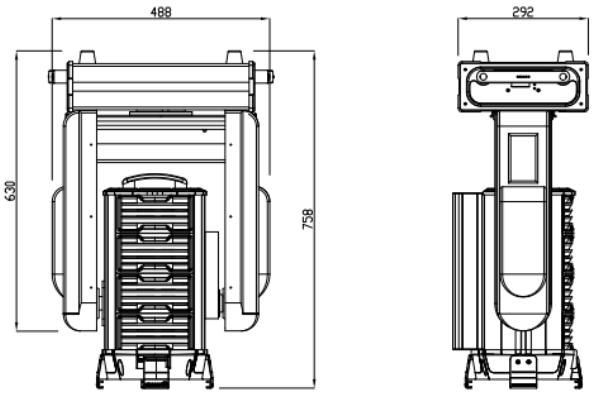
Spotlight ONE:

Alternative ARC Systems applications to:

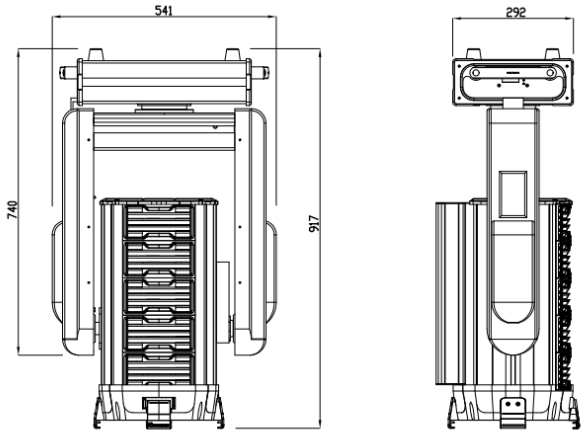
- Video projectors,
- Lasers,
- TV cameras,
- Smoke machines,
- Loudspeakers,
- and much more…

The housing boasts an IP20 rating and is constructed from rugged extruded aluminum: lightweight and highly resistant during tranport and use. Light-weight techno-polymer parts are part of the housing, reinforced with fiberglass. No sharp edges to prevent from injuries while handling. Mechanical strength and rustless material guarantee an extended lifespan, even in high humidity environment. Shockproof finish and antiscratch epoxy resin powder coating in a non-reflective black finish applied with electrostatic technology.

Samples



FN LED 300 (38kg)



FN LED 700 (48kg)

User Manual

UNPACKAGING

Remove the unit from its package and make sure no damage incurred during transport.

In the event of damages, a report or claim shall be issued to the transport agent and the seller to start the repair or replacement process.

ABOUT THE PRODUCT

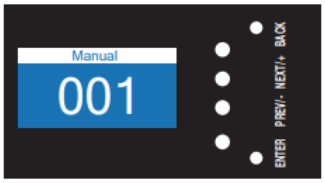
General info

ARC System is designed only for professional use, not for domestic use or handling

A label of the unit' side displays the following information:

- Model part number
- Mains a.c.~ voltage (V)
- Power (W)
- Frequency (Hz)
- Protection rate (IP 20)
- $T_a$max: maximum ambient temperature allowed (°C)
- Tmax: external surface temperature at thermal regime (°C)
- X_m minimum recommended distance between the fixture and the lighted object (m)
- Risk Group 2 **Risk Group 2**, in compliance with EN62471. Do not face directly the light source as it might damage your eyesight.
- **Photo-Biological safety**: do not stare at the light source while functioning
- **Dispose of waste**: in compliance to 2012/19/EU, this fixture shall be disposed according to proper waste-class regulat

Display



When switched on, the installed **software version** is displayed, followed by the **DMX personalities** and **DMX address**.

By pressing the ENTER button you access the SETTINGS.

With the PREV and NEXT buttons you can scroll the items list which in case of value type entries will have the function of increasing (+) or decreasing (-) the values.

The ENTER button allows to access the submenu and change the values which can be confirmed by pressing ENTER or canceled with the BACK button, which can be used also to exit the submenu and go back to the main menu.

Electrical connections

The unit operates at **100-240 Vac - 50/60 Hz**.

Prior to connecting the unit to the mains, ensure that:

- the local mains electricuty supply properties are compatible with those of the product
- the mains line is properly grounded

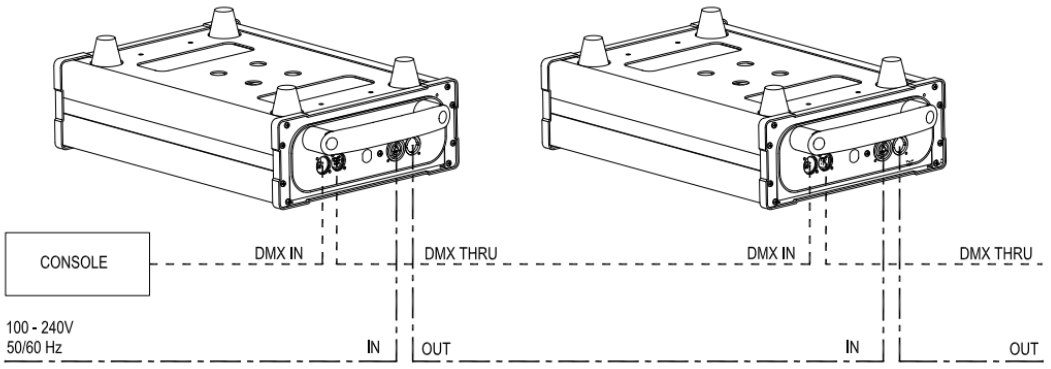
Note: Electrical wiring, plugging and cabling shall be made by professional or qualified technicians.

DMX signal connections

The unit operates using the digital USITT **DMX512** signal, **8 or 16 bit**.

Connection between the consolle and the unit (or between units) must be carried out using a **two-pair screened ø 0.5 mm cable**, and a **XLR 5** (or 3) **pins connector**.
Ensure that the conductors do not touch each other. Do not connect the ground cable to the XLR chassis. The housing of the plug must be isolated.

Connect the consolle to the DMX IN panel connector of the unit; to create a link to the next unit, simply connect the DMX OUT plug of the former to the DMX IN plug of the next unit in line.



INSTALLATION

Do not focus the light beam straight onto somebody's eyes

Spotlight sc will not be responsible for any damage to the unit itself, to other objects or people due to improper installation or use of the fixture either than hereinafter specified.

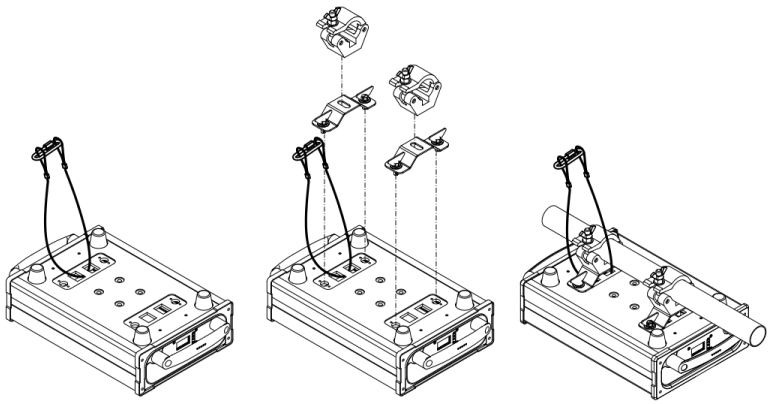
ARC System is foreseen for **indoor** use (IP 20).

It shall be protected from rain and humidity if used under different conditions.

ARC System can be installed on the ground or on truss.

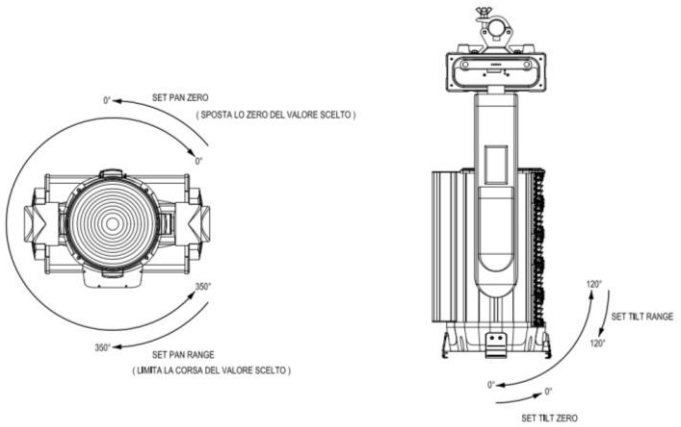
For truss mounted installation. The supporting structure from which the unit is hung should be sufficiently rigid as not to move or shake whilst the fixture is moving. Spotlight recommend the use of appropriate clamps and a suitable safety cable to securely fix the unit to the truss, by using:

- **1/4-turn fast-lock omega bracket** (provided with the unit).
- **aliscaf clamp** (optional, on request)
- **safety chain** approved by a notified body according to IEC 60598-2-17 and capable of bearing at least 10 times the weight of the unit (optional, on request)



SETTINGS

This section lists all the menu functions, highlighting, for each of them, in which group they are present.

		Values	Description
DMX SETTINGS	DMX ADDRESS	001 (default) …	
	DMX PERSONALITY	3ways – 4ch (default) 3ways – 7ch (fine) 2ways – 3ch 3ways – 5ch (fine)	
OPTIONS	PAN DIRECTION	Normal (default) Reverse	To reverse direction of rotation
	TILT DIRECTION	Normal (default) Reverse	To reverse direction of rotation
	ZOOM DIRECTION	Normal (default) Reverse	To reverse direction of rotation
	SET PAN ZERO		To limit the pan/tilt movement in the presence of obstacles or physical limits 
	SET PAN RANGE		
	SET TILT ZERO		
	SET TILT RANGE		
	DISPLAY ROTATION		
	DISPLAY ON/OFF	On (default) Off	
	SPEED MODE	Fast Medium (default) Slow Ultra-Slow	To set the speed of the three parameters
	ACC/DEC MODE	Soft (default) Istant	To set the acceleration of the three parameters
	DEFAULT SET	Enter (to reset) Esc (to exit)	It brings the parameters back to the “original built-in settings” as they came out from Factory
	FACTORY SETTINGS		*Not for final users* Password-protected menu, used by Spotlight Tech. Dept to apply special settings. These parameters do NOT affect the “default settings”
INFO	BOARD INFO	Valim: 48.0V Tbrd1: °C Tbrd2: °C	Tensione di alimentazione Temperatura board 1 Temperatura board 2
	DEBUG INFO 1	TGT Pxxx.x Txxx.x EST Pxxx.x Txxx.x ENC Pxxx.x Txxx.x	
	DEBUG INFO 2	NXT Pxxx.x Txxx.x EST Pxxx.x Txxx.x ENC Pxxx.x Txxx.x	
	PAN TIME	hr - min	
	TILT TIME	hr - min	
	ZOOM TIME	hr - min	
	UNIT TIME	hr - min	
	SOFTWARE VERSION	v. xxx Release date	

DMX PERSONALITIES

The following sections present the **DMX personalities**, also called **DMX charts**, available to allow the lighting designer to choose which mode to operate the fixture based on the parameters he decides to control and the number of channels available on the console he is using.

2 WAYS

8 bit	2 ways - 3CH		
	Function	DMX value	Description
1 ch	PAN	0..255	from min position (0) to max position (255)
2 ch	TILT	0..255	from min position (0) to max position (255)
3 ch	SERVICE	0..255	See related table

16 bit	2 ways - 5CH		
	Function	DMX value	Description
1 ch	PAN	0..255	from min position (0) to max position (255)
2 ch	PAN FINE	0..255	from min position (0) to max position (255)
3 ch	TILT	0..255	from min position (0) to max position (255)
4 ch	TILT FINE	0..255	from min position (0) to max position (255)
5 ch	SERVICE	0..255	See related table

3 WAYS

16 bit	3 ways - 7CH		
	Function	DMX value	Description
1 ch	PAN	0..255	from min position (0) to max position (255)
2 ch	PAN FINE	0..255	from min position (0) to max position (255)
3 ch	TILT	0..255	from min position (0) to max position (255)
4 ch	TILT FINE	0..255	from min position (0) to max position (255)
5 ch	ZOOM	0..255	from min position (0) to max position (255)
6 ch	ZOOM FINE	0..255	from min position (0) to max position (255)
7 ch	SERVICE	0..255	See related table

8 bit	3 ways - 4CH		
	Function	DMX value	Description
1 ch	PAN	0..255	from min position (0) to max position (255)
2 ch	TILT	0..255	from min position (0) to max position (255)
3 ch	ZOOM	0..255	from min position (0) to max position (255)
4 ch	SERVICE	0..255	See related table

SERVICE *(hold for 5 seconds to activate)*	0..9	OFF
	10..19	PAN DIRECTION NORMAL
	20..29	PAN DIRECTION REVERSE
	30..39	TILT DIRECTION NORMAL
	40..49	TILT DIRECTION REVERSE
	50..59	ZOOM DIRECTION NORMAL
	60..69	ZOOM DIRECTION REVERSE
	70..79	DISPLAY STANDARD
	80..89	DISPLAY ROTATED
	90..99	DISPLAY ON
	100..109	DISPLAY OFF
	110..119	SPEED MODE ULTRA-SLOW
	120..129	SPEED MODE SLOW
	130..139	SPEED MODE MEDIUM
	140..149	SPEED MODE FAST
	150..149	ACC/DEC SOFT
	160..169	ACC/DEC ISTANT
	170..179	PAN RESET
	180..189	TILT RESET
	190..199	ZOOM RESET
	200..255	INACTIVE

REMOTE ACCESS THROUGH RDM (Remote Device Management)

All the ARC Systems are designed to be used in different operating modes: via DMX or through RDM (Remote Device Management).

This section shows the values that can be queried remotely through the RDM console.

Plasa/ESTA Denomination	Number of Channels
DEVICE_INFO	- RDM protocol version - Device Model ID - Product category - Software version - Number of DMX channels - DMX mode - DMX address - Number of sub-devices - Number of sensors
IDENTIFY_DEVICE	LED power on - allowing fixture identification
DMX_START_ADDRESS	DMX address setting/reading
SOFTWARE_VERSION_LABEL	Text description version sw
SUPPORTED_PARAMETERS	List of supported parameters
DMX_PERSONALITY	DMX mode setting
DMX_PERSONALITY_DESCRIPTION	Obtaining textual description of DMX mode
DEVICE_MODEL_DESCRIPTION	Text description of the device model
MANUFACTURER_LABEL	Text description manufacturer
SENSOR_DEFINITION SENSOR_VALUE	Display of the values read by the temperature sensor, expressed in tenths of Celsius degree

DIAGNOSTIC

Error message	What does it mean?
BOARD1 NTC SENSOR	Segnale di errore se la temperatura rilevata esce da questo range: -25°C < T < 135°C Errore rientrante. Durata condizione di errore: 1 sec
BOARD1 NTC OVERTEMPERATURE	Segnale di errore se la temperatura rilevata supera i 95°C Errore rientrante. Durata condizione di errore: 1 sec
BOARD2 NTC SENSOR	Segnale di errore se la temperatura rilevata esce da questo range: -25°C < T < 135°C Errore rientrante. Durata condizione di errore: 1 sec
BOARD2 NTC OVERTEMPERATURE	Segnale di errore se la temperatura rilevata supera i 95°C Errore rientrante. Durata condizione di errore: 1 sec
LOW SUPPLY VOLTAGE	The measured main voltage is below the threshold (44 V_{dc}) Errore rientrante. Durata condizione di errore: 10 sec
HIGH SUPPLY VOLTAGE	The measured main voltage is over the threshold (52 V_{dc}) Errore rientrante. Durata condizione di errore: 10 sec
EMERGENCY BRAKE UNDERVOLTAGE	The measured main voltage is over the threshold (52 V_{dc}) Errore rientrante. Durata condizione di errore: 10 sec
ZOOM RESET	Indica che il motore zoom è in movimento durante la fase di reset
TILT ENCODER INVALID	Errata lettura del segnale encoder tilt
PAN ENCODER INVALID	Errata lettura del segnale encoder pan
TILT ENCODER MISMATCH	Errata posizione attesa del tilt rispetto a quella reale
PAN ENCODER MISMATCH	Errata posizione attesa del pan rispetto a quella reale

FIRMWARE UPDATING

In order to update the latest firmware release, you will need:

- Spotlight firmware uploader **dongle** (on request)
- **Spotlight upgrade Utility** program installed on PC (Windows OS)
- Latest **firmware release** available for ARC System

To perform the update, please follow the procedure as described below:

1. connect the dongle to a spare USB port on the PC
2. connect the unit's DMX IN to the dongle's DMX OUT with a standard DMX cable and turn on the unit
3. send the new firmware release into the unit by using **Spotlight upgrade Utility** program

At the end of the procedure, reset the unit.

MAINTENANCE

Do not open the unit before disconnecting from the mains: an electrical shock might occur. A complete inspection shall be made once a year to check the electrical and mechanical parts' integrity and the software upgrades. Repairs shall be made by the manufacturer only or its appointed after-sale service center.

Mechanical parts

Periodically check all mechanical parts, geras, guides, belts,... for wear and tear (replace them where necessary).

Periodically check the lubrification of all componenets, particularly he parts subjected to high temperatures. If necessary, apply suitable lubrification where needed.

Periodically check the tension of the belts and adjust them where necessary.

Electrical components

Check all electrical components for correct earthing and proper connection of all connectors (refasten where necessary).

Optical parts

Clean the optics periodically with a soft cloth and a mild cleaning solution.