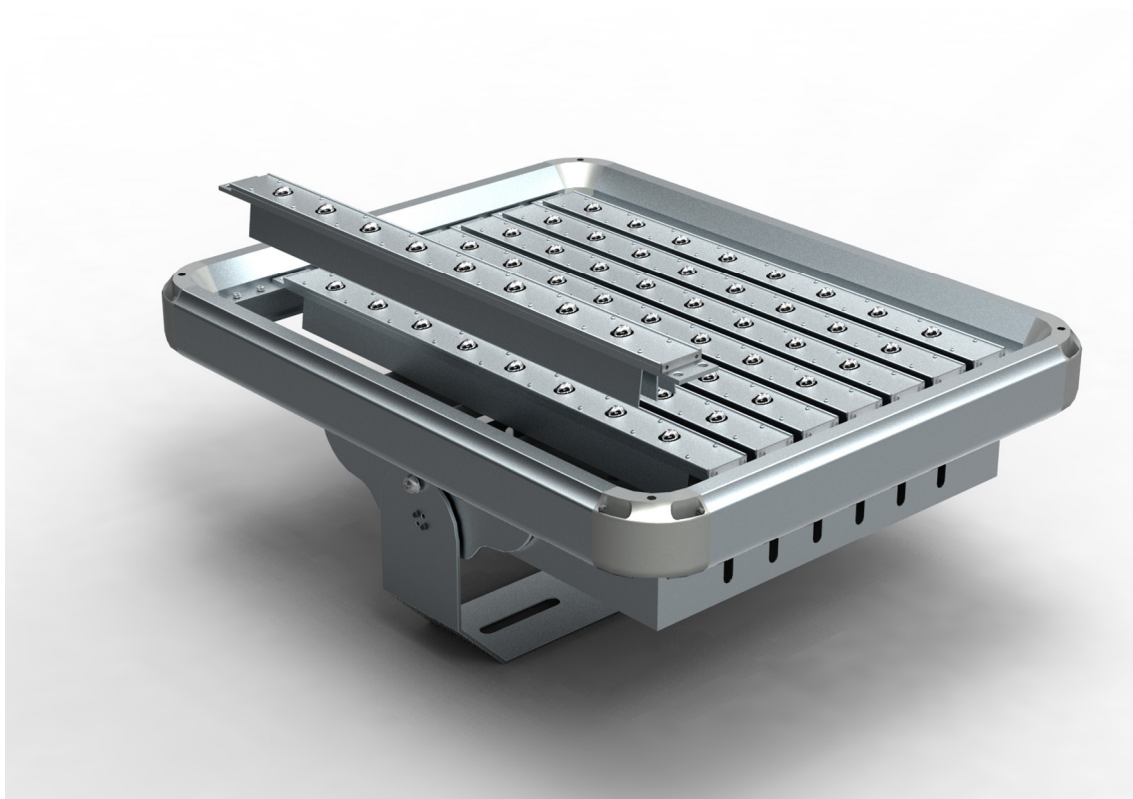


# INSTALLATION INSTRUCTIONS

## LR-HPFM SERIES MODULAR LED LUMINAIRES

**HIGH EFFICACY MODULAR LED LUMINAIRE FOR EXTERIOR & INTERIOR APPLICATIONS.**

**HARSH APPLICATION CAPABLE IN TUNNELS, TEST CHAMBERS, MINING, RAIL YARDS, HEAVY INDUSTRY, SALT AIR, HIGH VIBRATION ENVIRONMENTS AND CHEMICAL PLANTS.**



**IMPORTANT: READ CAREFULLY BEFORE INSTALLING LUMINAIRE.  
RETAIN FOR FUTURE REFERENCE.**

**FOR TECHNICAL ASSISTANCE PLEASE CALL LEDRAYS AT 514 484-8462  
[info@ledrays.com](mailto:info@ledrays.com)**

# INSTALLATION INSTRUCTIONS

## LR-HPFM SERIES MODULAR LED LUMINAIRES

### FEATURES:

ULTRA HIGH ELECTRICAL EFFICIENCY  
EFFICACY UP TO 120LM/W  
LOW HEAT, NO UV, IR  
PRECISE OPTICAL CONTROL (DIRECT LENSING WITH NO REFLECTORS)  
ADAPTABLE TO LIGHTING MANAGEMENT SYSTEMS  
VIBRATION & SHOCK RESISTANT  
FULLY SEALED AGAINST FLUIDS, ENVIRONMENTAL & ATMOSPHERIC POLLUTANTS (SODIUM CHLORIDE, SULPHUR, HYDROCARBONS, OZONE, FUELS, OILS, ORGANIC COMPOUNDS, ETC...)  
GALVANIC CONTROL  
FULLY ELECTRICALLY ISOLATED DRIVER WITH 5 WAY PROTECTION  
POWER QUALITY WITH HIGH PF & LOW THD  
VERY LOW MAINTENANCE REQUIREMENTS



### PRECAUTIONS

- Verify shipped contents please do not proceed with the installation if any damage is found.
- Verify that the correct mounts, accessories, parts & hardware are available prior to starting work.
- All work should be done by a qualified electrician in accordance with the National Electrical Code, applicable local codes and ordinances. Always check with the Authority Having Jurisdiction (AHJ) to confirm acceptable procedures.
- Confirm the operating voltage of your system with the label on the luminaire. Unless otherwise stated the standard input voltage range is **AC100-277V**
- Do not operate in extreme heat or high humidity environments (Operating temperature range between **-40°C and +45°C/-40°F and +113°F** in wet, damp & dry applications IP65-68 rating)
- Do not modify or operate with dimmers or other non approved control circuits unless the luminaire is equipped with that option.
- This luminaire is designed to operate in a free air environment any immediate enclosed space will reduce its lifespan and may void the warranty. Do not operate luminaire in packing carton.
- Power must be off during the installation.
- Turn off the breakers for the circuit and affix a warning label before proceeding.
- Please use supplied original packing for protection when transporting luminaire.

**HPFM LUMINAIRES CONTAIN NO USER SERVICEABLE PARTS INSIDE  
AND NO FIELD REPLACEABLE PARTS.**

# INSTALLATION INSTRUCTIONS

## LR-HPFM SERIES MODULAR LED LUMINAIRES

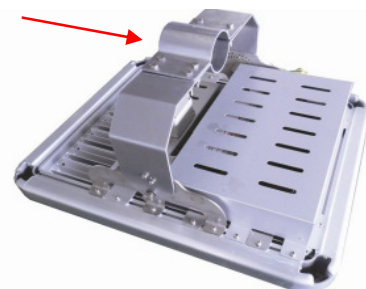
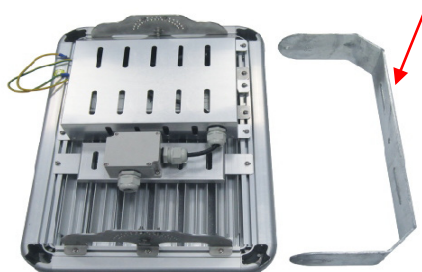
### STEP 1:

Identify the contents of package.

Verify that the correct mount is included as ordered as well as the bolts for locking the bracket to the luminaire.

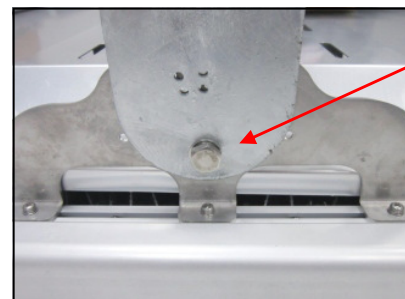
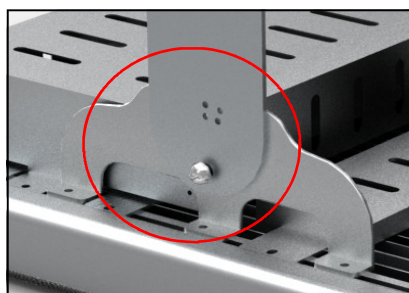
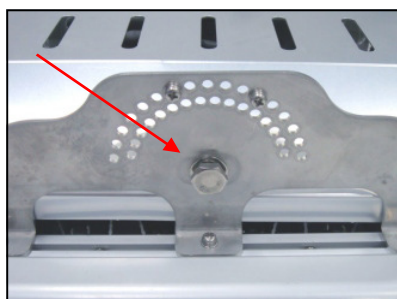
(Total 2 x M8 and 4 x M4 bolts with spring washers and nuts)

Standard mount is trunnion. (Various slipfitter, yoke and custom mount are available please check with your local dealer) For pole mounting please confirm the EPA load is acceptable for the application.



### STEP 2:

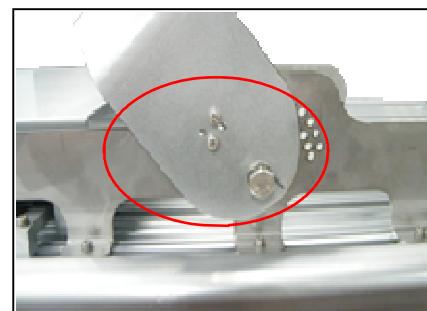
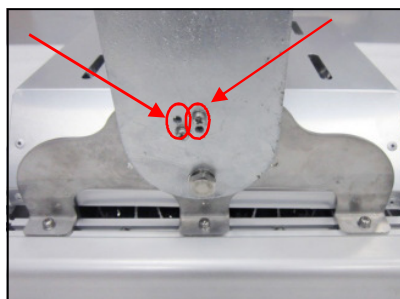
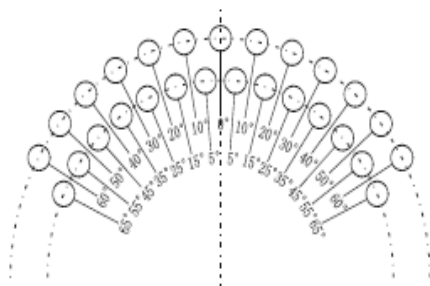
Remove the two M8 x 18 bolts, spring washers and nuts located on each bracket support. These are located below the multi-angle arc adjustment section. Slide bracket into position. Re-insert the M8 x 18 bolts, spring washers and nuts. Hand tighten only.



### STEP 3:

Select the most suitable bracket angle position for the application. Move the bracket along the bracket support to align it with the adjustment slots. Two parallel arcs of slots provide for up to  $\pm 65$  degrees of adjustment from the 0 degree centerline. Each arc slot provides for 5 degree of adjustment. Use the four provided M4 x 12 bolts, spring washers and nuts to secure the bracket into position. Use one M4 x 12 bolt per arc. Please see image below.

Tighten the four M4 x 12 bolts to 40ft/lbs or 60 Nm. The two M8 x 18 bracket support bolts can now be torqued to a max of 55-65 ft/lbs or 75-88 Nm. Please note if any hardware is lost or missing please replace with 304 or 316ss fasteners.



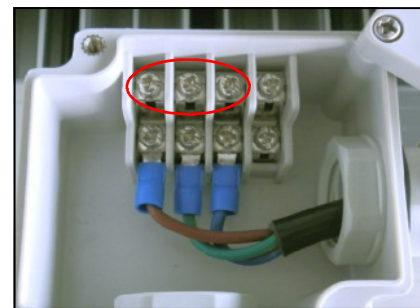
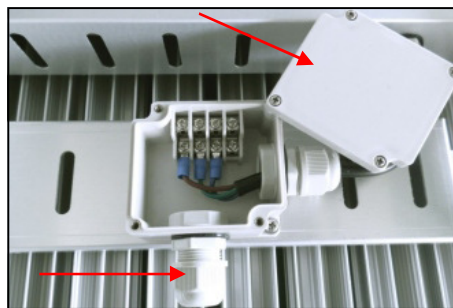
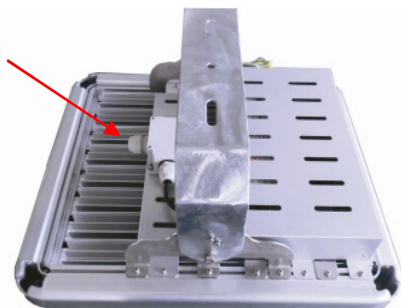
# INSTALLATION INSTRUCTIONS

## LR-HPFM SERIES MODULAR LED LUMINAIRES

### STEP 4:

Open the four stainless screws holding the top cover of PVC junction box mounted at the rear of the housing. Loosen the locking sealing cable gland. Insert a suitable (ex: SJOOW) multi strand copper cable terminated with crimped spade or ring terminals through the sealing gland. Use the appropriate cable gauge for the application, cable gland size, current handling requirements (including inrush) and for the worst case environmental conditions. Install a cable protective sheath if used in Damp & Wet environments.

Partially unscrew the three barrier strip terminals on top of the three terminals securing the driver input conductors. Slide the line/hot (Black or Brown) conductor with terminals under the terminal holding plate and screw down the terminal. The line/hot input conductor is connected via the barrier terminal to the line/hot of the driver (Black or Brown). Follow the same procedure by securing the common/neutral conductor to the terminal corresponding to the White or Blue conductor and the ground conductor to the Green, Yellow or Green stripped conductor. Secure the sealing cable gland so the input cable is secured and close the junction box cover making sure the seal ring on the cover is intact. (Do not over tighten junction box screws)



### STEP 5:

Use proper fasteners to secure luminaire to structure. Luminaire position must take into account desired light beam projection, required luminous intensity, coverage, obstructions, serviceability, snow/ice & wind loading and sun exposure. The heatsink fins should be maintained with the slots in a vertical position to optimize thermal capability, to facilitate drainage and limit debris accumulation. In normal operation heat flows from the front to the rear of the housing.

Wire the open end of the input cable to the junction box and electrical circuit via a waterproof cable gland. This can be installed either directly or through a protective sheath if used in Damp & Wet locations. Provide a drip loop and protect against cable abrasion.

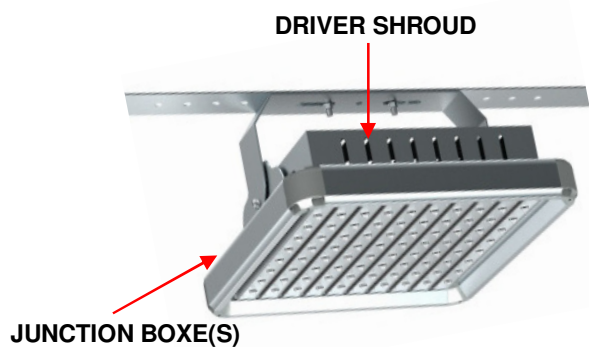
# INSTALLATION INSTRUCTIONS

## LR-HPFM SERIES MODULAR LED LUMINAIRES

### MOUNTING POSITION

HPFM luminaires can be mounted in any position including ceiling, wall, pole and at any projection angle. When luminaire is mounted vertically verify that luminaire junction box(es) are positioned below the driver shroud.

However be aware that a horizontal position with the light beam fully vertical (facing up) will lower the fixture's thermal efficiency and reduce the product lifespan. This luminaire position is not recommended and may void your warranty



### ELECTRICAL

Professional electrical installation is required for the HPFM luminaires. Use only approved equipment and accessories.

**ALL WORK SHOULD BE DONE BY A QUALIFIED ELECTRICIAN IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, APPLICABLE LOCAL CODES AND ORDINANCES. ALWAYS CHECK WITH THE AUTHORITY HAVING JURISDICTION (AHJ) TO CONFIRM ACCEPTABLE PROCEDURES.**

Use the appropriate cable gauge for the application, current handling requirements (including inrush) and for the worst case environmental conditions. An approved cable protective sheath must be used when HPFM luminaires are used in Damp & Wet environments. All connections must be watertight when HPFM luminaires are used in Damp & Wet environments.

WIRING COLOR CODES			
WIRING TO MAINS	HPFM TYPE		
	A	B	C
LINE	BLACK	BROWN	RED
NEUTRAL	WHITE	BLUE	BLACK
GROUND	GREEN	YELLOW OR YELLOW/GREEN	YELLOW



# INSTALLATION INSTRUCTIONS

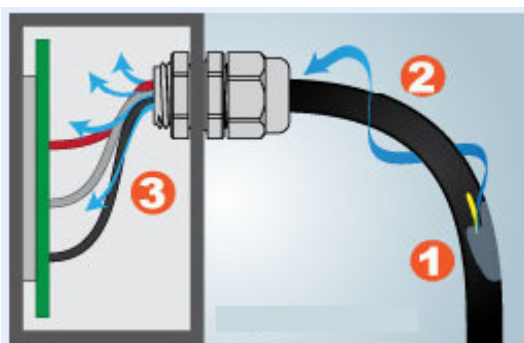
## LR-HPFM SERIES MODULAR LED LUMINAIRES



### PRECAUTIONS

#### HOW MICRO CRACKS CAN CAUSE MAJOR PROBLEMS

WICKING is one of the most common causes for electrical devices to fail when operating in moist environments. Often confused with just a crack in the outer casing or leakage into the housing of a machine, this simple yet complex phenomenon can mean the difference between long term reliability and short term failures and frequent servicing.



#### WHAT IS WICKING?

Wicking is caused by moisture entering a crack in the outer jacket of a cable (common with age, stress and temperature variations) or through the wire strands.

Wicking is most common when the equipment and wires cool down after operation. Any air that expanded with heat now condenses and creates a vacuum. Much like an oil lamp or pocket lighter draws fuel from a reservoir, this vacuum causes moisture to be pulled up through the strands of

wire into the housing or assembly causing rapid failure.

#### UL LOCATION RATING:

**UL Dry Rating:** A fixture with a UL Dry Rating may be used in any area, usually indoors, which is not directly exposed to excessive moisture and water. Any fixture with a UL label that is not explicitly rated for wet or damp applications should be considered a UL dry location fixture.

**UL Damp Rating:** A fixture with a UL Damp Rating may be used in sheltered outdoor areas that are protected from direct contact with rain, snow, or excessive moisture (such as ocean spray).

**UL Wet Rating:** A fixture with a UL Wet Rating is suitable for outdoor locations that receive direct contact with rain, snow or excessive moisture (such as fog or ocean spray).

**IT IS THE RESPONSIBILITY OF THE INSTALLER TO VERIFY THAT JUNCTION BOX SEALS AND ALL CABLE GLANDS SEALS BOTH TO JUNCTIONS BOXES AND DRIVER SHROUD ARE PROPERLY TIGHTENED TO PROVIDE A WATERPROOF CONNECTION.**

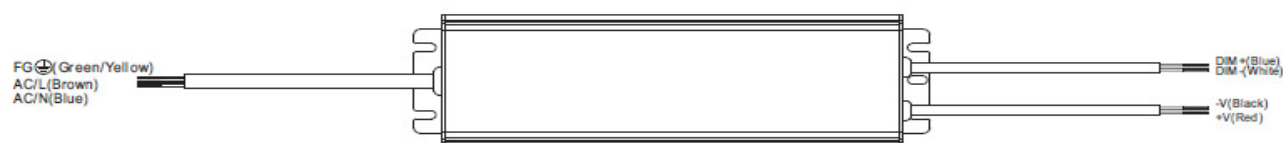
**HPFM LUMINAIRE ARE NOT DESIGNED TO ACCOMMODATE CONTINUOUS WATER EXPOSURE, ICE DAMS OR HIGH PRESSURE JETS.**

**PLEASE REFER TO LEDRAYS WARRANTY STATEMENT FOR MORE INFORMATION**

# INSTALLATION INSTRUCTIONS

## LR-HPFM SERIES MODULAR LED LUMINAIRES

### ■ DIMMING OPERATION (for B-type only)



※ Built-in 3 in 1 dimming function, IP67 rated. Output constant current level can be adjusted through output cable by connecting a resistance or 1 ~ 10Vdc or 10V PWM signal between DIM+ and DIM-.

※ Please DO NOT connect "DIM-" to "-V".

※ Reference resistance value for output current adjustment (Typical)

Resistance value	10K $\Omega$	20K $\Omega$	30K $\Omega$	40K $\Omega$	50K $\Omega$	60K $\Omega$	70K $\Omega$	80K $\Omega$	90K $\Omega$	100K $\Omega$	OPEN
Percentage of rated current	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

※ 1 ~ 10V dimming function for output current adjustment (Typical)

Dimming value	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
Percentage of rated current	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

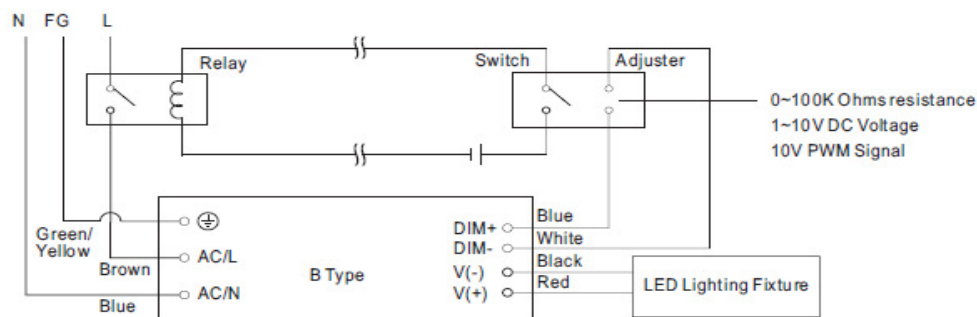
※ 10V PWM signal for output current adjustment (Typical): Frequency range :100Hz ~ 3KHz

Duty value	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN
Percentage of rated current	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

※ Using the built-in dimming function on B-type model can't turn the lighting fixture totally dark. Please refer to the connection method below to achieve 0% brightness of the lighting fixture connecting to the LED power supply unit.

※ Direct connecting to LEDs is suggested, but is not suitable for using additional drivers.

Dimming connection diagram for turning the lighting fixture ON/OFF :



Using a switch and relay can turn ON/OFF the lighting fixture.

1. Output constant current level can be adjusted through output cable by connecting a resistance or 1~10Vdc or 10V PWM signal between DIM+ and DIM-.

2. The LED lighting fixture can be turned ON/OFF by the switch.

The dimming input conductor is shipped as a flying lead by default.

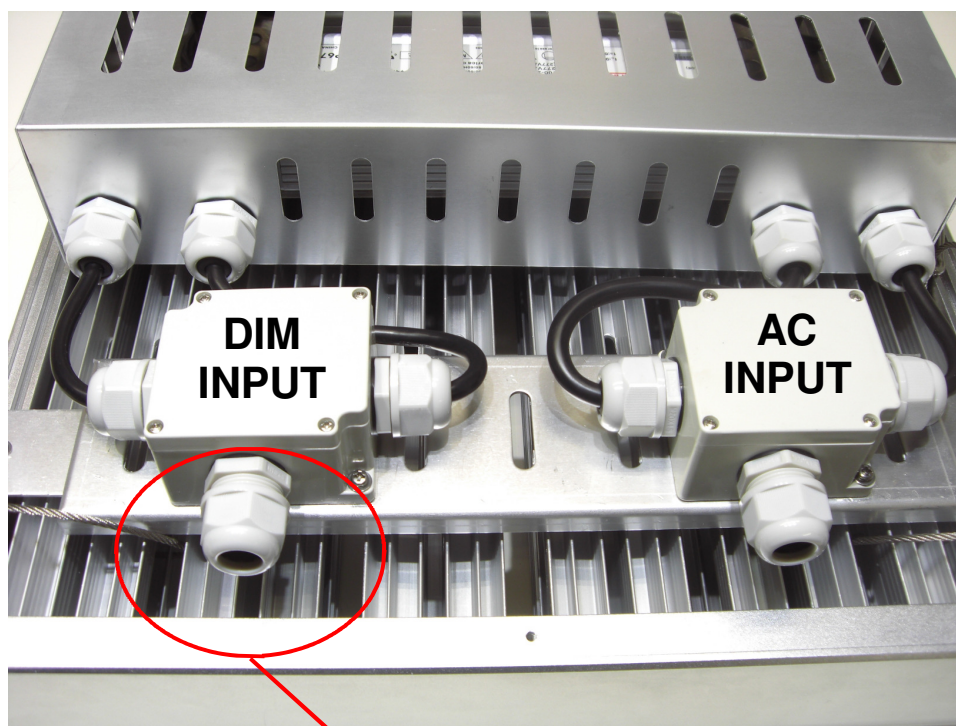
# INSTALLATION INSTRUCTIONS

## LR-HPFM SERIES MODULAR LED LUMINAIRES



**WARNING FOR DIMMING (B TYPE )**

**REAR OF UNIT  
HPFM300W SHOWN**



**DIMMING INPUT JUNCTION BOX WITH SCREW TERMINALS.**

**DO NOT OPERATE WITH HIGH VOLTAGE AC LINE INPUT.**

**FOR LOW VOLTAGE DIM INPUTS ONLY!**



### GENERAL SPECIFICATIONS

Optical Parameters		Electrical Parameters	
LED Chip Brand	Nichia NVSW219	Input Voltage	AC 100~277V
LED Chip Type	1~5W Single Chip	Power Frequency	47~63Hz
LED Chip Quantity	20-150+	Output Voltage	DC 24~56V
Color Temperature	2900~6500K	Output Current	1.4 ~ 6.0A (Constant Current)
Fixture Efficiency	≥90%	Total Power Consumption	53W ~ 316W±5W
Light Efficiency	95-115lm/W	LED Power Consumption	45 ~ 288W±5W
Luminous Flux	4040~34500lm	Power Efficiency	85 ~ 92%
Color Rendering Index	≥75-85	Power Factor	≥0.95
Beam Angle	H60/V90° or H85/V150	Total Harmonic Distortion	≤15%
Other			
Heat Sink Surface Temperature	43°C ~ 46°C (Ambient Temperature 30°C)	L70	≥60000Hrs
Luminaire Base Temperature	47°C ~ 49°C (Ambient Temperature 30°C)	Fixture Material	Aluminum Alloy + PC Lens
Operating Temperature (Ambient)	-40~+55°C	IP Level	IP65-IP68
Operating Humidity	15 ~ 90%RH	Dim option	PWM, 0-10V & resistance

PLEASE NOTE UNLESS OTHERWISE STATED THE HPFM SERIES LUMINAIRES SHIP WITH A IP65 RATING.

ONLY THE PROVISION OF SEALING CONNECTORS (DEUTSCH) ON EACH LED MODULE CONFIRMS AN IP68 RATING.

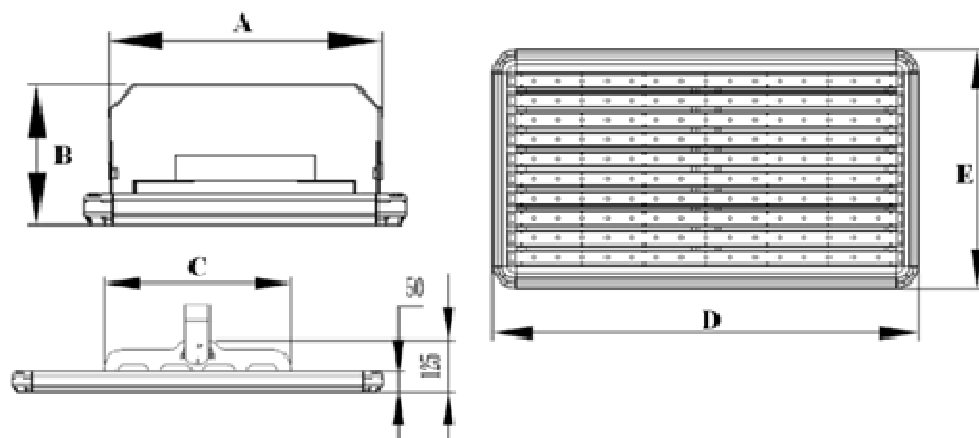
THE HPFM SERIES LUMINAIRES FEATURE FULLY SEALED AND ELECTRICALLY ISOLATED DRIVERS.

EITHER THE LUMINAIRE JUNCTION BOX GROUND TERMINAL OR HOUSING GROUND CABLE PROVISIONS  
CAN BE USED AS GROUNDING.

AUTO RESETTABLE ELECTRONIC FUSING IS PROVIDED WITH THE DRIVER. IN CASE OF FAULT CYCLE POWER TO THE LUMINAIRE.

# INSTALLATION INSTRUCTIONS

## LR-HPFM SERIES MODULAR LED LUMINAIRES



	40W	60W	90W	120W	150W	300W
A (mm)	339	339	440	440	440	428
B (mm)	191	191	191	191	191	221
C (mm)	142	228	120	220	220	450
D (mm)	418	418	520	520	520	900
E (mm)	256	340	340	424	508	508
Weight	4.3±0.5Kg	5.5±0.5Kg	5.9±0.5Kg	8.2±0.5Kg	10.2±0.5Kg	14.8±0.5Kg

**HPFM LUMINAIRES CONTAIN NO USER SERVICEABLE PARTS INSIDE AND NO FIELD REPLACEABLE PARTS.  
DRIVERS AND LED MODULES ARE REPLACEABLE BY AUTHORIZED FACTORY TECHNICIANS.**

**For service please contact [info@lumia-agency.com](mailto:info@lumia-agency.com)**