GMR ENLIGHTS

HIBRAPLUSmodulecombining

The pictures shown are for illustrative purposes only. For shape, material and color specifications refer to internal descriptions.

Hibra plus module combining

Technical data

GMR ENLIGHTS

rev. 2022.02

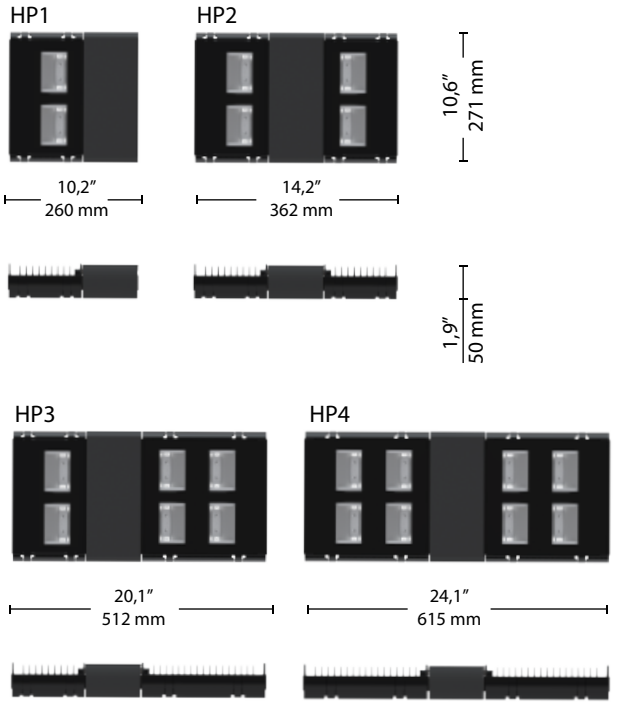
INSTALL: Indoor

ACCESSIBILITY

Timeless
Tool-free openable fixture. Replaceable internal components without the need of tools.

OPTICAL TECHNOLOGY

Reflexa
Refracting optical system consist of single-chip LED, aluminium reflector extra-pure with silver PDV treatment and extra clear tempered glass.

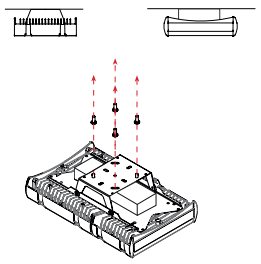


Scale: 1:20

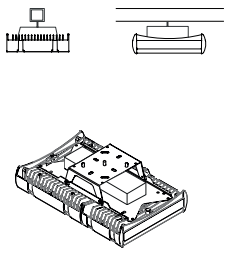
Max. weight	EPA (CXS)
HP1: 10,5 lb (4,8 Kg)	Plan: 0,77 ft² (0,072 m²)
HP2 : 12,3 lb (5,6 Kg)	Plan: 1,2 ft² (0,11 m²)
HP3: 17,1 lb (7,8 Kg)	Plan: 1,67 ft² (0,156 m²)
HP4: 18,9 lb (8,6 Kg)	Plan: 2 ft² (0,192 m²)

FIXING TYPE

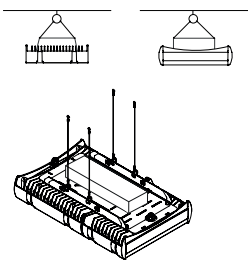
Ceiling support



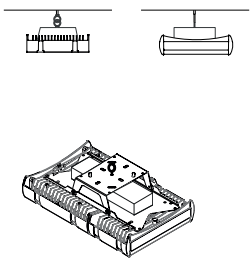
Busbar



Steel cables



Loop



Infographic related to the Hibra family and not to the single product

STANDARD

Compliance: UL Standard 1598-CSA C22,2no.250.0.

CONFORMITY | PROTECTION

Conformity

Intertek (PENDING)

Salt spray test

ISO 9227

8000 hr

Safety classes

Class I

Protection classes

WET LOCATION · IK 09 · 4 NEMA

Photobiological safety

Classe 0 Exempt group IEC/TR62471

PLUS

DARK SKY FRIENDLY · OPTICAL FLEXIBILITY · LOW GLARE · SEPARATE UNITS (ELECTRICAL AND OPTICAL)

LIGHTING FIXTURE FEATURES

General features

Power source:	120-277V | 50/60Hz | tolerance +/-10%
Current supply:	350 mA | 525 mA |700 mA | 1050 mA (P_{max} = 305W)
Power Factor | THD:	≥0.95 | <10 % (At full load)
Expected life (Ta=77°F|25°C):	> 100.000 h | L90B10 | @ LED 700mA
Operational temperature (Ta):	T_{min} = -40°F (-40°C) T_{max} = 131°F (55°C) |199,5W 122°F (50°C) |305W
Storage temperature:	-40°F/+176°F (-40°C/+80°C)
Overcharge protection:	Main surge immunity up to 10kV
Standard functions:	Current fixed |Virtual midnight |1-10V|CLO

Materials

Lighting fixture:	Powder coated Die cast aluminium | EN1706
Optical system:	Aluminum reflector with silver PVD treatment, purity 99.7% oxidized and polished.
Screen:	Screen-printed ultraclear tempered glass | Th. 0,15in (4mm)
Fixing plate:	Galvanized steel S235
Gaskets:	Removable silicon
Cable gland:	Polyamide PA66 | PG16 | Ø 0,55in (14mm) MAX
Screws and bolts:	AISI 304 stainless steel
Fixture color:	RAL 9005

LED FEATURES

LED data 4.000 K - 700mA:	340 lm/LED | 180 lm/W | 77°F (25°C) [Tj] | ≤ 3 step MacAdam
Color temperature:	3.000 K | 4.000 K | 5.700 K| CRI ≥ 70

OPTIONAL

Additional surge protector device:	SPD | Max peak current 10kV/kA 8/20µs
Electrical optional	1,64ft (0,5m) power cable with 2-3 or 4-5 core connector
Optional functions:	DALI-DALI2 | DALI SENSOR | Presence sensor
Connectors and sockets:	NM (Nema Socket) | LM (Lumawise Zhaga Socket)
Smart sensors:	Zhaga type presence sensors

Hibra plus module combining

Available optical system

GMR ENLIGHTS

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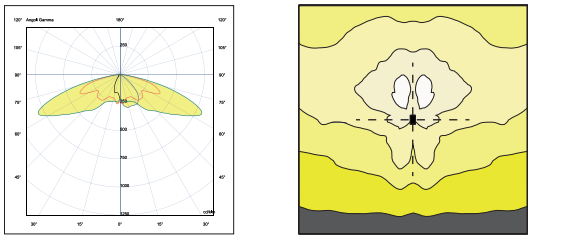
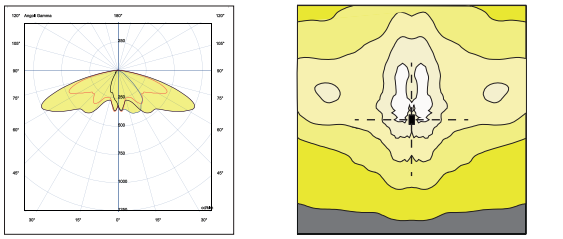
PEDESTRIAN PATHS\\

R2A

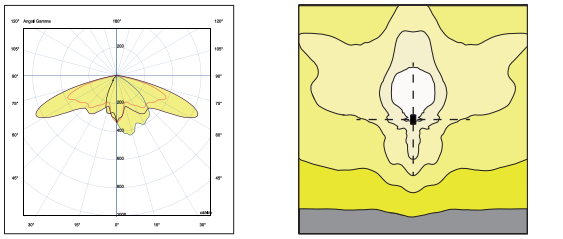


R2B

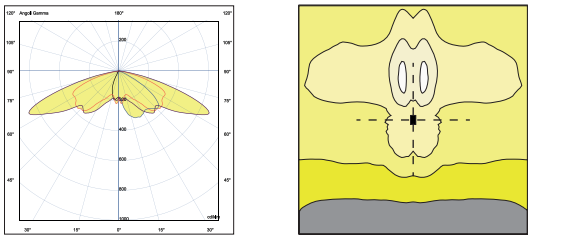


ASYMMETRICAL DISTRIBUTION\\

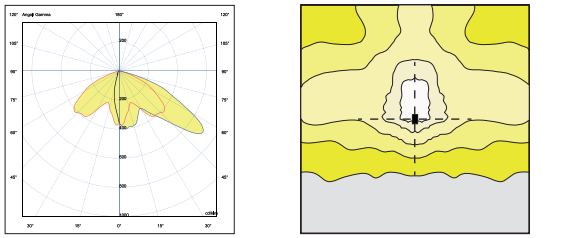
R3A



R3B

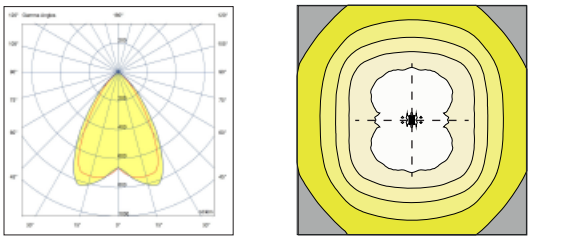


R3C

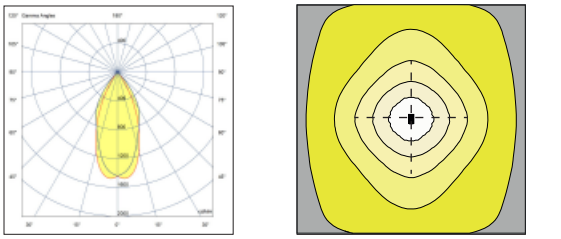


SYMMETRICAL DISTRIBUTION \\

R9A

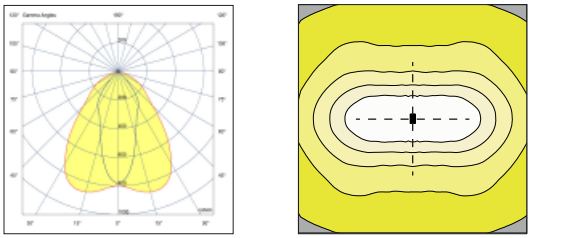


R9B



ELLIPTIC DISTRIBUTION \\

R10A



OPTIC	IESNA TYPE
R2A	TYPE II - short - S
R2B	TYPE II - short - S
R3A	TYPE II - short - C
R3B	TYPE III - short - C
R3C	TYPE III - very short - C

OPTIC	NEMA
R9A	class 3x3
R9B	class 5x5
R10A	class 7x4

CUT-OFF
C: CUT-OFF
S: SEMI CUT-OFF
F: FULL CUT-OFF

TYPE R2B

TYPE R3A

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Photometric data | LED modules nominal data

GMR ENLIGHTS

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The LED modules nominal data refers only to the LED light sources in a standard version, with 4000 K color temperature, color rendering index CRI 70 min. and a junction temperature tj of 77°F (25°C). The LED nominal data are extrapolated from the manufacturer documentations.

LED code	(•) I [mA]	Luminous flux [lm]	Power [W]	Efficiency [lm/W]
RF03	350	2539	12,8	199
	525	3603	18,7	193
	700	4573	24,8	184
	1050	6247	38,3	163
RF06	350	4984	24,4	205
	525	7072	36,5	194
	700	8973	49,5	181
	1050	12251	75,5	162
RF09	350	7405	36,0	206
	525	10507	54,6	192
	700	13200	73,3	180
	1050	18014	113,2	159
RF12	350	9873	47,7	207
	525	13740	71,9	191
	700	17254	97,5	177
	1050	22648	141,2	160
RF15	350	12342	61,0	202
	525	17176	91,5	188
	700	21567	122,8	176
	1050	29114	184,5	158
RF18	350	14810	73,3	202
	525	20611	109,0	189
	700	25881	144,9	179
	1050	34937	221,3	158
RF21	350	17278	84,2	205
	525	24046	124,7	193
	700	30194	167,9	180
	1050	40760	258,1	158
RF24	350	19747	96,1	205
	525	27481	142,6	193
	700	34508	192,3	179
	1050	46583	294,9	158

Hibra plus module combining

Photometric data | Lighting fixture measured data

GMR ENLIGHTS

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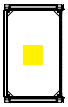
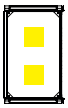
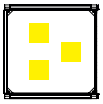
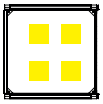
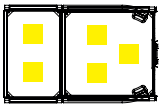
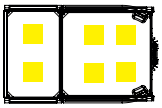
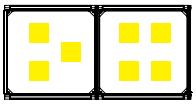
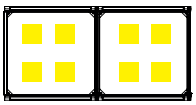
The lighting fixture measured data refers to GMR ENLIGHTS products in a standard version, with 4000 K color temperature, optica type R3B and an ambient temperature ta of 77°F(25 °C).

GMR ENLIGHTS offers the possibility of driving the device with custom currents (•).

Feature availability is subject to configurations. To obtain luminous fluxes and efficiencies of the lighting fixture in case of optic type and/or color temperature and/or color rendering index different from the standard use the conversion factors shown in the tables.

		(•) I [mA]	Luminous flux [lm]	Power [W]	Efficiency [lm/W]
RF03		350	2234	15,0	149
		525	3171	21,5	147
		700	4024	28,5	141
		1050	5497	42,5	129
RF06		350	4385	28,0	157
		525	6223	40,5	154
		700	7896	55,0	144
		1050	10781	83,0	130
RF09		350	6516	40,0	163
		525	9246	60,0	154
		700	11616	80,5	144
		1050	15852	123,0	129
RF12		350	8689	53,0	164
		525	12092	79,0	153
		700	15183	106,0	143
		1050	19931	153,5	130
RF15		350	10861	67,0	162
		525	15114	99,5	152
		700	18979	133,5	142
		1050	25620	200,5	128
RF18		350	13033	80,5	162
		525	18137	118,5	153
		700	22775	157,5	145
		1050	30745	240,5	128
RF21		350	15205	91,5	166
		525	21160	135,5	156
		700	26571	182,5	146
		1050	35869	280,5	128
RF24		350	17377	104,5	166
		525	24183	155,0	156
		700	30367	209,0	145
		1050	40993	320,5	128

OPTIC CONVERSION FACTOR LUMINOUS FLUX

Optic type	Flux multiplier
R2A	0,99
R2B	0,98
R3B | R3C	1,00
R9A	1,00
R9B	0,98
R10A	0,99

Tk CONVERSION FACTOR LUMINOUS FLUX

Tk [K]	Flux multiplier
3.000	0,94
5.700	1,01

CRI CONVERSION FACTOR LUMINOUS FLUX

CRI (color render index)	Flux multiplier
70	1,00
80	0,93

(*) See pag: Available optical system, to check the optic type availability.
(**) See pag: Technical data, to check the colour temperatureb availability.

Functions

Standard functionality

Fixed current
During production, the light fixture is pre-set with a fixed current amongst the standard settings that appear in the tables on page 3. Upon customer's request, it is also possible to set a specific current (custom setting).

Virtual Midnight | Automatic dimming
The driver is programmed to automatically dim the light output according to the time. As required by regulations, the maximum output is set during initial hours and towards the end of the light fixture's operating time interval. During these hours there is statistically more traffic. The light output is then dimmed during the central hours of the operating time interval. This management is achievable through a self-learning process of the device, that establishes the centre point of the time interval. This moment is called "virtual midnight" and it is the point that the dimming profile refers to in order to know when to reduce the light output. We can manage up to 8hrs of programming that evolve around the virtual midnight and up to 5 steps of dimming. This way the light output will adjust automatically, adapting throughout the year to the duration of the nighttime, by referring to the pre-set parameters based on the centre point of the operating time interval.

CLO Constant Lumen Output
LEDs over time are inevitably subject to performance depreciation. This light reduction may be compensated by gradually increasing the LED's current during its lifespan, this corresponds to a gradual increase of lumen output proportional to the amount that is naturally depreciated.

On request functionality

DALI - DALI2 Control and monitoring system
On request, the fixture can be fitted with a DALI2 communication interface. This protocol allows it to be monitored and controlled remotely through use of Dali control buses.

DALI SENSOR (D4i)
On request, the fixture can be equipped with a D4i certified power supply. This is the ideal solution for wireless sensors and/or controls. This system was developed to integrate various systems to address smart city requirements. Included is DALI2 protocol + auxiliary power (AUX) to supply power to devices and sensors. This system is usually required when using a Zhaga Lumawise socket.

LINESWITCH
This functionality by using an extra wire within the streetlight's power line, allows to dimmer to a pre-set level. For example, a centralised timer can change this value from 100% to 50%, and vice versa.

AMPDIM
This feature allows dimming using the power line controlled by an upstream flow regulator. For this feature, the flow controller must use amplitude modulation (AM).

NEMA | Nema Socket (7 PIN)
The Nema Socket is a 7 PIN connector/socket with IP66 rating, that is fitted on the fixture to make it interfaceable with various ANSI C136 compliant devices and remote-control gear.
These devices can be installed during or after installation of the light fixtures. The NEMA socket can provide power interruption and is interfaceable with DALI buses and/or 1-10V dimming. It is compatible with point-to-point node connection, and twilight sensors ect.

ZHAGA Lumawise Zhaga Socket (4 PIN)
The Lumawise Zhaga socket is a small and compact 4 Pin connector/socket, that is fits ideally with the design of GMR ENLIGHTS fixtures. With ZHAGA Lumawise sockets it is possible install the devices, sensors, ZHAGA remote controls during or after installation of the light fixtures. This socket is usually required in conjunction with the DALI Sensor feature, which involves a DALI2/D4i communication protocol in addition to 12/24V auxiliary port to supply power to the sensors. It is compatible with point-to-point wireless control solutions and SMART CITY applications to control and monitor the public lighting infrastructure.

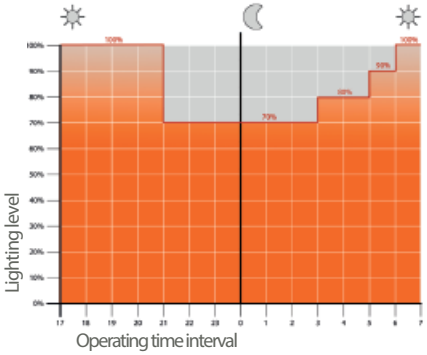
REMOTE CONTROL ZHAGA STD
The device is installed on the lighting body equipped with D4I driver, via a prepared zhaga socket.
The remote control works at 2.4GHz frequencies, and communicates in a secure mesh network thanks to 256bit data encryption. Thanks to the better positioning of the antenna, the node allows you to cover large distances and overcome obstacles. Equipped with lux meter and accelerometer, it can work both stand-alone and within the dedicated communication infrastructure. The device implements energy saving policies that bring the average consumption to 0.19W. In the smartcity application, the node allows you to interact with the street lighting network, dimming the lighting fixtures as needed and based on traffic and weather conditions, bringing significant economic advantages to the system in terms of energy savings. The node also allows monitoring and diagnostics of the public lighting network, from a single area, to the country up to an entire city or region.
The knot has a diameter of 80mm and a height of 59mm. IK09, IP66.

ZHAGA GPS REMOTE CONTROL
In addition to the functionality expressed for the STD version, this version also includes a GPS.
Thanks to GPS, the system can count on an astronomical clock as well as all the functions related to the exact positioning of the lighting body. Especially in the installation and commissioning phase, having the information relating to the positioning available simplifies and significantly speeds up the start-up of the system.

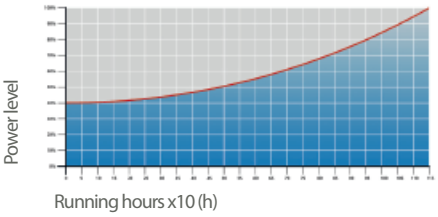
PRESENCE SENSOR
The product can be equipped with a presence sensor type zhaga book 18 in the lower part of the luminaire. In this case the lighting body is provided with Zhaga socket and Driver D4I. It is very important to carefully evaluate the installation context (height and underlying area) according to the sensing diagram of the device.

Third-party remote control
GMR ENLIGHTS fixtures are compatible with most third-party remote controls, powerline communication systems, wired systems (buses) and wireless systems.

Example of 4-step adjustment with virtual midnight



CLO Light Flow Compensation



7 Pin Nema Socket 7 (A) and IP66 shorting cap (B)

A

B

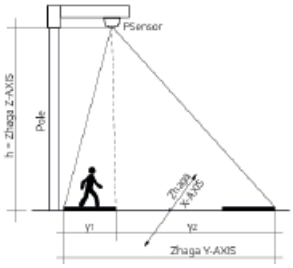
4 Pin Lumawise Zhaga Socket (C) and IP66 cap (D)

C

D

Installation example of Lumawise Zhaga

Installation example of presence sensor



Protection cycles

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GMR ENLIGHTS works with cast iron, steel and aluminum. The materials are selected and processed to maximize performance and quality.

GALVANIZED STEEL

Protection of galvanized steel surfaces for poles

The protection of galvanized steel elements is achieved by following steps:

- Micro sandblasting;
- First epoxy layer application followed by:
Wilting > Drying > Cooling;
- Acrylic glaze layer application followed by:
Wilting > Drying > Cooling;
- Packing at least after 24-hour-drying at room temperature.

Protection of galvanized steel surfaces for brackets and pastorals

The protection of the galvanized steel elements is achieved thanks to:

- Micro sandblasting;
- Phosphoric pickling bath at a ph level ranging from 1.5 to 3;
- Rinsing with demineralised water;
- First powder layer application;
- Kiln firing;
- Application of a final powder layer;
- Kiln roasting of the final powder layer at 180°C (356°F);
- Cooling.

CAST IRON

Protection of cast iron surfaces for bases

The protection of cast iron elements is achieved by the following treatments:

- Surface micro shotblasting;
- Mono-component dip galvanizing followed by:
Wilting > Drying > Cooling;
- Epoxy micaceous primer application followed by:
Wilting > Drying > Cooling;
- Acrylic enamel application followed by:
Wilting > Drying > Cooling;
- Packing at least after 24-hour-drying at room temperature.

DIE-CAST ALUMINIUM

Protection of die-cast aluminium surfaces for lighting fixtures, tops, collars, brackets and pastorals

Lighting fixtures, brackets, pastoral, and die-cast accessories undergo a cycle of powder painting which creates a barrier against the corrosion of metal parts. Moreover this barrier makes the finished product comply with design specifications in terms of surface roughness, color and reflectance.
The cycle consists of the following steps:

- Micro sandblasting;
- Hot pickling bath in a zinc-based phosphodegreasing solution;
- Specific process for the preparation of surfaces before painting;
- Washing with water;
- Rinsing with demineralised water and subsequent drying;
- First bowder layer application followed by kiln baking at 180°C (356°F);
- Final powder layer application using a High Durability product and final kiln roasting at 180°C (356°F).

Salt spray test

The top quality of such treatments is confirmed by salt spray tests performed in accordance with standard ISO 9227:2017 Neutral Salt Spray test (NSS).
The test was carried out for 8.000 hours at 35°C (95°F) and demostrated through the report test released.

GMR ENLIGHTS s.r.l

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