



# **HIBRA** module combining

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

# Hibra module combining

## Technical data

rev. 2021.03

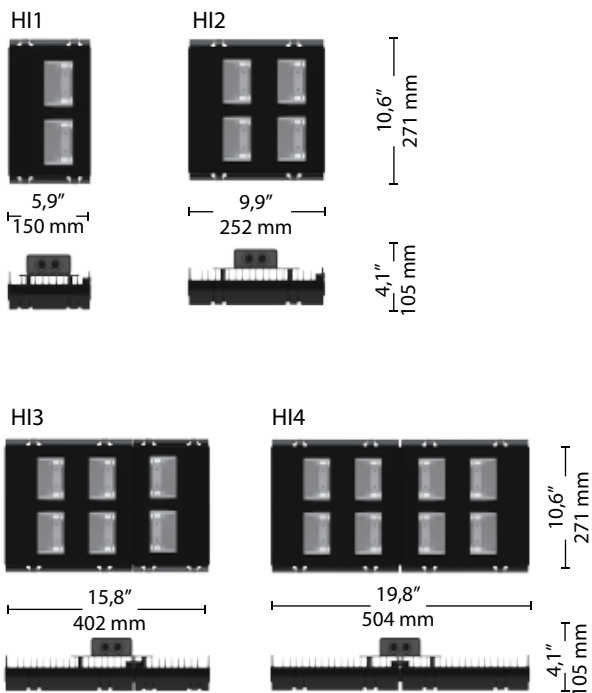
**INSTALL:** Indoor and Outdoor

### ACCESSIBILITY

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

### OPTICAL TECHNOLOGY

**RF** **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

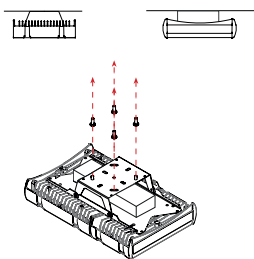
**HI1:** 2,5 Kg  
**HI2:** 4 Kg  
**HI3:** 6 Kg  
**HI4:** 8 Kg

### CXS

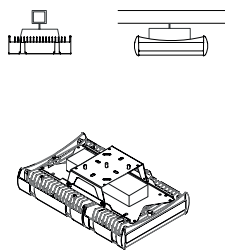
Lateral: 0,02 m<sup>2</sup> | Plan: 0,04 m<sup>2</sup>  
Lateral: 0,02 m<sup>2</sup> | Plan: 0,07 m<sup>2</sup>  
Lateral: 0,04 m<sup>2</sup> | Plan: 0,11 m<sup>2</sup>  
Lateral: 0,04 m<sup>2</sup> | Plan: 0,14 m<sup>2</sup>

### FIXING TYPE

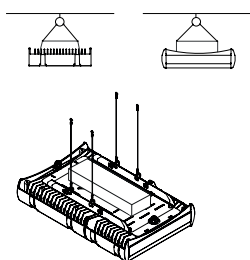
Ceiling support



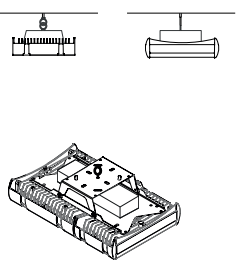
Bubar



Steel cables



Loop



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

### STANDARD

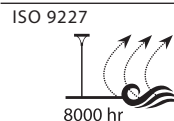
EN 60598-1, EN 60598-2-3, EN 62471, EN 55015, EN 61547, EN 61000-3-2, EN 61000-3-3

### CONFORMITY | PROTECTION

Conformity



Salt spray test



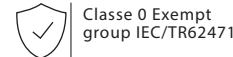
Insulation classes



Protection classes



Photobiological safety



### PLUS



CUT OFF



OPTICAL FLEXIBILITY



LOW GLARE



SEPARATE UNITS  
(ELECTRICAL AND OPTICAL)



A++  
IPEA MIN

### LIGHTING FIXTURE FEATURES

#### General features

Power source:	220-240V   50/60Hz   tolerance +/- 10% 120-277V   50/60Hz   tolerance +/- 10%
Current supply:	525 mA   700 mA   1050 mA   Custom (P <sub>max</sub> = 305W)
Power Factor   THD:	≥ 0.95   < 10 % (At full load)
Expected life (Ta=25°):	> 100.000 h   L90B10   @ LED 700mA
Operational temperature (Ta):	T <sub>min</sub> = -40°C   T <sub>max</sub> = +55°C   199,5W +50°C   305W
Storage temperature:	-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. 4mm
Fixing plate:	Galvanized steel S235
Gaskets:	Removable silicon
Cable gland:	Polyamide PA66   PG16   Ø 14mm MAX   IP 68
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   25°C [Tj]   ≤ 3 step MacAdam
Color temperature:	3.000 K   4.000 K   5.700 K   CRI ≥ 70

#### OPTIONAL

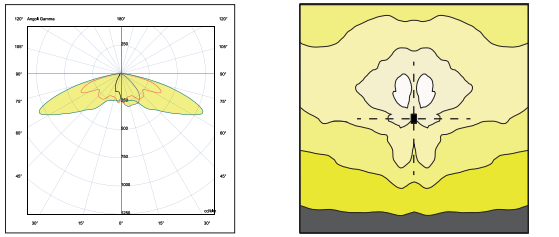
Additional surge protector device:	SPD with warning LED CLASS 1   CLASS 2 12kV/kA
Electrical optional	0,5 m power cable with 2-3 or 4-5 core connector
Optional functions:	1-10V   DALI-DALI2 (RF06 only)

# Hibra module combining

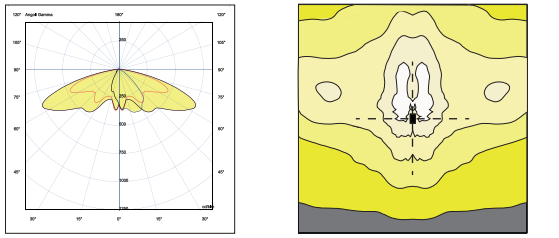
## Available optical system

### PEDESTRIAN PATHS \\ TYPE R2

R2A

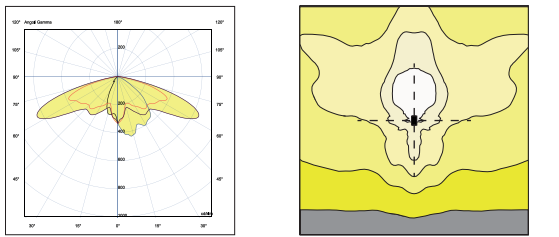


R2B

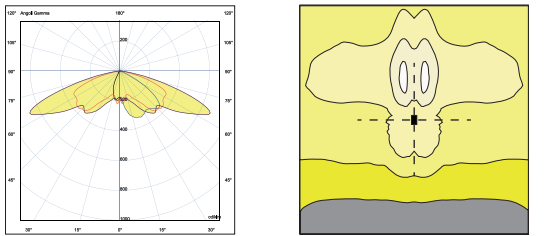


### ASYMMETRICAL DISTRIBUTION \\ TYPE 3

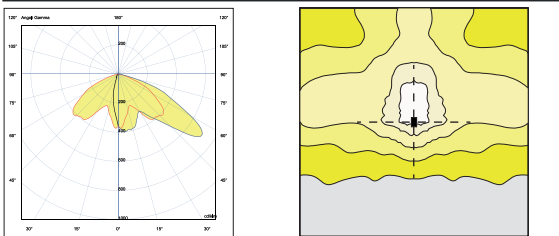
R3A



R3B

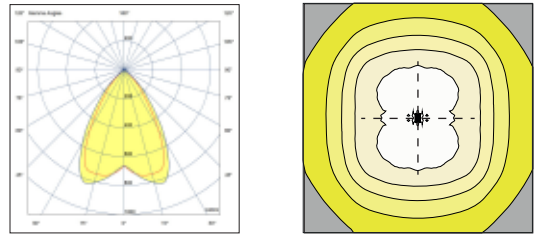


R3C

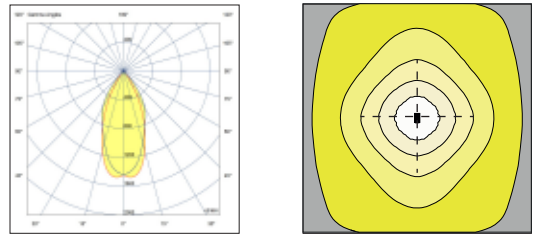


### SYMMETRICAL DISTRIBUTION \\ TYPE R9

R9A

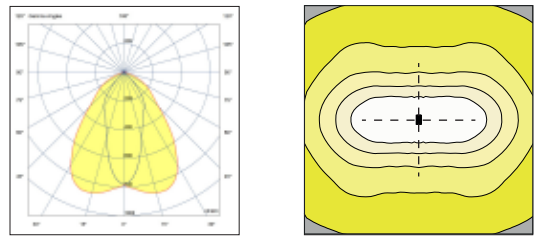


R9B



### ELLIPTIC DISTRIBUTION \\ TYPE R10

R10A



TYPE R2B



TYPE R3A

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  $t_j$  of 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	525	3258	18,0	181
	700	4176	24,0	174
	1050	6126	38,0	161
RF06	525	6516	36,0	181
	700	8439	48,5	174
	1050	12251	76,0	161
RF09	525	9684	53,5	181
	700	12702	73,0	174
	1050	18216	113,0	161
RF12	525	12942	71,5	181
	700	16965	97,5	174
	1000	23309	143,0	163
RF15	525	16263	90,0	181
	700	21179	122,0	174
	1050	30467	189,0	161
RF18	525	19516	108,0	181
	700	25519	147,0	174
	1050	36431	226,0	161
RF21	525	22768	126,0	181
	700	29686	171,0	174
	1050	42557	264,0	161
RF24	525	26021	144,0	181
	700	33852	195,0	174
	1050	48521	301,0	161

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  $t_a$  of 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		525	2805	21,0	134
		700	3627	27,5	132
		1050 (max)	5111	41,0	125
RF06		525	5534	39,0	142
		700	7157	52,5	136
		1050 (max)	10081	79,5	128
RF09		525	8245	57,5	143
		700	10587	77,0	137
		1050 (max)	14910	117,5	127
RF12		525	10842	75,5	144
		700	13920	101,5	137
		1050 (max)	19597	153,5	129
RF15		525	13553	95,5	142
		700	17400	127,5	136
		1050 (max)	24321	190,5	128
RF18		525	16264	115,0	143
		700	20880	150,5	139
		1050 (max)	29185	228,5	128
RF21		525	18974	130,5	146
		700	24360	174,5	140
		1050 (max)	34049	266,5	128
RF24		525	21685	149,0	146
		700	27840	199,5	140
		1050 (max)	38913	304,5	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 temperature 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.

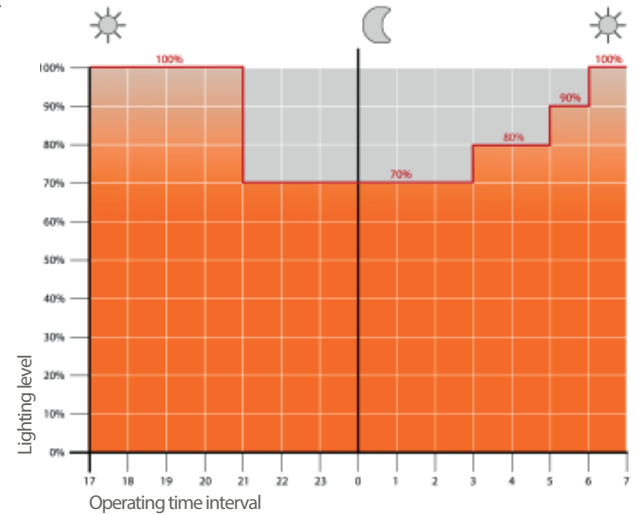
## On request functionality

### DALI - DALI2 Control and monitoring system

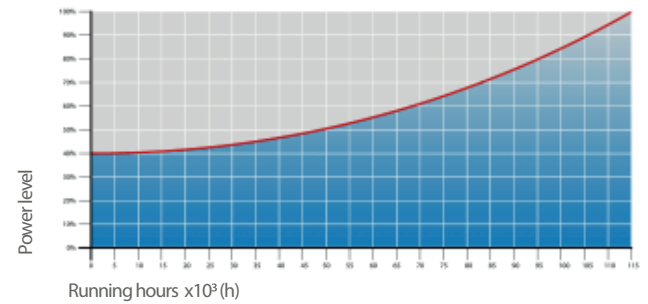
On request, the fixture can be fitted with a DALI2 communication interface. This protocol allows it to be monitored and controlled remotely through use of Dali control buses.

### 1-10V Analog control system

On request, the fixture can be equipped with 1-10V dimming interface. This protocol provides the possibility of dimming a single device or a public lighting line through a 1-10V control bus.



Example of 4-step adjustment with virtual midnight



CLO Light Flow Compensation

## Protection cycles

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 powder 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 demonstrated through the report test released.



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