

# Hulla wall washer

## Technical data

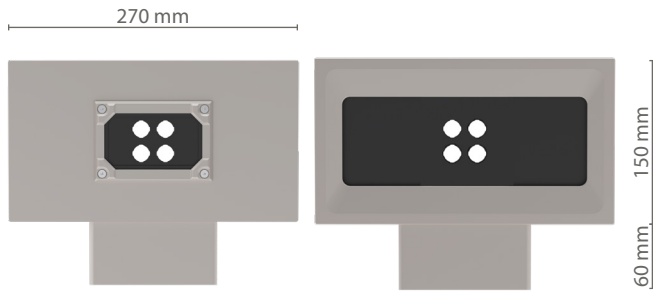
rev. 2020.05

### ACCESSIBILITY



#### Compact

Sealed fixture with short power cable and IP electrical connector for a quick and simple linkage to the mains.



Scale: 1:10

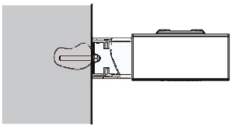
#### Max. weight

2,0 Kg

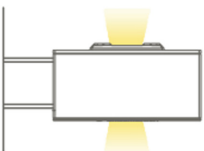
### FIXING TYPE



#### Wall-mounted



Unidirectional  
Order code: HWW\_GL01



Bidirectional  
Order code: HWW\_GL02

### 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

ISO 9227



#### Insulation classes



#### Protection classes



#### Photobiological safety



Classe 0  
Exempt group  
IEC/TR62471

### PLUS



CUTOFF



OPTICAL  
FLEXIBILITY



LOW GLARE



A++  
IPEA  
MIN



CONFORM

### LIGHTING FIXTURE FEATURES

#### General features

Power source:	220-240V   50/60Hz   tolerance +/-10%   other voltages on request
Current supply:	525mA   700 mA (P <sub>max</sub> = 19,5 W)
Power Factor   THD:	≥0.95   <10 % (At full load)
Expected life (Ta=25°):	> 100.000 h   L90B10   @700mA
Operational temperature (Ta):	T <sub>min</sub> = -40°C T <sub>max</sub> = +55°C   700 mA
Storage temperature:	-40°C/+80°C
Overcharge protection:	Impulse withstand up to 12kV/kA
Standard functions:	Current fixed   Virtual midnight   1-10V   CLO (Details pag.4)

#### Materials

Lighting fixture:	Die cast aluminium   EN1706 Extruded aluminium   EN573-3
Optical system:	Nano-optics in PMMA Plastic reflector metallic painted
Screen:	Ultraclear tempered glass   Th. 4mm
Gaskets:	Silicon
Cable gland:	Polyamide PA66   PG16   Ø 14mm MAX   IP 68
Screws and bolts:	AISI 304 stainless steel
Fixture color:	GMR light

### LED FEATURES

LED data 4.000 K - 700mA:	340 lm/LED   180 lm/W   25°C [Tj]   ≤ 3 step macadam
Colour temperature:	3.000 K   4.000 K   5.700 K   CRI ≥ 70

### OPTIONAL

Overcharge protection:	optional - SPD with warning LED CLASS 1   CLASS 2 12kV/kA
Optional functions:	DALI-DALI2 (Details pag.4)

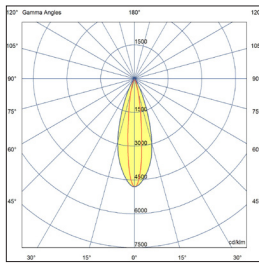
# Hulla wall washer

## Available optical system



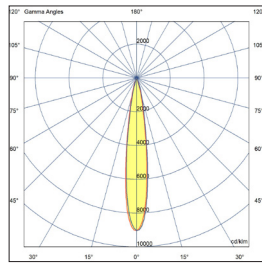
### PROJECTION OPTICS \\ OPTIC TYPES 7 | OPTIC TYPES 8

#### TYPE 7A



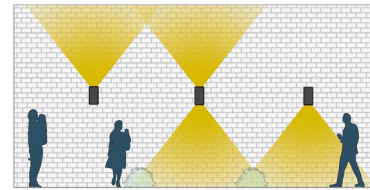
**Elliptical optic,**  
suitable for grazing  
effects both on walls  
and pedestrian paths.

#### TYPE 8A

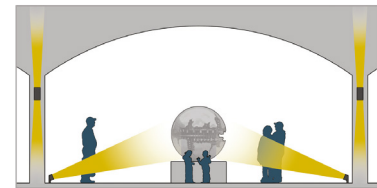


**Symmetrical optic.**  
Luminous beam  
distribution  
for projections.

### APPLICATION EXAMPLES \\



TYPE 7A



TYPE 8A

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.

The lighting fixture measured data refers to GMR ENLIGHTS products in a standard version, with 4000 K color temperature, optica type <<Ottica>> and an ambient temperature  $t_a$  of 25 °C.

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

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.

The values of both tables refer to the light emission along a single direction.

### LED modules nominal data (4000 K | CRI 70 min. | $t_j=25^\circ$ )

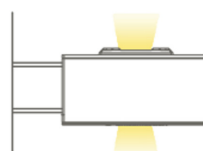
I [mA]	Luminous flux [lm]	Power [W]	Efficiency [lm/W]
350	784	4,0	196
525	1110	6,0	185
700	1392	8,0	174

### Lighting fixture measured data (4000 K | OTTICA 7A | $t_a=25^\circ$ )

(•) I [mA]	Luminous flux [lm]	Power [W]	Efficiency [lm/W]
350	633	6,0	106
525	925	8,5	109
700 (max)	1197	11,0	109



Unidirectional  
Order code: HWW\_GL01



Bidirectional  
Order code: HWW\_GL02

#### 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

# 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.

### 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.

## 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).

## On request connectors and external sockets

### 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.

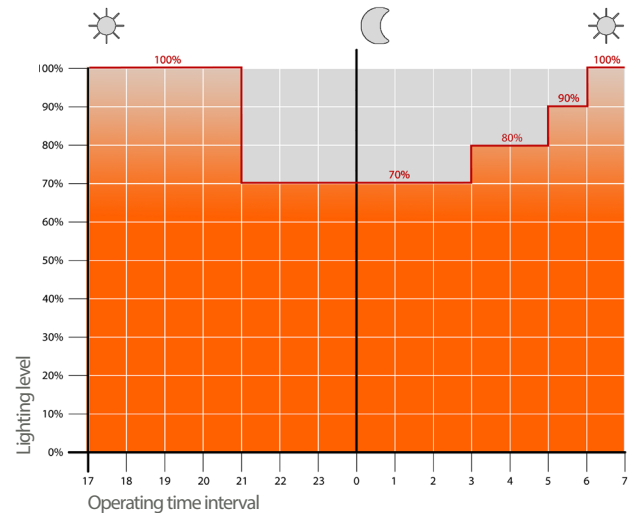
These devices can be installed during or after installation of the light fixtures. The NEMA socket can provide power interruption and is interfaceable with DALI buses and/or 1-10V dimming. It is compatible with point-to-point node connection, and twilight sensors ect.

### ZHAGA Lumawise Zhaga Socket (4 PIN)

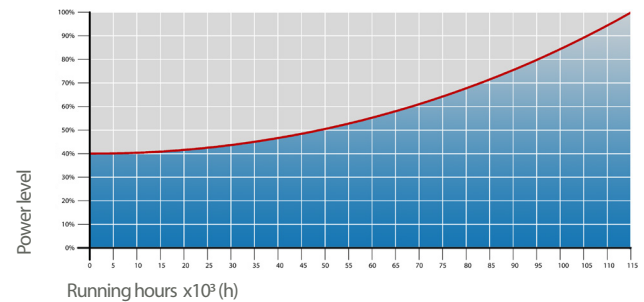
The Lumawise Zhaga socket is a small and compact 4 Pin connector/socket, that is fits ideally with the design of GMR ENLIGHTS fixtures. With ZHAGA Lumawise sockets it is possible install the devices, sensors, ZHAGA remote controls during or after installation of the light fixtures. This socket is usually 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.

### Third-party remote control

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

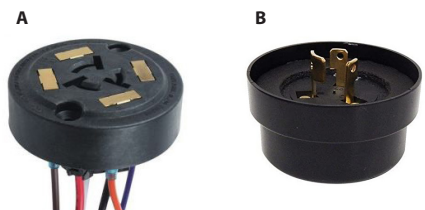


Example of 4-step adjustment with virtual midnight



CLO Light Flow Compensation

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



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



### Installation example of Lumawise Zhaga



## 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°;
- 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

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°;
- Final powder layer application using a High Durability product and final kiln roasting at 180°C.



#### Salt spray test | FLORIDA 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 and demonstrated through the report test released.



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