

TECHNICAL DOCUMENTATION FILE

for EPREL registration — Annex VI compliance part

Variant: 24 V / 6000 K (cool white, SELV)

SKU: SIM-GA-HTL24-COLD

Date: 15 June 2026 (15.06.2026)

Regulation (EU) 2019/2015 (Energy labelling of light sources)
Regulation (EU) 2019/2020 (Ecodesign requirements for light sources)

Trade name	Hug Tree Lamp / Lampa LED do podświetlania drzew
Brand	SIM
EPREL Model identifier	SIM-GA-HTL24-COLD
Factory model	HG-BSD-12W-24V (6000 K configuration)
Variant	24 V / 6000 K (cool white, SELV)
Supplier (EU)	SIM Sp. z o.o., ul. Krokusowa 3, 46-300 Olesno, Poland — NIP: PL5761596581
Manufacturer	Zhongshan Huiguo Lighting Technology Co., Ltd. — Henglan, Zhongshan, Guangdong, China
Power supply	24 V DC, DC (no frequency)
Class of protection	Class III (SELV — Safety Extra-Low Voltage)
Ingress protection	IP65
EPREL category	Standard light source (DLS-NMLS — non-mains, 24 V DC)
Document version / Date	Rev. 1.0 — 15 June 2026 (15.06.2026)

1. General description

Product type and intended use

The product is a fixed general-purpose outdoor decorative LED luminaire, specifically designed for the illumination of trees and garden vegetation. The luminaire integrates a non-replaceable LED light source into a sealed weatherproof aluminium enclosure (IP65) with polycarbonate lenses. The curved housing shape is designed to wrap around tree trunks.

Construction overview

Parameter	Value
Housing	Die-cast aluminium with powder-coating, curved profile (255 × 75 × 42 mm)
Front cover	Tempered glass with PC mask, 10 LED apertures
LED light source	10× LED chips, integrated on aluminium PCB
Power supply	24 V DC, DC (no frequency)
Power consumption	12 W (rated)
Class of protection	Class III (SELV — Safety Extra-Low Voltage)
Ingress protection	IP65
Connector	M12 weatherproof, IP65
Earthing	No protective earth — SELV (Safety Extra-Low Voltage, 24 V DC)

Light source classification (Regulation (EU) 2019/2015)

Lighting technology: LED. Directional (DLS) with 20° beam angle. Non-mains operated (NMLS, 24 V DC SELV). Non-tuneable colour. No envelope. Not high-luminance. No anti-glare shield. Non-dimmable. Non-replaceable light source (sealed module).

2. Reference to harmonised standards

The following harmonised standards have been applied for the purposes of compliance assessment:

Standard reference	Title / Scope of compliance
EN IEC 60598-1:2021 + A11:2022	Luminaires — General requirements and tests
EN IEC 60598-2-1:2021	Luminaires — Fixed general purpose luminaires
EN IEC 62031:2020 + A11:2021	LED modules for general lighting — Safety
EN 62471:2008	Photobiological safety — Result: Exempt Group
IEC/TR 62778:2014	Blue light hazard assessment — Result: RG1
EN IEC 62493:2015 + A1:2022	Assessment of EMF exposure
EN 50525-2-21	Electric cables (supply cord)
IEC 62717	LED modules — Performance
EN 62612	Self-ballasted LED lamps — Performance

Test reports applicable to this variant:

Scope	Report No. / Reference	Laboratory
LVD (Safety)	FTS25ER-02805S GB 7000.1-2015 / GB 7000.201-2008 (7 Nov 2025) Note: EN IEC equivalent recommended for EU market	Guangdong Future Test Services Co., Ltd.
Ecodesign / Energy labelling	Pending — variant-specific test (FTM = 1.089 for DLS-NMLS)	Guangdong Future Test Services Co., Ltd.
RoHS 2011/65/EU	AZT251031076C-E0 CNAS L10844 (11 Nov 2025)	Shenzhen AZT Technology Co., Ltd.
IP65 ingress protection	Covered in main LVD report FTS25ER-02805S	Guangdong Future Test Services Co., Ltd.

3. Specific precautions

Installation precautions

- Class III luminaire (SELV) — requires external 24 V DC SELV-certified power supply. Do NOT connect directly to mains voltage.
- Suitable for direct mounting on normally flammable surfaces (glow-wire test at 650 °C, IEC 60598-1 §13.3.2).
- IP65 ingress protection — suitable for outdoor use including rain exposure. Not designed for permanent immersion.
- Mounting position: any orientation permitted; tested in normal use orientation.

Use precautions

- Light source is non-replaceable — at end of life, dispose of as WEEE (Directive 2012/19/EU).
- Photobiological safety: Risk Group RG1 per IEC/TR 62778:2014. Do not stare into the operating LED at distances under 200 mm.
- Operating ambient temperature $t_a = 25\text{ °C}$ (standard test condition).
- Not dimmable — do not connect to dimmer switches or PWM controllers unless verified compatible.
- Mercury content: 0 mg (LED technology).
- Power supply: external 24 V DC SELV supply must itself be CE-marked and certified to relevant LVD requirements.

Maintenance precautions

- Disconnect from power supply before any maintenance or cleaning.
- Clean with a dry or slightly damp cloth only.
- In case of damage to the housing, supply cord, or front glass: immediately disconnect from supply; do not attempt repair (sealed unit). Replace the entire luminaire.
- Do not open the housing — the unit is factory-sealed and any opening will void conformity.

4. Testing conditions

All measurements were carried out under the following standardised conditions, in accordance with Annex IV of Regulation (EU) 2019/2020 and the harmonised measurement standards listed in Section 2.

Parameter	Value / Condition
Test laboratory (energy/photometry)	Guangdong Future Test Services Co., Ltd. (ISO/IEC 17025)
Test laboratory (RoHS)	Shenzhen AZT Technology Co., Ltd. (CNAS L10844)
Supply voltage (rated)	24 V DC (SELV input)
Supply voltage (overvoltage test)	26.4 V DC ($1.1 \times U_n$)
Ambient temperature (t_a)	25 °C
Relative humidity (humidity test)	93 % RH for 48 h at 25 °C
Mounting position	Normal use orientation (horizontal, lens facing observer)
Stabilisation time	≥ 30 minutes prior to photometric measurement
Number of samples tested	10 (for energy performance), 1 (for safety)
Endurance test duration	240 h at 26.4 V DC, $t_a = 35$ °C

5. Calculations

5.1 Energy efficiency class determination

Energy class assigned per Annex II of Regulation (EU) 2019/2015, on the basis of total mains efficacy η_{TM} :

$$\eta_{TM} = (\Phi_{use} / P_{on}) \times FTM \text{ [lm/W]}$$

Symbol	Value	Source / Notes
Φ_{use} — useful luminous flux	900 lm	Declared
P_{on} — on-mode power	12 W	Declared
FTM — type factor	1.089	DLS-NMLS — Table 2, Annex II of (EU) 2019/2015

$$\eta_{TM} = (900 / 12) \times 1.089 = 75 \times 1.089 = 81.7 \text{ lm/W}$$

Result: $\eta_{TM} = 81.7 \text{ lm/W} < 85 \text{ lm/W}$ threshold for class F → Energy efficiency class G

5.2 Verification of maximum allowed power $P_{on,max}$ (per (EU) 2019/2020 Annex II)

$$P_{on,max} = C \times (L + \Phi_{use} / (F \times \eta)) \times R \text{ [W]}$$

$P_{on,max} = 1.23 \times (1.5 + 900 / (0.85 \times 120)) \times 1.0 = 12.7 \text{ W} \rightarrow$ Verification: $P_{on} (12 \text{ W}) \leq P_{on,max} (12.7 \text{ W})$
COMPLIANT ✓

Annex A — Spectral Power Distribution

Spectral power distribution chart will be provided upon completion of variant-specific photometric testing. Required range: 380–780 nm at rated supply. Target CCT: 6000 K (cool white).

Chromaticity coordinates

CIE 1931 chromaticity: $x = 0.322$, $y = 0.338$ (CIE 1931)

Source: Declared (6000 K cool white LED)

Declaration

This technical documentation file is prepared on the sole responsibility of SIM Sp. z o.o. (ul. Krokusowa 3, 46-300 Olesno, Poland — NIP: PL5761596581) as the authorised representative and importer placing the product on the European Union market. The information contained herein is true and complete to the best of the importer's knowledge, and is based on test reports issued by accredited laboratories and on supplementary information provided by the manufacturer. The file is made available to market surveillance authorities upon request, in accordance with Article 4 of Regulation (EU) 2017/1369 and Article 7 of Regulation (EU) 2019/2020.

Place	Olesno, Poland
Date	15.06.2026
Name	Maciej Janusz
Position	CEO, SIM Sp. z o.o.
Signature	_____