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BrasiT

Specialist in Innovative Technologies

ACTIVE AND SAFE PEDESTRIAN CROSSING WITH HYBRID LIGHTING + ACTIVE D6 SIGNAGE

English version 1.0

www.brasit.pl

SMART PEDESTRIAN CROSSING WITH HYBRID LIGHTING + ACTIVE D6 SIGNAGE
ACTIVE HYBRID PEDESTRIAN CROSSING – PEDESTRIAN SAFETY

An intelligent pedestrian crossing of the “SIGN FLASH” or “WALKING MAN” type provides enhanced protection for pedestrians at crossings and in high-risk locations.

The smart pedestrian crossing system is a solution that increases pedestrian safety while providing drivers with immediate visual information about the presence of a pedestrian at the crossing. As a result, overall safety and comfort for residents are significantly improved.

The entire system is fully powered by solar and wind energy, making it an unlimited, safe, and environmentally friendly solution.

ACTIVE D6 SIGNAGE – “SIGN FLASH” OR “WALKING MAN” – The active **D6 sign** of the **“SIGN FLASH”** or **“WALKING MAN”** type is activated by a **narrow-beam, dual motion sensor**, which triggers the sign only when a pedestrian is detected in the vicinity of the pedestrian crossing. The applied **radio communication module** enables simultaneous activation of signs installed on both sides of the roadway.

HYBRID AND SOLAR STREET LIGHTING FOR PEDESTRIAN CROSSINGS

The solar and hybrid street lighting pole is equipped with a **dedicated LED street luminaire**, specially designed for pedestrian crossings. The luminaire features an **asymmetrical light distribution** (left-hand or right-hand version), ensuring precise illumination of the crossing area only.

The lighting system **does not dazzle drivers** and provides excellent visibility of pedestrians within the crossing zone. We use **exclusively Polish-manufactured luminaires**, compliant with stringent lighting standards and certified with **ZETOM** and **ENEC** approvals.

Our complete solar and hybrid pole system, including the load-bearing structure for photovoltaic panels and the boom arm for the wind turbine, is designed for wind zones: **I, II or III in accordance with PN-EN 1991-1-4.**

The main structural components, such as the steel pole with mounting frame for photovoltaic panels and the wind turbine, hold the required certificates issued by an independent, notified construction certification body and are structurally calculated with regard to safety, taking into account loads resulting from the photovoltaic system weight and the wind pressure surface area at the planned installation site.

The entire solar and hybrid pole structure is manufactured in compliance with the European approval: PN-EN 1090, and is supplied with **DoP (Declaration of Performance)** for each structural component.

The pole structure is manufactured entirely within a single production facility, ensuring full technological and quality consistency, as well as **single-manufacturer responsibility for the complete product**.

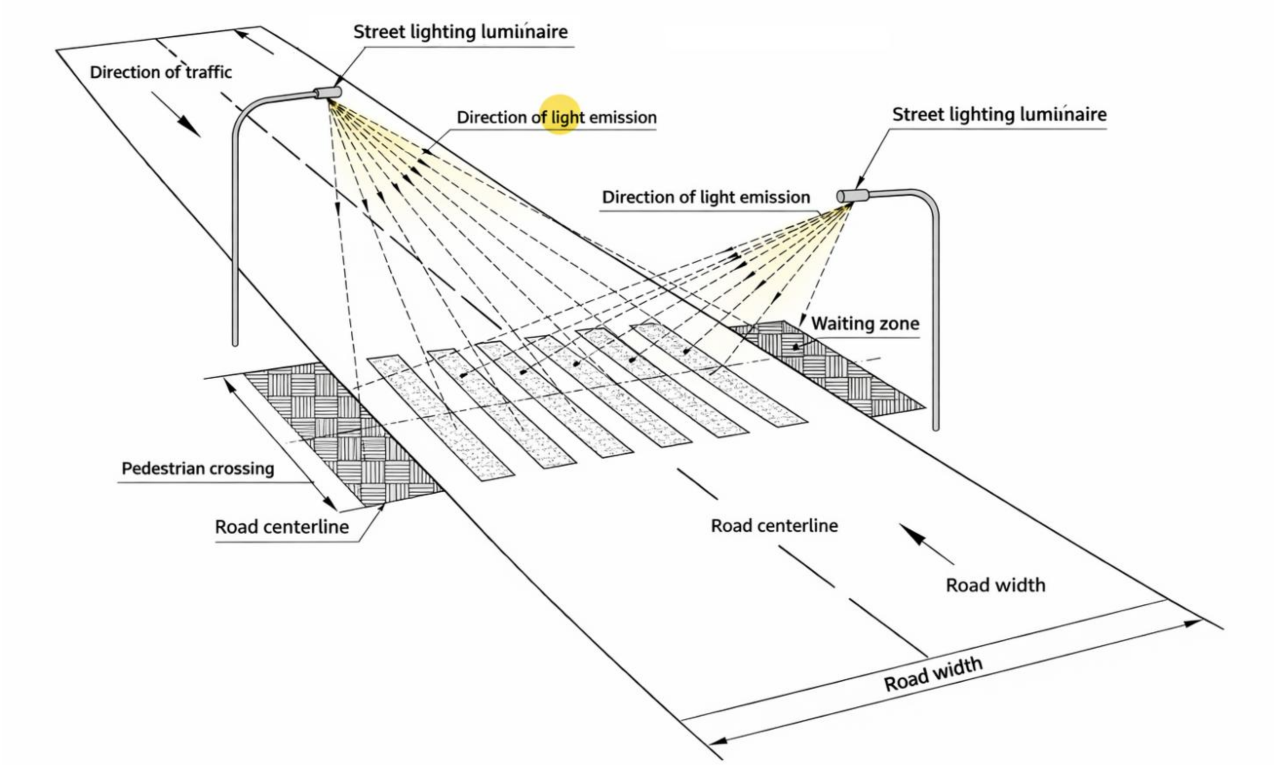

Fig. 1.1 Lighting Arrangement at Pedestrian Crossing
Source: Self-prepared based on AS/NZS 1158.1.

Operating time of our standard active pedestrian crossing system with hybrid lighting: minimum 11 hours per day at full output. The battery capacity ensures operation for at least 4 consecutive cloudy, rainy, and windless days, corresponding to a minimum of 44 hours of lamp operation without solar input under winter conditions.

Each of our luminaires allows configuration of a five-period operating mode, enabling percentage adjustment of LED output power during night hours, which allows extended autonomous operating time of the luminaire.

Our systems comply with the Polish Guidelines for Proper Lighting of Pedestrian Crossings, including the patterns and standards recommended by the competent authority for transport: WR-D-41-4, officially recommended by the Ministry of Infrastructure on 20 July 2018.

TECHNICAL SPECIFICATION AND PARAMETERS:

<table>
<tr><th>Model</th><th>HLU-38W</th><th>HLU-50W</th></tr>
<tr><td rowspan="1">Wind turbine</td><td colspan="2">Rated power: 400 W, 24V / Maximum output power: 500 W
Number of blades: 3 pcs / Diameter: Ø 1330 mm / MATERIAL: CARBON FIBRE
+ External charge controller for wind turbine, hermetic, IP67</td></tr>
<tr><td rowspan="2">Photovoltaic panel</td><td>min. 1 pc × 450 Wp</td><td>min. 2 pcs × 340W = 680 Wp</td></tr>
<tr><td colspan="2">Monocrystalline half-cut cells, tempered solar glass (3.2 mm thick) with an anti-reflective coating; panels tested in accordance with IEC 61215 for snow loads up to 5400 Pa.</td></tr>
<tr><td rowspan="5">LED lighting fitting
Made in Poland</td><td colspan="2">Power of the fitting:</td></tr>
<tr><td>38W DC</td><td>50W DC</td></tr>
<tr><td colspan="2">Luminous Flux:</td></tr>
<tr><td>> 5,300 lm (behind glass - after optical losses)
> 6,100 lm (in front of glass - before optical losses)</td><td>> 6,900 lm (behind glass - after optical losses)
> 8,000 lm (in front of glass - before optical losses)</td></tr>
<tr><td colspan="2">Polish-manufactured luminaire – ASYMMETRICAL, dedicated for pedestrian crossings.
LED luminous efficacy: min. 138 – 160 lm/W.
Service life: > 100,000 h / Ingress protection: IP66.
Impact resistance: min. IK09 / Light colour temperature: approx. 5500 K
Certificate: ZETOM / ENEC</td></tr>
<tr><td rowspan="2">Solar controller</td><td>1 pc × MPPT, 20 A, 24 V</td><td>2 pcs × MPPT, 20 A, 24 V</td></tr>
<tr><td colspan="2">the light as well as time of operation by MPPT intelligent control, water resistance IP67 class, in-built twilight sensor, automatic brake and cut-off of powered load</td></tr>
<tr><td rowspan="2">Battery</td><td>2 pcs × 120 Ah, 12 V (series connection)
→ 24 V, 120 Ah</td><td>2 pcs × 200 Ah, 12 V (series connection)
→ 24 V, 200 Ah</td></tr>
<tr><td colspan="2">NPG gel battery for solar installations, fully sealed,
full deep discharge cycle, maintenance-free, > 2,000 discharge cycles</td></tr>
<tr><td>Battery box</td><td colspan="2">PVC material, placed underground, water resistant type, disperses heat, anti-burglar,
PVC pipe for the cables included in the set
Optional: enclosure made of stainless steel AISI 304 with EPDM gaskets</td></tr>
<tr><td>Steel pole
weight approx. 230 kg
Made in Poland</td><td colspan="2">Total height: from 8 m to 9 m, hot-dip galvanised steel in accordance with EN ISO 1461
Pole model: "BrasiT", steel grade: S235, frame and bracket: steel S235
LED luminaire mounting height: 6 m – 7 m (in accordance with guidelines)
Round pole compliant with EN 40-5:2002
Vehicle impact class: 0, in accordance with EN 12767
Structural stability certificates in accordance with EN 40-3-1
<u>Hybrid pole structure compliant with: PN-EN 1090</u>
The pole, including the structure for photovoltaic panels and the boom arm for the wind turbine, is designed for wind zones: I, II or III in accordance with PN-EN 1991-1-4
Mounting frame for the photovoltaic panel with a boom arm for the LED luminaire, allowing 360° rotation around the pole axis.</td></tr>
<tr><td>Foundation
weight 450 kg</td><td colspan="2">Min. F200 V43 M24 prefabricated foundation, certified, Compliant with PN-EN 14991:2010 standard in accordance with the 2+ system designed for: I, II or III wind zones</td></tr>
<tr><td>Active roadside D6 sign</td><td colspan="2">Active D6 Sign – Composite “SUPER SIGN FLASH” or “WALKING MAN”
• 2 LED flashers with a diameter of Ø 100 mm | Ø 200 mm or 3-phase animation
• Flashers integrated with the sign face (single, unified construction)
• Maximum power consumption: only 3 W
• Ingress protection: IP67 from the sign face | Sign thickness: 2 cm
• The active D6 sign is activated by a narrow-beam, dual motion sensor, triggering the sign only when a pedestrian is detected in the vicinity of the pedestrian crossing
BrasiT power supply system – the sign face is mounted to the pole using dedicated clamps</td></tr>
<tr><td rowspan="2">Working time</td><td>11 hours per day (full output).
Autonomy: min. 4 days – at least 44 hours of luminaire operation without solar input.</td><td>11 hours per day (full output).
Autonomy: min. 5 days – at least 55 hours of luminaire operation without solar input.</td></tr>
<tr><td colspan="2">Five-period operating mode available: adjustable LED luminaire power (%) during night hours, enabling extended autonomous operation.</td></tr>
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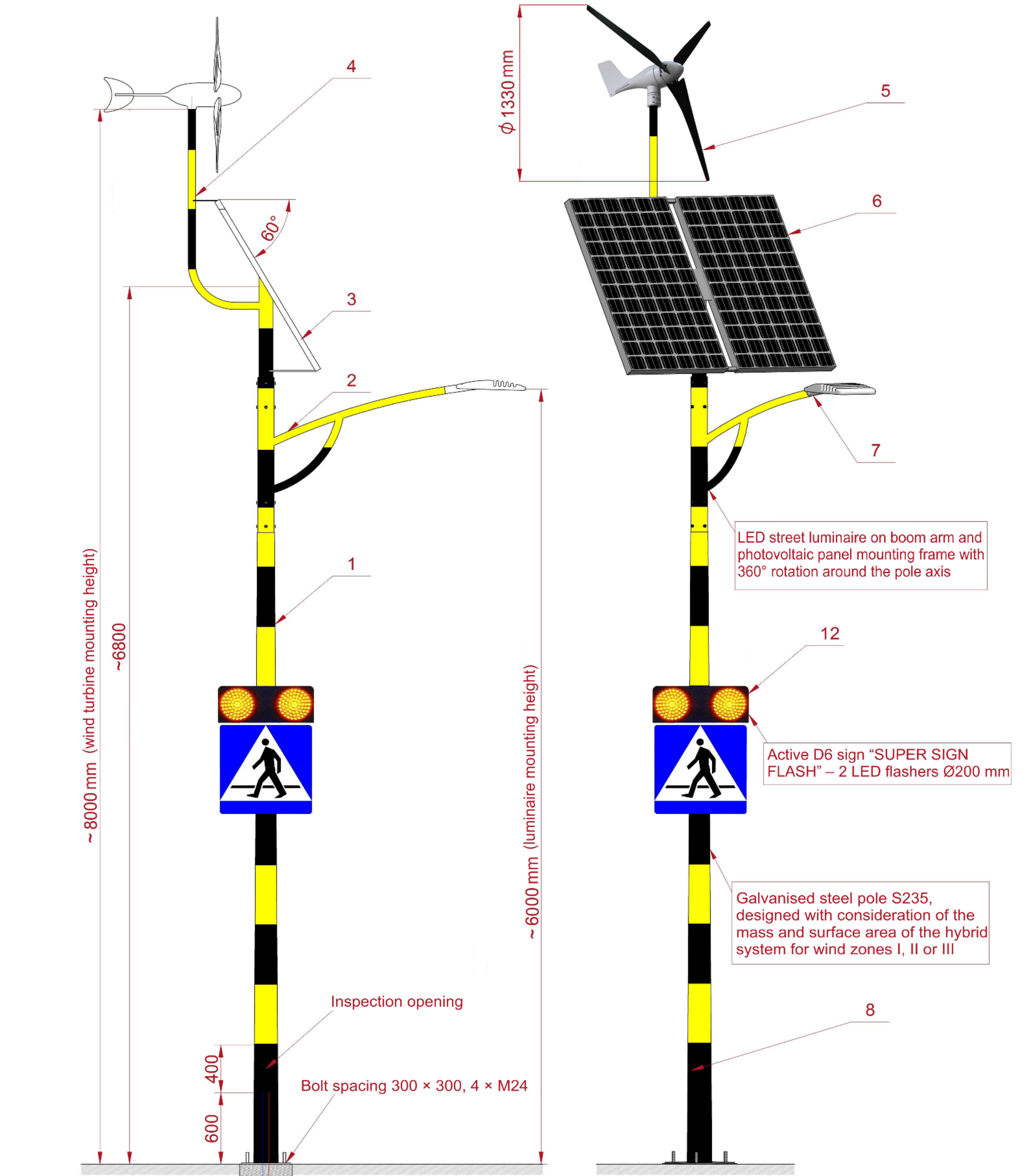
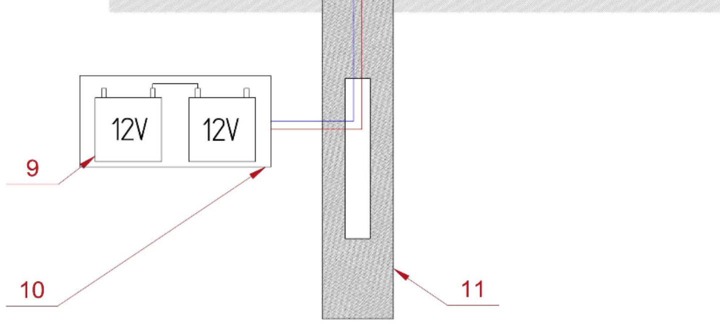




No.		Qty
1	Galvanised steel pole	1
2	Luminaire boom arm	1
3	Photovoltaic panel mounting structure	1
4	Wind turbine mounting bracket	1
5	Wind turbine	1
6	Photovoltaic panel	1 or 2
7	Asymmetrical LED street luminaire	1
8	Internal charge controller	1
9	12 V gell battery	2
10	Hermetic box for batteries	1
11	Prefabricated foundation F200 V43	1
12	Active D6 sign "SUPER SIGN FLASH" – 2 LED flashers Ø200 mm	1

Hybrid street lamp HLU – BrasiT

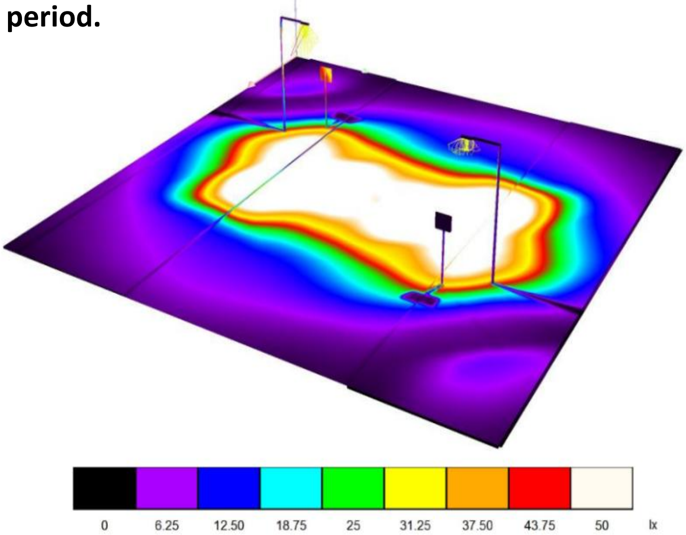
Example of pedestrian crossing lighting using 38 W solar street lamps – version without active D6 signs mounted on the poles:

OPTIONAL FEATURES:

- **Optional wireless infrared remote control with LCD display** for programming and remote control of the luminaires;
- **Powder coating of the pole in any RAL colour** available at an additional cost;
- **Optional installation of active in-road LED markers ("cat's eyes")**, flashing synchronously with the **D6 active signage**;
- **Cost-effective version available:** solar-only lamp **without a wind turbine**.

The scope of the offer includes the design, manufacturing, and sale of complete solar and hybrid lamps intended for the lighting of pedestrian crossings and other critical points of road infrastructure.

We also provide installation services, carried out in accordance with the highest professional standards. Each device installed by us is covered by comprehensive professional service support, ensuring full operational reliability and maximum extension of service life throughout the warranty period.



The system configuration can be customised based on specific client or project requirements. Particular attention is paid to ensuring that the designed system fully meets the client's expectations.
For the preparation of a commercial offer, please contact us directly.

More photos from our projects are available at: www.brasit.pl/realizacje

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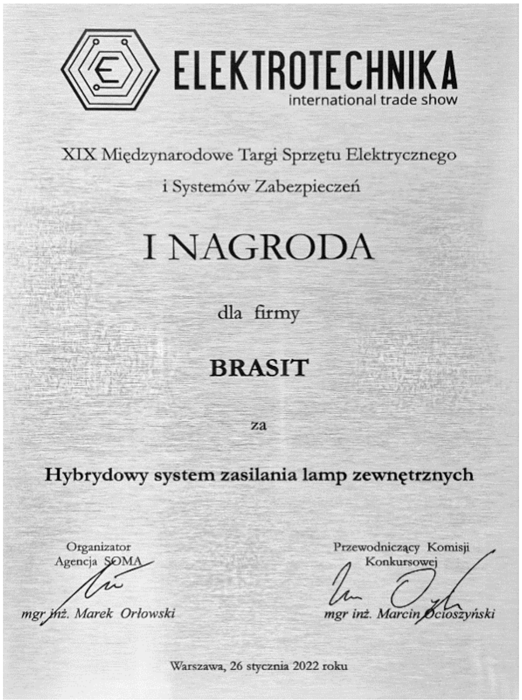

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dla firmy

BRASIT

za

Hybrydowy system zasilania lamp zewnętrznych

Organizator
Agencja SOMA
mgr inż. Marek Orłowski

Przewodniczący Komisji Konkursowej
mgr inż. Marcin Ocioszyński

Warszawa, 26 stycznia 2022 roku