

SolarInvert Energy Solutions

Project site lightweight photovoltaic modules



Overview

The DELIGHT consortium aims to design, manufacture, and evaluate sustainable lightweight composite PV modules for easier integration into existing infrastructure, with a special focus on increased safety, optimized aesthetic, and constructive integration. How to fabricate a lightweight PV module?

For the fabrication of a lightweight PV module, we laminated a front sheet/EVA/solar cell array/EVA/FRP/EVA/Al honeycomb core/EVA/FRP structures using a simple one-step lamination process with lamination system (BSL2222OC, Boostsolar) at 140 °C for 660 s.

What is reducing the weight of PV modules?

A notable trend in PV system development involves reducing the weight of PV modules to better suit specific applications. Typically, lightweight PV modules are fabricated by replacing the front glass with a transparent polymer film [1, 2].

How reliable is a shingled-design lightweight PV module?

The shingled-design lightweight PV modules had an area of 1.034 m², with only a weight of 6.2 kg/m². Standard reliability was assessed through DH1000, TC200, PID, and ML2400 tests. The expanding scale of the photovoltaic (PV) market has intensified the focus on PV module designs for diverse applications.

What is a PV module?

The module concept features a rigid multi-layer compound structure, mainly based on polyester foam. This approach leads to a significantly higher power-to-weight ratio and area density, being able to reduce the module weight by more than 50% compared to standard PV module concepts.

Why is a low-cost photovoltaic (PV) technology needed in Hong Kong?

Flexible, lightweight, low-cost photovoltaic (PV) technology is necessary for the deployment of PV devices in dense cities like Hong Kong. However, traditional silicon solar cells do not meet the requirements because of technical flaws, such as thick and heavy volume, cumbersome fabrication processes, and extensive environmental pollution.

Can lightweight PV modules replace front glass with polymer films?

Research actively pursues lightweight PV modules, replacing front glass with polymer films as a suitable design solution. Lightweight PV modules with front-film structures require additional structures to compensate for their inadequate mechanical rigidity.

Project site lightweight photovoltaic modules



Solar Spline Lightweight architectural ...

The structure is made up of 300 printed organic photovoltaic modules that are integrated into an ultra-lightweight construction that appears to be suspended ...

[Get Started](#)

Enabling lightweight polycarbonate-polycarbonate (PC-PC) ...

Mar 15, 2022 · Light weight photovoltaic (PV) modules have advantages both to reduce costs of PV installations as well as to enhance their further integration with building and other urban ...

[Get Started](#)



Longi unveils lightweight module for low-load rooftops - pv ...

12 hours ago · Chinese PV manufacturer Longi has launched a lightweight back-contact solar module for low-load commercial and industrial rooftops with limited structural load capacity.

[Get Started](#)



TÜV Nord collaborated with DAS Solar and other PV ...

Sep 21, 2023 · To accelerate the adoption and application of lightweight photovoltaic modules, DAS Solar will collaborate with partners to leverage TÜV Nord's established testing ...

[Get Started](#)



TÜV Nord collaborated with DAS Solar and other PV ...

Sep 21, 2023 · DAS Solar has self-developed lightweight modules that utilize fluorine-containing high-molecular-weight transparent front sheets instead of glass. By reducing the modules' ...

[Get Started](#)



Lightweight module installation manual Catalogue

Jul 31, 2023 · 2.3 Regular safety DAS SOLAR lightweight module meets the application level II. Such modules can be used in systems that the public may contact with above DC 50V or ...

[Get Started](#)



Sunman?Pioneer of Ultra-Light Solar

Aug 18, 2025 · Sunman Energy is a



technology company delivering the future of solar. Through the research and development of proprietary composite ...

[Get Started](#)

Advantages of lightweight and flexible DAS ...

Discover Lightweight & Flexible PV Solutions from DAS Energy Explore the innovative world of lightweight and flexible photovoltaic (PV) modules by DAS ...

[Get Started](#)



DELIGHT - Design and Evaluation of Lightweight Composite PV Modules ...

Mar 3, 2025 · The main targets are: (1) Reducing the module weight of the PV modules and the construction system, achieving a weight target for modules of $\leq 6 \text{ kg/m}^2$ (glass-free) and $\leq 7 \text{ ...}$

[Get Started](#)

PV Expo Tokyo 2024: Lightweight solar modules, ...

Mar 1, 2024 · PV Expo Tokyo 2024,

Japan's main solar industry event, has concluded with record numbers, innovative products, and new trends. Storage ...

[Get Started](#)



37th European Photovoltaic Solar Energy Conference ...

Nov 3, 2021 · We already demonstrated the possibility to produce a lightweight PV module with a weight of $\sim 6\text{kg/m}^2$, by substituting the typical front glass with a thin polymer sheet and the ...

[Get Started](#)

Thermo-mechanical stability of lightweight glass-free photovoltaic

Dec 1, 2018 · This work focuses on the development of a lightweight, glass-free photovoltaic (PV) module (6 kg/m^2) composed of a composite sandwich back-structure and a polymeric front ...

[Get Started](#)



Beyond the power plant: China's 'PV+' ...

Dec 2, 2024 · During the design phase,



the project explored the differences in power generation enhancements between various types of PV modules, ...

[Get Started](#)

Größere PV-Anlagen für Privatkunden, Landwirte und

...

Lightweight solar modules as an innovative solution for difficult roofs. For commercial and private customers It is difficult to install conventional solar modules on many roofs: These roofs with

...



[Get Started](#)

DAS Solar: Photovoltaic Module Manufacturer

DAS Solar is a high-tech company of national importance specializing in the R& D and Manufacturing of high-efficiency solar modules and other PV materials.

[Get Started](#)



Lightweight photovoltaic modules technologies: ...

This study aims at performing an assessment of lightweight photovoltaic (PV) module's reliability by comparing module's performances and reliability of several manufacturers.

[Get Started](#)



Lightweight module installation manual Catalogue

Jan 5, 2024 · 2.3 Regular safety DAS
SOLAR lightweight module meets the application level II. Such modules can be used in systems that the public may contact with above DC 50V or ...

[Get Started](#)

Lightweight module installation manual Catalogue

Jun 11, 2024 · Photovoltaic Modules may generate power energy when directly exposed to light sources, and a photovoltaic array comprised of multiple Modules may create dangers critical ...

[Get Started](#)



Development and testing of light-weight PV modules based

...



May 26, 2022 · 1 (Thermo-)mechanical testing In the field of vehicle-integrated photovoltaics (VIPV), we identified 4 relevant norms that describe testing related to mechanical and ...

[Get Started](#)

Ultra lightweight PV modules (U-LIGHT) , ZHAW Zurich ...

In the "U-Light" project new light weight modules, with high efficiency, long live modules are developed with regard to lowest cost for integration into PV systems achieving lowest values ...

[Get Started](#)



Research DELIGHT: holistic design process for BIPV

To accelerate module innovations of building-integrated photovoltaics (BIPV) in the future, the research project DELIGHT aims to develop and validate a holistic design process. The ...

[Get Started](#)

Light & flexible photovoltaic modules for ...

Your Expert in lightweight & flexible photovoltaics Our expertise lies in the

field of green technology, with a clear focus on the development and manufacturing of ...

[Get Started](#)



Novel Lightweight PV Modules Based on Polymeric ...

Jun 14, 2024 · A reliable and aesthetically pleasing lightweight (LW) photovoltaic (PV) module for building integration is expected to develop a growing interest in the consum

[Get Started](#)

(PDF) Lightweight PV Module Approach

Sep 9, 2019 · Four prototypes of lightweight photovoltaic modules for applications in on-grid systems have been designed, developed, manufactured and tested ...

[Get Started](#)



Lightweight module installation manual Catalogue

Jun 11, 2024 · 2.3 Regular safety DAS SOLAR lightweight module meets the



application level II. Such modules can be used in systems that the public may contact with above DC 50V or ...

[Get Started](#)

(PDF) Development and testing of light-weight ...

May 26, 2022 · In this paper we report on our approach on integrating c-Si PV into lightweight structures, in particular towards vehicle integration. To this end ...



[Get Started](#)



Shingled design lightweight photovoltaic modules using ...

Dec 1, 2024 · We fabricated a front-film-type PV module incorporating honeycomb sandwich structures to simplify the design of lightweight PV modules. A honeycomb sandwich structure ...

[Get Started](#)

DELIGHT - Design and Evaluation of Lightweight Composite PV Modules ...

Mar 3, 2025 · The DELIGHT consortium aims to design, manufacture, and evaluate sustainable lightweight composite PV modules for easier integration into existing infrastructure, with a ...

[Get Started](#)



The dawn of lightweight solar panels: a game ...

Aug 3, 2023 · Lightweight solar panels allow for harnessing sunlight, where it's not possible with conventional photovoltaic (PV) cells. Not all buildings can ...

[Get Started](#)

Optimization of large-area photovoltaic module frames for lightweight

Jun 15, 2025 · In this study, for the lightweight design of existing aluminum frames for large-area PV modules, a lightweight frame model with a 10.13 % reduction in the cross-sectional area ...

[Get Started](#)



Contact Us

For catalog requests, pricing, or partnerships, please visit:

<https://www.persianasaranda.es>