Photovoltaic flexible support wind-resistant cable tensioning

What is flexible support photovoltaic module system?

Flexible support photovoltaic module system: (a) the single-layer cable-supported photovoltaic module system,(b) the double-layer cable-supported photovoltaic module system. Recently,the author proposed the cable-truss support photovoltaic module structure system with excellent wind resistance and economic performance.

Does cable-truss support photovoltaic module structure have good wind resistance?

In this paper,a new type of cable-truss support photovoltaic module structure system with excellent wind resistanceis proposed. Firstly,the superiority of the new system is proved by the aspects of static and dynamic performance. Then,the wind-vibration response is analyzed by the wind tunnel test.

Do flexible PV support structures deflection more sensitive to fluctuating wind loads?

This suggests that the deflection of the flexible PV support structure is more sensitiveto fluctuating wind loads compared to the axial force. Considering the safety of flexible PV support structures,it is reasonable to use the displacement wind-vibration coefficient rather than the load wind-vibration coefficient.

Do flexible PV support structures have resonant frequencies?

Modal analysis reveals that the flexible PV support structures do not experience resonant frequenciesthat could amplify oscillations. The analysis also provides insights into the mode shapes of these structures. An analysis of the wind-induced vibration responses of the flexible PV support structures was conducted.

Liu et al. investigated on the wind-induced and critical wind speed of a 33-m-span flexible PV support structure by means of wind tunnel test on the elastic model. The effectiveness of three different types of stability ...

Do flexible PV support cables reduce vibration? Liu et al.,designed a 33 m-span flexible PV support aeroelastic model and conducted wind tunnel tests to verify the effectiveness of three types of stabilizing cables in ...

What is a flexible PV mounting structure? consists of six spans,each with a span of 2 m. The spans are connected by struts,with the support cables having a hei ht of 4.75 m,directly supporting the PV panels. The ...

The wind-induced vibration characteristics of the photovoltaic support system are investigated from a time-domain analysis perspective, ...

First, modal analysis cases are performed with different initial tension forces in the steel cables. Next, the transient response of the cable-support structure and the changes in the wind field under load are assessed. ...

The flexible support photovoltaic module structure system has advantages such as large span, fast construction speed, and suitability for complex environments. However, this kind of system has the disadvantage of ...

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Wind-induced response and critical wind velocity of a 33-m-span flexible PV modules support structure was investigated by using wind tunnel tests based on elastic test model, and the effectiveness of ...

An analysis of the wind-induced vibration responses of the flexible PV support structures was conducted. The results indicated that the mid-span displacements and the axial forces in the wind-resistant ...

Shenliping Weng, Hehe Ren, Shitang Ke, Kunkun Zhao, Jiufa Cao, Wenxin Tian; Comparison and mechanism analysis of wind-induced vibration responses for flexible photovoltaic structures with different ...

The main load borne by photovoltaic modules and support is wind load [2] ~ [9]. There is also a snow load in the northern region. Compared with a rigid support, flexible photovoltaic support is more sensitive to wind load ...

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