Deye ® | V-TAC Meaningful Innovation.

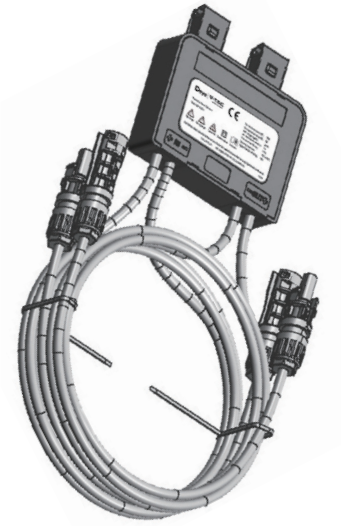
WEEE Number: 80133970

INSTRUCTION MANUAL

PHOTOVOLTAIC SMART OPTIMIZER

TECHNICAL DATA

MODEL	SUN-XL02-A
SKU	11946
MAX. INPUT/OUTPUT POWER(DC)	700W
MAX. INPUT/OUTPUT VOLTAGE(DC)	80V
MPPT VOLTAGE RANGE(DC)	12-80V
MAX. INPUT/OUTPUT CURRENT(DC)	15A
PEAK CONVERSION EFFICIENCY	99.5%
OPERATING TEMPERATURE	-40°C to +85°C



IP68 RATING

10 YEAR WARRANTY*

INTRODUCTION & WARRANTY

Thank you for selecting and buying V-TAC product. V-TAC will serve you the best. Please read these instructions carefully before starting the installation and keep this manual handy for future reference. If you have any another query, please contact our dealer or local vendor from whom you have purchased the product. They are trained and ready to serve you at the best. The warranty is valid for 10 years from the date of purchase. The warranty does not apply to damage caused by incorrect installation or abnormal wear and tear. The company gives no warranty against damage to any surface due to incorrect removal and installation of the product. This product is warranted for manufacturing defects only.

This marking indicates that this product should not be disposed of with other household wastes.

Caution, Risk of electric shock

MULTI-LANGUAGE MANUAL QR CODE
Please scan the QR code to access the manual in multiple languages.

FR
Cet appareil, ses accessoires et cordons se recyclent
À DÉPOSER EN MAGASIN ou À DÉPOSER EN DÉCHÈTERIE
Points de collecte sur www.quefairedemesdechets.fr
Privilégiez la réparation ou le don de votre appareil !

In case of any query/issue with the product, please reach out to us at: support@v-tac.eu
For More products range, inquiry please contact our distributor or nearest dealers.
V-TAC EUROPE LTD. Bulgaria, Plovdiv 4000, bul.L.Karavelow 9B

WARNING

1. Please make sure to turn off the power before starting the installation.
2. Installation must be performed by a qualified electrician.

⚠ DANGER

"Danger" indicates a situation that has a high potential risk and will result in death or serious injury if not avoided.

⚠ WARNING

"Warning" indicates a situation that has a moderate potential risk and may result in death or serious injury if not avoided.

⚠ CAUTION

"Caution" indicates a situation that has a low potential risk and may result in moderate or minor injury if not avoided.

⚠ ATTENTION

"Attention" indicates a situation that has a potential risk and may result in equipment failure or property loss if not avoided.

1. SAFETY INSTRUCTIONS

To ensure the safe installation and operation of optimizer and reduce the risk of electric shock and equipment damage, the following safety precautions shall be strictly followed during operation and maintenance.

⚠ WARNING

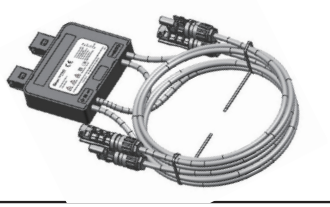
All installation operations must be completed by professional technicians. The professional technicians must:
1 Undergo specialized training;
2 Read this Manual completely and master the operation-related safety matters;
3 Be familiar with relevant safety specifications of the electrical system.

2. PRODUCT DESCRIPTION

2.1 EXTERNAL OPTIMIZER

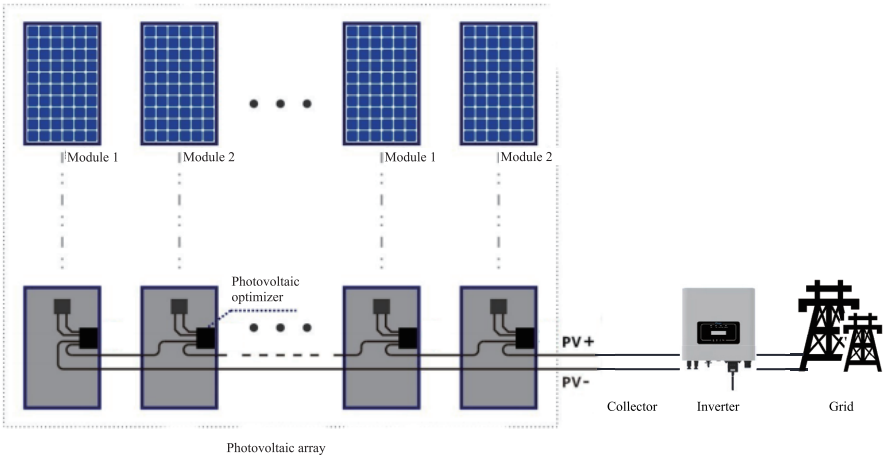
The optimizer product features are as follows:

- The component-level maximum power point tracking can increase the power generation by 5% - 25%.
- Monitor the operation of each photovoltaic module in real time. Find problems in time and make accurate positioning.
- Use photovoltaic cable power line carrier communication, without additional communication cable.



2.2 COMPOSITION OF PHOTOVOLTAIC SYSTEM

photovoltaic system is that each photovoltaic module is installed with an external optimizer to achieve module-level MPPT. The input of external optimizer is connected to output of module. The output of optimizer are connected to each other, which is merged into later stage inverter or combiner box.



3. SYSTEM INSTALLATION INSTRUCTIONS

3.1 INSTRUCTIONS TO INSTALLATION STEPS

⚠ WARNING

Read all instructions and warnings of this Manual and warning signs on inverter and module array before installation.

⚠ WARNING

Shut down the inverter and disconnect it from module array before installation.

⚠ WARNING

Before installation, confirm that the output current, voltage and power of photovoltaic module are matched with external photovoltaic optimizer.

- **Step 1. Shut down the inverter and disconnect it from module array**

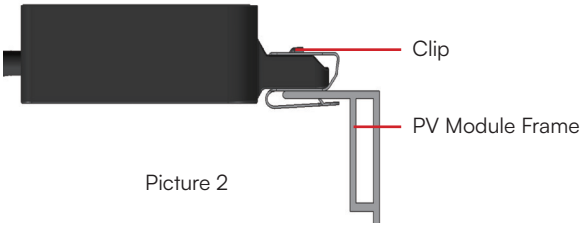
Before the installation of optimizer, make sure that inverter is shut down and disconnected from the module array.

- **Step 2. Install the optimizer to module frame**

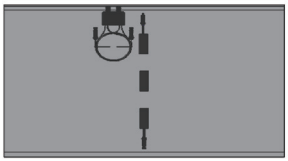
Place the external optimizer into module frame in the direction shown in the figure, clip the buckle into module frame directly(Picture 1), Installation section(Picture 2), Recommended installation position diagram(Picture 3).



Picture 1



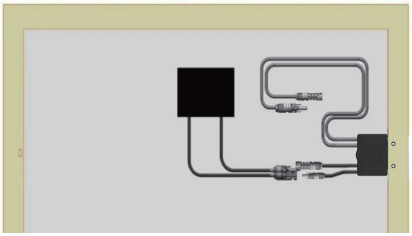
Picture 2



Picture 3

- **Step 3. Connection of input line**

The line marked with “IN” on the housing of external optimizer is the input line, which is connected to the output line of module.`

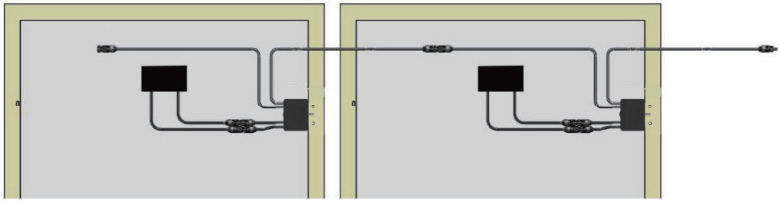


⚠ WARNING

When installing, connect the input line of optimizer first, then connect the output line. When removing, disconnect the output line first, then disconnect the input line.

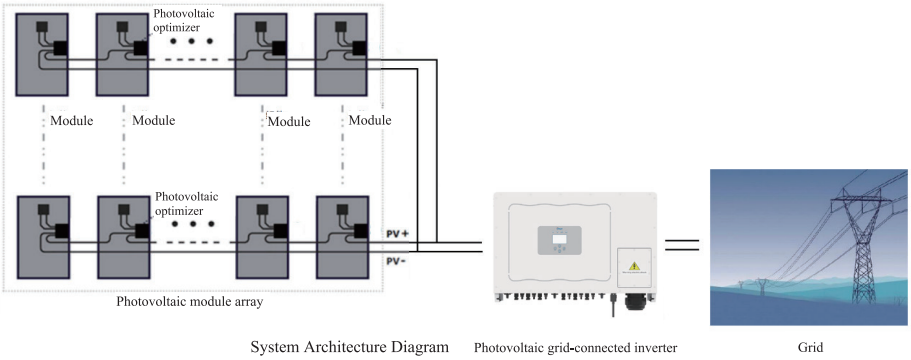
- **Step 4. Connect output lines to form string**

After connecting the input lines, connect the output lines in series to form a string. The positive and negative connectors of string shall be connected to the later stage inverter or combiner box.



- **Step 5. Merge the string into inverter**

After confirming that the entire string is connected correctly, merge the string into the later stage inverter or combiner box.



- **Step 6. Turn on the inverter**

After confirming that the system is connected correctly, turn on the inverter.

- **4. Check and Replacement**

⚠ WARNING

The following operations must be completed by trained professional technicians to avoid the risk of electric shock.

4.1 CHECK

Check whether the optimizer is abnormal by following the steps below:

- 1. To check whether the external optimizer is operated normally, measure the input current of optimizer with clip-on ammeter. If there is input current, the optimizer is operated normally; if the input current is 0, the optimizer or module is abnormal.
- 2. If the input current is 0, check whether the module is obviously damaged or seriously blocked. If it is obviously damaged, replace the module; if it is seriously blocked, remove the block.
- 3. If module is normal, check the connected cables for disconnection. After disconnecting the input line of optimizer (the output line is disconnected first), measure the voltage of positive and negative connectors of module output line with a multimeter. If the voltage is normal, the line connection is normal; if there is no voltage, check the line connection further to confirm the open-circuit contact.
- 4. If the module and line connection are normal, the replacement of optimizer shall be considered.

4.2 REPLACEMENT

Replace the optimizer by following the steps below:

- 1. Shut down the inverter and disconnect it from corresponding string;
- 2. Disconnect the output line of optimizer;
- 3. Disconnect the input line of optimizer;
- 4. Remove the original optimizer and install the new one;
- 5. Connect the input line;
- 6. Connect the output line;
- 7. Connect the corresponding string to the later stage inverter;
- 8. Restart the inverter;
- 9. Test the input current of replaced optimizer with a clip-on ammeter to confirm repair.

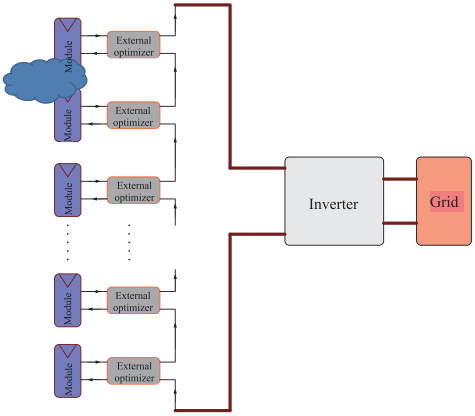
5. INSTRUCTIONS TO APPLICABLE SCENE

The external optimizer is suitable for various types of power stations, distributed and large-scale surface power stations; new power stations, reconstructive old power stations. In consideration of various mismatch situations, the installation methods are as follows.

5.1 ONE MPPT PORT WITH ONE STRING

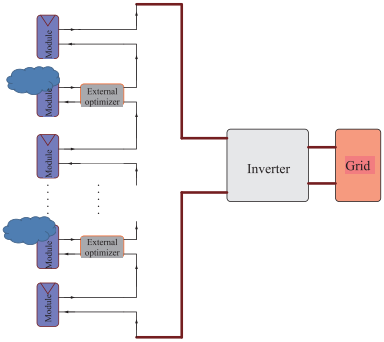
5.1.1 FULL INSTALLATION

The photovoltaic system has various mismatches, such as shadow shading, inconsistent orientation, inconsistent aging, stain, glass fragments, ash accumulation, snow accumulation. It can be said that there is no system without mismatch. The difference lies in the mismatch.
The full installation can solve various series (current) mismatch and recover losses caused by mismatch to the full extent.



5.1.2 INSTALLATION OF MISMATCHED MODULES

If the mismatched modules of system are clear, it can be considered to install only on mismatched modules or solve series mismatch to save costs.
Instructions for installing mismatched modules:
If module has the clear mismatch, such as shading, low effective illumination caused by orientation deviation, install on the module with clear mismatch;
If the current value of module with low current in string is different due to the reconstruction and replacement of the old power station, install on the module with small current values.

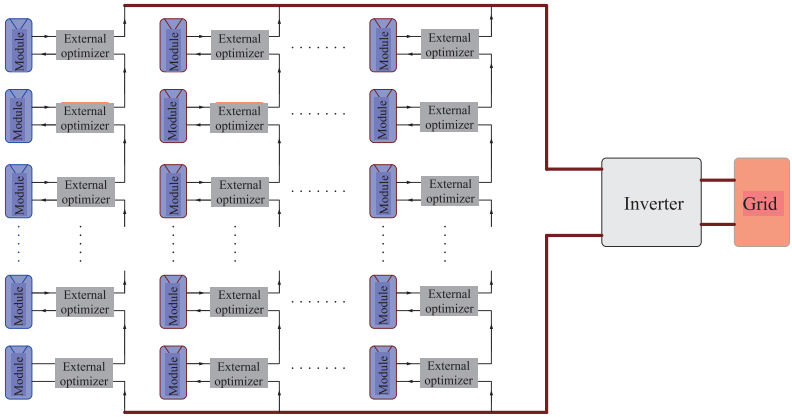


Risk of installation on mismatched module only:
The mismatch of other modules cannot be solved. When the judgment of system mismatch is not accurate, for example,some modules are seriously mismatched due to damage while there is no obvious mismatch on the surface, because the optimizer is not installed, this module will cause great loss to the power generation of system.
The mismatch is not fixed and will change with time, environment and conditions. If the installation is based on current mismatch, the mismatch changes after a period of time, the mismatch cannot be solved effectively.

5.2 ONE MPPT PORT WITH MULTIPLE STRINGS

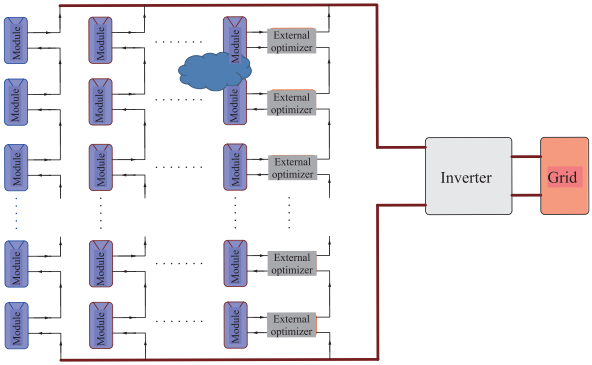
5.2.1 FULL INSTALLATION

If one MPPT port of the photovoltaic system has multiple strings, there will be series mismatch and parallel mismatch in the system. The most effective method is full installation.
The full installation in array corresponding to one MPPT port can solve series (current) mismatch and parallel (voltage) mismatch to recover losses caused by mismatch to the full extent.



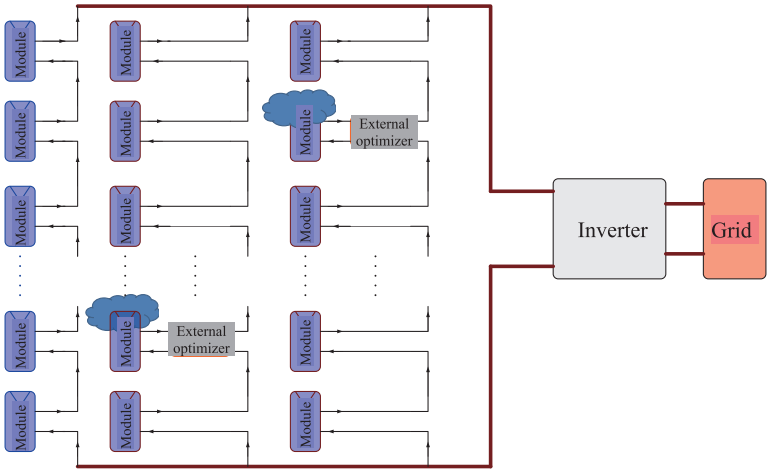
5.2.2 INSTALLATION OF MISMATCHED STRING

When only part of strings in one MPPT port array has clear mismatch and other strings have no obvious mismatch, it is allowed to install the mismatched strings only. In this way, the series mismatch in this string can be solved and the losses of power generation can be recovered to a certain extent, but the parallel mismatch cannot be solved.



5.2.3 INSTALLATION OF MISMATCHED MODULE

When only part of modules in an array has clear mismatch, it is allowed to only install the modules with clear mismatch. In this way, the mismatch can be solved to a large extent at the lowest cost, so as to recover losses of power generation.



PRODUCT SPECIFICATION

MODEL	SUN-XL02-A
PROJECT	PARAMETER
MAX. INPUT/OUTPUT POWER(DC)	700W
MAX. INPUT/OUTPUT VOLTAGE(DC)	80V
MPPT VOLTAGE RANGE(DC)	12-80V
MAX. INPUT/OUTPUT CURRENT(DC)	15A
PEAK CONVERSION EFFICIENCY	99.5%
INSTALLATION SPECIfiCATIONS DIMENSIONS(MM)	105x105x22mm
WEIGHT (G)	600g
CABLE	4.0mm² input 70cm output 100cm customizable
CONNECTOR	MC4 Or Compatible with MC4
OPERATING TEMPERATURE	-40°C to +85°C
INGRESS PROTECTION (IP) RATING	IP68
PRODUCT CERTIFICATION	CE

EU DECLARATION OF CONFORMITY

within the scope of the EU directives
- Radio Equipment Directive 2014/53/EU (RED)
- Restriction of the use of certain hazardous substances 2011/65/EU)(RoHS)

NINGBO DEYE INVERTER TECHNOLOGY CO.,LTD. confirms herewith that the products described in this document are in compliance with the fundamental requirements and other relevant provisions of the above mentioned directives. The entire EU Declaration of Conformity and certificate can be found at https://www.deyeinverter.com/download/#pv-optimizer.

Deye

2311 03001
www.deyeinverter.com

EU Declaration of Conformity

Product: **PV optimizer**
Models: SUN-XL02-A;SUN-XL02-B;SUN-XL02-C;
Name and address of the manufacturer: Ningbo Deye Inverter Technology Co., Ltd.
No. 26 South YongJang Road, Daqi, Beilun, NingBo, China

This declaration of conformity is issued under the sole responsibility of the manufacturer. Also this product is under manufacturer's warranty.
This declaration of conformity is not valid any longer: if the product is modified, supplemented or changed in any other way, as well as in case the product is used or installed improperly.

The object of the declaration described above is in conformity with the relevant Union harmonization legislation: The Low Voltage Directive (LVD) 2014/35/EU;the Electromagnetic Compatibility (EMC) Directive 2014/30/EU;the restriction of the use of certain hazardous substances (RoHS) Directive 2011/65/EU.

References to the relevant harmonized standards used or references to the other technical specifications in relation to which conformity is declared:

LVD:	
EN 62109-1:2010	●
EMC:	
EN IEC 61000-6-2:2019	●
EN IEC 61000-6-3:2021	●

Nom et Titre / Name and Title: Bard Dai
Senior Standard and Certification Engineer

宁波德业变频技术有限公司 NINGBO DEYE INVERTER TECHNOLOGY CO.,LTD.

Au nom de / On behalf of: Ningbo Deye Inverter Technology Co., Ltd.
Date / Date (yyyy-mm-dd): 2023-11-3
A / Place: Ningbo, China

EU DoC –v1

Ningbo Deye Inverter Technology Co., Ltd.
No. 26 South YongJang Road, Daqi, Beilun, NingBo, China

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