

# CERTIFICATE

**TÜV NORD CERT GmbH**

herewith declares that

**Leapton Energy Co., Ltd.**

Tousei Bld.6F, 1-2-1, Aioicho, Chuo-ku Kobe-shi, Hyogo, Japan

is authorized to provide the product mentioned below with the mark as illustrated:

**Description of product (details see Annex 2):**

**Crystalline Silicon Terrestrial Photovoltaic (PV) Modules**



Valid from: 2024-07-29

Valid until: 2029-07-10

Certification program:

P12-VA-01 Rev. 17 09.20

Certification fundamental(s):

IEC 61215-1:2021 / EN IEC 61215-1:2021;

IEC 61215-1-1:2021 / EN IEC 61215-1-1:2021;

IEC 61215-2:2021 / EN IEC 61215-2:2021;

IEC 61730-1:2023;

IEC 61730-2:2023.

Registered No.:

44 780 24 406749 - 299

Manufacturer and factory(-ies):

See Annex 1

Test Report No.:

492013317.001

File No.:

PVP05178/24P-03

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**TÜV NORD CERT GmbH**  
**Certification Body**  
**Consumer Products**



Essen, 2024-07-29

Please also pay attention to the information stated overleaf.

**Manufacturer and factory(-ies):**

Manufacturer: **Leapton Energy Co., Ltd.**  
Tousei Bld.6F,1-2-1,Aioicho,Chuo-ku Kobe-shi,Hyogo,Japan

Factory: **Leapton Solar (Changshu) Co., Ltd.**  
No. 9, Sunshine Avenue, Yushan High Technology Industry Zone,  
Changshu City  
Jiangsu Province, 215500, P.R. China

Factory inspection report no.: 862010379.007

**Remark:**

Factory inspection is mandatory to be performed annually. Please refer to factory inspection report for detailed information.

**Description of product(s):**

|                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Module types:                                                   | <b>PV Modules with Half-cut 210*210mm Mono-crystalline Silicon Solar Cells:</b><br>132 cells: LP210*210-M-66-MH-***W (** = 630-665, in increment of 5)<br>120 cells: LP210*210-M-60-MH-***W (** = 575-605, in increment of 5)<br>108 cells: LP210*210-M-54-MH-***W (** = 515-545, in increment of 5)<br>96 cells: LP210*210-M-48-MH-***W (** = 460-480, in increment of 5)<br>84 cells: LP210*210-M-42-MH-***W (** = 400-420, in increment of 5)             |
| Maximum system voltage:                                         | 1500V                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Maximum overcurrent protection rating:                          | 30A                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Electrical protection class:                                    | Class II                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Pollution degree:                                               | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 98th percentile module operating temperature (T <sub>98</sub> ) | 70°C                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Design load (positive / negative):                              | 3600Pa / 1600Pa                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Safety factors:                                                 | 1.5                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Fire safety class:                                              | Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)                                                                                                                                                                                                                                                                                                                                                                                             |
| Module types:                                                   | <b>PV Modules with Half-cut 182*182/188mm n-type TOPCon Bifacial Silicon Solar Cells:</b><br>156 cells: LP182*182-M-78-NH-***W (** = 580-625, in increment of 5)<br>144 cells: LP182*182-M-72-NH-***W (** = 555-600, in increment of 5)<br>132 cells: LP182*182-M-66-NH-***W (** = 510-550, in increment of 5)<br>120 cells: LP182*182-M-60-NH-***W (** = 460-500, in increment of 5)<br>108 cells: LP182*182-M-54-NH-***W (** = 410-450, in increment of 5) |
| Maximum system voltage:                                         | 1500V                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Maximum overcurrent protection rating:                          | 25A                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Electrical protection class:                                    | Class II                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Pollution degree:                                               | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 98th percentile module operating temperature (T <sub>98</sub> ) | 70°C                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Design load (positive / negative):                              | 3600Pa / 1600Pa                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Safety factors:                                                 | 1.5                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Fire safety class:                                              | Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)                                                                                                                                                                                                                                                                                                                                                                                             |



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| Module types:                                                   | <b>PV Modules with Half-cut 182*210mm n-type TOPCon Bifacial Silicon Solar Cells:</b><br>132 cells: LP182*210-M-66-NH-***W (** = 580-635, in increment of 5)<br>120 cells: LP182*210-M-60-NH-***W (** = 530-575, in increment of 5)<br>108 cells: LP182*210-M-54-NH-***W (** = 475-520, in increment of 5)<br>96 cells: LP182*210-M-48-NH-***W (** = 420-460, in increment of 5) |
| Maximum system voltage:                                         | 1500V                                                                                                                                                                                                                                                                                                                                                                            |
| Maximum overcurrent protection rating:                          | 25A                                                                                                                                                                                                                                                                                                                                                                              |
| Electrical protection class:                                    | Class II                                                                                                                                                                                                                                                                                                                                                                         |
| Pollution degree:                                               | 1                                                                                                                                                                                                                                                                                                                                                                                |
| 98th percentile module operating temperature (T <sub>98</sub> ) | 70°C                                                                                                                                                                                                                                                                                                                                                                             |
| Design load (positive / negative):                              | 3600Pa / 1600Pa                                                                                                                                                                                                                                                                                                                                                                  |
| Safety factors:                                                 | 1.5                                                                                                                                                                                                                                                                                                                                                                              |
| Fire safety class:                                              | Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)                                                                                                                                                                                                                                                                                                                 |

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| Module types:                                                   | <b>PV Modules with Half-cut 182*199/191mm n-type TOPCon Bifacial Silicon Solar Cells:</b><br>144 cells: LP182*199-M-72-NH-***W (** = 570-655, in increment of 5)<br>132 cells: LP182*199-M-66-NH-***W (** = 525-600, in increment of 5)<br>120 cells: LP182*199-M-60-NH-***W (** = 475-545, in increment of 5)<br>108 cells: LP182*199-M-54-NH-***W (** = 430-490, in increment of 5) |
| Maximum system voltage:                                         | 1500V                                                                                                                                                                                                                                                                                                                                                                                 |
| Maximum overcurrent protection rating:                          | 25A                                                                                                                                                                                                                                                                                                                                                                                   |
| Electrical protection class:                                    | Class II                                                                                                                                                                                                                                                                                                                                                                              |
| Pollution degree:                                               | 1                                                                                                                                                                                                                                                                                                                                                                                     |
| 98th percentile module operating temperature (T <sub>98</sub> ) | 70°C                                                                                                                                                                                                                                                                                                                                                                                  |
| Design load (positive / negative):                              | 3600Pa / 1600Pa                                                                                                                                                                                                                                                                                                                                                                       |
| Safety factors:                                                 | 1.5                                                                                                                                                                                                                                                                                                                                                                                   |
| Fire safety class:                                              | Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)                                                                                                                                                                                                                                                                                                                      |



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| Module types:                                                   | <b>PV Modules with Half-cut 210*210mm n-type TOPCon Bifacial Silicon Solar Cells:</b><br>132 cells: LP210*210-M-66-NH-***W (** = 675-700, in increment of 5)<br>120 cells: LP210*210-M-60-NH-***W (** = 615-635, in increment of 5)<br>108 cells: LP210*210-M-54-NH-***W (** = 555-570, in increment of 5)<br>96 cells: LP210*210-M-48-NH-***W (** = 490-510, in increment of 5)<br>84 cells: LP210*210-M-42-NH-***W (** = 430-445, in increment of 5) |
| Maximum system voltage:                                         | 1500V                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Maximum overcurrent protection rating:                          | 30A                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Electrical protection class:                                    | Class II                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Pollution degree:                                               | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 98th percentile module operating temperature (T <sub>98</sub> ) | 70°C                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Design load (positive / negative):                              | 3600Pa / 1600Pa                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Safety factors:                                                 | 1.5                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Fire safety class:                                              | Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)                                                                                                                                                                                                                                                                                                                                                                                       |

## Remark:

For detailed product information, please refer to CDF (Constructional Data Form) attached to test report with same file no.



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# Certificate



This certifies that the company:

**Leapton Energy Co., Ltd.**

Tousei Bld.6F,1-2-1,Aioicho,Chuo-ku Kobe-shi,Hyogo  
Japan

is authorized to provide the product(s) mentioned below with the mark as illustrated.

Manufacturer and factory(-ies): See Annex 1

Description of product(s) **Crystalline Silicon Terrestrial Photovoltaic (PV) Modules**  
(details see Annex 2):

Trademark: See Annex 1

Certification scheme: P12.4-VA-01 Rev. 01 / 01.26 Certification scheme type: Type 5 acc. to ISO/IEC 17067:2013

Certification fundamental(s): IEC 61215-1:2021 / EN IEC 61215-1:2021,  
IEC 61215-1-1:2021 / EN IEC 61215-1-1:2021, IEC 61215-2:2021 / EN IEC 61215-2:2021,  
IEC 61730-1:2023, IEC 61730-2:2023

It is certified by TÜV NORD CERT GmbH that the product(s) described above has(have) been assessed according to the certification program mentioned above and found in compliance with the requirements of above specified certification fundamental(s). This certification is based on evaluation results as documented in test report(s) referenced below and production site(s) audit results as documented in factory inspection report(s) referenced in Annex 1. This certificate is valid in conjunction with these quoted report(s).

Registration no.: 44 780 24 406749 - 300R2M2

Report no.: 492013318.003

File no.: PVP05039/26P-001

Valid from: 2026-05-29

Valid until: 2029-06-25

Essen, 2026-05-29

Certification Body - Consumer Products

**TÜV NORD CERT GmbH**

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Please also pay attention to the information stated overleaf.

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Scan the QR code or  
visit [cis.tuev-nord.com.cn](https://cis.tuev-nord.com.cn) to verify  
the validity of the  
certificate

# Annex 1

to certificate registration no. 44 780 24 406749 - 300R2M2

**Manufacturer:**

**Leapton Energy Co., Ltd.**

Tousei Bld.6F,1-2-1,Aioicho,Chuo-ku Kobe-shi,Hyogo,Japan

**Trademark:**



**Factory:**

**Leapton Solar (Changshu) Co., Ltd.**

No. 9, Sunshine Avenue, Yushan High Technology Industry Zone, Changshu City  
Jiangsu Province, 215500, P.R. China

Factory inspection report no.: 862010379.008

Remark: Factory inspection is mandatory to be performed annually. Please refer to factory inspection report for detailed information.

Essen, 2026-05-29



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# Annex 2

to certificate registration no. 44 780 24 406749 - 300R2M2

## Description of product(s):

|                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Module types:                                                                | <b>Double Glass PV Modules with Half-cut 210*210mm n-type TOPCon Bifacial Silicon Solar Cells:</b><br>132 cells: LP210*210-M-66-NB-***W (** = 665-730, in increment of 5)<br>120 cells: LP210*210-M-60-NB-***W (** = 610-665, in increment of 5)<br>108 cells: LP210*210-M-54-NB-***W (** = 550-595, in increment of 5)<br>96 cells: LP210*210-M-48-NB-***W (** = 490-530, in increment of 5)<br>84 cells: LP210*210-M-42-NB-***W (** = 430-465, in increment of 5)<br>*** indicates rated output power generated from front side under STC |
| Maximum system voltage:                                                      | 1500V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Maximum overcurrent protection rating:                                       | 30A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Electrical protection class:                                                 | Class II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Pollution degree:                                                            | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 98 <sup>th</sup> percentile module operating temperature (T <sub>98</sub> ): | 70°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Design load (positive / negative):                                           | 3600Pa / 1600Pa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Safety factors:                                                              | 1.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Fire safety class:                                                           | Class A according to UL790                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Isc bifaciality coefficient (ϕ <sub>Isc</sub> ):                             | 80% ± 10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Module types:                          | <b>Double Glass PV Modules with Half-cut 182*182/188mm n-type TOPCon Bifacial Silicon Solar Cells:</b><br>156 cells: LP182*182-M-78-NB-***W (** = 580-620, in increment of 5)<br>144 cells: LP182*182-M-72-NB-***W (** = 535-635, in increment of 5)<br>132 cells: LP182*182-M-66-NB-***W (** = 490-580, in increment of 5)<br>120 cells: LP182*182-M-60-NB-***W (** = 445-530, in increment of 5)<br>108 cells: LP182*182-M-54-NB-***W (** = 400-475, in increment of 5)<br>*** indicates rated output power generated from front side under STC |
| Maximum system voltage:                | 1500V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Maximum overcurrent protection rating: | 25A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Electrical protection class:           | Class II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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# Annex 2

to certificate registration no. 44 780 24 406749 - 300R2M2

|                                                                              |                            |
|------------------------------------------------------------------------------|----------------------------|
| Pollution degree:                                                            | 1                          |
| 98 <sup>th</sup> percentile module operating temperature (T <sub>98</sub> ): | 70°C                       |
| Design load (positive / negative):                                           | 3600Pa / 1600Pa            |
| Safety factors:                                                              | 1.5                        |
| Fire safety class:                                                           | Class A according to UL790 |
| Isc bifaciality coefficient (ϕ <sub>Isc</sub> ):                             | 80% ± 10%                  |

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Module types: | <b>Double Glass PV Modules with Half-cut 182*210mm n-type TOPCon Bifacial Silicon Solar Cells:</b><br>132 cells: LP182*210-M-66-NB-***W (***) = 580-640, in increment of 5)<br>120 cells: LP182*210-M-60-NB-***W (***) = 530-580, in increment of 5)<br>108 cells: LP182*210-M-54-NB-***W (***) = 475-520, in increment of 5)<br>96 cells: LP182*210-M-48-NB-***W (***) = 420-465, in increment of 5)<br>*** indicates rated output power generated from front side under STC |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                              |                            |
|------------------------------------------------------------------------------|----------------------------|
| Maximum system voltage:                                                      | 1500V                      |
| Maximum overcurrent protection rating:                                       | 30A                        |
| Electrical protection class:                                                 | Class II                   |
| Pollution degree:                                                            | 1                          |
| 98 <sup>th</sup> percentile module operating temperature (T <sub>98</sub> ): | 70°C                       |
| Design load (positive / negative):                                           | 3600Pa / 1600Pa            |
| Safety factors:                                                              | 1.5                        |
| Fire safety class:                                                           | Class A according to UL790 |
| Isc bifaciality coefficient (ϕ <sub>Isc</sub> ):                             | 80% ± 10%                  |

|               |                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Module types: | <b>Double Glass PV Modules with Half-cut 182*199/191mm n-type TOPCon Bifacial Silicon Solar Cells:</b><br>144 cells: LP182*199-M-72-NB-***W (***) = 570-655, in increment of 5)<br>132 cells: LP182*199-M-66-NB-***W (***) = 525-600, in increment of 5)<br>120 cells: LP182*199-M-60-NB-***W (***) = 475-545, in increment of 5)<br>108 cells: LP182*199-M-54-NB-***W (***) = 430-490, in increment of 5) |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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# Annex 2

to certificate registration no. 44 780 24 406749 - 300R2M2

|                                                                              |                                                                      |
|------------------------------------------------------------------------------|----------------------------------------------------------------------|
|                                                                              | *** indicates rated output power generated from front side under STC |
| Maximum system voltage:                                                      | 1500V                                                                |
| Maximum overcurrent protection rating:                                       | 25A                                                                  |
| Electrical protection class:                                                 | Class II                                                             |
| Pollution degree:                                                            | 1                                                                    |
| 98 <sup>th</sup> percentile module operating temperature (T <sub>98</sub> ): | 70°C                                                                 |
| Design load (positive / negative):                                           | 3600Pa / 1600Pa                                                      |
| Safety factors:                                                              | 1.5                                                                  |
| Fire safety class:                                                           | Class A according to UL790                                           |
| Isc bifaciality coefficient (ϕ <sub>Isc</sub> ):                             | 80% ± 10%                                                            |

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Module types: | <b>Double Glass PV Modules with 1/4-cut 182.3*213mm n-type TOPCon Bifacial Silicon Solar Cells:</b><br>264 cells: LP182*210-M-66Q-NB-***W (***) = 620-670, in increment of 5)<br>252 cells: LP182*210-M-63Q-NB-***W (***) = 590-640, in increment of 5)<br>240 cells: LP182*210-M-60Q-NB-***W (***) = 565-610, in increment of 5)<br>228 cells: LP182*210-M-57Q-NB-***W (***) = 535-575, in increment of 5)<br>216 cells: LP182*210-M-54Q-NB-***W (***) = 510-545, in increment of 5)<br>204 cells: LP182*210-M-51Q-NB-***W (***) = 480-515, in increment of 5)<br>192 cells: LP182*210-M-48Q-NB-***W (***) = 450-485, in increment of 5)<br>180 cells: LP182*210-M-45Q-NB-***W (***) = 425-455, in increment of 5)<br>168 cells: LP182*210-M-42Q-NB-***W (***) = 395-425, in increment of 5)<br>*** indicates rated output power generated from front side under STC |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                              |                 |
|------------------------------------------------------------------------------|-----------------|
| Maximum system voltage:                                                      | 1500V           |
| Maximum overcurrent protection rating:                                       | 30A             |
| Electrical protection class:                                                 | Class II        |
| Pollution degree:                                                            | 1               |
| 98 <sup>th</sup> percentile module operating temperature (T <sub>98</sub> ): | 70°C            |
| Design load (positive / negative):                                           | 3600Pa / 1600Pa |

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# Annex 2

to certificate registration no. 44 780 24 406749 - 300R2M2

|                                               |                            |
|-----------------------------------------------|----------------------------|
| Safety factors:                               | 1.5                        |
| Fire safety class:                            | Class A according to UL790 |
| Isc bifaciality coefficient ( $\phi_{Isc}$ ): | 85% $\pm$ 10%              |

**Remark:**

For detailed product information, please refer to CDF (Constructional Data Form) with the same file no.

Isc bifaciality coefficient ( $\phi_{Isc}$ ) =  $I_{SCrear}/I_{SCfront}$ , as defined in IEC TS 60904-1-2.

The tolerance of Isc bifaciality coefficient ( $\phi_{Isc}$ ) is claimed by client.

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