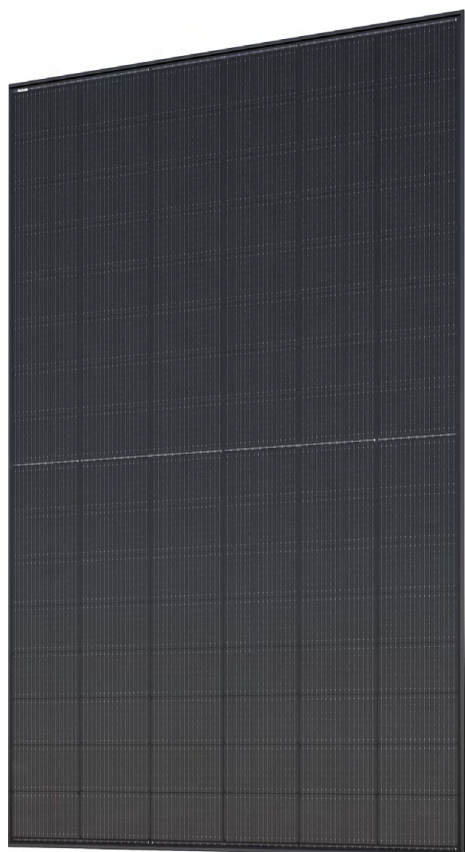
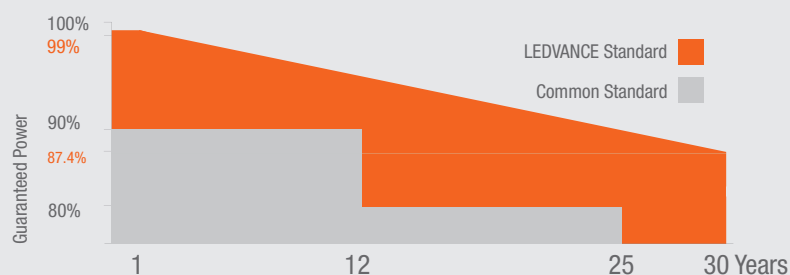




M450~470N48RB-BB

108 Half-Cut Cells
Monocrystalline N-TOPCon Bifacial PV
Module
Full Black



**25
YEARS**

**Product
guarantee**

**30
YEARS**

**Linear Power
guarantee**

**450-
470p**

**Power
range**

23.52%

**Maximum
efficiency**

0.40%

**Yearly
degradation**



Excellent Cell Efficiency

Super multi Bus Bar technology increases the efficiency of the modules



Resistance to power degradation

Resistance to power degradation caused by Potential-Induced Degradation PID effect, thanks to strict quality control in the module production process and other subassemblies



Better Weak Illumination Response

Excellent performance in weak light conditions, such as haze, clouds and early morning



Adapted to harsh outdoor environments

Resistant to harsh environments such as salt, ammonia, sand, high temperatures and high humidity environments



Highest production standards

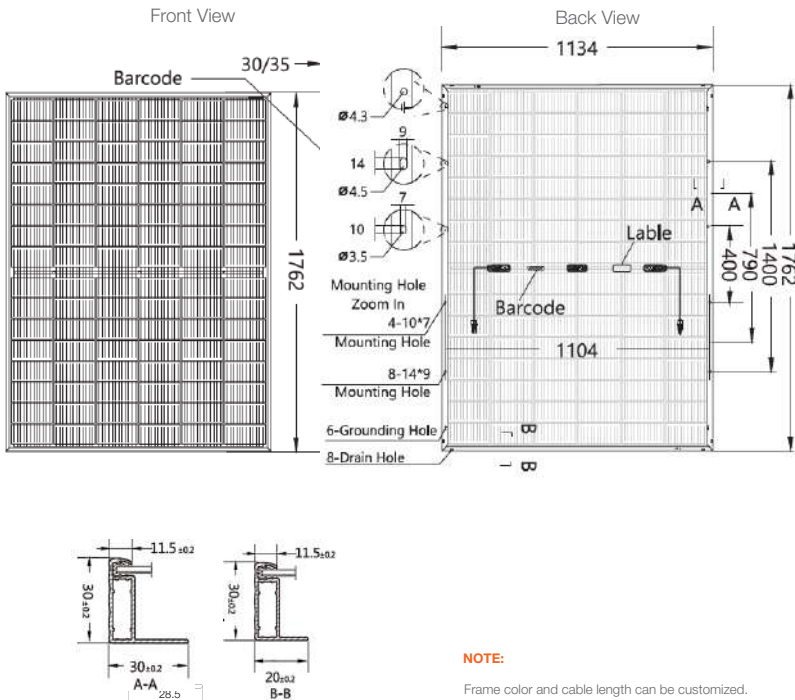
Guarantees of operational reliability and quality module production go far beyond requirements specified in certificates



IEC 61215: Design suitability and type approval
IEC 61730: Safety qualification
IEC 61701: Salt mist corrosion testing
IEC 62716: Ammonia corrosion testing
IEC 60068: Environmental testing: Dust and sand

With subsidiaries in more than 50 countries and business activities in over 150 countries, LEDVANCE is committed to supplying reliable and durable PV products to customers to create together a greener planet.

Dimensions of PV module (mm)



NOTE:

Frame color and cable length can be customized.

ELECTRICAL CHARACTERISTIC | STC ¹⁾

Module	M450N48 RB-BF	M455N48 RB-BF	M460N48 RB-BF	M465N48 RB-BF	M470N48 RB-BF
Nominal power Watt P_{max} (Wp)	450	455	460	465	470
Maximum power voltage V_{mp} (V)	30.08	30.26	30.44	30.62	30.80
Maximum power current I_{mp} (A)	14.97	15.04	15.12	15.20	15.27
Open circuit voltage V_{oc} (V)	35.03	35.21	35.39	35.57	35.75
Short circuit current I_{sc} (A)	16.05	16.10	16.15	16.20	16.25
Module efficiency η (%)	22.52	22.77	23.02	23.27	23.52

Measuring tolerance: +3%

ELECTRICAL CHARACTERISTIC | BNPI ²⁾

Power Level	450	455	460	465	470
Maximum power P_{max} (Wp)	497	502	508	513	518
Maximum power voltage V_{mp} (V)	30.28	30.46	30.64	30.82	31.00
Maximum power current I_{mp} (A)	16.42	16.49	16.58	16.65	16.72
Open circuit voltage V_{oc} (V)	35.23	35.41	35.59	35.77	35.95
Short circuit current I_{sc} (A)	17.62	17.67	17.73	17.78	17.83

Measuring tolerance: +3%

WORKING CONDITIONS

Maximum system voltage	1500 V DC
Operating temperature	-40°C~+85°C
Operating humidity	5~85%
Maximum series fuse	30 A
Front/Rear load	5400 Pa / 2400 Pa

MECHANICAL DATA

Solar cells	Monocrystalline N-TOPCon
Number of cells	96 (6x18) pcs
Size of cells	182 x 105 mm
Module dimension	1762x1134x30/35 mm
Frame color	BB - Full Black
Weight	25.5±1 kg
Glass	2.0 mm tempered glass, anti-reflective coating
Type of frame	Anodized aluminum alloy
Junction box	IP68, 3 diodes
Cables	4 mm ² , Portrait: 1200 mm or Customized Length
Connectors	MC4-Evo2

TEMPERATURE RATINGS

STC	25±2 °C
Temperature coefficient of P_{max}	-0.300% / °C
Temperature coefficient of V_{oc}	-0.250% / °C
Temperature coefficient of I_{sc}	0.046% / °C

PACKAGING CONFIGURATION

Piece / Box	36
Size of packing	1778x1134x1260 mm
Weight of packing	802 kg
Piece / Container (40'HC)	93

FOOTNOTES:

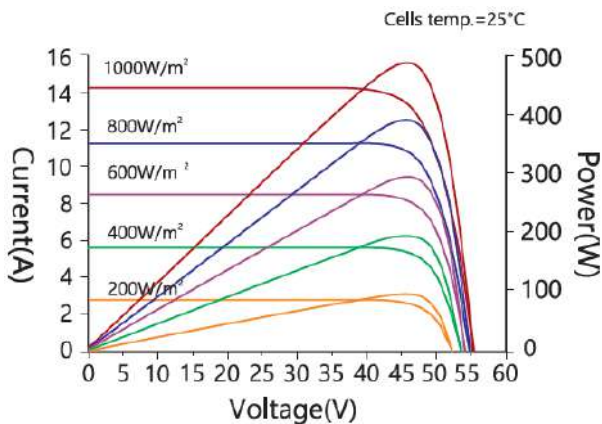
- 1) STC (Standard Test Conditions): 1000W/m² solar irradiance, cell temperature 25°C, AM 1.5G
- 2) BNPI (Bifacial Nameplate Irradiance) :Irradiance:front 1000W/m²,rear 135W/m²,Cell Temperature 25 °C,AM 1.5G

CAUTION:

- Do not connect two or more strings of modules to one fuse.
- The electrical data in this product sheet does not refer to a single module and is not part of the offer, it is used to compare different types of modules only.
- Due to continuous technical innovation, development and product improvement, technical data contained in this product sheet is subject to change at any time without notice and may not be the basis for any damage claims.

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Current-voltage curve of the module by different insolation



Current-voltage curve of the PV module by temperature

