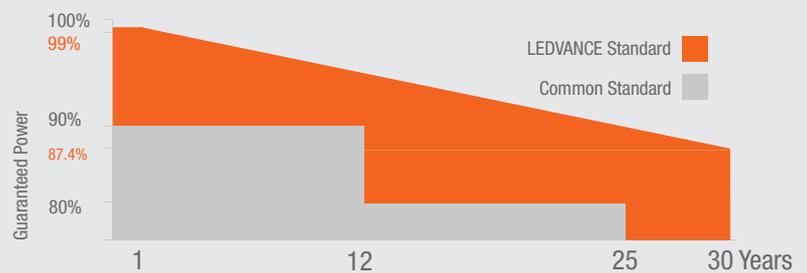


# M435~455N48RB-BB-F7

96 Half-Cut Cells  
N-TOPCon Bifacial PV Module  
Full Black



**25 YEARS** Product guarantee

**30 YEARS** Linear Power guarantee

**435-455p** Power range

**22.77%** Maximum efficiency

**0.40%** Yearly degradation

**SMBB** 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**

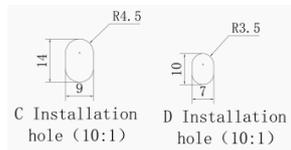
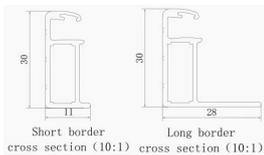
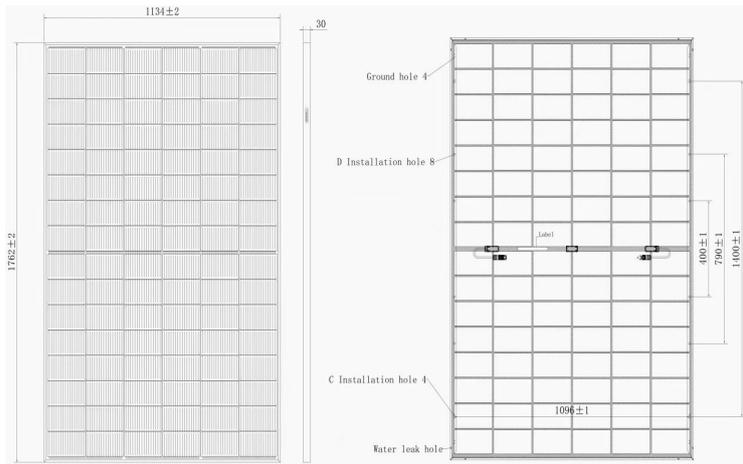
Guarantees of operational reliability and quality module production go far beyond requirements specified in certificates



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

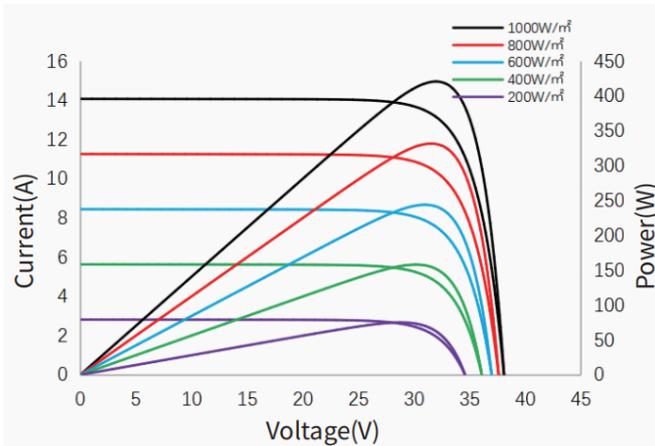
With subsidiaries in more than 50 countries and business activities in over 150 countries, LEDVANCE is committed to supplying reliable and durable PV products to customers to create together a greener planet.

## Dimensions of PV module (mm)

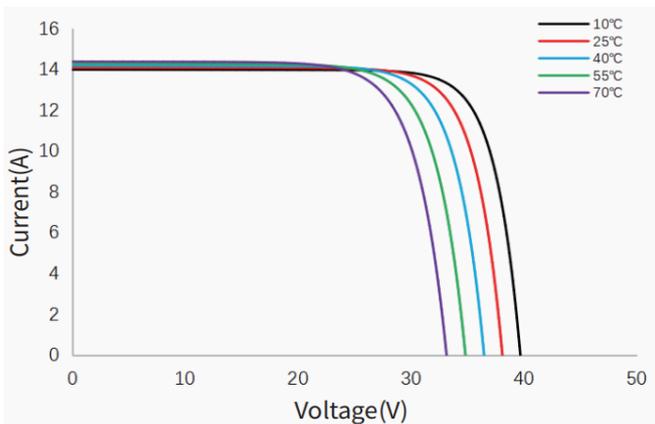


**NOTE:**  
Frame color and cable length can be customized.

## Current-voltage curve of the module by different insolation



## Current-voltage curve of the PV module by temperature



## ELECTRICAL CHARACTERISTIC | STC <sup>1)</sup>

Module	M435N48 RB-BB	M440N48 RB-BB	M445N48 RB-BB	M450N48 RB-BB	M455N48 RB-BB
Nominal power Watt $P_{max}$ (Wp)	435	440	445	450	455
Maximum power voltage $V_{mpp}$ (V)	29.55	29.73	29.91	30.09	30.27
Maximum power current $I_{mpp}$ (A)	14.73	14.81	14.89	14.97	15.05
Open circuit voltage $V_{oc}$ (V)	34.66	34.84	35.02	35.20	35.38
Short circuit current $I_{sc}$ (A)	15.89	15.94	15.99	16.04	16.09
Module efficiency $\eta$ (%)	21.77	22.02	22.27	22.52	22.77

Measuring tolerance: +3%

## Bifacial Output-Rearside Power Gain (445W)

Power Gain	5%	10%	15%	20%	25%
Maximum Power ( $P_{max}$ ) [W]	467	490	512	534	556
Open-Circuit Voltage ( $V_{oc}$ ) [V]	35.02	35.02	35.02	35.12	35.12
Maximum Power Voltage ( $V_{mp}$ ) [V]	29.91	29.91	29.91	30.01	30.01
Short-Circuit Current ( $I_{sc}$ ) [A]	16.79	17.59	18.39	19.19	19.99
Maximum Power Current ( $I_{mp}$ ) [A]	15.62	16.37	17.11	17.79	18.54

## ELECTRICAL CHARACTERISTIC | NMOT <sup>2)</sup>

Power Level	435	440	445	450	455
Maximum power $P_{max}$ (Wp)	327	331	335	339	343
Maximum power voltage $V_{mpp}$ (V)	27.50	27.70	27.90	28.00	28.20
Maximum power current $I_{mpp}$ (A)	11.90	12.00	12.00	12.10	12.20
Open circuit voltage $V_{oc}$ (V)	32.80	33.00	33.10	33.30	33.50
Short circuit current $I_{sc}$ (A)	12.90	12.90	12.90	13.00	13.00

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	N-TOPCon
Number of cells	96 (6x16) pcs
Size of cells	182 x 105 mm
Module dimension	1762 x 1134 x 30 mm
Frame color	BB – full black
Weight	24.5±1 kg
Glass	Front glass, 2.0 mm coated semi-tempered glass Back Glass, 2.0 mm glazed semi-tempered glass
Type of frame	Anodized aluminum alloy
Junction box	IP68, 3 diodes
Cables	4 mm <sup>2</sup> , 1200 mm
Connectors	Staubli MC4-EVO2

## TEMPERATURE RATINGS

NMOT	45±2 °C
Temperature coefficient of $P_{max}$	-0.290% / °C
Temperature coefficient of $V_{oc}$	-0.260% / °C
Temperature coefficient of $I_{sc}$	0.045% / °C

## PACKAGING CONFIGURATION

Piece / Box	36
Size of packing	1774 x 1100 x 1130 mm
Weight of packing	937 kg
Piece / Container (40'HC)	936

## FOOTNOTES:

- 1) STC (Standard Test Conditions): 1000W/m<sup>2</sup> solar irradiance, cell temperature 25°C, AM 1.5G
- 2) NMOT (nominal cell operating temperature): insolation 800W/m<sup>2</sup>, ambient temperature 20°C, AM 1.5G, wind speed 1m/s

## 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.