

1KOMMA5°

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3.0 MODULE



N-Type Topcon module

- × Fullblack
- × Double glass
- × Bifacial



High Power up to 460 Wp



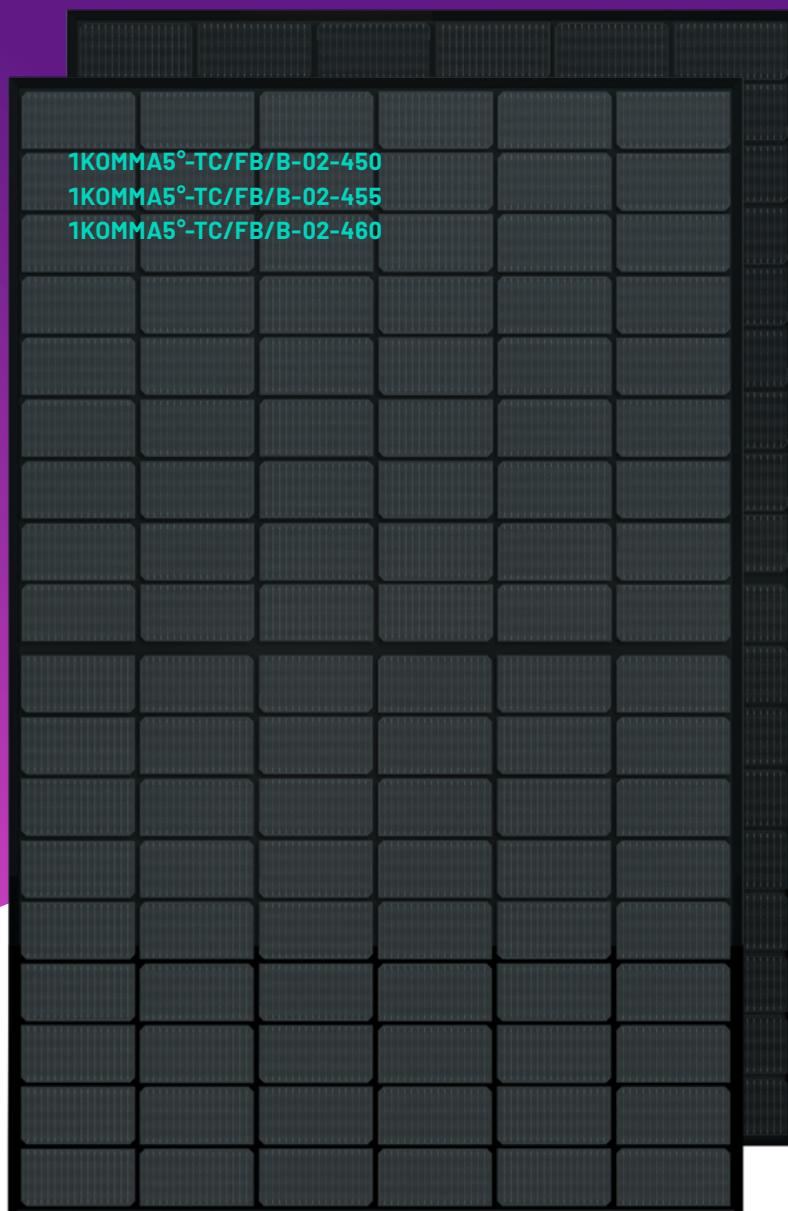
1KOMMA5° Warranty

- × 30 years product
- × 30 years linear performance warranty



Highest Quality

- and standards
- × PFAS free
 - × Zero carbon factory



Designed in



1KOMMA5° 3.0 MODULE

MODULE SPECIFICATION

Cell type	N -type monocrystalline, 108 (6×18)
Dimensions (L×W×H)	1,762×1,134×30 mm
Weight	24,5 kg
Front	2 mm heat strengthened glass
Rear	2 mm heat strengthened glass
Junction box	3 Diodes, IP68 » IEC 62790
Cable	4 mm ² , 1,300 mm
Plug type (IEC)	PV-KST4-EV02A/xy;PV-KBT4-EV02A/xy (Stäubli)

ELECTRICAL DATA

1KOMMA5°-TC/FB/B-02-	450		455		460	
Test conditions	STC ¹	BNPI ²	STC ¹	BNPI ²	STC ¹	BNPI ²
Nominal power [P _{mp} / W _p]	450	497	455	503	460	508
Nominal voltage [V _{mp} / V]	33.91	33.95	34.11	34.15	34.31	34.35
Nominal current [I _{mp} / A]	13.27	14.64	13.34	14.72	13.41	14.80
Open circuit voltage [V _{oc} / V]	40.25	40.25	40.45	40.45	40.65	40.65
Short-circuit current [I _{sc} / A]	14.17	15.59	14.24	15.67	14.31	15.74
Efficiency [%]	22.5		22.8		23.0	

BIFACIAL POWER GAIN

1KOMMA5°-TC/FB/B-02-	450	455	460
10 % P _{max} (STC)[W _p]	495	500,5	506
20 % P _{max} (STC)[W _p]	540	546	552
30 % P _{max} (STC)[W _p]	585	591,5	598

MODULE CHARACTERISTICS

Max. System voltage (IEC/UL)	1,500 VDC
Max. fuse Rating	30 A
Fire protection class	A according to UL790
Hail class	HW3 ³
Maximum mechanical test load, Push/Pull [Pa]	+5,400 / -3,600 Pa
Maximum design load, Push/Pull [Pa]	+3,600 / -2,400 Pa
Performance tolerance	0 ~+ 3 %
Protection class	II
Frame	Black anodised aluminium
Annual degradation (1st year)	≤ 1.0 %
Annual degradation (2nd - 30th year)	Max. 0.4 % per year

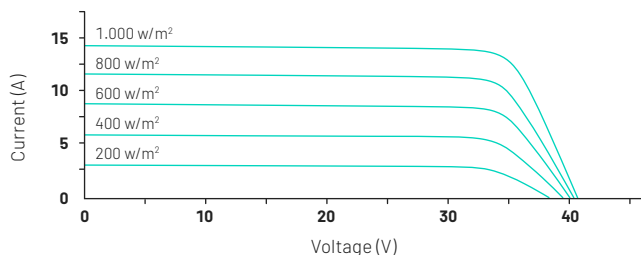
TEMPERATURE VALUES

Temperature coefficient [P _{mp}]	-0.29 %/°C
Temperature coefficient [I _{sc}]	+0.048 %/°C
Temperature coefficient [V _{oc}]	-0.25 %/°C
Nominal module operating temperature [NMOT]	42 ± 2 °C
Operating temperature [°C]	-40 to +85
Module [T _{98 max}]	70 °C

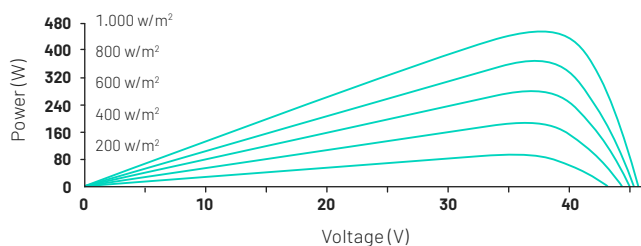
1 STC Irradiation 1,000 W/m², cell temperature 25 °C, AM = 1.5 Tolerance: P_{mp}±3%, V_{oc}±3% and I_{sc}±4%
2 BNPI Irradiance front 1,000 W/m², rear 135 W/m², Cell Temperature 25 °C, AM=1.5, Bifaciality [P_{mp}/I_{sc}]: 80±5 %, Bifaciality [V_{oc}]: 100±3% **3** Reference diameter of ice balls-VKF 30mm, ice ball storage temperature -20 °C

POWER CURVES

Current-voltage curve (460 W)



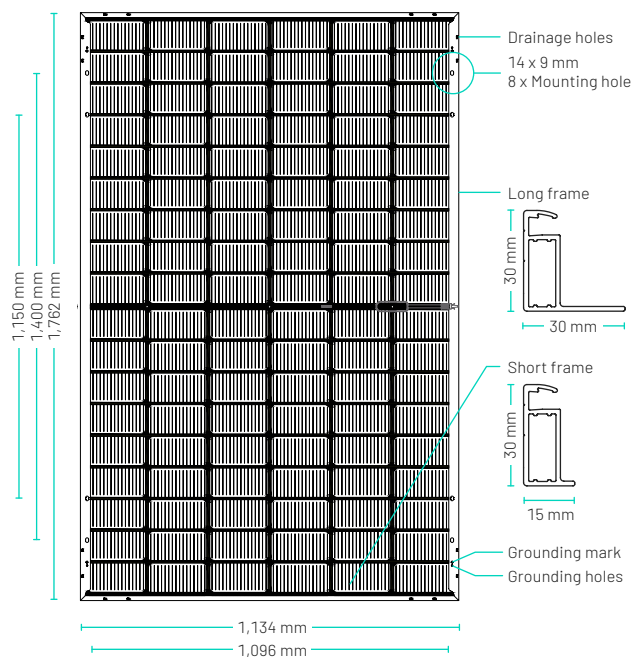
Power-voltage curve (460 W)



PACKAGING INFORMATION

Container	40' HQ
Pallet dimensions (L×W×H)	1,800×1,140×1,250 mm
Pieces per pallet	36
Pieces per container	936

TECHNICAL DRAWING



CERTIFICATIONS

IEC 61215, IEC 61730

Additional Certificates on request



IEC 61215
IEC 61730
Regular Production
Surveillance
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