

Q.TRON BLK M-G2+ SERIES

410-430 Wp | 108 Cells
22.4% Maximum Module Efficiency

MODEL Q.TRON BLK M-G2+



PRELIMINARY



High performance Qcells N-type solar cells

QANTUM NEO Technology with optimized module layout boosts module efficiency up to 22.4%.



A reliable investment

Inclusive 25-year product warranty and 25-year linear performance warranty¹.



Enduring high performance

Long-term yield security with Anti LetID Technology, Anti PID Technology², Hot-Spot Protect.



Extreme weather rating

High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (3600 Pa).



Innovative all-weather technology

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.



The most thorough testing programme in the industry

Qcells is the first solar module manufacturer to pass the most comprehensive quality programme in the industry. The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.

¹ See data sheet on rear for further information.

² APT test conditions according to IEC/TS 62804-12015, method A (-1500V, 96h)

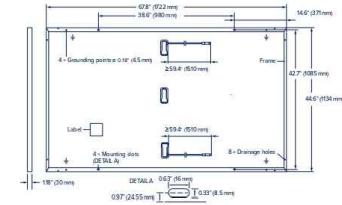
The ideal solution for:



Q.TRON BLK M-G2+ SERIES

Mechanical Specification

Format	67.8 in × 44.6 in × 1.18 in (including frame) (1722 mm × 1134 mm × 30 mm)
Weight	47.2 lbs (21.4 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 18 monocrystalline QANTUM NEO solar half cells
Junction box	2.09-3.98 in × 1.26-2.36 in / 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), Protection class IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥ 59.4 in (1510 mm), (-) ≥ 59.4 in (1510 mm)
Connector	Stäubli MCA; IP68



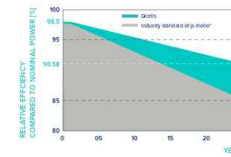
Electrical Characteristics

POWER CLASS	410	415	420	425	430	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5W/-0W)						
Power at MPP ¹	P _{MPP} [W]	410	415	420	425	430
Short Circuit Current ¹	I _{SC} [A]	13.39	13.42	13.46	13.49	13.53
Open Circuit Voltage ¹	V _{OC} [V]	38.58	38.61	38.64	38.67	38.70
Current at MPP	I _{MPP} [A]	12.68	12.75	12.82	12.88	12.95
Voltage at MPP	V _{MPP} [V]	32.32	32.55	32.77	32.98	33.20
Efficiency ¹	η [%]	≥21.4	≥21.6	≥21.9	≥22.2	≥22.4

POWER CLASS	410	415	420	425	430	
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ²						
Power at MPP	P _{MPP} [W]	310.0	313.8	317.6	321.4	325.2
Short Circuit Current	I _{SC} [A]	10.79	10.82	10.84	10.87	10.90
Open Circuit Voltage	V _{OC} [V]	36.61	36.63	36.66	36.69	36.71
Current at MPP	I _{MPP} [A]	9.97	10.03	10.09	10.15	10.21
Voltage at MPP	V _{MPP} [V]	31.09	31.29	31.48	31.66	31.85

¹Measurement tolerances P_{MPP} ±3%; I_{SC}, V_{OC} ±5% at STC; 1000 W/m², 25 ±2 °C, AM 1.5 according to IEC 60904-3 • 9800 W/m², NMOT, spectrum AM 1.5

Qcells PERFORMANCE WARRANTY

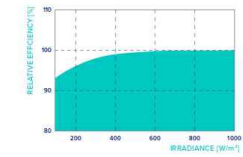


At least 98.5% of nominal power during first year. Thereafter max. 0.33% degradation per year. At least 95.5% of nominal power up to 10 years. At least 90.55% of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Qcells sales organisation of your respective country.

¹Standard terms of guarantee for the 5 PV companies with the highest production capacity in 2021 (February 2021)

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I _{SC}	α [%/K]	+0.04	Temperature Coefficient of V _{OC}	β [%/K]	-0.24
Temperature Coefficient of P _{MPP}	γ [%/K]	-0.30	Nominal Module Operating Temperature	NMOT [°F]	109 ± 5.4 (43 ± 3 °C)

Properties for System Design

Maximum System Voltage	V _{sys} [V]	1000 (IEC)/1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI/UL 61730	C / TYPE 2
Max. Design Load, Push/Pull ¹	[lbs / ft]	75 (3600 Pa) / 50 (2400 Pa)	Permitted Module Temperature on Continuous Duty	-40 °F up to +185 °F (-40 °C up to +85 °C)
Max. Test Load, Push/Pull ¹	[lbs / ft]	113 (5400 Pa) / 75 (3600 Pa)		

¹ See Installation Manual

Qualifications and Certificates

Quality Controlled PV - TÜV Rheinland; IEC 61215:2016; IEC 61730:2016. This data sheet complies with DIN EN 50380.



Qcells pursues minimizing paper output in consideration of the global environment.

Note: Installation instructions must be followed. Contact our technical service for further information on approved installation of this product. HANAUER Q CELLS America Inc., 400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL: +1 949 749 59 96 | EMAIL: hq-enquiry@qcells.com | WEB: www.qcells.com

qcells

Specifications subject to technical changes © Qcells Q.TRON BLK M-G2+ series, 410-430, 2022-09, Rev.02, US



IQ8 and IQ8+ Microinverters

Our newest IQ8 Microinverters are the industry's first microgrid-forming, software defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application specific integrated circuit (ASIC) which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55nm technology with high speed digital logic and has superfast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the IQ Battery, IQ Gateway, and the Enphase App monitoring and analysis software.



IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



Connect PV modules quickly and easily to IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-n-play MC4 connectors.



IQ8 Series Microinverters are UL listed as PV Rapid Shutdown Equipment and conform with various regulations, when installed according to manufacturer's instructions.

Easy to install

- Lightweight and compact with plug-n-play connectors
- Power Line Communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produce power even when the grid is down*
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

Microgrid-forming

- Complies with the latest advanced grid support**
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) and IEEE 1547:2018 (UL 1741-SB 3rd Ed.)

Note:

IQ8 Microinverters cannot be mixed together with previous generations of Enphase microinverters (IQ7 Series, IQ6 Series, etc.) in the same system.

*Only when installed with IQ System Controller 2, meets UL 1741.
**IQ8 and IQ8Plus support split-phase, 240V installations only.

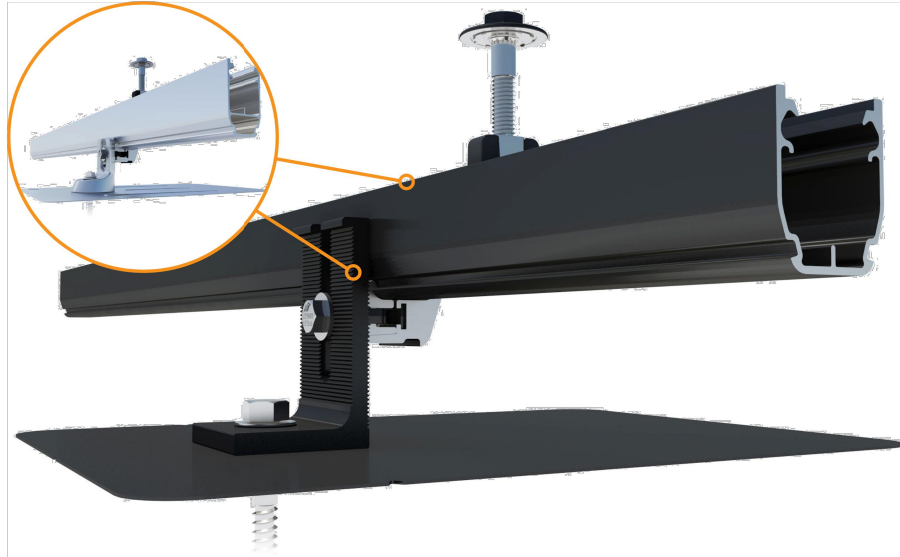
IQ8 and IQ8+ Microinverters

INPUT DATA (DC)	IQ8-60-2-US	IQ8PLUS-72-2-US
Commonly used module pairings ¹	W 235 – 350	235 – 440
Module compatibility	60-cell / 120 half-cell	54-cell / 108 half-cell, 60-cell / 120 half-cell, 66-cell / 132 half-cell and 72-cell / 144 half-cell
MPPT voltage range	V 27 – 37	27 – 45
Operating range	V 16 – 48	16 – 58
Min. / Max. start voltage	V 22 / 48	22 / 58
Max. input DC voltage	V 50	60
Max. continuous input DC current	A 10	12
Max. input DC short-circuit current	A	25
Max. module I _{sc}	A	20
Overvoltage class DC port		II
DC port backfeed current	mA	0
PV array configuration	1 x 1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit	
OUTPUT DATA (AC)	IQ8-60-2-US	IQ8PLUS-72-2-US
Peak output power	VA 245	300
Max. continuous output power	VA 240	290
Nominal (L-L) voltage / range ²	V	240 / 211 – 264
Max. continuous output current	A 1.0	1.21
Nominal frequency	Hz	60
Extended frequency range	Hz	47 – 68
AC short circuit fault current over 3 cycles	Arms	2
Max. units per 20 A (L-L) branch circuit ³	16	13
Total harmonic distortion		<5%
Overvoltage class AC port		III
AC port backfeed current	mA	30
Power factor setting		1.0
Grid-tied power factor (adjustable)		0.85 leading – 0.85 lagging
Peak efficiency	%	97.7
CEC weighted efficiency	%	97
Night-time power consumption	mW	60
MECHANICAL DATA		
Ambient temperature range	-40°C to +60°C (-40°F to +140°F)	
Relative humidity range	4% to 100% (condensing)	
DC Connector type	MC4	
Dimensions (H x W x D)	212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2")	
Weight	1.08 kg (2.38 lbs)	
Cooling	Natural convection – no fans	
Approved for wet locations	Yes	
Pollution degree	PD3	
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure	
Environ. category / UV exposure rating	NEMA Type 6 / outdoor	
COMPLIANCE		
Certifications	CA Rule 21 (UL 1741-SA), UL 62109-1, IEEE 1547:2018 (UL 1741-SB 3 rd Ed.), FCC Part 15 Class B, ICES-0003 Class B, CAN / CSA-C22.2 NO. 1071-01 This product is UL Listed as PV Rapid Shutdown Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2018 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions.	

(1) Pairing PV modules with wattage above the limit may result in additional clipping losses. See the compatibility calculator at <https://link.enphase.com/module-compatibility>.
(2) Nominal voltage range can be extended beyond nominal if required by the utility. (3) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.



Aire™ Racking System



Breathe easy with accelerated installations.

The Aire™ racking system has been carefully crafted to streamline every part of the installation process, taking out all of the tiresome hassles—so that you get off the roof and on to your next project faster than ever.

Aire™ retains the strength and reliability that IronRidge installers have come to depend on. Whether you're a seasoned installer with years under your belt or just getting started in solar, breathe easy with open Aire™.

Strength Tested
 All components have been evaluated for superior structural performance.

Class A Fire Rating
 Certified to maintain the fire resistance rating of the existing roof structure.

UL 2703 Listed System
 Entire system and components meet the latest effective UL 2703 standards.

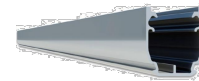
PE Certified
 Pre-stamped engineering letters are available online for most states.

Design Assistant
 Free online software makes it simple to create, share, and price projects.

25-Year Warranty
 Products are guaranteed to arrive without any impairing defects.

Rails

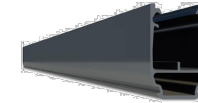
Aire™ A1 Rail



The lighter, open Aire™ rail for standard conditions.

- 6' spanning capability
- Wire management tray
- Mill or anodized black

Aire™ A2 Rail



The tougher, open Aire™ rail for higher load capacity.

- 8' spanning capability
- Wire management tray
- Mill or anodized black

Aire™ Rail Ties



Structurally connect and bond Aire™ Rails together.

- Reinstallable, up to 5x
- Internal splice design
- No more splice rules

Aire™ Dock



Connects Aire™ Rails to attachments with ease.

- Clicks on, slides easily
- Drops into open slots
- Anodized assembly

Clamps & Grounding

Aire™ Lock Mids



Securely bond between modules to Aire™ Rails.

- Fits 30-40mm modules
- Utilizes UFO® design
- Minimal 1/2" gap

Aire™ Lock Ends



Securely bond modules to Aire™ Rails along ends.

- Fits 30-40mm modules
- Easy rail engagement
- Clean aesthetics

Aire™ Lock Stealth



Securely bonds modules to rail ends, entirely hidden.

- Angled for easy install
- Robust tether leash
- Fits most modules

Aire™ Lug



Bonds Aire™ Rails to grounding conductors.

- Simplified with single bolt
- Low-profile form factor
- Works with 10-6 AWG

Accessories

Aire™ Caps



Block entry and provide a finished look to Aire™ Rails.

- Stay secure on rail ends
- Symmetrical, with drain
- Cover rough-cut ends

Aire™ Clip



Keeps wiring contained in open Aire™ Rail channels.

- No module interference
- Simple press-in design
- Slot for easy removal

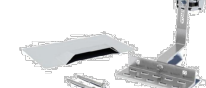
Aire™ MLPE Mount



Securely bonds MLPE and accessories to Aire™ Rails.

- Glove-friendly installation
- Lays flush in rail channel
- Low profile form factor

Aire™ All Tile Hook



Attaches rails to tile roofs, with Aire™ Dock included.

- Works on flat, S, & W tiles
- Single-socket installation
- Optional deck flashing

Resources



Design Assistant
 Quickly go from rough layout to fully engineered system.
 Go to IronRidge.com/design



Approved for FL Hurricane Zones
 Aire™ has Florida Product Approval. Additional details can be found on the Florida Building Code website.
 Learn More at bit.ly/florida-aire

