

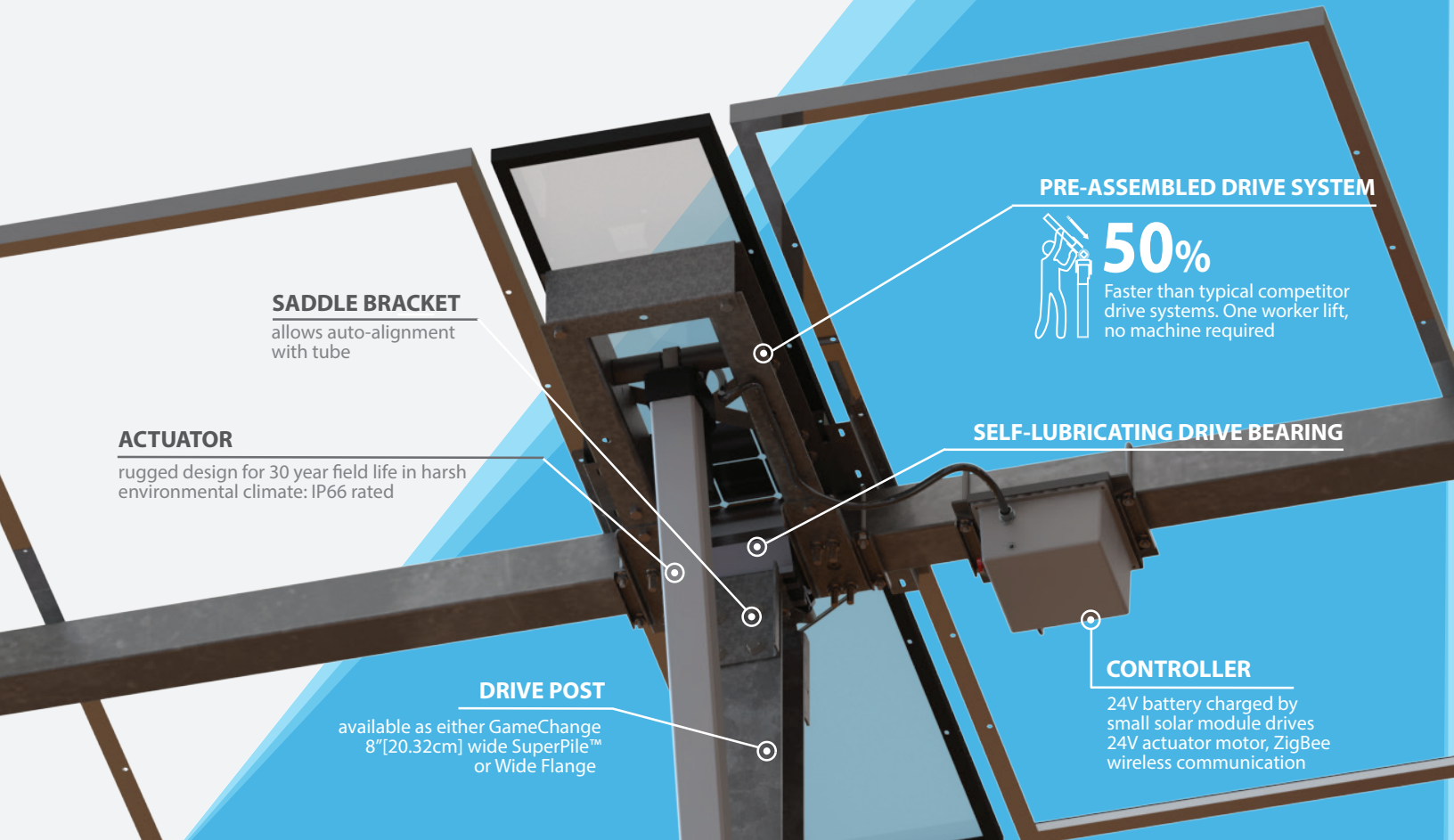
**OVER 3.2 GW SOLD**  
Every System For Your Every Need



# GENIUS TRACKER™

WORLD'S HIGHEST POWER PRODUCING  
AND FASTEST INSTALLING SOLAR TRACKER

## TECHNICAL DATASHEET



**SADDLE BRACKET**  
allows auto-alignment  
with tube

### ACTUATOR

rugged design for 30 year field life in harsh  
environmental climate: IP66 rated

### DRIVE POST

available as either GameChange  
8"[20.32cm] wide SuperPile™  
or Wide Flange

### PRE-ASSEMBLED DRIVE SYSTEM



**50%**

Faster than typical competitor  
drive systems. One worker lift,  
no machine required

### SELF-LUBRICATING DRIVE BEARING

### CONTROLLER

24V battery charged by  
small solar module drives  
24V actuator motor, ZigBee  
wireless communication

### OWNERS BENEFITS

UP  
TO

**6.75% MORE POWER  
PRODUCTION**

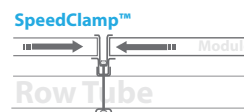
**RESULTS IN HIGHER  
KWH OUTPUT & UP TO  
40% HIGHER ROE**

Varies based on project specifics

### INSTALLERS BENEFITS

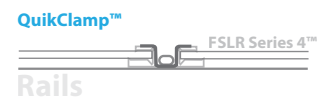
**FASTEST INSTALLING SYSTEM**

ADVANCED DESIGN INNOVATIONS AND PRE-ASSEMBLED COMPONENTS



No Mounting Hardware  
Speeds Module Installation Up To:

**40%**



FSLR Series 4 Module  
Installation Speeds Up To:

**30%**

# OVER 3.2 GW SOLD

Every System For Your Every Need



## GENIUS TRACKER™ OWNERS BENEFITS

### UP TO 40% HIGHER ROE

Combine to increase owner cash flow of sample project to \$17MM cash flow vs \$13MM & \$15MM for competitors

**Higher Module Density** - increased row spacing means more time facing the sun and less time running from the shade, adds up to 5% more power production than competitors

**WeatherSmart™** - AI technology optimizes tilt angle based on weather data to maximize power production, adds up to 1.25% additional power production

**PowerBoost™** - Smart optimization allows table rows to respond individually based on topography to prevent shading, adds up to 0.5% additional power production. Available in Q4 2018

### LOWEST O & M COST

Lowest grass cutting & module washing cost

Zero maintenance drive system

## INSTALLERS BENEFITS

### FASTEST INSTALLING SYSTEM

Advanced design innovations & pre-assembled components

**Pre-assembled Drive Arm** - can be lifted by one worker, no machine required. 50% faster than typical competitors

**SpeedClamp™** - Mounts modules with no mounting hardware, speeds module installation up to 40%

**QuikClamp™** - Speeds install for FSLR Series 4 modules up to 30%

### GameChange Solar

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|                      |                                              |                                                                                                                                             |
|----------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Modules</b>       | <b>Supporting Type</b>                       | Most commercially available, including frameless crystalline and thin film                                                                  |
| <b>Civil</b>         | <b>Slope Tolerance (N-S)</b>                 | 7% standard, can go to 15% special order                                                                                                    |
|                      | <b>Slope Tolerance (E-W)</b>                 | 15% <b>Tracker follows slope (Y/N)</b> Yes                                                                                                  |
| <b>Structural</b>    | <b>Drive Type</b>                            | Robust linear actuator stainless steel & aluminum                                                                                           |
|                      | <b>Piles per MW</b>                          | 450/MW typical                                                                                                                              |
|                      | <b>Operating Wind Load</b>                   | 105mph(Std) / 130mph(Premium 1) / 150mph(Premium 2) / 175mph(Premium 3)                                                                     |
|                      | <b>Snow Load</b>                             | 5psf(Std) / 20psf(Premium 1) / 40psf(Premium 2) / 60 psf(Premium 3)                                                                         |
|                      | <b>Tracking Range (Std)</b>                  | 45°, 52° <b>Tracking Range (Premium)</b> 60°                                                                                                |
|                      | <b>Pile Sections</b>                         | G235 galvanized steel (or HDG option) roll formed standard posts, HDG wide flange option also available                                     |
|                      | <b>Pile Size (Interior) &amp; (Exterior)</b> | 6" X 6" roll form shape or W6x7 or W6x9 or W6x15 wide flange                                                                                |
|                      | <b>Motor Foundation</b>                      | 6.5" x 8" roll form hat or W6x15 or larger wide flange                                                                                      |
|                      | <b>Standard Embedment</b>                    | 5 - 7 ft <b>Flood Plain Allowance</b> Up to 6 feet                                                                                          |
|                      | <b>Design</b>                                | <b>Module Configuration</b> 1 up in portrait for crystalline, FSLR Series 6, 2 up landscape for Bifacial, 3 to 4 up landscape FSLR Series 4 |
| <b>Self Perform</b>  | <b>Modules per Table</b>                     | Up to 340 ft. (for example 102.72 cell crystalline)                                                                                         |
|                      | <b>Module Attachment</b>                     | SpeedClamp™ or Bolts available for bottom mount frame modules or clamps for glass on glass modules                                          |
|                      | <b>Ground Coverage Ratio</b>                 | 0.25 to 0.65                                                                                                                                |
|                      | <b>Rows per Drive</b>                        | 1 drive per tracker(table), distributed drive system                                                                                        |
|                      | <b>Powering System</b>                       | Onboard solar module with battery or wireline power                                                                                         |
|                      | <b>Compliance</b>                            | UL 2703 / 3703                                                                                                                              |
|                      | <b>Ground Clearance To Module</b>            | 2 ft                                                                                                                                        |
|                      | <b>Min / Max Ground to Top of Pier</b>       | 51" typical / ground clearance + 51" + 9" adjustment range                                                                                  |
|                      | <b>Backtracking</b>                          | Yes, although can be turned off as requested (i.e. for FSLR modules)                                                                        |
|                      | <b>Temperature Range</b>                     | -20° C + 48° C                                                                                                                              |
| <b>Electrical</b>    | <b>FCC 3rd party design verified</b>         | Compliant with FCC guidelines                                                                                                               |
|                      | <b>Specialty Tools Required</b>              | No                                                                                                                                          |
|                      | <b>Mechanical Installation</b>               | Available                                                                                                                                   |
|                      | <b>Max offload for deliveries</b>            | As per customer requirement                                                                                                                 |
|                      | <b>Tracking Method</b>                       | Time and location based algorithm                                                                                                           |
|                      | <b>String Design</b>                         | Compatible with any string size                                                                                                             |
|                      | <b>Cable Supports</b>                        | Free hole punching as per customer requirement                                                                                              |
|                      | <b>Linear Actuator Motor</b>                 | 24 volt DC                                                                                                                                  |
|                      | <b>Controller Box</b>                        | Zigbee® wireless communications, 24v solar panel and battery or wireline power                                                              |
|                      | <b>Control System</b>                        | Master to Node: Zigbee® wireless communications<br>Master to SCADA/DAS: MODBUS communications                                               |
| <b>O &amp; M</b>     | <b># of Motors</b>                           | 28 to 52 / MW depending on panel wattage and loading conditions (35 for typical conditions)                                                 |
|                      | <b>1000V System or 1500V System</b>          | Both                                                                                                                                        |
|                      | <b>Grounding Method</b>                      | Tracker structure is part of grounding path per UL 2703                                                                                     |
|                      | <b>UL Listed Assembly</b>                    | UL 2703 / UL3703                                                                                                                            |
|                      | <b>NEMA Ratings</b>                          | IP66 stroke tube end / 67 waterproof motor end (NEMA 3x/4 equivalent)                                                                       |
|                      | <b># Weather Station</b>                     | 1 per 6 MW typical                                                                                                                          |
|                      | <b>Monitoring System</b>                     | Web portal interface available<br>Compatible with all standard third party monitoring vendors                                               |
|                      | <b>Snow &amp; Flood Sensors</b>              | Move panels to optimum location for weather events                                                                                          |
|                      | <b>Backup Power</b>                          | Solar module and battery providing integrated backup - 3 days                                                                               |
|                      | <b>Shipping</b>                              | <b>Warranty</b> 5 year drive & control, 10 year structural standard, 10 / 20 also available                                                 |
| <b>Shipping</b>      | <b>Max load</b>                              | 45,000 lbs. per truckload 5,000 lbs. maximum bundle size 2,900 lbs. or other maximum as requested by customers                              |
|                      | <b>Shipping Containers or flatbeds</b>       | Flat beds for structure, dry vans for hardware                                                                                              |
|                      | <b># Trucks per MWdc</b>                     | 2.76 typical                                                                                                                                |
| <b>Commissioning</b> | <b>Backfeed required?</b>                    | No, Generator for power to master as alternative                                                                                            |

# SG250HX-US <sup>New</sup>

**SUNGROW**  
Clean power for all

Multi-MPPT String Inverter for 1500 Vdc System



## HIGH YIELD

- 12 MPPTs with max. efficiency 99%
- Compatible with bifacial module
- Built-in Anti-PID and PID recovery function



## SMART O&M

- Touch free commissioning and remote firmware upgrade
- Online IV curve scan and diagnosis\*
- Fuse free design with smart string current monitoring



## LOW COST

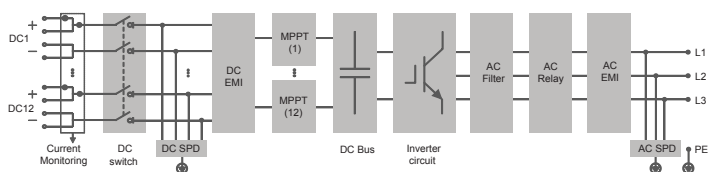
- Compatible with Al and Cu AC cables
- DC 2 in 1 connection enabled
- Power line communication (PLC)
- Reactive power at night function



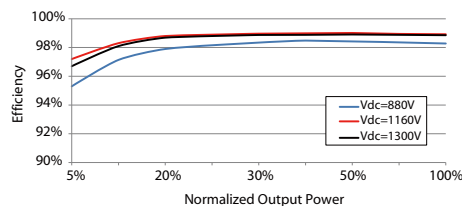
## PROVEN SAFETY

- Integrated Arc fault circuit protection
- NEMA 4X protection and C5 anti-corrosion grade
- Type II SPD for both DC and AC

## CIRCUIT DIAGRAM



## EFFICIENCY CURVE



| Type designation                                        | SG250HX-US                                                                                                                           |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>Input (DC)</b>                                       |                                                                                                                                      |
| Max. PV input voltage                                   | 1500 V                                                                                                                               |
| Min. PV input voltage / Startup input voltage           | 600 V / 600 V                                                                                                                        |
| Nominal PV input voltage                                | 1080 V                                                                                                                               |
| MPP voltage range                                       | 600 V – 1500 V                                                                                                                       |
| MPP voltage range for nominal power                     | 860 V – 1300 V                                                                                                                       |
| No. of independent MPP inputs                           | 12                                                                                                                                   |
| Max. PV input current                                   | 26 A * 12                                                                                                                            |
| Max. current for input connector                        | 30 A                                                                                                                                 |
| Max. DC short-circuit current                           | 50 A * 12                                                                                                                            |
| <b>Output (AC)</b>                                      |                                                                                                                                      |
| AC output power                                         | 250 kVA @ 30 °C / 225 kVA @ 40 °C / 200 kVA @ 50 °C                                                                                  |
| Max. AC output current                                  | 180.5 A                                                                                                                              |
| Nominal AC voltage                                      | 3 / PE, 800 V                                                                                                                        |
| AC voltage range                                        | 680 – 880V                                                                                                                           |
| Nominal grid frequency / Grid frequency range           | 50 Hz / 45 – 55 Hz, 60 Hz / 57 – 63 Hz                                                                                               |
| THD                                                     | < 3 % (at nominal power)                                                                                                             |
| DC current injection                                    | < 0.5 % In                                                                                                                           |
| Power factor at nominal power / Adjustable power factor | > 0.99 / 0.8 leading – 0.8 lagging                                                                                                   |
| Feed-in phases / connection phases                      | 3 / 3                                                                                                                                |
| <b>Efficiency</b>                                       |                                                                                                                                      |
| Max. efficiency                                         | 99.0 %                                                                                                                               |
| CEC efficiency                                          | 98.5 %                                                                                                                               |
| <b>Protection</b>                                       |                                                                                                                                      |
| DC reverse connection protection                        | Yes                                                                                                                                  |
| AC short circuit protection                             | Yes                                                                                                                                  |
| Leakage current protection                              | Yes                                                                                                                                  |
| Grid monitoring                                         | Yes                                                                                                                                  |
| Ground fault monitoring                                 | Yes                                                                                                                                  |
| DC switch                                               | Yes                                                                                                                                  |
| AC switch                                               | No                                                                                                                                   |
| Arc fault circuit interrupter (AFCI)                    | Yes                                                                                                                                  |
| PV String current monitoring                            | Yes                                                                                                                                  |
| Reactive power at night function                        | Yes                                                                                                                                  |
| PID protection                                          | An-ti PID or PID recovery                                                                                                            |
| Overvoltage protection                                  | DC Type II and AC Type II                                                                                                            |
| <b>General Data</b>                                     |                                                                                                                                      |
| Dimensions (W*H*D)                                      | 1051 * 660 * 363 mm (41.4" * 26" * 14.3")                                                                                            |
| Weight                                                  | 99 kg (218.25 lbs)                                                                                                                   |
| Isolation method                                        | Transformerless                                                                                                                      |
| Ingress protection rating                               | NEMA 4X                                                                                                                              |
| Night power consumption                                 | < 2 W                                                                                                                                |
| Operating ambient temperature range                     | -30 to 60 °C (-22 to 140 °F)                                                                                                         |
| Allowable relative humidity range (non-condensing)      | 0 – 100 %                                                                                                                            |
| Cooling method                                          | Smart forced air cooling                                                                                                             |
| Max. operating altitude                                 | 4000 m (> 3000 m derating) 13123 ft (> 9843 ft derating)                                                                             |
| Display                                                 | LED, Bluetooth+APP                                                                                                                   |
| Communication                                           | RS485 / PLC                                                                                                                          |
| DC connection type                                      | Amphenol UTX (Max. 6 mm <sup>2</sup> 10AWG )                                                                                         |
| AC connection type                                      | OT / DT terminal (Max. 300 mm <sup>2</sup> 600 Kcmil)                                                                                |
| Compliance                                              | UL1741, UL1741SA, IEEE1547, IEEE1547.1, CSA C22.2 107.1-01-2001, FCC Part15 Sub-part B Class A Limits, California Rule 21,UL 1699B   |
| Grid Support                                            | Reactive power at night function, LVRT, HVRT, active & reactive power control and power ramp rate control, Volt/Watt, Frequency/Watt |

\*: Only compatible with Sungrow logger and iSolarCloud

# SG250HX New

SUNGROW

Clean power for all

Multi-MPPT String Inverter for 1500 Vdc System



## HIGH YIELD

- 12 MPPTs with max. efficiency 99%
- Compatible with bifacial module
- Built-in Anti-PID and PID recovery function

## LOW COST

- Compatible with Al and Cu AC cables
- DC 2 in 1 connection enabled
- Power line communication (PLC)
- Q at night function

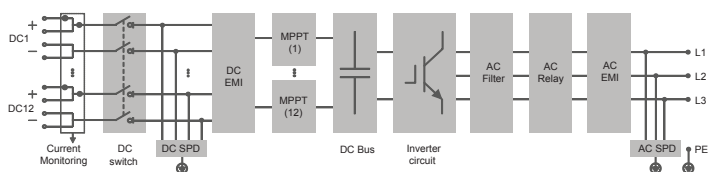
## SMART O&M

- Touch free commissioning and remote firmware upgrade
- Online IV curve scan and diagnosis\*
- Fuse free design with smart string current monitoring

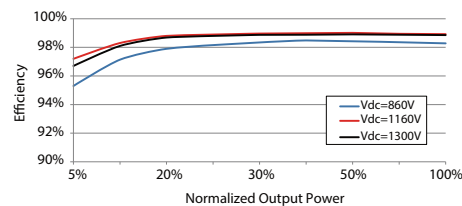
## PROVEN SAFETY

- IP66 and C5 protection
- Type II SPD for both DC and AC
- Compliant with global safety and grid code

## CIRCUIT DIAGRAM



## EFFICIENCY CURVE



| Type designation                                        | SG250HX                                                                                                                                                                                |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Input (DC)</b>                                       |                                                                                                                                                                                        |
| Max. PV input voltage                                   | 1500 V                                                                                                                                                                                 |
| Min. PV input voltage / Startup input voltage           | 600 V / 600 V                                                                                                                                                                          |
| Nominal PV input voltage                                | 1160 V                                                                                                                                                                                 |
| MPP voltage range                                       | 600 V – 1500 V                                                                                                                                                                         |
| MPP voltage range for nominal power                     | 860 V – 1300 V                                                                                                                                                                         |
| No. of independent MPP inputs                           | 12                                                                                                                                                                                     |
| Max. number of input connectors per MPPT                | 2                                                                                                                                                                                      |
| Max. PV input current                                   | 26 A * 12                                                                                                                                                                              |
| Max. DC short-circuit current                           | 50 A * 12                                                                                                                                                                              |
| <b>Output (AC)</b>                                      |                                                                                                                                                                                        |
| AC output power                                         | 250 kVA @ 30 °C / 225 kVA @ 40 °C / 200 kVA @ 50 °C                                                                                                                                    |
| Max. AC output current                                  | 180.5 A                                                                                                                                                                                |
| Nominal AC voltage                                      | 3 / PE, 800 V                                                                                                                                                                          |
| AC voltage range                                        | 680 – 880V                                                                                                                                                                             |
| Nominal grid frequency / Grid frequency range           | 50 Hz / 45 – 55 Hz, 60 Hz / 55 – 65 Hz                                                                                                                                                 |
| THD                                                     | < 3 % (at nominal power)                                                                                                                                                               |
| DC current injection                                    | < 0.5 % In                                                                                                                                                                             |
| Power factor at nominal power / Adjustable power factor | > 0.99 / 0.8 leading – 0.8 lagging                                                                                                                                                     |
| Feed-in phases / connection phases                      | 3 / 3                                                                                                                                                                                  |
| <b>Efficiency</b>                                       |                                                                                                                                                                                        |
| Max. efficiency                                         | 99.0 %                                                                                                                                                                                 |
| European efficiency                                     | 98.8 %                                                                                                                                                                                 |
| <b>Protection</b>                                       |                                                                                                                                                                                        |
| DC reverse connection protection                        | Yes                                                                                                                                                                                    |
| AC short circuit protection                             | Yes                                                                                                                                                                                    |
| Leakage current protection                              | Yes                                                                                                                                                                                    |
| Grid monitoring                                         | Yes                                                                                                                                                                                    |
| Ground fault monitoring                                 | Yes                                                                                                                                                                                    |
| DC switch                                               | Yes                                                                                                                                                                                    |
| AC switch                                               | No                                                                                                                                                                                     |
| PV String current monitoring                            | Yes                                                                                                                                                                                    |
| Q at night function                                     | Yes                                                                                                                                                                                    |
| Anti-PID and PID recovery function                      | Yes                                                                                                                                                                                    |
| Overvoltage protection                                  | DC Type II / AC Type II                                                                                                                                                                |
| <b>General Data</b>                                     |                                                                                                                                                                                        |
| Dimensions (W*H*D)                                      | 1051 * 660 * 363 mm                                                                                                                                                                    |
| Weight                                                  | 99kg                                                                                                                                                                                   |
| Isolation method                                        | Transformerless                                                                                                                                                                        |
| Ingress protection rating                               | IP66                                                                                                                                                                                   |
| Night power consumption                                 | < 2 W                                                                                                                                                                                  |
| Operating ambient temperature range                     | -30 to 60 °C                                                                                                                                                                           |
| Allowable relative humidity range (non-condensing)      | 0 – 100 %                                                                                                                                                                              |
| Cooling method                                          | Smart forced air cooling                                                                                                                                                               |
| Max. operating altitude                                 | 5000 m (> 4000 m derating)                                                                                                                                                             |
| Display                                                 | LED, Bluetooth+APP                                                                                                                                                                     |
| Communication                                           | RS485 / PLC                                                                                                                                                                            |
| DC connection type                                      | MC4-Evo2 (Max. 6 mm <sup>2</sup> , optional 10mm <sup>2</sup> )                                                                                                                        |
| AC connection type                                      | OT/DT terminal (Max. 300 mm <sup>2</sup> )                                                                                                                                             |
| Compliance                                              | IEC 62109, IEC 61727, IEC 62116, IEC 60068, IEC 61683, VDE-AR-N 4110:2018, VDE-AR-N 4120:2018, IEC 61000-6-2, IEC 61000-6-4, EN 50549, UNE 206007-1:2013, P.O.12.3, UTE C15-712-1:2013 |
| Grid Support                                            | Q at night function, LVRT, HVRT, active & reactive power control and power ramp rate control                                                                                           |

\*: Only compatible with Sungrow logger and iSolarCloud

