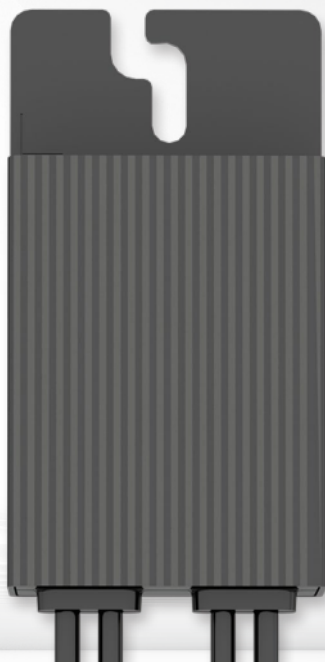


# SMART MODULE CONTROLLER

MERC-600W-PA0



**Higher Yields**  
Module-level Optimization  
Increase System Energy  
Yield by 5% to 30%



**Saferooft**  
Multiple-protection  
technologies always keeps  
rooftop safe



**Flexible Design**  
Easier Module Layout  
and 30% Higher Installed  
Capacity on Average



**Smart O&M**  
Module-level  
Visibility and Refined  
Management

# **MERC-600W-PA0** **Technical Specification**

| Technical Specification                           |  | MERC-600W-PA0                                                                                                                                                                                                                                                                   |
|---------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input                                             |  |                                                                                                                                                                                                                                                                                 |
| Rated input DC power <sup>1</sup>                 |  | 600 W                                                                                                                                                                                                                                                                           |
| Absolute max. input voltage                       |  | 80 V                                                                                                                                                                                                                                                                            |
| MPPT operating voltage range                      |  | 10~80 V                                                                                                                                                                                                                                                                         |
| Max. short-circuit current (Isc)                  |  | 16 A                                                                                                                                                                                                                                                                            |
| Max. efficiency                                   |  | 99.5%                                                                                                                                                                                                                                                                           |
| Weighted efficiency                               |  | 99.0%                                                                                                                                                                                                                                                                           |
| Overvoltage category                              |  | II                                                                                                                                                                                                                                                                              |
| Output                                            |  |                                                                                                                                                                                                                                                                                 |
| Max. output voltage                               |  | 80 V                                                                                                                                                                                                                                                                            |
| Max. output current                               |  | 16 A                                                                                                                                                                                                                                                                            |
| Output bypass <sup>2</sup>                        |  | Yes                                                                                                                                                                                                                                                                             |
| Output voltage during standby per optimizer       |  | 1 V                                                                                                                                                                                                                                                                             |
| Communication                                     |  |                                                                                                                                                                                                                                                                                 |
| Communication protocol                            |  | MBUS                                                                                                                                                                                                                                                                            |
| Standards Compliance                              |  |                                                                                                                                                                                                                                                                                 |
| Safety                                            |  | IEC62109-1 (class II safety)                                                                                                                                                                                                                                                    |
| EMC                                               |  | IEC61000-6-1, IEC61000-6-2, IEC61000-6-3, IEC61000-6-4, EN 55011:2016/A2:2021, EN62920:2017/A1:2021                                                                                                                                                                             |
| RoHS                                              |  | Yes                                                                                                                                                                                                                                                                             |
| Fire Safety                                       |  | NEC 2020                                                                                                                                                                                                                                                                        |
| General Specifications                            |  |                                                                                                                                                                                                                                                                                 |
| Dimensions (W x H x D)                            |  | 73.8 mm x 145 mm x 27.2 mm                                                                                                                                                                                                                                                      |
| Weight (including cables)                         |  | 0.65 kg                                                                                                                                                                                                                                                                         |
| Installation part (optional)                      |  | Frame mounting bracket / T-shaped bolt <sup>3</sup>                                                                                                                                                                                                                             |
| Input connector                                   |  | Staubli MC4                                                                                                                                                                                                                                                                     |
| Input wire length                                 |  | 0.1 m                                                                                                                                                                                                                                                                           |
| Output connector                                  |  | Staubli MC4                                                                                                                                                                                                                                                                     |
| Output wire length                                |  | (+)2.225 m / (-) 0.1 m                                                                                                                                                                                                                                                          |
| Operating temperature/humidity range <sup>4</sup> |  | -40°C to +85°C / 0%-100%                                                                                                                                                                                                                                                        |
| IP rating                                         |  | IP68                                                                                                                                                                                                                                                                            |
| Compatible inverters                              |  | SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/3.68/4/4.6/5/6K-LB0, SUN5000-3/6K-LB0<br>SUN2000-8/10K-LC0, SUN2000-3/4/5/6/8/10KTL-M1, SUN2000-10KTL-BEM1<br>SUN2000-5/6/8/10/12K-MAP0, SUN5000-8/12K-MAP0, SUN2000-10K-MAP0-BE<br>SUN2000-12/15/17/20/25K-MB0, SUN5000-17/25K-MB0 |

| PV System Design <sup>5</sup>         | SUN2000-2-6KTL-L1  | SUN2000-3-6KTL-LB0 | SUN2000-3-10KTL-M1 | SUN2000-5-12K-MAP0  | SUN2000-12-25K-MB0 |
|---------------------------------------|--------------------|--------------------|--------------------|---------------------|--------------------|
|                                       | SUN2000-8K/10K-LC0 | SUN5000-3K/6K-LB0  | SUN2000-10KTL-BEM1 | SUN5000-8K/12K-MAP0 | SUN5000-17/25K-MB0 |
| Min. string length (power optimizers) | 4                  | 4                  | 6                  | 6                   | 6                  |
| Max. string length (power optimizers) | 20                 | 20                 | 35                 | 35                  | 35                 |
| Max. DC power per string              | 6,000 W            | 6,000 W            | 10,000 W           | 12,000 W            | 12,000 W           |

\*1 The maximum power of PV module at STC shall NOT exceed the "Rated Input DC Power" of the power optimizer. PV modules with up to +5% power tolerance are allowed.

\*2 Any power optimizer, which is connected to an operating inverter in a PV string, will be bypassed when it fails.

\*3 It is for PV module frame/extruded aluminum profile racking system installation.

\*4 When the operating temperature of the MERC-600W-PA0 reaches 70 °C to 85 °C, it may shut down due to over-temperature protection. After the temperature decreases, it can automatically resume working without causing any damage.

\*5 SUN2000-450W-P2/600W-P, MERC-600W-PA0 and MERC-1100/1300W-P can NOT be used in mixture under the same Smart Energy/PV Controller.

Disclaimer: the preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.