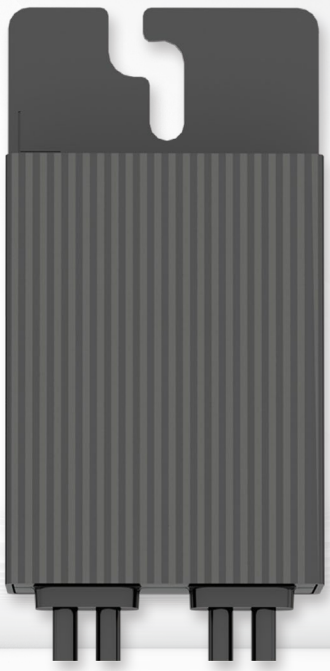
HUAWEI

SMART MODULE CONTROLLER

MERC-600W-PA0



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

Saferoof
Multiple-protection technologies always keeps rooftop safe

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

Smart O&M
Module-level Visibility and Refined Management

Version No.: 02-202504

MERC-600W-PA0

Technical Specification

Technical Specification	MERC-600W-PA0
Input	
Rated input DC power [1]	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 [2]	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 [3]
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 [4]	–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 SUN2000-8/10K-LC0, SUN2000-3/4/5/6/8/10KTL-M1, SUN2000-10KTL-BEM1 SUN2000-5/6/8/10/12K-MAP0, SUN5000-8/12K-MAP0, SUN2000-10K-MAP0-BE SUN2000-12/15/17/20/25K-MB0, SUN5000-17/25K-MB0

PV System Design [5]	SUN2000-2–6KTL-L1 SUN2000-8K/10K-LC0	SUN2000-3–6KTL-LB0 SUN5000-3K/6K-LB0	SUN2000-3–10KTL-M1 SUN2000-10KTL-BEM1	SUN2000-5-12K-MAP0 SUN5000-8K/12K-MAP0	SUN2000-12-25K-MB0 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.

Version No.: 02-202504

HUAWEI

SMART MODULE CONTROLLER

Model：MERC-1100/1300W-P

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

Flexible Design
Long String Design to Reduce Bos

Active Safety
Firefighting and O&M Safety with Module-level Rapid Shutdown

Smart O&M
Pinpointing Open-Circuit Fault for Quick Troubleshooting

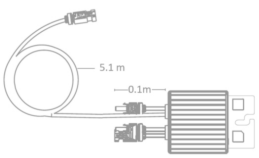
Version No.: 01-202411

MERC-1100/1300W-P
Technical Specification

Technical Specification	MERC-1100W-P	MERC-1300W-P
Input		
Rated input DC power [1]	1100 W	1300 W
Absolute max. input voltage	125 V	
MPPT operating voltage range	12.5–105 V	
Max. short-circuit current (Isc)	20 A	
Max. efficiency	99.5%	
Weighted efficiency	99.0%	
Overvoltage category	II	
Output		
Max. output voltage	80 V	
Max. output current	22 A	
Output bypass [2]	Yes	
Safety output voltage [3]	1 V	
Standards Compliance		
Safety	IEC62109-1 (class II safety)	
RoHS	Yes	
General Specification		
Dimensions (W X H X D)	149 mm x 104 mm x 48.8 mm (5.9 in. x 4.1 in. x 1.9 in.)	
Weight (including wires)	1.0 kg (2.2 lb.)	
Installation kit (optional)	PV Module Frame Plate/T-shaped Bolt [4]	
Input connector	Staubli MC4	
Input wire length	0.1 m (+/-) (short-input-cable version) [5]	
Output connector	Staubli MC4	
Output wire length	0.1 m (+), 5.1 m (-) (short-input-cable version) [5]	
Operating temperature	–40°C to +85°C [6]	
Relative humidity	0%–100%	
IP rating	IP68	
Compatible inverters	SUN2000-12-25K-MB0, SUN2000-12-25KTL-M5, SUN2000-30-40KTL-M3, SUN2000-50KTL-M3, SUN5000-150K-MG0	

PV System Design [7/8/9]	SUN2000-12~25K-MB0	SUN2000-12~25KTL-M5	SUN2000-30~40KTL-M3	SUN2000-50KTL-M3	SUN5000-150K-MG0
Min. string length (power optimizers)	8	8	8	8	12
Max. string length (power optimizers)	25	25	25	20	20
Max. DC power per string	20,000 W	20,000 W	20,000 W	20,000 W	20,000 W

Short-input-cable Version



*1 The maximum power of PV module at STC shall NOT exceed the "Rated input DC power" of MERC-1100/1300W-P. PV Modules with up to ±10% 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 When the MERC-1100/1300W-P is disconnected from inverter or when the inverter is off, its output voltage will become 1 V.
*4 It is for PV module frame/extruded aluminum profile racking system installation.
*5 Pay attention to the PV module wire length. To match PV modules with a split junction box and short output wire, the long-input-cable version (input wire: 1.3 m (+/-); output wire: 0.1m (+)/2.9m (-)) of MERC-1100/1300W-P is available upon request.
*6 When the operating temperature of the MERC-1100/1300W-P reaches 70 °C to 85 °C, it may shut down due to over-temperature protection and report an over-temperature alarm. After the temperature decreases, it can automatically resume working without causing any damage.
*7 Each PV module under the same inverter must be equipped with a MERC-1100/1300W-P.
*8 SUN2000-450W-P2/600W-P and MERC-1100/1300W-P can NOT be used in mixture under the same Smart Energy/PV Controller.
*9 It is recommended that strings under the same inverter have an equal capacity. If this is not feasible, the capacity difference between strings under the same inverter must not exceed 2 kW. Otherwise, the energy yield will be reduced.

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Version No.: 01-202411