![HUAWEI]

SMART MODULE CONTROLLER

MERC-600W-PA0
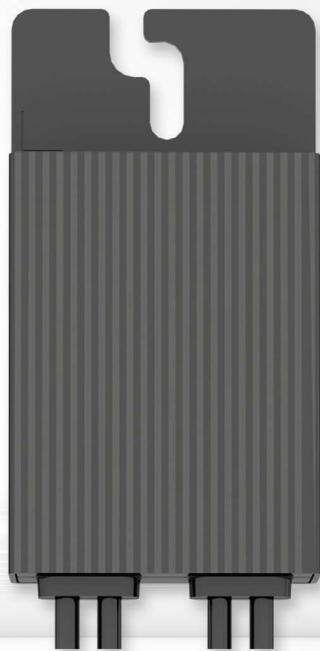
Higher Yields
Module-level Optimization Increase System Energy Yield by 5% to 30%

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

⊙ 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.

MERC-1100/1300W-P
Smart Module Controller
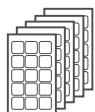
Long String Design
Better for C&I Scenarios

Up to 20 A Input Current
Fit All Type Module

< 5s
Module Auto-Mapping

Temperature Detection
Safety Enhanced

1V Safe Voltage Shutdown
Easier for Detection

Arc Fault Pinpoint Positioning
Along PV Cable
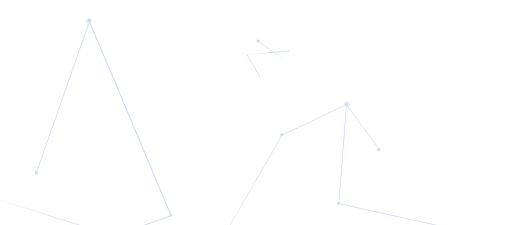
MERC-1100/1300W-P
Smart Module Controller

Technical Specification	MERC-1100W-P	MERC-1300W-P
Input		
Rated Input DC Power[1]	1100 W	1300 W
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	
Shutdown output voltage per optimizer[3]	1 V	
Standards Compliance		
Safety	IEC62109-1 (class II safety)	
RoHS	Yes	
General Data		
Dimension (W x H x D)	149 mm x 104 mm x 49 mm (5.9 in. x 4.1 in. x 2.0 in.)	
Weight (including cables)	1.05 kg (2.2 lb.)	
Installation part (optional)	PV Module Frame Plate, T-shaped Bolt	
Input connector	MC4	
Input wire length	0.1 m (short input cable version)[4]	
Output connector	MC4	
Output wire length	0.1 m (+), 5.1 m (–) (short input cable version)[4]	
Operating temperature/humidity range	–40°C to +85°C [5]/ 0%–100% RH	
Degree of protection	IP68	
Compatible Inverter	SUN2000-8/10/12/15/17/20KTL-M2 SUN2000-20/29.9/30/36/40KTL-M3 SUN2000-12/15/17/20/23/25KTL-M5 SUN2000-50KTL-M3	

String Configuration (Full Optimizer Configuration) * **MERC-1100/1300W-P support full optimizer configuration only**	SUN2000-12-20KTL-M2		SUN2000-12-25KTL-M5		SUN2000-20-40KTL-M3		SUN2000-50KTL-M3
Minimum optimizers per string	6		6		6		6
Maximum optimizers per string	25		25		25		20
Recommend strings per inverter * Only one string can be connected to each MPPT. * The DC/AC ratio is 1.0 to 1.3 for this recommended configuration. For other ratios, refer to the user manual.	12KTL	15-20KTL	12KTL	15-25KTL	30/36KTL	40KTL	4
	1	2	1	2	3	4	
Maximum DC power per string * It is recommended that strings have equal capacity. The capacity difference between strings should ≤ 2 kW. Otherwise, the energy yield might be adversely affected.	20,000 W		20,000 W		20,000 W		20,000 W

Short Input Cable Version

5.1 m
0.1m
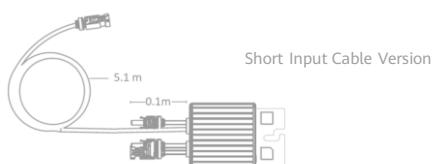
*1 The rated power of modules under standard test conditions (STC) shall not exceed the rated DC input power of optimizers. The module power can be 5% higher than the rated optimizer power.
*2 Failed optimizers will be bypassed so that other optimizers and inverters will not be affected.
*3 When the optimizer output is an open circuit or the inverter connected to the optimizer is shut down, the default optimizer output is 1 V DC voltage.
*4 For the short input cable version (Input cable 0.1m (+/-), output cable 0.1m(+), 5.1m(-)), ensure that the PV module cables are long enough to connect to the optimizers. For split junction box module with a short cable, the long-input cable version of optimizer is available (input cables: 1.3 m (+/–); positive output cable: 0.1 m; negative output cable: 2.9 m) on request.
*5 When the operating temperature of the optimizer is 70°C to 85°C, the optimizer may shut down for overtemperature protection and report an overtemperature alarm. After the operating temperature drops to 70°C or below, the optimizer automatically recovers with no risk of damage.
*6 The SUN2000-450/600W-P cannot be mixed with the MERC-1100/1300W-P under the same inverter.
*7 The temperature detection function is only available on the short output cable (0.1 m).
*8 It is allowed to connect single PV module to the MERC-1100/1300W-P.