

Feature:

1. [MPPT](#) charge mode, conversion efficiency up to 99%, can save 30%~60% of the power than traditional controller.
2. With high efficient MPPT operation scheme and adopting TI28035 chip, make the Solar panels utilization rate up to 99%. Intelligent design, the device can be upgraded online, customers enjoy the lifelong upgrade service.
4. Compliance with the 2002/95/EC environment protecting demand, doesn't include the Cadmium, hydride and fluoride
5. Adopting the well-known brand components, the devices can suffer the temperature not less than 105°C. The service life is designed to extend to 10 years in theory.
6. Charge mode: three stages (fast charge, constant charge, floating charge)
7. 12V/24V/48V/96V system auto recognize for easy control.
8. [12V/24V/48V /96V system](#) maximum solar input is DC 300V ;
9. Connected Battery Type choosing: Sealed lead acid, vented, Gel, NiCd battery. Other types of the batteries can also be defined.
10. LCD and LEDs show all kinds of parameter like products model, PV input voltage, battery voltage, charge current, charge power, work condition, and also can add customers' company name and website.
11. Communication Port. RS232 communication can provide communication protocol, This make the unified and integrated management more convenient to customers.
12. With providing a Microsoft by connecting with PC that can show the working state and all parameters in 7 languages.
13. Extensible LAN remote control.
14. Equipment integrity: controller+CD-ROM(microcomputer software) +temperature sensing wire+ communication wire+Anderson terminals;
15. CE, ROHS, FCC, PSE certifications approved. The device also can support to pass the other certifications.
16. 2 years warranty. And 3~10 years extended warranty service also can be provided.

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| Model: I-P-MSC-DC12V/24V/48V/96V-series | | 20A | 30A |
| Charge Mode | Maximum Power Point Tracking | | |
| Method | 3 stages: fast charge(MPPT),constant voltage,floating charge | | |
| System Type | DC12V/24V/48V/96V | Automatic recognition | |
| System Voltage | 12V system | DC9V~DC15V | |
| | 24V system | DC18V~DC30V | |
| | 48Vsystem | DC36V~DC60V | |
| | 96Vsystem | DC72V~DC120V | |
| Soft Start Time | 12V/24V/48V/96V | ≤10S | |
| Dynamic Response Recovery Time | 12V/24V/48V/96V | 500us | |
| Conversion Efficiency | 12V/24V/48V/96V | ≥96.5%,≤99% | |
| PV Modules Utilization Rate | 12V/24V/48V/96V | ≥99% | |
| Input Characteristics | | | |
| MPPT Working Voltage and Range | 12V system | DC18V~DC150V | |
| | 24V system | DC34~DC150V | |
| | 48V system | DC65~DC150V | |
| | 96Vsystem | DC125~DC300V | |
| Low Voltage Input Protection Point | 12V system | DC16V | |
| | 24V system | DC30V | |
| | 48V system | DC60V | |
| | 96Vsystem | DC120V | |
| Low Voltage Input Recovery Point | 12V system | DC22V | |
| | 24V system | DC34V | |
| | 48V system | DC65V | |
| | 96Vsystem | DC125V | |
| Max DC Voltage | 12V/24V/48V system | DC160V | |
| | 96Vsystem | DC300V | |
| Input Overvoltage Protection Point | 12V/24V/48V system | DC150 | |
| | 96Vsystem | DC300V | |
| Input Overvoltage Recovery Point | 12V/24V/48V system | DC145V | |
| | 96Vsystem | DC295V | |

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|--|--|--|-------|
| Max. PV Power | 12V system | 280W | 450W |
| | 24V system | 560W | 850W |
| | 48V system | 1120W | 1700W |
| | 96Vsystem | 2240W | 3400W |
| Output Characteristics | | | |
| Selectable Battery Types (Default type is GEL battery) | 12V/24V/48V/96Vsystem | Sealed lead acid, vented, Gel, NiCd battery (Other types of the batteries also can be defined) | |
| Constant Voltage | 12V/24V/48V/96Vsystem | Please check the charge voltage according to the | |
| Floating Charge Voltage | 12V/24V/48V/96Vsystem | battery type form. | |
| Over Charge Protection Voltage | 12V system | 14.6V | |
| | 24V system | 29.2V | |
| | 48V system | 58.4V | |
| | 96V system | 116.8V | |
| Rated Output Current | 12V/24V/48V/96Vsystem | 20A | 30A |
| Current-limiting Protection | 12V/24V/48V/96Vsystem | 25A | 35A |
| Temperature Factor | 12V/24V/48V/96Vsystem | ±0.02%/°C | |
| Temperature Compensation | 12V/24V/48V/96Vsystem | 14.2V-(The highest temperature-25°C)*0.3 | |
| Output Ripples(peak) | 12V/24V/48V/96Vsystem | 200mV | |
| Output Voltage Stability Precision | 12V/24V/48V/96Vsystem | ≤±1.5% | |
| Display | | | |
| LCD display | Input,output parameter and output power etc (check the LCD display instruction) | | |
| LED display | 3 LEDs indicates:Fault indicate light,charge indicate light, power source indicate light(check the LED instruction) | | |
| Software Control through PC(communication port) | RS232 (matching) or LAN(optional) | | |
| Protection | | | |
| Input Low Voltage Protection | Check the input characteristics | | |
| Input Overvoltage Protection | Check the input characteristics | | |
| Input Polarity Reversal Protection | yes | | |
| Output Overvoltage Protection | Check the output characteristics | | |
| Output Polarity Reversal Protection | yes | | |
| Short-circuit Protection | Recover after eliminating the Short-circuit fault,no problem for long term Short-circuit | | |
| Temperature Protection | 95°C | | |
| Temperature protection | Above 85°C,decrease the output power,decrease 3A per degree. | | |
| Other Parameters | | | |
| Noise | ≤40dB | | |
| Thermal methods | Forced air cooling,fan speed rate regulated by temperature,when inner temperature is too low,fan ran slowly or stop; when controller stop working,fan also stop ran. | | |
| Components | World brand raw materials. Compliance with EU standards. All rated temperature of electrolytic capacitors not less than 105°C | | |
| Smell | No peculiar smell and and toxic substances. | | |
| Environment Protection | Meet the 2002/95/EC,no cadmium hydride and fluoride | | |
| Physical | | | |
| Measurement DxWxH(mm) | 270*185*90 | | |
| N.G(kg) | 3 | | |
| G.N(kg) | 3.6 | | |
| Color | Blue/Green (optional) | | |
| Safety | CE,RoHS, PSE,FCC | | |
| EMC | EN61000 | | |
| Type of Mechanical Protection | IP21 | | |

| Environment | |
|-----------------------|------------------------|
| Humidity | 0~90%RH (no condense) |
| Altitude | 0~3000m |
| Operating Temperature | -20℃ ~ +40℃ |
| Storage Temperature | -40℃ ~ +75℃ |
| Atmospheric Pressure | 70~106kPa |



Figure: Testing Software

System



Solar Panel



| | | |
|-----------|-----------------|-------------|
| IP-SMART1 | 12V/24V/48V | 40A 50A 60A |
| IP-SMART1 | 12V/24V/48V/96V | 20A 30A |
| IP-SMART2 | 12V/24V/48V | 20A 25A 30A |
| IP-SMART2 | 12V/24V/48V | 40A 50A 60A |



Battery



I-P-SP Series



Loading