APM Technologies

Efficiency, Stability, Reliable, Precision

SP-1U/2U Series
High Performance Programmable DC Power Supply

>> Product specification sheet

SP-1U/2U Series High Performance Programmable DC Power Supply

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SP-1U/2U Series High Performance Programmable DC Power Supply

600W in 1U

Model	SP20VDC600W	SP32VDC600W	SP40VDC600W	SP75VDC600W	SP150VDC600W	SP200VDC600W
Input						
Input Voltage	90~265VAC					
Input Frequency	47~63Hz					
Power Factor	>0.98					
Input Power	750VA(MAX)					
Output						
Output Voltage Range	0~20V	0~32V	0~40V	0~75V	0~150V	0~200V
Output Current Range	0~60A	0~50A	0~40A	0~25A	0~10A	0~8A
Output Power Range	0~600W					
Voltage Load Regulation	10mV	10mV	10mV	10mV	15mV	15mV
Current Load Regulation	60mA	50mA	40mA	25mA	10mA	8mA
Voltage Display Resolution	0.1mV	0.1mV	0.1mV	0.1mV	1mV	1mV
Current Display Resolution	0.2mA	0.2mA	0.2mA	0.2mA	0.2mA	0.1mA
Voltage Programmable Resolution	1.5mV	1.5mV	1.5mV	1.5mV	3mV	3mV
Current Programmable Resolution	2mA	2mA	2mA	1mA	1mA	1mA
Voltage Setting Accuracy [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV	0.1%+15mV
Current Setting Accuracy	0.1%+60mA	0.1%+50mA	0.1%+40mA	0.1%+25mA	0.1%+10mA	0.1%+8mA
Voltage Measurement Accuracy [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV	0.1%+15mV
Current Measurement Accuracy	0.1%+60mA	0.1%+50mA	0.1%+40mA	0.1%+25mA	0.1%+10mA	0.1%+8mA
Voltage Ripple [2]	40mVp-p 6mVrms	40mVp-p 6mVrms	40mVp-p 6mVrms	40mVp-p 6mVrms	120mVp-p 40mVrms	120mVp-p 40mVrms
Current Ripple [3]	60mA (Full Range) 20mA (TYP Value)	50mA (Full Range) 20mA (TYP Value)	40mA (Full Range) 20mA (TYP Value)	25mA (Full Range) 10mA (TYP Value)	40mA (Full Range) 10mA (TYP Value)	40mA (Full Range) 10mA (TYP Value)
Line Regulation(Voltage)	0.005%+1mV	0.005%+1mV	0.005%+1mV	0.005%+1mV	0.02%+8mV	0.02%+8mV
Line Regulation(Current)	4mA	4mA	4mA	4mA	10mA	30mA
Voltage Temperature Coefficient [4]	100ppm/°C					
Current Temperature Coefficient [4]	150ppm/°C					
DVM Resolution	0.1mV	0.1mV	0.1mV	0.1mV	4mV	1mV
DVM Precision [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+30mV	0.1%+15mV
Operating Mode	Constant voltage (CV) / Constant current (CC)					
Remote Compensation	4V MAX					
Master-slave Control	Yes					
Response (Voltage Increase)	≤10ms	≤12ms	≤10ms	≤10ms	≤25ms	≤30ms
Response (Voltage Drop)	≤150ms (no load) ≤20ms (full load)	≤150ms (no load) ≤20ms (full load)	≤150ms (no load) ≤20ms (full load)	≤160ms (no load) ≤20ms (full load)	≤400ms (no load) ≤32ms (full load)	≤600ms (no load) ≤30ms (full load)
Load Transient Recovery Time [5]	≤2ms	≤2ms	≤2ms	≤2ms	≤3ms	≤3ms
Command Response Time	50ms					
Series Capability [6]	Up to 10 units	Up to 10 units	Up to 10 units	Up to 10 units	Up to 8 units	Up to 6 units
Parallel Capability	Up to 10 units					
Current Sharing [7]	9V	9V	12V	20V	40V	50V
Efficiency (full load)	85%	86%	87%	88%	88%	87%
Other						
Protection Function	OVP/OCP/OTP/OPP/SCP/FOLDBACK					
Anti Reverse Irrigation Protection	Yes					
Input Fuse	20A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	10A, 125VAC/250VAC, fast-acting type	10A, 125VAC/250VAC, fast-acting type
Unit Weight/Shipping Weight	9.2kg/12kg	9.2kg/12kg	9.2kg/12kg	8.9kg/11.7kg	9.3kg/12.7kg	9.3kg/12.7kg
Dimensions(WxHxD)	423.0x44.0x447.0 mm					
Communication Modes	1. RS232/RS485/USB/LAN; 2. RS232/RS485/USB/LAN/GPIB					
Operating Environment	Temperature 0~40°C, Relative Humidity 10%~90%(no condensation); Pollution degree 2, Installation category II, Indoor use.					
Cooling Mode	Forced air-cooling					
Altitude	2000m					
Insulation	AC input <->DC output, 4242VDC, AC input <-> PE, 2121VDC					

[1] %output+offset, when output voltage less than 5V, offset voltage is 30mV.
[2] Vp-p@20MHz, Vrms@1.25MHz.
   The 20V/32V/40V/75V models voltage ripple is 50mVp-p/6mVrms @ 1V. For the 600V and 800V models, the voltage ripple from 0~5V is out of the range show above.
[3] Arms@1.25MHz, the TYP Value is measured at the rated output voltage with 100% resistive load, and the measured value at full range of output voltage with 100% resistive load is less than the Full Range value.
[4] 0~40°C.
[5] Time for output voltage to recover within 0.5%(0.75% @800V models) of its rated output for a load change from 10% to 90% of its rated output current. Voltage set point from 10% to 90% of rated output.
[6] The communication must insulated users from output when using remote control and the output voltage exceeds 800VDC.
[7] Current Share error **Ie**<(**Iav***2.5% + 5% **F.S**) A, **F.S** is the full scale of the current. **Iav=Isum/n**, where Iav is average current, Isum is total current and n is number of parallel units.
   Note: Output voltage must be higher than 30% of maximum output voltage when Current Share function properly.

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1000W in 1U

Model	SP20VDC1000W	SP32VDC1000W	SP40VDC1000W	SP75VDC1000W	SP150VDC1000W	SP200VDC1000W
Input						
Input Voltage	90~265VAC					
Input Frequency	47~63Hz					
Power Factor	>0.98					
Input Power	1300VA(MAX)					
Output						
Output Voltage Range	0~20V	0~32V	0~40V	0~75V	0~150V	0~200V
Output Current Range	0~60A	0~50A	0~40A	0~25A	0~10A	0~8A
Output Power Range	0~1000W					
Voltage Load Regulation	10mV	10mV	10mV	10mV	15mV	15mV
Current Load Regulation	60mA	50mA	40mA	25mA	10mA	8mA
Voltage Display Resolution	0.1mV	0.1mV	0.1mV	0.1mV	1mV	1mV
Current Display Resolution	0.2mA	0.2mA	0.2mA	0.2mA	0.2mA	0.1mA
Voltage Programmable Resolution	1.5mV	1.5mV	1.5mV	1.5mV	3mV	3mV
Current Programmable Resolution	2mA	2mA	2mA	1mA	1mA	1mA
Voltage Setting Accuracy [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV	0.1%+15mV
Current Setting Accuracy	0.1%+60mA	0.1%+50mA	0.1%+40mA	0.1%+25mA	0.1%+10mA	0.1%+8mA
Voltage Measurement Accuracy [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV	0.1%+15mV
Current Measurement Accuracy	0.1%+60mA	0.1%+50mA	0.1%+40mA	0.1%+25mA	0.1%+10mA	0.1%+8mA
Voltage Ripple [2]	40mVp-p 6mVrms	40mVp-p 6mVrms	40mVp-p 6mVrms	40mVp-p 6mVrms	120mVp-p 40mVrms	120mVp-p 40mVrms
Current Ripple [3]	60mA (Full Range) 20mA (TYP Value)	50mA (Full Range) 20mA (TYP Value)	40mA (Full Range) 20mA (TYP Value)	25mA (Full Range) 10mA (TYP Value)	40mA (Full Range) 10mA (TYP Value)	40mA (Full Range) 10mA (TYP Value)
Line Regulation(Voltage)	0.005%+1mV	0.005%+1mV	0.005%+1mV	0.005%+1mV	0.02%+8mV	0.02%+8mV
Line Regulation(Current)	4mA	4mA	4mA	4mA	10mA	30mA
Voltage Temperature Coefficient [4]	100ppm/°C					
Current Temperature Coefficient [4]	150ppm/°C					
DVM Resolution	0.1mV	0.1mV	0.1mV	0.1mV	4mV	1mV
DVM Precision [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+30mV	0.1%+15mV
Operating Mode	Constant voltage (CV) / Constant current (CC)					
Remote Compensation	4V MAX					
Master-slave Control	Yes					
Response (Voltage Increase)	≤10ms	≤12ms	≤10ms	≤10ms	≤25ms	≤30ms
Response (Voltage Drop)	≤150ms (no load) ≤20ms (full load)	≤150ms (no load) ≤15ms (full load)	≤150ms (no load) ≤15ms (full load)	≤160ms (no load) ≤15ms (full load)	≤400ms (no load) ≤25ms (full load)	≤600ms (no load) ≤40ms (full load)
Load Transient Recovery Time [5]	≤2ms	≤2ms	≤2ms	≤2ms	≤3ms	≤3ms
Command Response Time	50ms					
Series Capability [6]	Up to 10 units	Up to 10 units	Up to 10 units	Up to 10 units	Up to 8 units	Up to 6 units
Parallel Capability	Up to 10 units					
Current Sharing [7]	9V	9V	12V	20V	40V	50V
Efficiency (full load)	85%	89%	89%	89%	89%	87%
Other						
Protection Function	OVP/OCP/OTP/OPP/SCP/FOLDBACK					
Anti Reverse Irrigation Protection	Yes					
Input Fuse	20A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type
Unit Weight/Shipping Weight	9.2kg/12kg	9.2kg/12kg	9.2kg/12kg	8.9kg/11.7kg	9.3kg/12.7kg	9.3kg/12.7kg
Dimensions(WxHxD)	423.0x44.0x447.0 mm					
Communication Modes	1. RS232/RS485/USB/LAN; 2. RS232/RS485/USB/LAN/GPIB					
Operating Environment	Temperature 0~40°C, Relative Humidity 10%~90%(no condensation); Pollution degree 2, Installation category II, Indoor use.					
Cooling Mode	Forced air-cooling					
Altitude	2000m					
Insulation	AC input <->DC output, 4242VDC, AC input <-> PE, 2121VDC					

[1] %output+offset, when output voltage less than 5V, offset voltage is 30mV.
[2] Vp-p@20MHz, Vrms@1.25MHz.
    The 20V/32V/40V/75V models voltage ripple is 50mVp-p/6mVrms @ 1V. For the 600V and 800V models, the voltage ripple from 0~5V is out of the range show above.
[3] Arms@1.25MHz, the TYP Value is measured at the rated output voltage with 100% resistive load, and the measured value at full range of output voltage with 100% resistive load
    is less than the Full Range value.
[4] 0~40°C.
[5] Time for output voltage to recover within 0.5%(0.75% @800V models) of its rated output for a load change from 10% to 90% of its rated output current. Voltage set point from 10%
    to 90% of rated output.
[6] The communication must insulated users from output when using remote control and the output voltage exceeds 800VDC.
[7] Current Share error Ie<(Iav*2.5% + 5% F.S) A, F.S is the full scale of the current. Iav=Isum/n, where Iav is average current, Isum is total current and n is number of parallel units.
    Note: Output voltage must be higher than 30% of maximum output voltage when Current Share function properly.

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SP-1U/2U Series High Performance Programmable DC Power Supply

1200W in 1U

Model	SP20VDC1200W	SP32VDC1200W	SP40VDC1200W	SP75VDC1200W	SP150VDC1200W	SP200VDC1200W
Input						
Input Voltage	90~265VAC					
Input Frequency	47~63Hz					
Power Factor	>0.98					
Input Power	1500VA(MAX)					
Output						
Output Voltage Range	0~20V	0~32V	0~40V	0~75V	0~150V	0~200V
Output Current Range	0~60A	0~50A	0~40A	0~25A	0~10A	0~8A
Output Power Range	0~1200W					
Voltage Load Regulation	10mV	10mV	10mV	10mV	15mV	15mV
Current Load Regulation	60mA	50mA	40mA	25mA	10mA	8mA
Voltage Display Resolution	0.1mV	0.1mV	0.1mV	0.1mV	1mV	1mV
Current Display Resolution	0.2mA	0.2mA	0.2mA	0.2mA	0.2mA	0.1mA
Voltage Programmable Resolution	1.5mV	1.5mV	1.5mV	1.5mV	3mV	3mV
Current Programmable Resolution	2mA	2mA	2mA	1mA	1mA	1mA
Voltage Setting Accuracy [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV	0.1%+15mV
Current Setting Accuracy	0.1%+60mA	0.1%+50mA	0.1%+40mA	0.1%+25mA	0.1%+10mA	0.1%+8mA
Voltage Measurement Accuracy [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV	0.1%+15mV
Current Measurement Accuracy	0.1%+60mA	0.1%+50mA	0.1%+40mA	0.1%+25mA	0.1%+10mA	0.1%+8mA
Voltage Ripple [2]	40mVp-p 6mVrms	40mVp-p 6mVrms	40mVp-p 6mVrms	40mVp-p 6mVrms	120mVp-p 40mVrms	120mVp-p 40mVrms
Current Ripple [3]	60mA (Full Range) 20mA (TYP Value)	50mA (Full Range) 20mA (TYP Value)	40mA (Full Range) 20mA (TYP Value)	25mA (Full Range) 10mA (TYP Value)	40mA (Full Range) 10mA (TYP Value)	40mA (Full Range) 10mA (TYP Value)
Line Regulation(Voltage)	0.005%+1mV	0.005%+1mV	0.005%+1mV	0.005%+1mV	0.02%+8mV	0.02%+8mV
Line Regulation(Current)	4mA	4mA	4mA	4mA	10mA	30mA
Voltage Temperature Coefficient [4]	100ppm/°C					
Current Temperature Coefficient [4]	150ppm/°C					
DVM Resolution	0.1mV	0.1mV	0.1mV	0.1mV	4mV	1mV
DVM Precision [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+30mV	0.1%+15mV
Operating Mode	Constant voltage (CV) / Constant current (CC)					
Remote Compensation	4V MAX					
Master-slave Control	Yes					
Response (Voltage Increase)	≤10ms	≤10ms	≤10ms	≤10ms	≤25ms	≤30ms
Response (Voltage Drop)	≤150ms (no load) ≤12ms (full load)	≤150ms (no load) ≤12ms (full load)	≤150ms (no load) ≤12ms (full load)	≤160ms (no load) ≤12ms (full load)	≤400ms (no load) ≤21ms (full load)	≤600ms (no load) ≤36ms (full load)
Load Transient Recovery Time [5]	≤2ms	≤2ms	≤2ms	≤2ms	≤3ms	≤3ms
Command Response Time	50ms					
Series Capability [6]	Up to 10 units	Up to 10 units	Up to 10 units	Up to 10 units	Up to 8 units	Up to 6 units
Parallel Capability	Up to 10 units					
Current Sharing [7]	9V	9V	12V	20V	40V	50V
Efficiency (full load)	84%	84%	89%	90%	89%	90%
Other						
Protection Function	OVP/OCP/OTP/OPP/SCP/FOLDBACK					
Anti Reverse Irrigation Protection	Yes					
Input Fuse	20A, 125VAC/250VAC, fast-acting type	20A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type
Unit Weight/Shipping Weight	9.2kg/12kg	9.2kg/12kg	9.2kg/12kg	8.9kg/11.7kg	9.3kg/12.7kg	9.3kg/12.7kg
Dimensions(WxHxD)	423.0x44.0x447.0 mm					
Communication Modes	1. RS232/RS485/USB/LAN;　　2. RS232/RS485/USB/LAN/GPIB					
Operating Environment	Temperature 0~40°C, Relative Humidity 10%~90%(no condensation); Pollution degree 2, Installation category II, Indoor use.					
Cooling Mode	Forced air-cooling					
Altitude	2000m					
Insulation	AC input <->DC output, 4242VDC, AC input <-> PE, 2121VDC					

[1] %output+offset, when output voltage less than 5V, offset voltage is 30mV.
[2] Vp-p@20MHz, Vrms@1.25MHz.
　　The 20V/32V/40V/75V models voltage ripple is 50mVp-p/6mVrms @ 1V. For the 600V and 800V models, the voltage ripple from 0~5V is out of the range show above.
[3] Arms@1.25MHz, the TYP Value is measured at the rated output voltage with 100% resistive load, and the measured value at full range of output voltage with 100% resistive load is less than the Full Range value.
[4] 0~40°C.
[5] Time for output voltage to recover within 0.5%(0.75% @800V models) of its rated output for a load change from 10% to 90% of its rated output current. Voltage set point from 10% to 90% of rated output.
[6] The communication must insulated users from output when using remote control and the output voltage exceeds 800VDC.
[7] Current Share error $Ie<(Iav*2.5\% + 5\%$ $F.S)$ A, $F.S$ is the full scale of the current. $Iav=Isum/n$, where Iav is average current, Isum is total current and n is number of parallel units.
　　Note: Output voltage must be higher than 30% of maximum output voltage when Current Share function properly.

All specifications are subject to change without notice.

1500W in 1U

Model	SP75VDC1500W	SP150VDC1500W	SP200VDC1500W
Input			
Input Voltage	90~265VAC		
Input Frequency	47~63Hz		
Power Factor	>0.98		
Input Power	1900VA(MAX)		
Output			
Output Voltage Range	0~75V	0~150V	0~200V
Output Current Range	0~25A	0~10A	0~8A
Output Power Range	0~1500W		
Voltage Load Regulation	10mV	15mV	15mV
Current Load Regulation	25mA	10mA	8mA
Voltage Display Resolution	0.1mV	1mV	1mV
Current Display Resolution	0.2mA	0.2mA	0.1mA
Voltage Programmable Resolution	1.5mV	3mV	3mV
Current Programmable Resolution	1mA	1mA	1mA
Voltage Setting Accuracy [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV
Current Setting Accuracy	0.1%+25mA	0.1%+10mA	0.1%+8mA
Voltage Measurement Accuracy [1]	0.05%+15mV	0.1%+15mV	0.1%+15mV
Current Measurement Accuracy	0.1%+25mA	0.1%+10mA	0.1%+8mA
Voltage Ripple [2]	40mVp-p 6mVrms	120mVp-p 40mVrms	120mVp-p 40mVrms
Current Ripple [3]	25mA (Full Range) 10mA (TYP Value)	40mA (Full Range) 10mA (TYP Value)	40mA (Full Range) 10mA (TYP Value)
Line Regulation(Voltage)	0.005%+2mV	0.02%+8mV	0.02%+8mV
Line Regulation(Current)	4mA	10mA	30mA
Voltage Temperature Coefficient [4]	100ppm/°C		
Current Temperature Coefficient [4]	150ppm/°C		
DVM Resolution	0.1mV	4mV	1mV
DVM Precision [1]	0.05%+15mV	0.1%+30mV	0.1%+15mV
Operating Mode	Constant voltage (CV) / Constant current (CC)		
Remote Compensation	4V MAX		
Master-slave Control	Yes		
Response (Voltage Increase)	≤10ms	≤25ms	≤30ms
Response (Voltage Drop)	≤160ms (no load) ≤10ms (full load)	≤400ms (no load) ≤18ms (full load)	≤600ms (no load) ≤30ms (full load)
Load Transient Recovery Time [5]	≤2ms	≤3ms	≤3ms
Command Response Time	50ms		
Series Capability [6]	Up to 10 units	Up to 8 units	Up to 6 units
Parallel Capability	Up to 10 units		
Current Sharing [7]	20V	40V	50V
Efficiency (full load)	91%	90%	91%
Other			
Protection Function	OVP/OCP/OTP/OPP/SCP/FOLDBACK		
Anti Reverse Irrigation Protection	Yes		
Input Fuse	30A, 125VAC/250VAC, fast-acting type		
Unit Weight/Shipping Weight	8.9kg/11.7kg	9.3kg/12.7kg	9.3kg/12.7kg
Dimensions(WxHxD)	423.0x44.0x447.0 mm		
Communication Modes	1. RS232/RS485/USB/LAN; 2. RS232/RS485/USB/LAN/GPIB		
Operating Environment	Temperature 0~40°C, Relative Humidity 10%~90%(no condensation); Pollution degree 2, Installation category II, Indoor use.		
Cooling Mode	Forced air-cooling		
Altitude	2000m		
Insulation	AC input <->DC output, 4242VDC, AC input <-> PE, 2121VDC		

[1] %output+offset, when output voltage less than 5V, offset voltage is 30mV.
[2] Vp-p@20MHz, Vrms@1.25MHz.
    The 20V/32V/40V/75V models voltage ripple is 50mVp-p/6mVrms @ 1V. For the 600V and 800V models, the voltage ripple from 0~5V is out of the range show above.
[3] Arms@1.25MHz, the TYP Value is measured at the rated output voltage with 100% resistive load, and the measured value at full range of output voltage with 100% resistive load
    is less than the Full Range value.
[4] 0~40°C.
[5] Time for output voltage to recover within 0.5%(0.75% @800V models) of its rated output for a load change from 10% to 90% of its rated output current. Voltage set point from 10%
    to 90% of rated output.
[6] The communication must insulated users from output when using remote control and the output voltage exceeds 800VDC.
[7] Current Share error **Ie**<(**Iav***2.5% + 5% **F.S**) A, **F.S** is the full scale of the current. **Iav=Isum/n**, where Iav is average current, Isum is total current and n is number of parallel units.
    Note: Output voltage must be higher than 30% of maximum output voltage when Current Share function properly.

All specifications are subject to change without notice.

SP-1U/2U Series High Performance Programmable DC Power Supply

1600W in 1U

Model	SP32VDC1600W	SP40VDC1600W
Input		
Input Voltage	90~265VAC	
Input Frequency	47~63Hz	
Power Factor	>0.98	
Input Power	2000VA(MAX)	
Output		
Output Voltage Range	0~32V	0~40V
Output Current Range	0~50A	0~40A
Output Power Range	0~1600W	
Voltage Load Regulation	10mV	
Current Load Regulation	50mA	40mA
Voltage Display Resolution	0.1mV	
Current Display Resolution	0.2mA	
Voltage Programmable Resolution	1.5mV	
Current Programmable Resolution	2mA	
Voltage Setting Accuracy [1]	0.05%+15mV	
Current Setting Accuracy	0.1%+50mA	0.1%+40mA
Voltage Measurement Accuracy [1]	0.05%+15mV	0.05%+15mV
Current Measurement Accuracy	0.1%+50mA	0.1%+40mA
Voltage Ripple [2]	40mVp-p 6mVrms	
Current Ripple [3]	50mA (Full Range) 20mA (TYP Value)	40mA (Full Range) 20mA (TYP Value)
Line Regulation(Voltage)	0.005%+1mV	
Line Regulation(Current)	4mA	
Voltage Temperature Coefficient [4]	100ppm/°C	
Current Temperature Coefficient [4]	150ppm/°C	
DVM Resolution	0.1mV	
DVM Precision [1]	0.05%+15mV	
Operating Mode	Constant voltage (CV) / Constant current (CC)	
Remote Compensation	4V MAX	
Master-slave Control	Yes	
Response (Voltage Increase)	≤12ms	≤10ms
Response (Voltage Drop)	≤150ms (no load) ≤10ms (full load)	
Load Transient Recovery Time [5]	≤2ms	
Command Response Time	50ms	
Series Capability [6]	Up to 10 units	
Parallel Capability	Up to 10 units	
Current Sharing [7]	9V	12V
Efficiency (full load)	89%	90%
Other		
Protection Function	OVP/OCP/OTP/OPP/SCP/FOLDBACK	
Anti Reverse Irrigation Protection	Yes	
Input Fuse	30A, 125VAC/250VAC, fast-acting type	
Unit Weight/Shipping Weight	9.2kg/12kg	
Dimensions(WxHxD)	423.0x44.0x447.0 mm	
Communication Modes	1. RS232/RS485/USB/LAN; 2. RS232/RS485/USB/LAN/GPIB	
Operating Environment	Temperature 0~40°C, Relative Humidity 10%~90%(no condensation); Pollution degree 2, Installation category II, Indoor use.	
Cooling Mode	Forced air-cooling	
Altitude	2000m	
Insulation	AC input <->DC output, 4242VDC, AC input <-> PE, 2121VDC	

[1] %output+offset, when output voltage less than 5V, offset voltage is 30mV.
[2] Vp-p@20MHz, Vrms@1.25MHz.
  The 20V/32V/40V/75V models voltage ripple is 50mVp-p/6mVrms @ 1V. For the 600V and 800V models, the voltage ripple from 0~5V is out of the range show above.
[3] Arms@1.25MHz, the TYP Value is measured at the rated output voltage with 100% resistive load, and the measured value at full range of output voltage with 100% resistive load
  is less than the Full Range value.
[4] 0~40°C.
[5] Time for output voltage to recover within 0.5%(0.75% @800V models) of its rated output for a load change from 10% to 90% of its rated output current. Voltage set point from 10%
  to 90% of rated output.
[6] The communication must insulated users from output when using remote control and the output voltage exceeds 800VDC.
[7] Current Share error **Ie**<(**Iav***2.5% + 5% **F.S**) A, **F.S** is the full scale of the current. **Iav=Isum/n**, where Iav is average current, Isum is total current and n is number of parallel units.
  Note: Output voltage must be higher than 30% of maximum output voltage when Current Share function properly.

All specifications are subject to change without notice.

1000W in 2U(1)

Model	SPS32VDC1000W	SPS40VDC1000W	SPS80VDC1000W	SPS120VDC1000W
Input				
Input Voltage	90~265VAC			
Input Frequency	47~63Hz			
Power Factor	>0.98	>0.98	>0.97	>0.98
Input Power	1500VA(MAX)	1300VA(MAX)	1200VA(MAX)	1300VA(MAX)
Output				
Output Voltage Range	0~32V	0~40V	0~80V	0~120V
Output Current Range	0~200A	0~120A	0~60A	0~40A
Output Power Range	0~1000W			
Voltage Load Regulation	30mV	15mV	15mV	15mV
Current Load Regulation	200mA	120mA	60mA	40mA
Voltage Display Resolution	0.1mV	0.1mV	0.1mV	1mV
Current Display Resolution	1mA	1mA	0.2mA	0.1mA
Voltage Programmable Resolution	1mV	1mV	1.5mV	3mV
Current Programmable Resolution	6mA	3mA	2mA	1mA
Voltage Setting Accuracy [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV
Current Setting Accuracy	0.1%+200mA	0.1%+120mA	0.1%+60mA	0.1%+40mA
Voltage Measurement Accuracy [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV
Current Measurement Accuracy	0.1%+200mA	0.1%+120mA	0.1%+60mA	0.1%+40mA
Voltage Ripple [2]	60mVp-p 10mVrms	40mVp-p 6mVrms	40mVp-p 6mVrms	80mVp-p 15mVrms
Current Ripple [3]	400mA (Full Range) 200mA (TYP Value)	150mA (Full Range) 20mA (TYP Value)	50mA (Full Range) 10mA (TYP Value)	60mA (Full Range) 10mA (TYP Value)
Line Regulation(Voltage)	0.01%+8mV	0.02%+8mV	0.01%+8mV	0.02%+8mV
Line Regulation(Current)	200mA	30mA	30mA	40mA
Voltage Temperature Coefficient [4]	100ppm/°C			
Current Temperature Coefficient [4]	150ppm/°C			
DVM Resolution	0.1mV	0.1mV	0.1mV	1mV
DVM Precision [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV
Operating Mode	Constant voltage (CV) / Constant current (CC)			
Remote Compensation	4V MAX	4V MAX	4V MAX	5V MAX
Master-slave Control	Yes			
Response (Voltage Increase)	≤20ms (no load) ≤40ms (full load)	≤10ms	≤15ms	≤20ms
Response (Voltage Drop)	≤500ms (no load) ≤45ms (full load)	≤350ms (no load) ≤10ms (full load)	≤450ms (no load) ≤30ms (full load)	≤350ms (no load) ≤21ms (full load)
Load Transient Recovery Time [5]	≤2ms			
Command Response Time	50ms			
Series Capability [6]	Up to 10 units			
Parallel Capability	Up to 10 units			
Current Sharing [7]	12V	12V	20V	30V
Efficiency (full load)	85%	87%	89%	88%
Other				
Protection Function	OVP/OCP/OTP/OPP/SCP/FOLDBACK			
Anti Reverse Irrigation Protection	No(customers can purchase other accessories to achieve this function, please consult the salesrepresentative for details)	Yes	Yes	Yes
Input Fuse	20A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type
Unit Weight/Shipping Weight	14.7kg/18.7kg	14.7kg/18.7kg	13.2kg/16.8kg	13.2kg/16.8kg
Dimensions(WxHxD)	423.0x87.0x514.0 mm	423.0x87.0x514.0 mm	423.0x87.0x469.0 mm	423.0x87.0x469.0 mm
Communication Modes	1. RS232/RS485/USB/LAN; 2. RS232/RS485/USB/LAN/GPIB			
Operating Environment	Temperature 0~40°C, Relative Humidity 10%~90%(no condensation); Pollution degree 2, Installation category II, Indoor use.			
Cooling Mode	Forced air-cooling			
Altitude	2000m			
Insulation	AC input <->DC output, 4242VDC, AC input <-> PE, 2121VDC			

[1] %output+offset, when output voltage less than 5V, offset voltage is 30mV.
[2] Vp-p@20MHz, Vrms@1.25MHz.
  The 20V/32V/40V/75V models voltage ripple is 50mVp-p/6mVrms @ 1V. For the 600V and 800V models, the voltage ripple from 0~5V is out of the range show above.
[3] Arms@1.25MHz, the TYP Value is measured at the rated output voltage with 100% resistive load, and the measured value at full range of output voltage with 100% resistive load is less than the Full Range value.
[4] 0~40°C.
[5] Time for output voltage to recover within 0.5%(0.75% @800V models) of its rated output for a load change from 10% to 90% of its rated output current. Voltage set point from 10% to 90% of rated output.
[6] The communication must insulated users from output when using remote control and the output voltage exceeds 800VDC.
[7] Current Share error Ie<(Iav*2.5% + 5% F.S) A, F.S is the full scale of the current. Iav=Isum/n, where Iav is average current, Isum is total current and n is number of parallel units.
  Note: Output voltage must be higher than 30% of maximum output voltage when Current Share function properly.

All specifications are subject to change without notice.

SP-1U/2U Series High Performance Programmable DC Power Supply

1000W in 2U(2)

Model	SPS150VDC1000W	SPS200VDC1000W	SPS600VDC1000W	SPS800VDC1000W
Input				
Input Voltage	90~265VAC			
Input Frequency	47~63Hz			
Power Factor	>0.98			
Input Power	1300VA(MAX)			
Output				
Output Voltage Range	0~150V	0~200V	0~600V	0~800V
Output Current Range	0~30A	0~24A	0~10A	0~7.5A
Output Power Range	0~1000W			
Voltage Load Regulation	15mV	15mV	30mV	200mV
Current Load Regulation	30mA	24mA	10mA	20mA
Voltage Display Resolution	1mV			
Current Display Resolution	0.1mA			
Voltage Programmable Resolution	3mV	4mV	12mV	24mV
Current Programmable Resolution	1mA			
Voltage Setting Accuracy [1]	0.1%+15mV	0.1%+15mV	0.05%+150mV	0.05%+200mV
Current Setting Accuracy	0.1%+30mA	0.1%+24mA	0.1%+10mA	0.1%+7.5mA
Voltage Measurement Accuracy [1]	0.1%+15mV	0.1%+15mV	0.05%+150mV	0.05%+200mV
Current Measurement Accuracy	0.1%+30mA	0.1%+24mA	0.1%+10mA	0.1%+7.5mA
Voltage Ripple [2]	80mVp-p 15mVrms	150mVp-p 30mVrms	350mVp-p 40mVrms	800mVp-p 200mVrms
Current Ripple [3]	60mA (Full Range) 10mA (TYP Value)	50mA (Full Range) 20mA (TYP Value)	25mA (Full Range) 10mA (TYP Value)	25mA (Full Range) 10mA (TYP Value)
Line Regulation(Voltage)	0.02%+8mV	0.02%+8mV	0.01%+30mV	0.01%+40mV
Line Regulation(Current)	30mA	30mA	15mA	15mA
Voltage Temperature Coefficient [4]	100ppm/°C			
Current Temperature Coefficient [4]	150ppm/°C			
DVM Resolution	1mV	1mV	12mV	12mV
DVM Precision [1]	0.1%+15mV	0.1%+15mV	0.05%+150mV	0.05%+200mV
Operating Mode	Constant voltage (CV) / Constant current (CC)			
Remote Compensation	5V MAX			
Master-slave Control	Yes			
Response (Voltage Increase)	≤25ms	≤30ms	≤60ms	≤60ms
Response (Voltage Drop)	≤500ms (no load) ≤25ms (full load)	≤500ms (no load) ≤35ms (full load)	≤800ms (no load) ≤110ms (full load)	≤800ms (no load) ≤60ms (full load)
Load Transient Recovery Time [5]	≤2ms	≤2ms	≤3ms	≤3ms
Command Response Time	50ms			
Series Capability [6]	Up to 8 units	Up to 6 units	Up to 2 units	Not Recommended
Parallel Capability	Up to 10 units			
Current Sharing [7]	40V	50V	200V	250V
Efficiency (full load)	88%	88%	86%	85%
Other				
Protection Function	OVP/OCP/OTP/OPP/SCP/FOLDBACK			
Anti Reverse Irrigation Protection	Yes			
Input Fuse	30A, 125VAC/250VAC, fast-acting type			
Unit Weight/Shipping Weight	13.2kg/16.8kg	14.7kg/18.7kg	13.2kg/16.8kg	13.2kg/16.8kg
Dimensions(WxHxD)	423.0x87.0x469.0 mm	423.0x87.0x469.0 mm	423.0x87.0x514.0 mm	423.0x87.0x514.0 mm
Communication Modes	1. RS232/RS485/USB/LAN; 2. RS232/RS485/USB/LAN/GPIB			
Operating Environment	Temperature 0~40°C, Relative Humidity 10%~90%(no condensation); Pollution degree 2, Installation category II, Indoor use.			
Cooling Mode	Forced air-cooling			
Altitude	2000m			
Insulation	AC input <->DC output, 4242VDC, AC input <-> PE, 2121VDC			

[1] %output+offset, when output voltage less than 5V, offset voltage is 30mV.
[2] Vp-p@20MHz, Vrms@1.25MHz.
    The 20V/32V/40V/75V models voltage ripple is 50mVp-p/6mVrms @ 1V. For the 600V and 800V models, the voltage ripple from 0~5V is out of the range show above.
[3] Arms@1.25MHz, the TYP Value is measured at the rated output voltage with 100% resistive load, and the measured value at full range of output voltage with 100% resistive load
    is less than the Full Range value.
[4] 0~40°C.
[5] Time for output voltage to recover within 0.5%(0.75% @800V models) of its rated output for a load change from 10% to 90% of its rated output current. Voltage set point from 10%
    to 90% of rated output.
[6] The communication must insulated users from output when using remote control and the output voltage exceeds 800VDC.
[7] Current Share error **Ie**<(**Iav***2.5% + 5% **F.S**) A, **F.S** is the full scale of the current. **Iav=Isum/n**, where Iav is average current, Isum is total current and n is number of parallel units.
    Note: Output voltage must be higher than 30% of maximum output voltage when Current Share function properly.

All specifications are subject to change without notice.

Efficiency, Stability, Reliable, Precision

2000W in 2U(1)

Model	SP32VDC2000W	SP40VDC2000W	SP80VDC2000W	SP120VDC2000W
Input				
Input Voltage	190~265VAC			
Input Frequency	47~63Hz			
Power Factor	>0.98			
Input Power	2600VA(MAX)	2400VA(MAX)	2400VA(MAX)	2400VA(MAX)
Output				
Output Voltage Range	0~32V	0~40V	0~80V	0~120V
Output Current Range	0~200A	0~120A	0~60A	0~40A
Output Power Range	0~2000W			
Voltage Load Regulation	30mV	15mV	15mV	15mV
Current Load Regulation	200mA	120mA	60mA	40mA
Voltage Display Resolution	0.1mV	0.1mV	0.1mV	1mV
Current Display Resolution	1mA	1mA	0.2mA	0.1mA
Voltage Programmable Resolution	1mV	1mV	1.5mV	3mV
Current Programmable Resolution	6mA	3mA	2mA	1mA
Voltage Setting Accuracy [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV
Current Setting Accuracy	0.1%+200mA	0.1%+120mA	0.1%+60mA	0.1%+40mA
Voltage Measurement Accuracy [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV
Current Measurement Accuracy	0.1%+200mA	0.1%+120mA	0.1%+60mA	0.1%+40mA
Voltage Ripple [2]	60mVp-p 10mVrms	40mVp-p 6mVrms	40mVp-p 6mVrms	80mVp-p 15mVrms
Current Ripple [3]	400mA (Full Range) 200mA (TYP Value)	150mA (Full Range) 20mA (TYP Value)	50mA (Full Range) 10mA (TYP Value)	60mA (Full Range) 10mA (TYP Value)
Line Regulation(Voltage)	0.01%+8mV	0.01%+8mV	0.01%+8mV	0.02%+8mV
Line Regulation(Current)	200mA	30mA	30mA	30mA
Voltage Temperature Coefficient [4]	100ppm/°C			
Current Temperature Coefficient [4]	150ppm/°C			
DVM Resolution	0.1mV	0.1mV	0.1mV	1mV
DVM Precision [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV
Operating Mode	Constant voltage (CV) / Constant current (CC)			
Remote Compensation	4V MAX	4V MAX	4V MAX	5V MAX
Master-slave Control	Yes			
Response (Voltage Increase)	≤20ms (no load) ≤30ms (full load)	≤10ms	≤15ms	≤20ms
Response (Voltage Drop)	≤500ms (no load) ≤30ms (full load)	≤350ms (no load) ≤10ms (full load)	≤450ms (no load) ≤30ms (full load)	≤350ms (no load) ≤21ms (full load)
Load Transient Recovery Time [5]	≤2ms	≤2ms	≤2ms	≤3ms
Command Response Time	50ms			
Series Capability [6]	Up to 10 units	Up to 10 units	Up to 10 units	Up to 8 units
Parallel Capability	Up to 10 units			
Current Sharing [7]	12V	12V	20V	30V
Efficiency (full load)	91%	88%	89%	89%
Other				
Protection Function	OVP/OCP/OTP/OPP/SCP/FOLDBACK			
Anti Reverse Irrigation Protection	No(customers can purchase other accessories to achieve this function, please consult the salesrepresentative for details)	Yes	Yes	Yes
Input Fuse	20A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type
Unit Weight/Shipping Weight	14.7kg/18.7kg	14.7kg/18.7kg	13.2kg/16.8kg	13.2kg/16.8kg
Dimensions(WxHxD)	423.0x87.0x514.0 mm	423.0x87.0x514.0 mm	423.0x87.0x469.0 mm	423.0x87.0x469.0 mm
Communication Modes	1. RS232/RS485/USB/LAN; 2. RS232/RS485/USB/LAN/GPIB			
Operating Environment	Temperature 0~40°C, Relative Humidity 10%~90%(no condensation); Pollution degree 2, Installation category II, Indoor use.			
Cooling Mode	Forced air-cooling			
Altitude	2000m			
Insulation	AC input <->DC output, 4242VDC, AC input <-> PE, 2121VDC			

[1] %output+offset, when output voltage less than 5V, offset voltage is 30mV.
[2] Vp-p@20MHz, Vrms@1.25MHz.
    The 20V/32V/40V/75V models voltage ripple is 50mVp-p/6mVrms @ 1V. For the 600V and 800V models, the voltage ripple from 0~5V is out of the range show above.
[3] Arms@1.25MHz, the TYP Value is measured at the rated output voltage with 100% resistive load, and the measured value at full range of output voltage with 100% resistive load
    is less than the Full Range value.
[4] 0~40°C.
[5] Time for output voltage to recover within 0.5%(0.75% @800V models) of its rated output for a load change from 10% to 90% of its rated output current. Voltage set point from 10%
    to 90% of rated output.
[6] The communication must insulated users from output when using remote control and the output voltage exceeds 800VDC.
[7] Current Share error $I_e < (I_{av}*2.5\% + 5\%$ **F.S**) A, **F.S** is the full scale of the current. $I_{av}=I_{sum}/n$, where Iav is average current, Isum is total current and n is number of parallel units.
    Note: Output voltage must be higher than 30% of maximum output voltage when Current Share function properly.

All specifications are subject to change without notice.

SP-1U/2U Series High Performance Programmable DC Power Supply

2000W in 2U(2)

Model	SP150VDC2000W	SP200VDC2000W	SP600VDC2000W	SP800VDC2000W
Input				
Input Voltage	190~265VAC			
Input Frequency	47~63Hz			
Power Factor	>0.98			
Input Power	2400VA(MAX)			
Output				
Output Voltage Range	0~150V	0~200V	0~600V	0~800V
Output Current Range	0~30A	0~24A	0~10A	0~7.5A
Output Power Range	0~2000W			
Voltage Load Regulation	15mV	15mV	30mV	200mV
Current Load Regulation	30mA	24mA	10mA	20mA
Voltage Display Resolution	1mV			
Current Display Resolution	0.1mA			
Voltage Programmable Resolution	3mV	4mV	12mV	24mV
Current Programmable Resolution	1mA			
Voltage Setting Accuracy [1]	0.1%+15mV	0.1%+15mV	0.05%+150mV	0.05%+200mV
Current Setting Accuracy	0.1%+30mA	0.1%+24mA	0.1%+10mA	0.1%+7.5mA
Voltage Measurement Accuracy [1]	0.1%+15mV	0.1%+15mV	0.05%+150mV	0.05%+200mV
Current Measurement Accuracy	0.1%+30mA	0.1%+24mA	0.1%+10mA	0.1%+7.5mA
Voltage Ripple [2]	40mVp-p 6mVrms	150mVp-p 30mVrms	350mVp-p 40mVrms	800mVp-p 200mVrms
Current Ripple [3]	60mA (Full Range) 10mA (TYP Value)	50mA (Full Range) 20mA (TYP Value)	25mA (Full Range) 10mA (TYP Value)	25mA (Full Range) 10mA (TYP Value)
Line Regulation(Voltage)	0.02%+8mV	0.02%+8mV	0.01%+30mV	0.01%+40mV
Line Regulation(Current)	30mA	30mA	15mA	20mA
Voltage Temperature Coefficient [4]	100ppm/°C			
Current Temperature Coefficient [4]	150ppm/°C			
DVM Resolution	1mV	1mV	12mV	12mV
DVM Precision [1]	0.1%+15mV	0.1%+15mV	0.05%+150mV	0.05%+200mV
Operating Mode	Constant voltage (CV) / Constant current (CC)			
Remote Compensation	5V MAX			
Master-slave Control	Yes			
Response (Voltage Increase)	≤25ms	≤30ms	≤60ms	≤60ms
Response (Voltage Drop)	≤500ms (no load) ≤25ms (full load)	≤500ms (no load) ≤20ms (full load)	≤800ms (no load) ≤90ms (full load)	≤800ms (no load) ≤60ms (full load)
Load Transient Recovery Time [5]	≤3ms			
Command Response Time	50ms			
Series Capability [6]	Up to 8 units	Up to 6 units	Up to 2 units	Not Recommended
Parallel Capability	Up to 10 units			
Current Sharing [7]	40V	50V	200V	250V
Efficiency (full load)	90%	90%	90%	91%
Other				
Protection Function	OVP/OCP/OTP/OPP/SCP/FOLDBACK			
Anti Reverse Irrigation Protection	Yes			
Input Fuse	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	20A, 125VAC/250VAC, fast-acting type	20A, 125VAC/250VAC, fast-acting type
Unit Weight/Shipping Weight	13.2kg/16.8kg	13.2kg/16.8kg	14.7kg/18.7kg	14.7kg/18.7kg
Dimensions(WxHxD)	423.0x87.0x469.0 mm	423.0x87.0x469.0 mm	423.0x87.0x514.0 mm	423.0x87.0x514.0 mm
Communication Modes	1. RS232/RS485/USB/LAN; 2. RS232/RS485/USB/LAN/GPIB			
Operating Environment	Temperature 0~40°C, Relative Humidity 10%~90%(no condensation); Pollution degree 2, Installation category II, Indoor use.			
Cooling Mode	Forced air-cooling			
Altitude	2000m			
Insulation	AC input <->DC output, 4242VDC, AC input <-> PE, 2121VDC			

[1] %output+offset, when output voltage less than 5V, offset voltage is 30mV.
[2] Vp-p@20MHz, Vrms@1.25MHz.
   The 20V/32V/40V/75V models voltage ripple is 50mVp-p/6mVrms @ 1V. For the 600V and 800V models, the voltage ripple from 0~5V is out of the range show above.
[3] Arms@1.25MHz, the TYP Value is measured at the rated output voltage with 100% resistive load, and the measured value at full range of output voltage with 100% resistive load is less than the Full Range value.
[4] 0~40°C.
[5] Time for output voltage to recover within 0.5%(0.75% @800V models) of its rated output for a load change from 10% to 90% of its rated output current. Voltage set point from 10% to 90% of rated output.
[6] The communication must insulated users from output when using remote control and the output voltage exceeds 800VDC.
[7] Current Share error $Ie<(Iav*2.5\% + 5\% \text{ F.S})$ A, **F.S** is the full scale of the current. **Iav=Isum/n**, where Iav is average current, Isum is total current and n is number of parallel units.
   Note: Output voltage must be higher than 30% of maximum output voltage when Current Share function properly.

All specifications are subject to change without notice.

Efficiency, Stability, Reliable, Precision

3000W in 2U(1)

Model	SP32VDC3000W	SP40VDC3000W	SP80VDC3000W	SP120VDC3000W
Input				
Input Voltage	190~265VAC			
Input Frequency	47~63Hz			
Power Factor	>0.98			
Input Power	3700VA(MAX)	3400VA(MAX)	3400VA(MAX)	3400VA(MAX)
Output				
Output Voltage Range	0~32V	0~40V	0~80V	0~120V
Output Current Range	0~200A	0~120A	0~60A	0~40A
Output Power Range	0~3000W			
Voltage Load Regulation	30mV	15mV	15mV	15mV
Current Load Regulation	200mA	120mA	60mA	40mA
Voltage Display Resolution	0.1mV	0.1mV	0.1mV	1mV
Current Display Resolution	1mA	1mA	0.2mA	0.1mA
Voltage Programmable Resolution	1mV	1mV	1.5mV	3mV
Current Programmable Resolution	6mA	2mA	2mA	1mA
Voltage Setting Accuracy [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV
Current Setting Accuracy	0.1%+200mA	0.1%+120mA	0.1%+60mA	0.1%+40mA
Voltage Measurement Accuracy [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV
Current Measurement Accuracy	0.1%+200mA	0.1%+120mA	0.1%+60mA	0.1%+40mA
Voltage Ripple [2]	60mVp-p 10mVrms	40mVp-p 6mVrms	40mVp-p 6mVrms	80mVp-p 15mVrms
Current Ripple [3]	400mA (Full Range) 200mA (TYP Value)	150mA (Full Range) 20mA (TYP Value)	50mA (Full Range) 10mA (TYP Value)	60mA (Full Range) 10mA (TYP Value)
Line Regulation(Voltage)	0.01%+8mV	0.01%+8mV	0.01%+8mV	0.02%+8mV
Line Regulation(Current)	200mA	30mA	30mA	30mA
Voltage Temperature Coefficient [4]	100ppm/°C			
Current Temperature Coefficient [4]	150ppm/°C			
DVM Resolution	0.1mV	0.1mV	0.1mV	1mV
DVM Precision [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV
Operating Mode	Constant voltage (CV) / Constant current (CC)			
Remote Compensation	4V MAX	4V MAX	4V MAX	5V MAX
Master-slave Control	Yes			
Response (Voltage Increase)	≤20ms (no load) ≤20ms (full load)	≤10ms	≤15ms	≤20ms
Response (Voltage Drop)	≤500ms (no load) ≤25ms (full load)	≤350ms (no load) ≤10ms (full load)	≤450ms (no load) ≤30ms (full load)	≤350ms (no load) ≤21ms (full load)
Load Transient Recovery Time [5]	≤2ms			
Command Response Time	50ms			
Series Capability [6]	Up to 10 units			
Parallel Capability	Up to 10 units			
Current Sharing [7]	12V	12V	20V	30V
Efficiency (full load)	91%	88%	91%	91%
Other				
Protection Function	OVP/OCP/OTP/OPP/SCP/FOLDBACK			
Anti Reverse Irrigation Protection	No(customers can purchase other accessories to achieve this function, please consult the salesrepresentative for details)	Yes	Yes	Yes
Input Fuse	30A, 125VAC/250VAC, fast-acting type	40A, 125VAC/250VAC, fast-acting type	40A, 125VAC/250VAC, fast-acting type	40A, 125VAC/250VAC, fast-acting type
Unit Weight/Shipping Weight	14.7kg/18.7kg	14.7kg/18.7kg	13.2kg/16.8kg	13.2kg/16.8kg
Dimensions(WxHxD)	423.0x87.0x514.0 mm	423.0x87.0x514.0 mm	423.0x87.0x469.0 mm	423.0x87.0x469.0 mm
Communication Modes	1. RS232/RS485/USB/LAN; 2. RS232/RS485/USB/LAN/GPIB			
Operating Environment	Temperature 0~40°C, Relative Humidity 10%~90%(no condensation); Pollution degree 2, Installation category II, Indoor use.			
Cooling Mode	Forced air-cooling			
Altitude	2000m			
Insulation	AC input <->DC output, 4242VDC, AC input <-> PE, 2121VDC			

[1] %output+offset, when output voltage less than 5V, offset voltage is 30mV.
[2] Vp-p@20MHz, Vrms@1.25MHz.
   The 20V/32V/40V/75V models voltage ripple is 50mVp-p/6mVrms @ 1V. For the 600V and 800V models, the voltage ripple from 0~5V is out of the range show above.
[3] Arms@1.25MHz, the TYP Value is measured at the rated output voltage with 100% resistive load, and the measured value at full range of output voltage with 100% resistive load
   is less than the Full Range value.
[4] 0~40°C.
[5] Time for output voltage to recover within 0.5%(0.75% @800V models) of its rated output for a load change from 10% to 90% of its rated output current. Voltage set point from 10%
   to 90% of rated output.
[6] The communication must insulated users from output when using remote control and the output voltage exceeds 800VDC.
[7] Current Share error **Ie**<(**Iav***2.5% + 5% **F.S**) A, **F.S** is the full scale of the current. **Iav=Isum/n**, where Iav is average current, Isum is total current and n is number of parallel units.
   Note: Output voltage must be higher than 30% of maximum output voltage when Current Share function properly.

All specifications are subject to change without notice.

SP-1U/2U Series High Performance Programmable DC Power Supply

3000W in 2U(2)

Model	SP150VDC3000W	SP200VDC3000W	SP600VDC3000W	SP800VDC3000W
Input				
Input Voltage	190~265VAC			
Input Frequency	47~63Hz			
Power Factor	>0.98			
Input Power	3400VA(MAX)			
Output				
Output Voltage Range	0~150V	0~200V	0~600V	0~800V
Output Current Range	0~30A	0~24A	0~10A	0~7.5A
Output Power Range	0~3000W			
Voltage Load Regulation	15mV	15mV	30mV	200mV
Current Load Regulation	30mA	24mA	10mA	20mA
Voltage Display Resolution	1mV			
Current Display Resolution	0.1mA			
Voltage Programmable Resolution	3mV	4mV	12mV	24mV
Current Programmable Resolution	1mA			
Voltage Setting Accuracy [1]	0.1%+15mV	0.1%+15mV	0.05%+150mV	0.05%+200mV
Current Setting Accuracy	0.1%+30mA	0.1%+24mA	0.1%+10mA	0.1%+7.5mA
Voltage Measurement Accuracy [1]	0.1%+15mV	0.1%+15mV	0.05%+150mV	0.05%+200mV
Current Measurement Accuracy	0.1%+30mA	0.1%+24mA	0.1%+10mA	0.1%+7.5mA
Voltage Ripple [2]	80mVp-p 15mVrms	150mVp-p 30mVrms	350mVp-p 40mVrms	800mVp-p 200mVrms
Current Ripple [3]	60mA (Full Range) 10mA (TYP Value)	50mA (Full Range) 20mA (TYP Value)	25mA (Full Range) 10mA (TYP Value)	25mA (Full Range) 10mA (TYP Value)
Line Regulation(Voltage)	0.02%+8mV	0.02%+8mV	0.01%+30mV	0.01%+40mV
Line Regulation(Current)	30mA	30mA	15mA	20mA
Voltage Temperature Coefficient [4]	100ppm/°C			
Current Temperature Coefficient [4]	150ppm/°C			
DVM Resolution	1mV	1mV	12mV	12mV
DVM Precision [1]	0.1%+15mV	0.1%+15mV	0.05%+150mV	0.05%+200mV
Operating Mode	Constant voltage (CV) / Constant current (CC)			
Remote Compensation	5V MAX			
Master-slave Control	Yes			
Response (Voltage Increase)	≤25ms	≤30ms	≤60ms	≤60ms
Response (Voltage Drop)	≤500ms (no load) ≤25ms (full load)	≤500ms (no load) ≤20ms (full load)	≤800ms (no load) ≤75ms (full load)	≤800ms (no load) ≤60ms (full load)
Load Transient Recovery Time [5]	≤2.5ms	≤3ms	≤3ms	≤3ms
Command Response Time	50ms			
Series Capability [6]	Up to 8 units	Up to 6 units	Up to 2 units	Not Recommended
Parallel Capability	Up to 10 units			
Current Sharing [7]	40V	50V	200V	250V
Efficiency (full load)	92%	91%	91%	91%
Other				
Protection Function	OVP/OCP/OTP/OPP/SCP/FOLDBACK			
Anti Reverse Irrigation Protection	Yes			
Input Fuse	40A, 125VAC/250VAC, fast-acting type	40A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type	30A, 125VAC/250VAC, fast-acting type
Unit Weight/Shipping Weight	13.2kg/16.8kg	13.2kg/16.8kg	14.7kg/18.7kg	14.7kg/18.7kg
Dimensions(WxHxD)	423.0x87.0x469.0 mm	423.0x87.0x469.0 mm	423.0x87.0x514.0 mm	423.0x87.0x514.0 mm
Communication Modes	1. RS232/RS485/USB/LAN; 2. RS232/RS485/USB/LAN/GPIB			
Operating Environment	Temperature 0~40°C, Relative Humidity 10%~90%(no condensation); Pollution degree 2, Installation category II, Indoor use.			
Cooling Mode	Forced air-cooling			
Altitude	2000m			
Insulation	AC input <->DC output, 4242VDC, AC input <-> PE, 2121VDC			

[1] %output+offset, when output voltage less than 5V, offset voltage is 30mV.
[2] Vp-p@20MHz, Vrms@1.25MHz.
    The 20V/32V/40V/75V models voltage ripple is 50mVp-p/6mVrms @ 1V. For the 600V and 800V models, the voltage ripple from 0~5V is out of the range show above.
[3] Arms@1.25MHz, the TYP Value is measured at the rated output voltage with 100% resistive load, and the measured value at full range of output voltage with 100% resistive load
    is less than the Full Range value.
[4] 0~40°C.
[5] Time for output voltage to recover within 0.5%(0.75% @800V models) of its rated output for a load change from 10% to 90% of its rated output current. Voltage set point from 10%
    to 90% of rated output.
[6] The communication must insulated users from output when using remote control and the output voltage exceeds 800VDC.
[7] Current Share error **Ie**<(**Iav***2.5% + 5% **F.S**) A, **F.S** is the full scale of the current. **Iav=Isum/n**, where Iav is average current, Isum is total current and n is number of parallel units.
    Note: Output voltage must be higher than 30% of maximum output voltage when Current Share function properly.

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Efficiency, Stability, Reliable, Precision

4000W in 2U(1)

Model	SP32VDC4000W	SP40VDC4000W	SP75VDC4000W	SP120VDC4000W
Input				
Input Voltage	190~265VAC			
Input Frequency	47~63Hz			
Power Factor	>0.98			
Input Power	4800VA(MAX)	4500VA(MAX)	4500VA(MAX)	4500VA(MAX)
Output				
Output Voltage Range	0~32V	0~40V	0~75V	0~120V
Output Current Range	0~200A	0~120A	0~60A	0~40A
Output Power Range	0~4000W			
Voltage Load Regulation	30mV	15mV	15mV	15mV
Current Load Regulation	200mA	120mA	60mA	40mA
Voltage Display Resolution	0.1mV	0.1mV	0.1mV	1mV
Current Display Resolution	1mA	1mA	0.1mA	0.1mA
Voltage Programmable Resolution	1mV	1mV	2mV	3mV
Current Programmable Resolution	6mA	3mA	2mA	1mA
Voltage Setting Accuracy [1]	0.05%+15mV	0.05%+15mV	0.1%+15mV	0.1%+15mV
Current Setting Accuracy	0.1%+200mA	0.1%+120mA	0.1%+60mA	0.1%+40mA
Voltage Measurement Accuracy [1]	0.05%+15mV	0.05%+15mV	0.1%+15mV	0.1%+15mV
Current Measurement Accuracy	0.1%+200mA	0.1%+120mA	0.1%+60mA	0.1%+40mA
Voltage Ripple [2]	60mVp-p 10mVrms	40mVp-p 6mVrms	40mVp-p 8mVrms	80mVp-p 15mVrms
Current Ripple [3]	400mA (Full Range) 200mA (TYP Value)	150mA (Full Range) 20mA (TYP Value)	60mA (Full Range) 10mA (TYP Value)	60mA (Full Range) 10mA (TYP Value)
Line Regulation(Voltage)	0.01%+8mV	0.01%+8mV	0.01%+8mV	0.02%+8mV
Line Regulation(Current)	200mA	30mA	30mA	30mA
Voltage Temperature Coefficient [4]	100ppm/°C			
Current Temperature Coefficient [4]	150ppm/°C			
DVM Resolution	0.1mV	0.1mV	0.1mV	1mV
DVM Precision [1]	0.05%+15mV	0.05%+15mV	0.05%+15mV	0.1%+15mV
Operating Mode	Constant voltage (CV) / Constant current (CC)			
Remote Compensation	4V MAX	4V MAX	5V MAX	5V MAX
Master-slave Control	Yes			
Response (Voltage Increase)	≤20ms (no load) ≤20ms (full load)	≤10ms	≤15ms	≤20ms
Response (Voltage Drop)	≤500ms (no load) ≤20ms (full load)	≤350ms (no load) ≤10ms (full load)	≤450ms (no load) ≤20ms (full load)	≤350ms (no load) ≤21ms (full load)
Load Transient Recovery Time [5]	≤2ms			
Command Response Time	50ms			
Series Capability [6]	Up to 10 units			
Parallel Capability	Up to 10 units			
Current Sharing [7]	12V	12V	20V	30V
Efficiency (full load)	91%	91%	91%	92%
Other				
Protection Function	OVP/OCP/OTP/OPP/SCP/FOLDBACK			
Anti Reverse Irrigation Protection	No(customers can purchase other accessories to achieve this function, please consult the salesrepresentative for details)	Yes	Yes	Yes
Input Fuse	40A, 125VAC/250VAC, fast-acting type			
Unit Weight/Shipping Weight	14.7kg/18.7kg	14.7kg/18.7kg	13.2kg/16.8kg	13.2kg/16.8kg
Dimensions(WxHxD)	423.0x87.0x514.0 mm	423.0x87.0x514.0 mm	423.0x87.0x469.0 mm	423.0x87.0x469.0 mm
Communication Modes	1. RS232/RS485/USB/LAN; 2. RS232/RS485/USB/LAN/GPIB			
Operating Environment	Temperature 0~40°C, Relative Humidity 10%~90%(no condensation); Pollution degree 2, Installation category II, Indoor use.			
Cooling Mode	Forced air-cooling			
Altitude	2000m			
Insulation	AC input <->DC output, 4242VDC, AC input <-> PE, 2121VDC			

[1] %output+offset, when output voltage less than 5V, offset voltage is 30mV.
[2] Vp-p@20MHz, Vrms@1.25MHz.
    The 20V/32V/40V/75V models voltage ripple is 50mVp-p/6mVrms @ 1V. For the 600V and 800V models, the voltage ripple from 0~5V is out of the range show above.
[3] Arms@1.25MHz, the TYP Value is measured at the rated output voltage with 100% resistive load, and the measured value at full range of output voltage with 100% resistive load is less than the Full Range value.
[4] 0~40°C.
[5] Time for output voltage to recover within 0.5%(0.75% @800V models) of its rated output for a load change from 10% to 90% of its rated output current. Voltage set point from 10% to 90% of rated output.
[6] The communication must insulated users from output when using remote control and the output voltage exceeds 800VDC.
[7] Current Share error Ie<(Iav*2.5% + 5% F.S) A, F.S is the full scale of the current. Iav=Isum/n, where Iav is average current, Isum is total current and n is number of parallel units.
    Note: Output voltage must be higher than 30% of maximum output voltage when Current Share function properly.

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4000W in 2U(2)

Model	SP150VDC4000W	SP200VDC4000W	SP600VDC4000W	SP800VDC4000W
Input				
Input Voltage	190~265VAC			
Input Frequency	47~63Hz			
Power Factor	>0.98			
Input Power	4500VA(MAX)			
Output				
Output Voltage Range	0~150V	0~200V	0~600V	0~800V
Output Current Range	0~30A	0~24A	0~10A	0~7.5A
Output Power Range	0~4000W			
Voltage Load Regulation	15mV	25mV	30mV	200mV
Current Load Regulation	30mA	24mA	10mA	20mA
Voltage Display Resolution	1mV			
Current Display Resolution	0.1mA			
Voltage Programmable Resolution	3mV	4mV	12mV	24mV
Current Programmable Resolution	1mA			
Voltage Setting Accuracy [1]	0.1%+15mV	0.1%+15mV	0.05%+150mV	0.05%+200mV
Current Setting Accuracy	0.1%+30mA	0.1%+24mA	0.1%+10mA	0.1%+7.5mA
Voltage Measurement Accuracy [1]	0.1%+15mV	0.1%+15mV	0.05%+150mV	0.05%+200mV
Current Measurement Accuracy	0.1%+30mA	0.1%+24mA	0.1%+10mA	0.1%+7.5mA
Voltage Ripple [2]	80mVp-p 15mVrms	150mVp-p 30mVrms	350mVp-p 40mVrms	800mVp-p 200mVrms
Current Ripple [3]	60mA (Full Range) 10mA (TYP Value)	50mA (Full Range) 20mA (TYP Value)	25mA (Full Range) 10mA (TYP Value)	25mA (Full Range) 10mA (TYP Value)
Line Regulation(Voltage)	0.02%+8mV	0.02%+8mV	0.01%+30mV	0.01%+40mV
Line Regulation(Current)	30mA	30mA	15mA	20mA
Voltage Temperature Coefficient [4]	100ppm/°C			
Current Temperature Coefficient [4]	150ppm/°C			
DVM Resolution	1mV	1mV	12mV	12mV
DVM Precision [1]	0.1%+15mV	0.1%+15mV	0.05%+150mV	0.05%+200mV
Operating Mode	Constant voltage (CV) / Constant current (CC)			
Remote Compensation	5V MAX			
Master-slave Control	Yes			
Response (Voltage Increase)	≤25ms	≤30ms	≤60ms	≤60ms
Response (Voltage Drop)	≤500ms (no load) ≤25ms (full load)	≤500ms (no load) ≤20ms (full load)	≤800ms (no load) ≤60ms (full load)	≤800ms (no load) ≤60ms (full load)
Load Transient Recovery Time [5]	≤2.5ms	≤3ms	≤3ms	≤3ms
Command Response Time	50ms			
Series Capability [6]	Up to 8 units	Up to 6 units	Up to 2 units	Not Recommended
Parallel Capability	Up to 10 units			
Current Sharing [7]	40V	50V	200V	250V
Efficiency (full load)	93%	92%	92%	92%
Other				
Protection Function	OVP/OCP/OTP/OPP/SCP/FOLDBACK			
Anti Reverse Irrigation Protection	Yes			
Input Fuse	40A, 125VAC/250VAC, fast-acting type			
Unit Weight/Shipping Weight	13.2kg/16.8kg	13.2kg/16.8kg	14.7kg/18.7kg	14.7kg/18.7kg
Dimensions(WxHxD)	423.0x87.0x469.0 mm	423.0x87.0x469.0 mm	423.0x87.0x514.0 mm	423.0x87.0x514.0 mm
Communication Modes	1. RS232/RS485/USB/LAN; 2. RS232/RS485/USB/LAN/GPIB			
Operating Environment	Temperature 0~40°C, Relative Humidity 10%~90%(no condensation); Pollution degree 2, Installation category II, Indoor use.			
Cooling Mode	Forced air-cooling			
Altitude	2000m			
Insulation	AC input <->DC output, 4242VDC, AC input <-> PE, 2121VDC			

[1] %output+offset, when output voltage less than 5V, offset voltage is 30mV.
[2] Vp-p@20MHz, Vrms@1.25MHz.
   The 20V/32V/40V/75V models voltage ripple is 50mVp-p/6mVrms @ 1V. For the 600V and 800V models, the voltage ripple from 0~5V is out of the range show above.
[3] Arms@1.25MHz, the TYP Value is measured at the rated output voltage with 100% resistive load, and the measured value at full range of output voltage with 100% resistive load
   is less than the Full Range value.
[4] 0~40°C.
[5] Time for output voltage to recover within 0.5%(0.75% @800V models) of its rated output for a load change from 10% to 90% of its rated output current. Voltage set point from 10%
   to 90% of rated output.
[6] The communication must insulated users from output when using remote control and the output voltage exceeds 800VDC.
[7] Current Share error Ie<(Iav*2.5% + 5% F.S) A, F.S is the full scale of the current. Iav=Isum/n, where Iav is average current, Isum is total current and n is number of parallel units.
   Note: Output voltage must be higher than 30% of maximum output voltage when Current Share function properly.

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Efficiency, Stability, Reliable, Precision

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