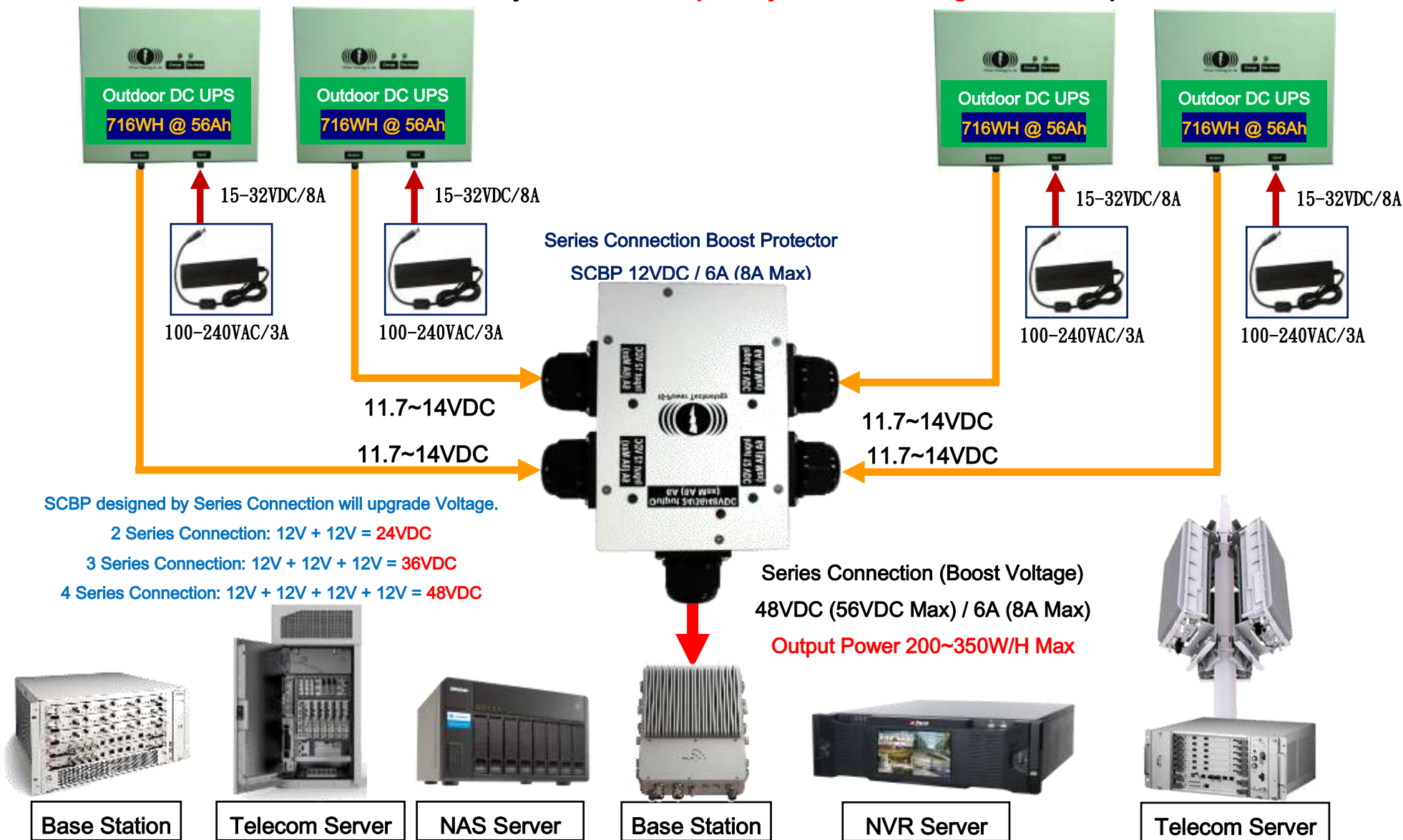




## Outdoor DC UPS Power Supply Solutions (SCBP + General Grid Power)

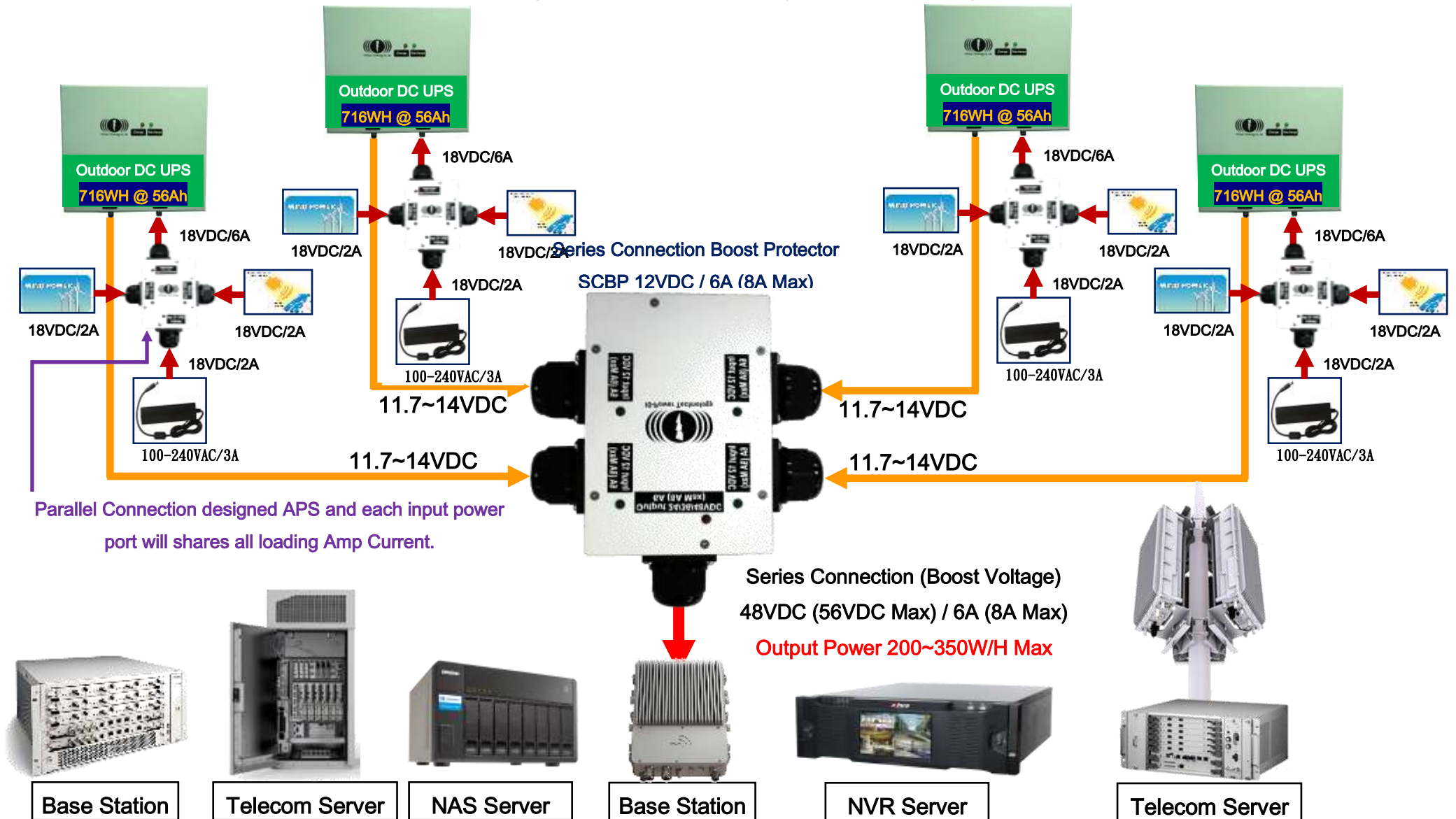
--Telecom Devices / Surveillance System **in Temporary Power Outages** Back Up Power Solutions--





# Outdoor DC UPS Power Supply Solutions (SCBP + APS + Multiple Power Sources)

## -- Telecom Devices / Surveillance System in Temporary Power Outages Back Up Power Solutions--

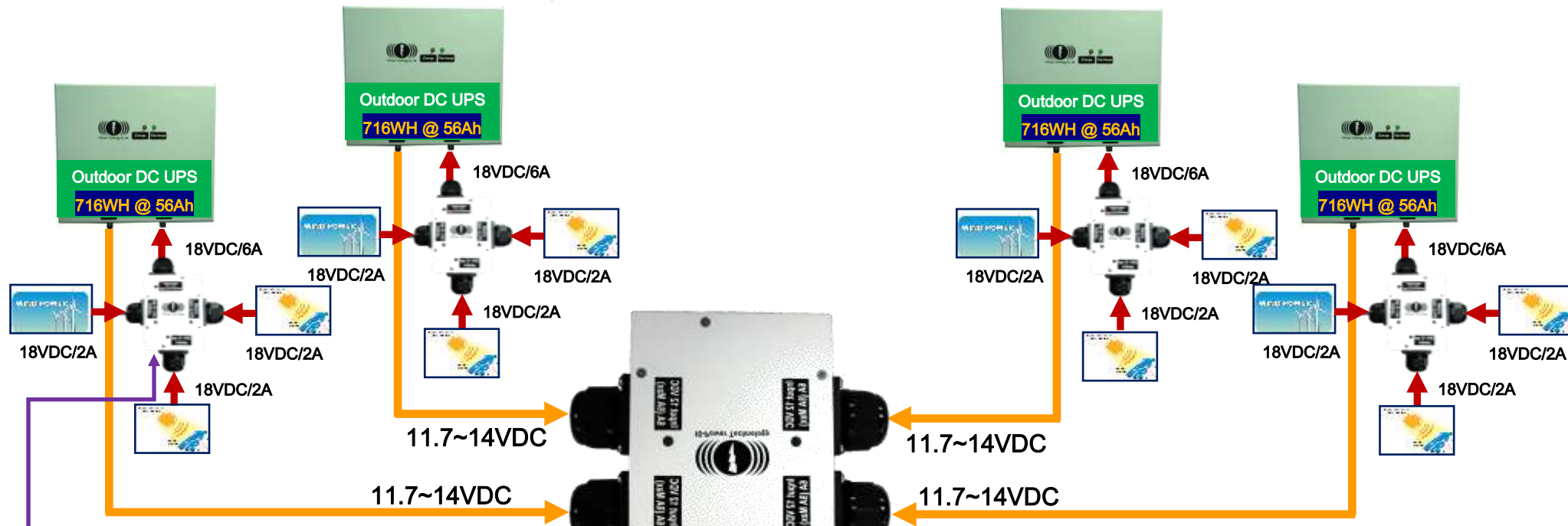


Parallel Connection designed APS and each input power port will share all loading Amp Current.



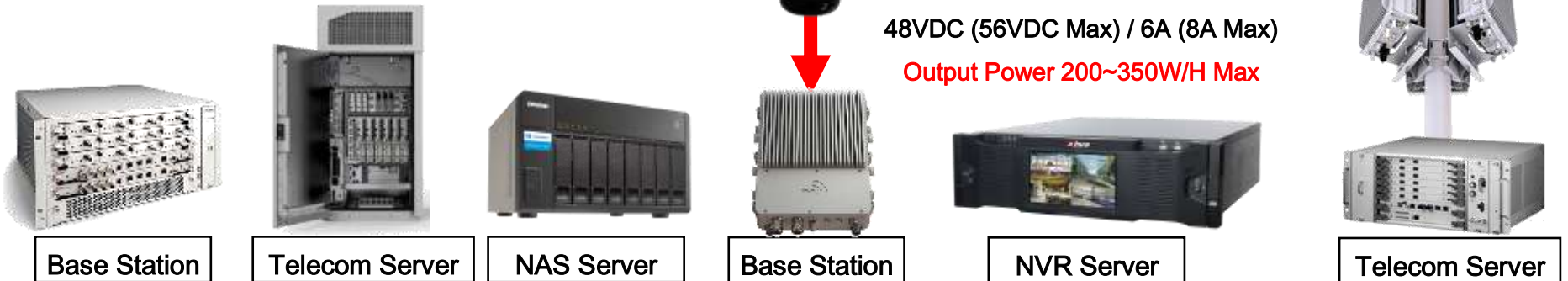
## Outdoor DC UPS Power Supply Solutions (SCBP + APS + Multiple Power Sources)

--Telecom Devices / Surveillance System Get Power from **Solar Power + Wind Power** in **Desert Area**--



APS can support back up power supply fail Redundancy features, the remaining ports will shares all loading Amp Current, so will upgrade little Amps.

Series Connection (Boost Voltage)  
 48VDC (56VDC Max) / 6A (8A Max)  
 Output Power 200~350W/H Max

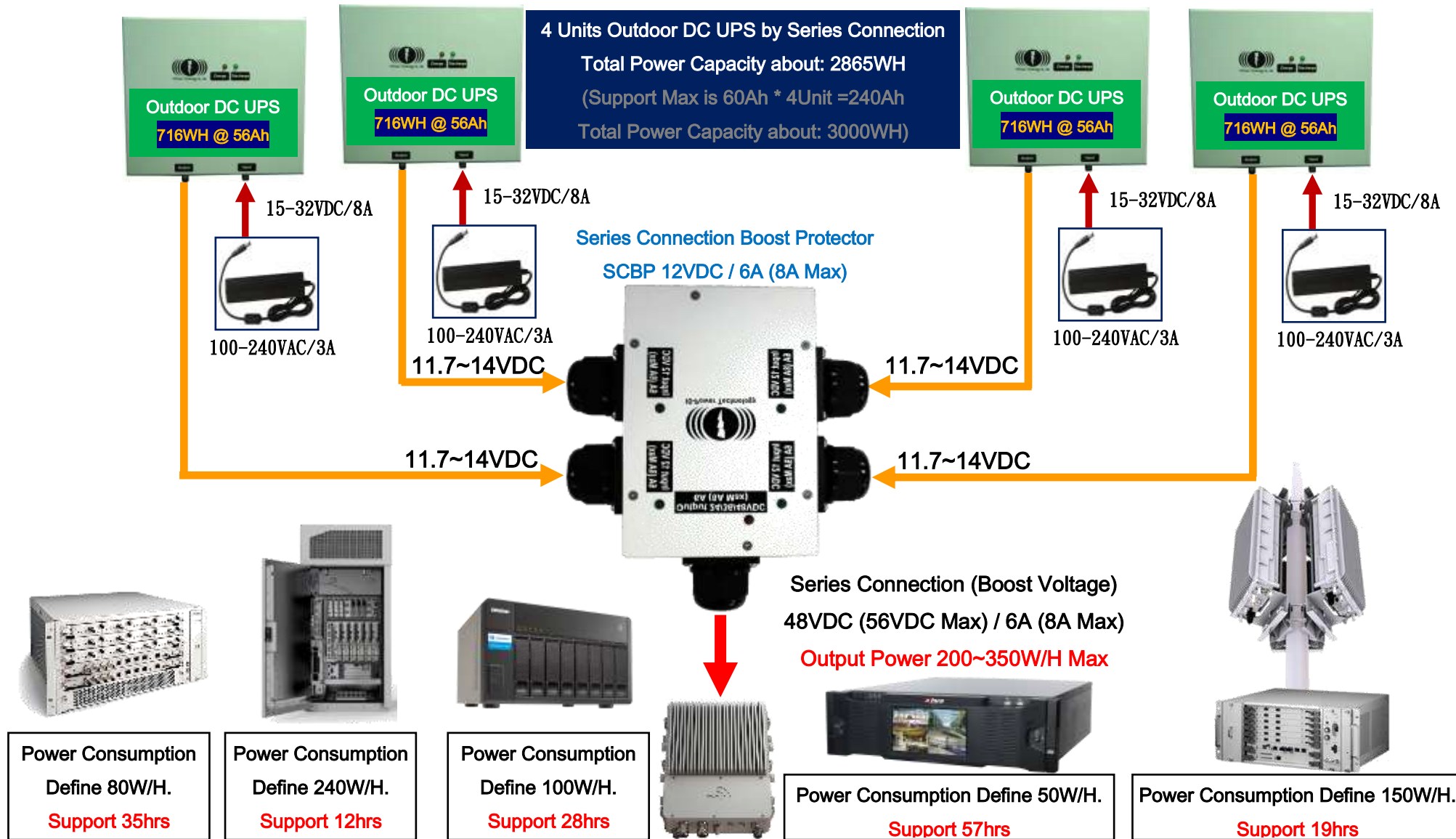






## Outdoor DC UPS Power Supply Solutions (SCBP + General Grid Power)

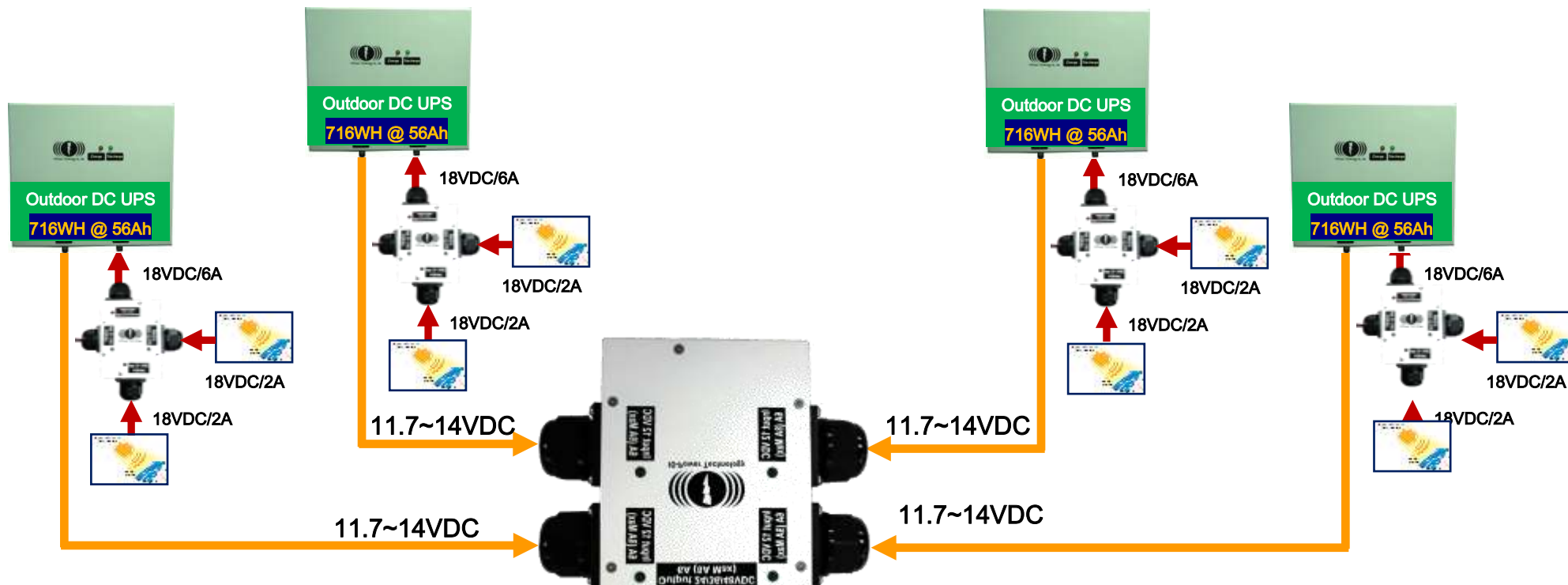
--Telecom Devices / Surveillance System in Temporary Power Outages Back Up about **12~57hrs**--





## Outdoor DC UPS Power Supply Solutions (SCBP + APS + Multiple Power Sources)

--Telecom Devices / Surveillance System **Design Green Power in Desert Area** Back Up about **31~52hrs**--



Power Consumption Define 80W/H.

Define rainy 12hrs @day in Desert Area can power supply over  $8W/H * 12H = 96W/day$ , define sunlight 12hrs @day in Desert Area can power supply over  $(110W/H * 2) * 70% * 12H = 1848W/day$  to Full Charging 716WH @ 56Ah capacity battery. Design 2865WH for 80W/H power consumption device, can work over 35hrs in rainy.

Power Consumption Define 50W/H.

APS Solar System in Rainy day could one 110W Solar panel production of electricity 4W/H. Two Solar panel about 8W/H, define rainy 12hrs @day in Desert Area can power supply over  $8W/H * 12H = 96W/day$ , define sunlight 12hrs @day in Desert Area can power supply over  $(110W/H * 2) * 70% * 12H = 1848W/day$  to Full Charging 716WH @ 56Ah capacity battery. Design 2865WH for 50W/H power consumption device, can work over 57hrs in two day rainy.




# Outdoor DC UPS Power Supply Solutions (SCBP + APS + Multiple Power Sources)

## System Solution Product Specification

### 1. Outdoor DC UPS Power System (IOP-USSP-1256-10B)

#### IOP-USSP-12V3556-OA Series Specification

Model	USSP-1232-10B	USSP-1235-10B	USSP-1240-10B	USSP-1247-10B	USSP-1256-10B
Outdoor Model M12 Connector Aluminum Radiating Airtight Housing IP 66					
Built In C-LiFePO4 Lithium Batteries Power Capacity	412 WH (32.2Ah @ 12.8V)	445 WH (34.8Ah @ 12.8V)	515 WH (40.2Ah @ 12.8V)	594 WH (46.4Ah @ 12.8V)	716 WH (56Ah @ 12.8V)
General UPS Label Size (DC Power Factor is Equal to 1)	2472VA (2.4KVA)	2670VA (2.6KVA)	3090VA (3KVA)	3564VA (3.5KVA)	4296VA (4.3KVA)
Max Output Wattage (Battery Life Protection Design)	100W/H	100W/H	100W/H	100W/H	100W/H
UPS Discharge Power Supply Time	More than 4hr @100W/H Discharge	More than 4.2hr @100W/H Discharge	More than 5hr @100W/H Discharge	More than 5.5hr @100W/H Discharge	More than 7hr @100W/H Discharge
Quickly Full Charge DC UPS	About 6.5hr	About 7hr	About 8hr	About 9.5hr	About 11.5hr



<b>Battery Time</b>	@5A Charging	@5A Charging	@5A Charging	@5A Charging	@5A Charging
<b>AC to DC Adapter Input AC Voltage &amp; Output DC Voltage</b>	AC 100~260V/1.5A~2.5A 50/60Hz transformer adapter DC 15V~32V/4.5~8.0A above Shipments match AC 100~240V / 1.5A~2.5A to DC 19 ~ 20V/4.7A ~ 7.9A transformer adapter				
<b>External load voltage</b>	DC 11.7V~14.2V +-3%				
<b>External load current</b>	5A (8A around 100W/H Max)				
<b>Battery charging voltage</b>	13.8V~14.2V +-3% Max				
<b>Battery standard charging current</b>	4A				
<b>Transform Efficiency</b>	95%				
<b>Strengthen the protection measures With Special operations functions</b>	<ul style="list-style-type: none"> <li>● Power outages without disrupting the operation of the on-line operation system (monitor system not black screen)</li> <li>● MCU microprocessor starts, automatic charging and discharging systems functioning State protection</li> <li>● Automatically detect abnormal voltage the battery status and abnormal aging or faulty battery or battery charging protection</li> <li>● Shell opening record of vandal detection and RS-485 signal alarm mechanism (optional function)</li> <li>● With temperature detection records with read function mechanism</li> <li>● Mechanism of low temperature (@ -35°C) &amp; high temperature (@ +75°C) protection (Please see note 3 &amp; note 4)</li> <li>● Specially designed battery cycle life defining and recording and control mechanisms (optional function)</li> <li>● RS-485 input / output interface, can enhance remote management and control in real time (optional function)</li> <li>● System operation State record function</li> <li>● Support industrial MODBUS communication protocol (allowing the PLC programmable logic control)</li> <li>● Input overvoltage protection</li> <li>● Input power supply over-current protection</li> <li>● Input of positive and negative polarity reverse protection</li> </ul>				



	<ul style="list-style-type: none"><li>● Input short-circuit protection</li><li>● Input lightning or power surge protection up to 1300W</li><li>● Battery full charge, input power supply power directly to the load, maximum output power is reached, at the same time avoiding battery overcharge protection</li><li>● Battery intelligent charging system protection and the float charge function</li><li>● Output power limit voltage protection</li><li>● Output power limit current protection</li><li>● Output of positive and negative polarity reverse protection</li><li>● Output short circuit protection</li><li>● Output lightning or power surge protection up to 1300W</li><li>● Battery voltage is less than 12.8V, MCU microprocessor automatically starts into the battery low discharge warning state</li><li>● Battery discharge below the 11.7V,MCU microprocessor automatically stop discharging into the battery low voltage protection status</li><li>● Battery voltage is lower than 11.2V, MCU microprocessor goes into sleep protection status</li><li>● Battery low voltage static ultra-low power protection</li><li>● When the input power, MCU microprocessor automatically starts recovery operation mechanism</li><li>● After discharge low voltage battery protection to restart the battery, special designed discharge voltage protection function</li><li>● Discharging under load, batteries have added support mode power supply operation</li></ul>
<b>Support Battery Type</b>	C-LiFePO4 Lithium Batteries Lead-acid batteries or lithium batteries or other battery, can be customized to modify (optional function)
<b>Built-in battery capacity range</b>	32.2Ah @ 12.8V (412 WH) ~ 60.9Ah @ 12.8V (780 WH)
<b>Battery Charge Mode</b>	CC/CV MCU Automatic charging mode control





<b>Battery Charge Voltage</b>	14.2V +- 3%
<b>Battery Charge Float Voltage</b>	13.8V +- 3%
<b>Battery Cut-off Discharge Voltage</b>	11.7V +- 3%
<b>Battery recovery discharge voltage</b>	12.8V +- 3%
<b>Max. Charge Current</b>	5A
<b>Max. Discharge Current</b>	8A (Using load-discharge C-LiFePO4 Lithium Batteries, the maximum discharge current is 8A around 100W/H)
<b>Charging and Discharging at same time, the Max. discharge current</b>	5A
<b>Charging and Discharging at same time, the Max. discharge watts</b>	65W/H, recommends assessing the normal functioning of the system total power consumption, lower wattage requirements is appropriate.
<b>Life cycle the battery 0.2C charge &amp; 0.5C discharge (Battery capacity remaining after using 80%, the defined service life will terminate)</b>	@ 25°C 2000 Times (@ 25°C discharging 800 times: after more than 93% capacity, @ 25°C discharging 1100 times: after more than 90% capacity) @ 45°C 1600 Times @ 50°C 1200 Times @ 60°C 550 Times @ 60°C 720 Times 70%
<b>Industrial Housing &amp; Connector</b>	Iron Airtight Housing IP 68 Gland Connector



<b>Connector Type</b>	Input AC/DC power adapter: 100~240V/50-60Hz AC Plug to 19~20V M12 Female DC output: 12V M12 Female to DC Jack Female Input / output IO interface: RS-485 (optional function)				
<b>Operating Temperature (Discharge Temperature)</b>	-35°C ~ +75°C (Including the chassis of the machine working temperature tolerance) -20°C ~ +60°C (Excluding institutions, the battery operating temperature tolerance) +20°C ~ +40°C Battery Capacity:100% -10°C Battery Capacity : 60% -20°C Battery Capacity : 48%				
<b>Charging Temperature</b>	-35°C ~ +75°C (Including the casing machine operation)				
<b>Storage Temperature</b>	-35°C ~ +75°C , Recommendations at +20°C ~ +30°C environmental temperature for storage.				
<b>Rel. Humidity</b>	10~95%RH				
<b>Storage Time</b>	Do not wake the system can store 12 months <b>(after you wake the system, each 3 months charging 1 times; Please fully charging battery in first times to use)</b>				
<b>Dimension</b>	209(L) x 200(W) x 210mm(H)				
<b>Weight</b>	3.8Kg (Box 4.9Kg) (1Pcs/Carton)	4.2Kg (Box 5.3Kg) (1Pcs/Carton)	4.9Kg (Box 6.0Kg) (1Pcs/Carton)	6.5Kg (Box 7.2Kg) (1Pcs/Carton)	7.7Kg (Box 8.5Kg) (1Pcs/Carton)
<b>LED Indicator</b>	<ol style="list-style-type: none"> <li>1. AC input (Converted to DC power supplies): red light constant light, show on battery in full charge status.</li> <li>2. AC input (Converted to DC power supplies): red light flashing display, represents the battery is charging status.</li> <li>3. When the battery is not charging, insert the 12VDC device load discharge, discharge the green light constant light show, shine on behalf of low voltage in discharge, please do the charging operation</li> <li>4. Simultaneous charging of the battery, insert the 12VDC device load discharge, discharge the green light constant light show</li> <li>5. AC input (Converted to DC power supplies): quick shine a red light shows that represents an input power supply or the input port or the battery charge State, please remove the input power terminal as soon as possible.</li> </ol>				



	<p>6. Insert the load discharge 12VDC devices: fast shiny green display on behalf of power output or output port or abnormal battery discharge condition is request to remove output power connector as soon as possible.</p> <p><b>Note: when the system alarm status, please remove the cause as soon as possible the reason for the exception. When after eliminating abnormal, just re-switch input power supply or plug power to supply again, the red LED flashing light signal will resume once per second in charging status, those processing will remove most of the alarm status, allow the system to resume normal operation.</b></p>
<b>Housing</b>	IP66
<b>Approvals</b>	CE & FCC
<b>Installation</b>	<ol style="list-style-type: none"><li>1.Street lamp pole mount</li><li>2.Upright pole mount</li><li>3.Wall mount installation</li><li>4.DIN Rail (Optional)</li></ol>
<b>Warranty</b>	<p>Intelligent charge &amp; discharge main board &amp; IP66 housing &amp; parts support two years limited warranty.</p> <p>Customize C-LiFePO4 lithium batteries support one year limited warranty.</p>
<b>Carton Size</b>	490 * 400 * 155mm

Note 1: Battery Capacity is +- 5%.

Note 2: Product specifications change, without notice, consultation with agent or dealer before buying the latest specifications.


Note 3: detect the temperature reached -30°C, start the red LED have low temperature warning, reach low temperature -35 °C, a start-stop system function will enable, when temperatures returned to above -30°C, normal operation will resume.

Note 4: detect the temperature reached +70°C, start red LED have high temperature warning, reach high temperature +75°C, a start-stop system function will enable, when temperatures back below +70°C temperature, normal operation will resume.



## 2. Outdoor Series Connection Boost Protector (SCBP)

### IOP-SCBP-D12O48-1 Specification

Model	IOP-SCBP-D12O48-1
<p>Outdoor 12VDC Series Connection Boost Protector (SCBP)</p> <p>Iron Airtight Housing IP 67</p>	
<p>Input DC Voltage</p>	<p>Each Port Input 11~14.5VDC</p>
<p>Input DC Current</p>	<p>Each Port Input 12VDC 6A (8A Max)</p>
<p>Output DC Voltage</p>	<p>12VDC + 12VDC = 24VDC            12VDC + 12VDC + 12VDC = 36VDC            12VDC + 12VDC + 12VDC + 12VDC = 48VDC            12VDC + 24VDC = 36VDC            12VDC + 12VDC + 24VDC = 48VDC            24VDC + 24VDC = 48VDC</p> <p>(Series concatenation every port will reduce the voltage 0.1VDC~0.5VDC)</p> <p>The product by serial isolation protect design, so you can take series concatenation upgrade voltage mode using the stack, serial output voltage required is lower than 56VDC. Series</p>



	concatenation upgrade over 56VDC voltage output, will produce temperatures rising issues, long-term use may result in damage to the product.
<b>Output DC Current</b>	Series connection 6A output current (8A Max). Concatenation of input power required special attention, each input port are subject to maximum current requirements relative to the output port. Input current >= for each port output current.
<b>Input DC Power Connector</b>	DC Jack Connector * 4 (Φ5.1mm/2.1mm)
<b>Output DC Power Connector</b>	DC Jack Connector * 1 (Φ5.1mm/2.1mm)
<b>Transform Efficiency</b>	95%~
<b>Power mode of operation</b>	Stacked series by upgrade voltage-mode, elevated series voltage to maintain the same current modes of operation The product by serial isolation protect design, it can protect all the output power supply side or charging UPS's battery side and power operation protection
<b>Protection</b>	Input power overcurrent protection Input power supply over high voltage protection Short circuit protection Imported power polarity protection for anti-welding Surge protect for each port (30V 1500W) Input port reverse current block Output port reverse current block
<b>Industrial Housing &amp; Connector</b>	Iron Airtight Housing IP 67 Gland Connector






<b>Connector Type</b>	Input DC Power Source: 11~14.5VDC 6A 8AMax, DC Jack Output DC Power Port: 22~48VDC 56VDC Max, 6A 8AMax, DC Jack (Series Connection will drop about 0.3VDC~0.5VDC by each port)
<b>LED Display</b>	Input DC Power Source: 4 Green Color LEDs Output DC Power Port: 1 Red Color LED
<b>Operating Temperature</b>	-40°C ~ +70°C (Use or storage at -40°C environment, please be sure to inform in advance, related accessories and wires should be replaced; Recommends that the equipment will be installed in the power distribution box)
<b>Storage Temperature</b>	-40°C ~ +70°C (Use or storage at -40°C environment, please be sure to inform in advance, related accessories and wires should be replaced)
<b>Rel. Humidity</b>	10~95%RH
<b>Dimension</b>	195mm(L) x 185mm(W) x 45mm(H)
<b>Weight</b>	0.8Kg
<b>Housing Waterproof</b>	IP67
<b>Approvals</b>	CE FCC in progress
<b>Installation</b>	1.Street lamp pole mount or Upright pole mount 2.Wall mount installation
<b>Warranty</b>	12 months

Ps 1: Product specifications change, without notice, consultation with agent or dealer before buying the latest specifications



### 3. Outdoor Parallel Connection Auto Power Selector (APS)

#### IOP-DAPS-I3O18A-1 Specification

Model	IOP-DAPS-I3O18A-1
<p>Auto Power Selector (APS)</p> <p>Iron Airtight Housing IP 67</p>	
Input DC Voltage	12~24VDC (30V Max)
Input DC Current	12VDC 6A (8A Max) / 24VDC 6A (8A Max)
Output DC Voltage	12~24VDC
Output DC Current	6A (8A Max)
Output Power Consume Watts	72W ~ 144W Max
Input DC Power Connector	DC Jack Connector * 2 & + & - Bare Power Line
Output DC Power Connector	DC Jack Connector 5.1mm/2.1mm



<b>Transform Efficiency</b>	95%~
<b>Power mode of operation</b>	By Parallel mode power supply Support threaded expanding number of input power
<b>Power supply selection</b>	Maximum voltage is automatically selected as the primary power Other voltage electric-assisted power Hosted automatic backup power switch Automatic current distribution to take power Support with multiple parallel redundant power solutions
<b>Protection</b>	Input power overcurrent protection Input power supply over high voltage protection Short circuit protection Imported power polarity protection for anti-welding Surge protect for each port (30V 1500W)
<b>Industrial Housing &amp; Connector</b>	Iron Airtight Housing IP 67 Gland Connector
<b>Connector Type</b>	Input DC Power Source: 12~24VDC 6A 8AMax, DC Jack & + & - Bare Power Line Output DC Power Port: 12~24VDC 6A 8AMax, DC Jack
<b>LED Display</b>	Input DC Power Source: 3 Green Color LEDs Output DC Power Port: 1 Red Color LED
<b>Operating Temperature</b>	-40°C ~ +70°C (Use or storage at -40°C environment, please be sure to inform in advance, related accessories and wires should be replaced; Recommends that the equipment will be installed in the power distribution box)



<b>Storage Temperature</b>	-40°C ~ +70°C (Use or storage at -40°C environment, please be sure to inform in advance, related accessories and wires should be replaced)
<b>Rel. Humidity</b>	10~95%RH
<b>Dimension</b>	185mm(L) x 165mm(W) x 45mm(H)
<b>Weight</b>	1Kg
<b>Housing Waterproof</b>	IP67
<b>Approvals</b>	CE FCC in progress
<b>Installation</b>	1.Street lamp pole mount or Upright pole mount 2.Wall mount installation
<b>Warranty</b>	12 months

**Ps 1: Product specifications change, without notice, consultation with agent or dealer before buying the latest specifications**