

IO-Power Technology

Outdoor DC UPS Power System & Solutions

Products and System Applications Diagram



Directory

- In / Outdoor DC UPS Power System
- Street Lamps DC UPS Power System
- Street Lamps Heavy Current DC UPS Power System
- Solar Collection Cloudy Energy Power System
- Automobile (Vehicle) DC UPS Power Supply Over 7days as 168hrs
- 12VDC to 48VDC PoE-PSE 30W Standard 1Gbps & 72W Passive
- 12VDC to 24VAC 2.5A 60W Power Injector
- Outdoor APS -- Auto Power Selector
- Outdoor Buck / Boost Voltage Convertor



IO-Power Technology

Outdoor DC UPS Power System

Products and System Applications Diagram



IO-Power Technology

In / Outdoor DC UPS Power System

Products / Solutions / Applications



Outdoor Model --12.8V / 2.3Ah ~ 5.8Ah

Online Type DC UPS System



Outdoor Model --12.8V / 2.3Ah ~ 5.8Ah

Online Type DC UPS System

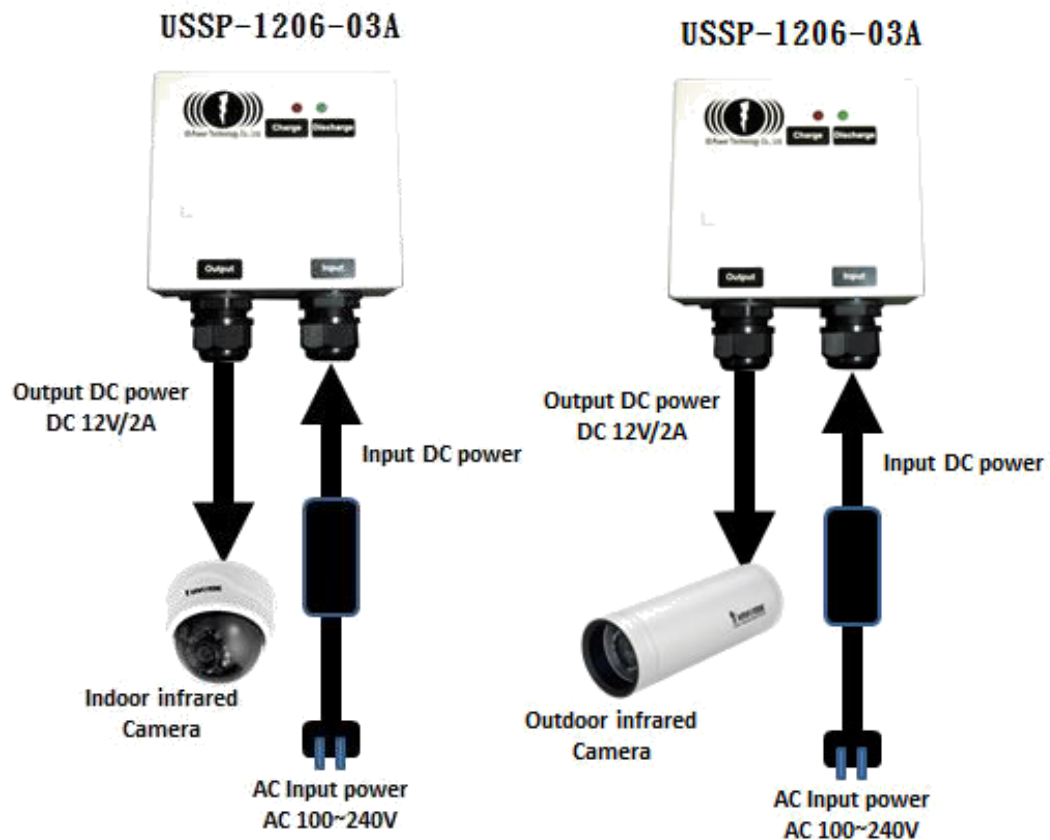




Outdoor Model --12.8V / 2.3Ah ~ 5.8Ah
Online Type DC UPS System



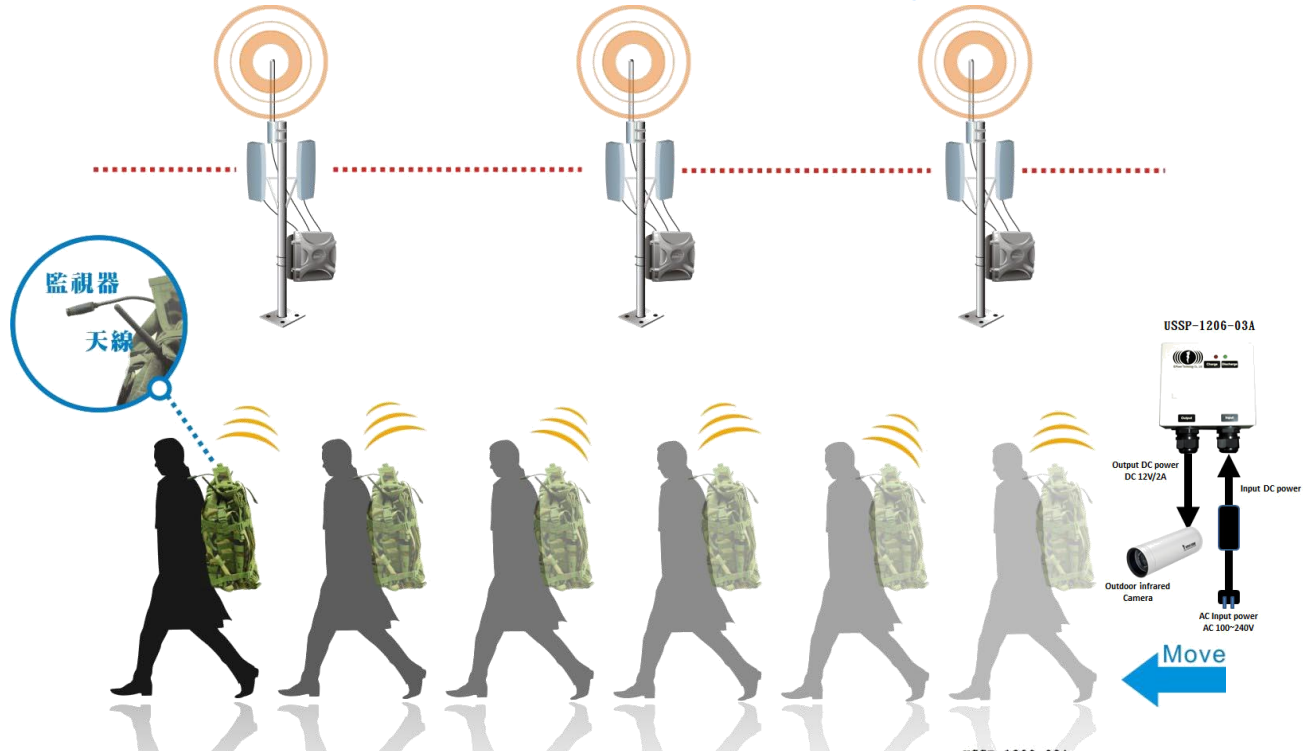
Model	USSP-12V02-01A	USSP-1204-02A	USSP-1206-03A
Capacity	29WH (2.3Ah@12.8V)	55WH (4.3Ah@12.8V)	74WH (5.8Ah@12.8V)
Output Voltage	11.5V~14.4V		
Output Current	3A	3A	6A
Camera Work Time (Camera Loading 4W/H)	7hrs	13hrs	18hrs
Life Cycle	7Years above (Working in +25°C , Life Cycle over 10 Years)		
Operation Temp	- 30°C ~ +70°C		
Power System Applications	<ol style="list-style-type: none"> 1. In/outdoor DC UPS power supply for surveillance system, support voltage regulators and surge-proof impact protection 2. DC UPS power supply for emergency surveillance system 3. Engineer outdoor surveillance system project tests as outdoor mobile back up power solution 4. Mobile DC UPS back up power solutions for sales demo surveillance system 5. Indoor DC UPS power supply for indoor devices (for examples: network switch, ADSL hosts, indoor wireless AP) 6. In/outdoor DC UPS power supply for cell phone or laptop as mobile Power Bank 7. Indoor DC UPS power supply for the tank air compressors ... 		



- Power supply support voltage regulators and surge-proof impact protection and reduce noise interference
- Installed 3 years ago, never had maintain, power outages 5 times never occurred to black screen



Mobile Back Up DC UPS for Mobile Surveillance System (SNG Car)



Bank ATM / Museum / Goldsmith & Jewelry Shop / Store / Exhibition Booths Distributed UPS Surveillance System

1. Distributed Long-term UPS Surveillance System for Bank ATM



Bank Office UPS System
Charging for Distributed UPS



Bank Office UPS System
Centralized UPS Architectures



Bank Office UPS System
Centralized UPS Failed

IO-Power Technology

Street Lamps DC UPS Power System

Products / Solutions / Applications



Outdoor Model -- 12.8V / 6.9Ah ~ 11.6Ah

Online Long-term DC UPS System



Outdoor Model -- 12.8V / 6.9Ah ~ 11.6Ah

Online Long-term DC UPS System



- Power supply support voltage regulators and surge-proof impact protection and reduce noise interference
- Installed 3 years ago, never had maintain, power outages 5 times never occurred to black screen





Outdoor Model -- 12.8V / 6.9Ah ~ 11.6Ah

Online Long-term DC UPS System

Model	USSP-1207-04A	USSP-1208-05A	USSP-1210-06A	USSP-1212-07A
Capacity	88 WH (6.9Ah@12.8V)	103 WH (8.05Ah@12.8V)	117 WH (9.2Ah@12.8V)	148 WH (11.6Ah@12.8V)
Output Volte/Amp	11.5V ~ 14.4V / 6A			
Camera Work Time (Camera Loading 4W/H)	20~22hrs	25~26hrs	29~30hrs	36~38hrs
(IR Box 10W/H) (IR 50Meter)	8~9hrs	10~11hrs	11~12hrs	14~15hrs
Life Cycle	7Years above (Working in +25°C , Life Cycle over 10 Years)			
Operation Temp	- 30°C ~ +70°C			
Power System Applications	<ol style="list-style-type: none"> 1. In/outdoor DC UPS power supply for surveillance system, support voltage regulators and surge-proof impact protection 2. Street Lamps DC UPS power supply for demonstrations surveillance systems (EPA steals trash interim monitoring points of proof or the police) 3. Engineer outdoor surveillance system project tests as outdoor mobile back up power solution 4. Mobile DC UPS back up power solutions for sales demo surveillance system 5. Street light DC UPS power supply system (using battery power during the day, at night charging battery and continuous power supply for system) 6. In/outdoor DC UPS power supply for cell phone or laptop as mobile Power Bank 			

Road Cross Surveillance System

with Street Lamps DC UPS & DC to DC PoE Converter Power Solution

USSP-1212-07A

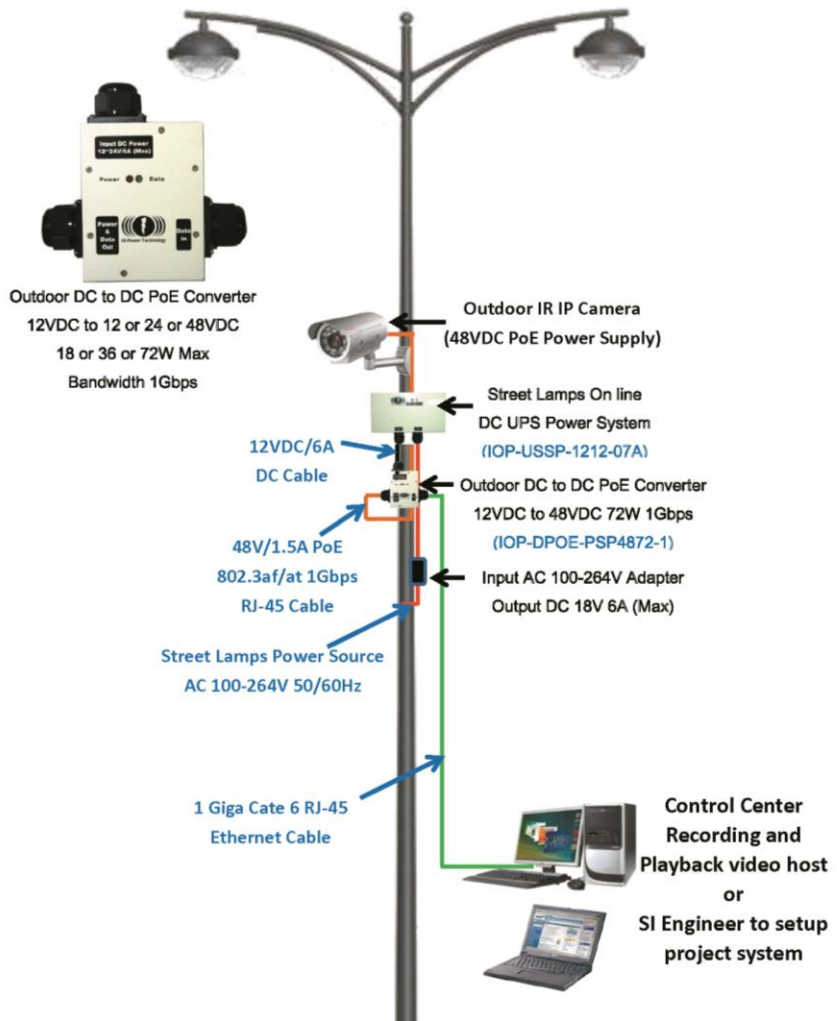


Output DC power
DC 12V/3A

Input DC power

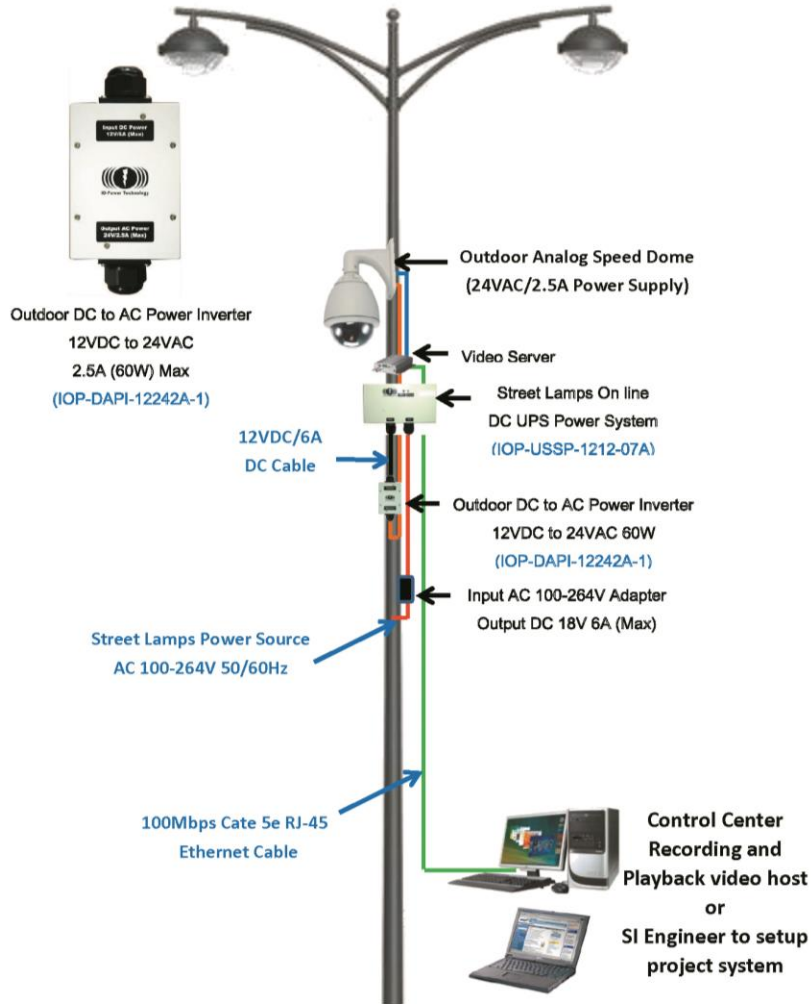


AC Input power
AC 100~240V



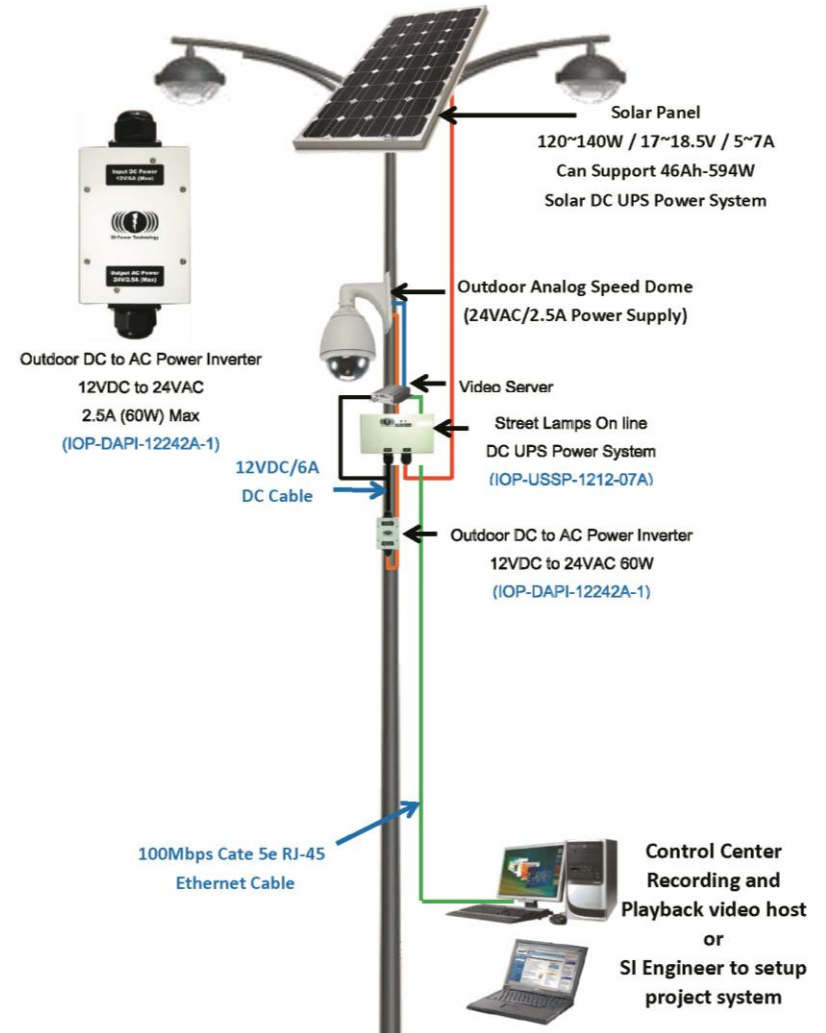
Road Cross Surveillance System

with Street Lamps DC UPS & DC to AC Power Inverter Power Solution



Road Cross Surveillance System

with Solar Power DC UPS & DC to AC Power Inverter Power Solution



2. Distributed Long-term UPS Surveillance System for Museum



Distributed UPS Architectures

Museum UPS System

Charging for Distributed UPS



Museum UPS System
Centralized UPS Architectures



Discharging for 15~28hrs

Distributed UPS Architectures



Museum UPS System
Centralized UPS Failed

3. Distributed Long-term UPS Surveillance System for Goldsmith & Jewelry Shops



4. Distributed Long-term UPS Surveillance System for Exhibition Booths



Goldsmith & Jewelry Exhibition Booths



Discharging for IR Camera more than 39~56hrs

(USSP-12V1224-OA-online power system cans operation 78-100 hours)

5. Distributed Long-term UPS Surveillance System for Police station firearms room and Military Ammunition Depots



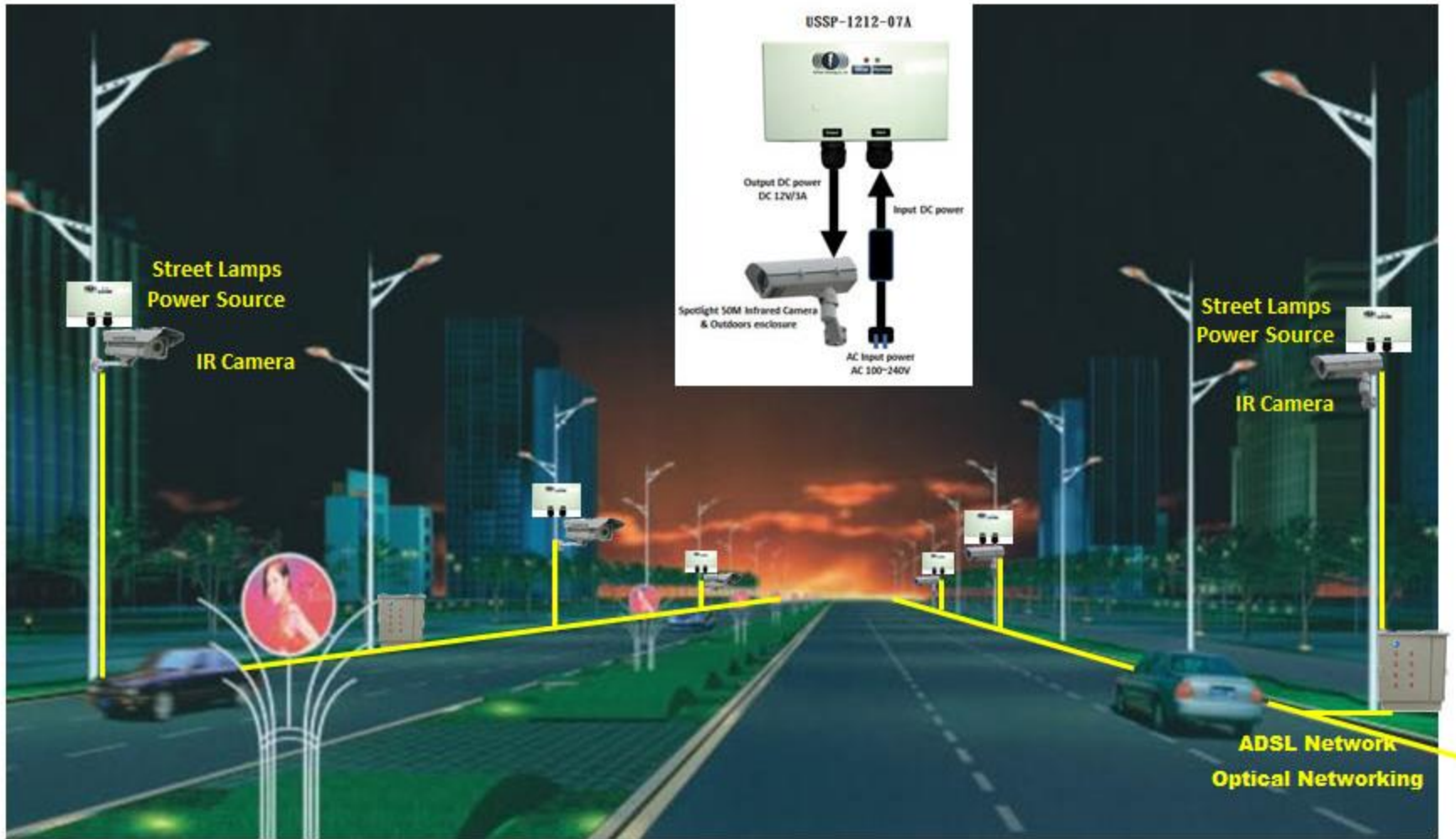
Discharging for 1R Camera more than 30~56hrs

(USSP-12V1224-OA-online power system cans operation 78-100 hours)



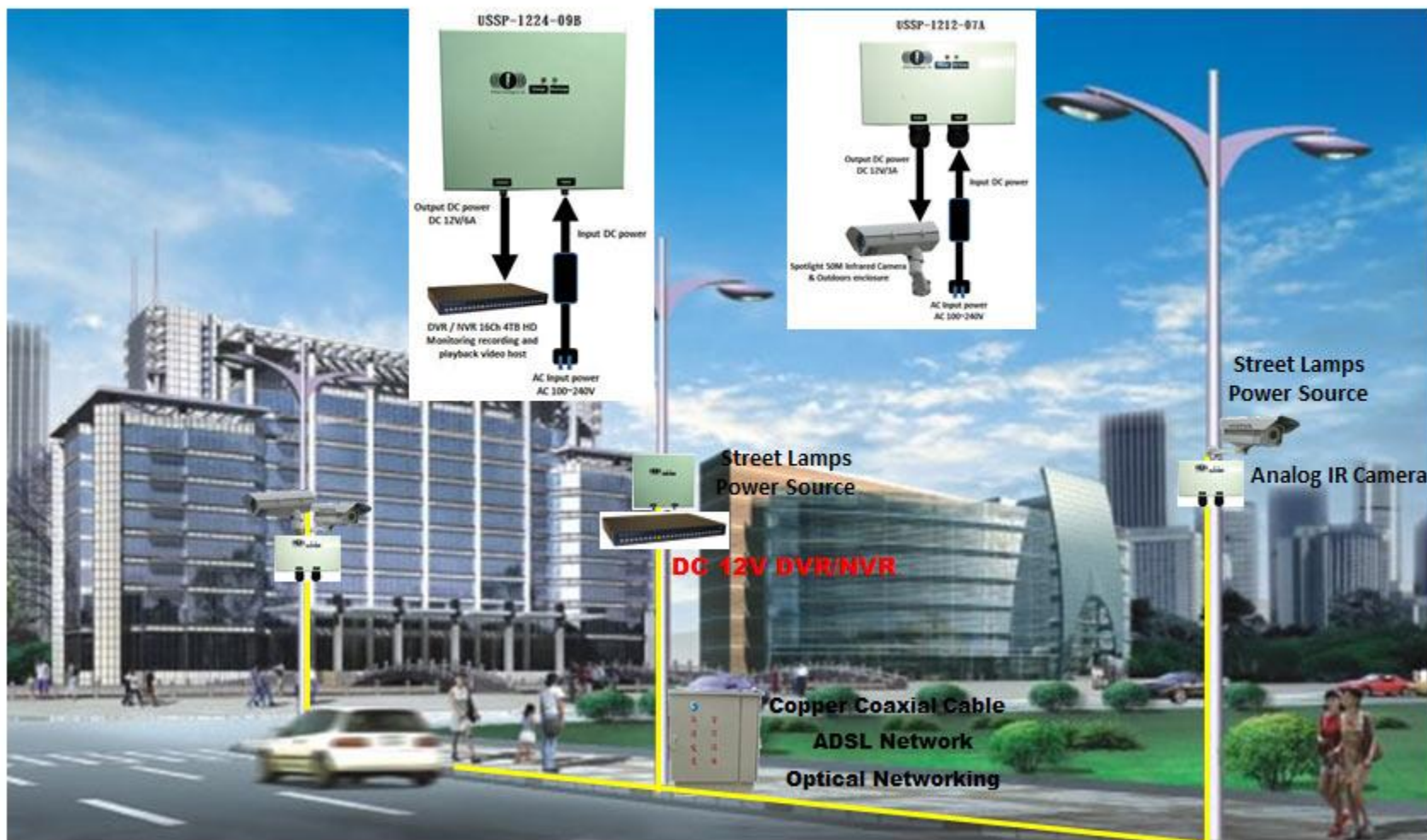
Outdoor Street Lamps Model

Online Type Uninterruptible Operating Surveillance System



Outdoor Street Lamps Model

Online Type Uninterruptible Operating Surveillance System



IO-Power Technology

Street Lamps Heavy Current DC UPS Power System

Products / Solutions / Applications



Outdoor Model -- 12.8V / 11.6Ah ~ 23.2Ah

Online heavy current DC UPS System



Outdoor Model -- 12.8V / 11.6Ah ~ 23.2Ah

Online heavy current DC UPS System

Model	USSP-1212-06B	USSP-1216-06B	USSP-1218-06B	USSP-1224-06B
Capacity	148 WH (11.6Ah@12.8V)	206 WH (16.1Ah@12.8V)	235 WH (18.4Ah@12.8V)	297 WH (23.2Ah@12.8V)
Output Volte/Amp	11.5V~14.4V / 6A			
Server Work Time (16Ch DVR/NVR 2HD Power Loading 16W/H)	9~10hrs (DC UPS)	12~13hrs (Long Time DC UPS)	14~15hrs (Street Lamps DC UPS)	18~20hrs (Street Lamps Long Time DC UPS)
Life Cycle	7Years above (Working in +25°C , Life Cycle over 10 Years)			
Operation Temp	- 30°C ~ +70°C			
Power System Applications	<ol style="list-style-type: none"> 1. Street Lamps DC UPS power supply for demonstrations surveillance systems (EPA steals trash interim monitoring points of proof or the police) 2. Engineer outdoor surveillance system project tests as outdoor mobile back up power solution 3. Mobile DC UPS back up power solutions for sales demo 4 cameras surveillance system 4. Street light DC UPS power supply system (using battery power during the day, at night charging battery and continuous power supply for system) 5. Street Lamps DC UPS power supply for outdoor IR illuminator 6. Street Lamps DC UPS power supply for DVR-16Ch or NVR-16Port hosts (2 built in hard drive) system 			





Outdoor Model -- 12.8V / 11.6Ah ~ 23.2Ah

Online heavy current DC UPS System



Philippines outdoor DC UPS power systems

- Support voltage regulators and surge-proof impact protection
- Blackout power supply 2 times a day on average, each 2-4-hour blackout



Outdoor Model -- 12.8V / 11.6Ah ~ 23.2Ah

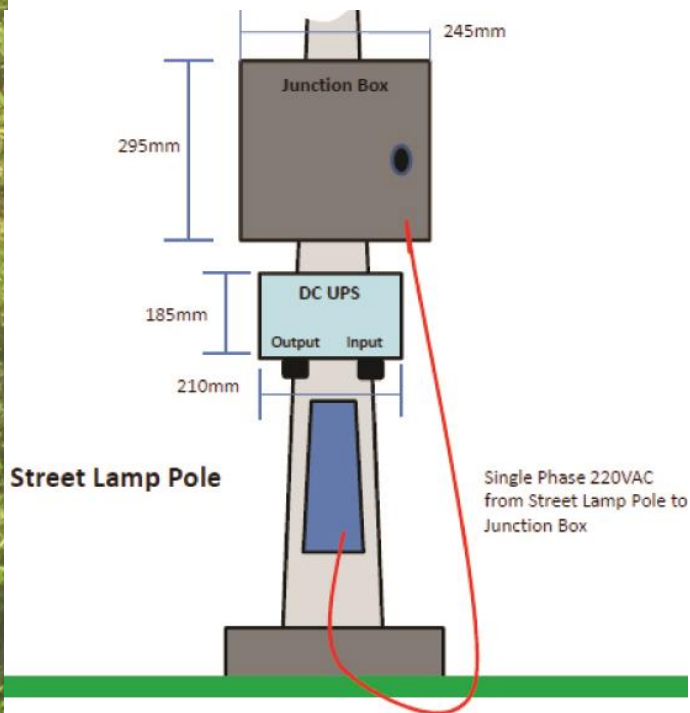
Online heavy current DC UPS System





Outdoor Model -- 12.8V / 11.6Ah ~ 23.2Ah

Online heavy current DC UPS System



Brunei Highway Street Lamps DC UPS Power System

- Support voltage regulators and surge-proof impact protection
- Power Supply for Outdoor WiFi AP & Surveillance System





Outdoor Model -- 12.8V / 11.6Ah ~ 23.2Ah

Online heavy current DC UPS System

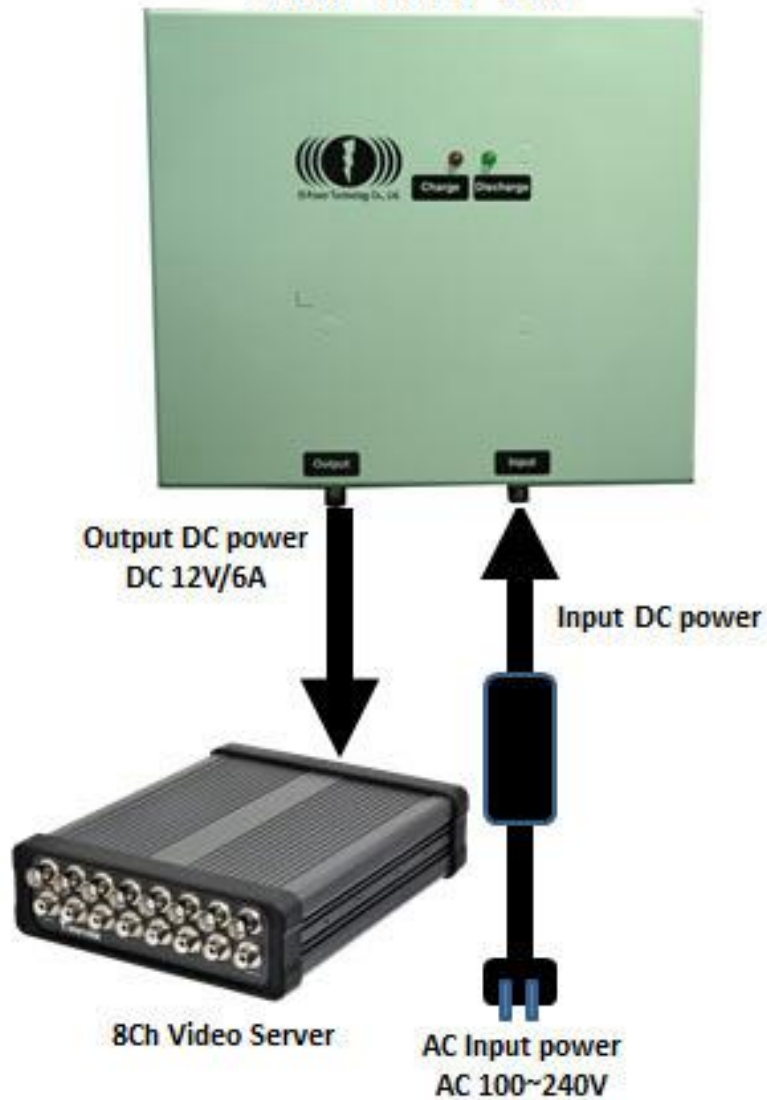


Taiwan Campus Street Lamps DC UPS Power System

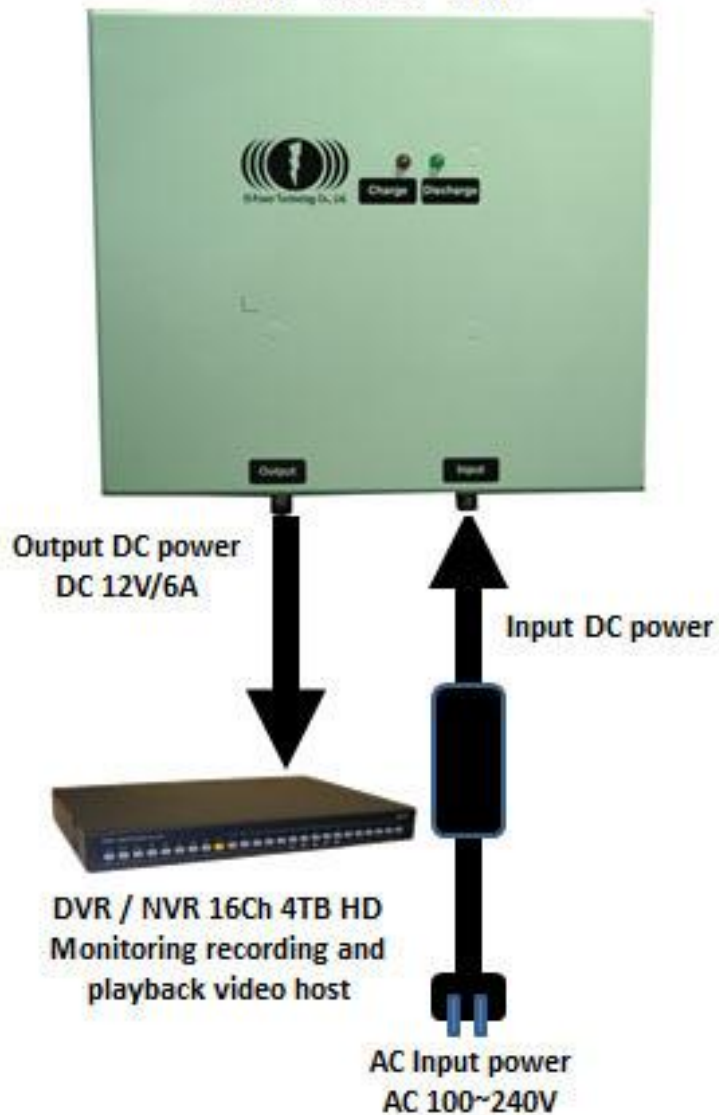
- Support voltage regulators and surge-proof impact protection
- using battery power during the day, at night charging battery and continuous power supply for system)
- Power Supply for Outdoor WiFi AP & Speed Dome Camera System
- Installation in 2012 , through the summer heat and Typhoon exercise
- Similar use in 2013, New Zealand (North Island + South Island) national building, erected about 300 units in use



USSP-1224-09B

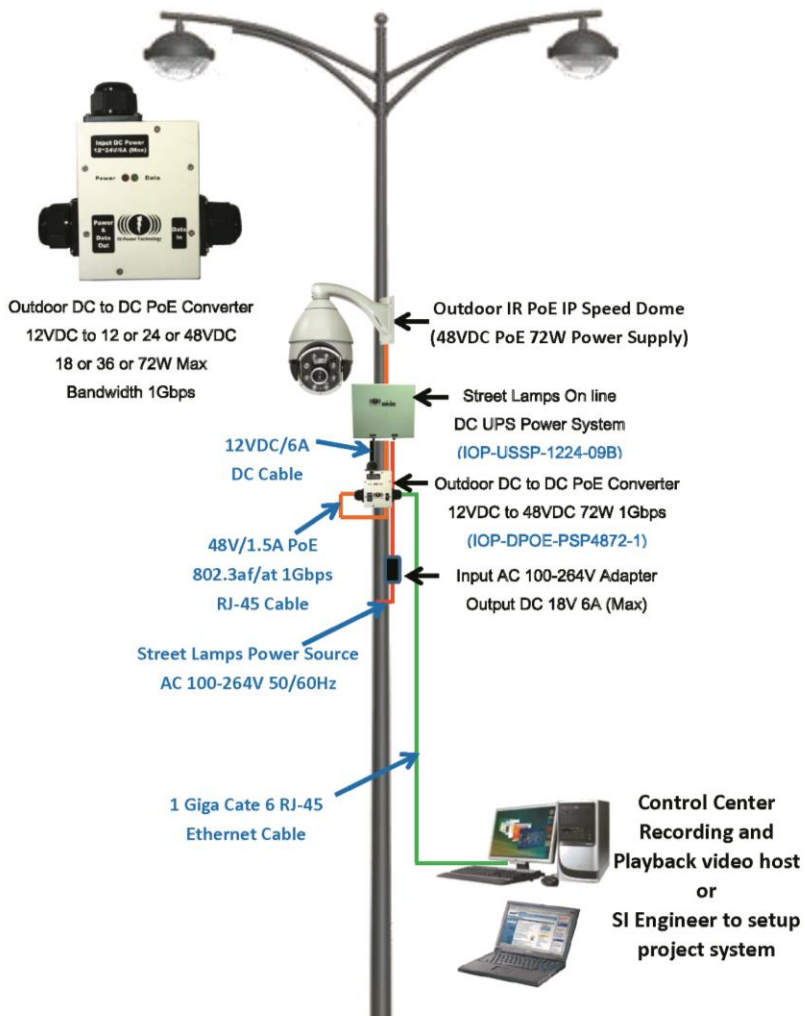


USSP-1224-09B



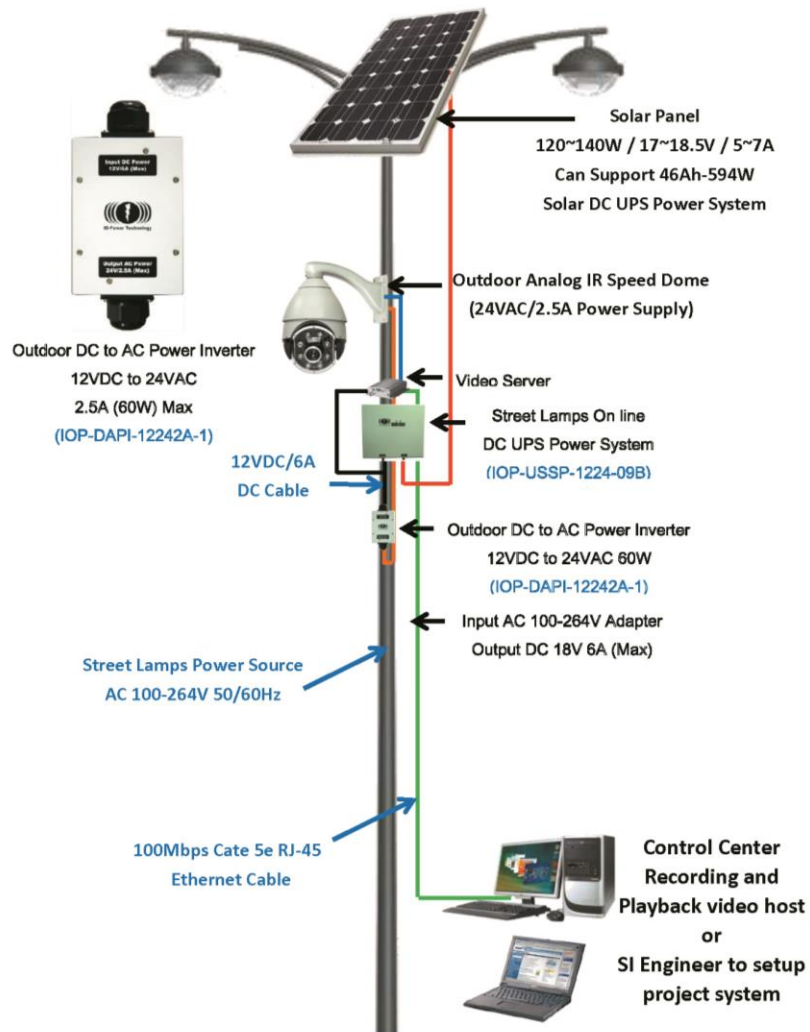
Road Cross Surveillance System

with Street Lamps DC UPS & DC to DC PoE Converter for IP Speed Dome Power Solution



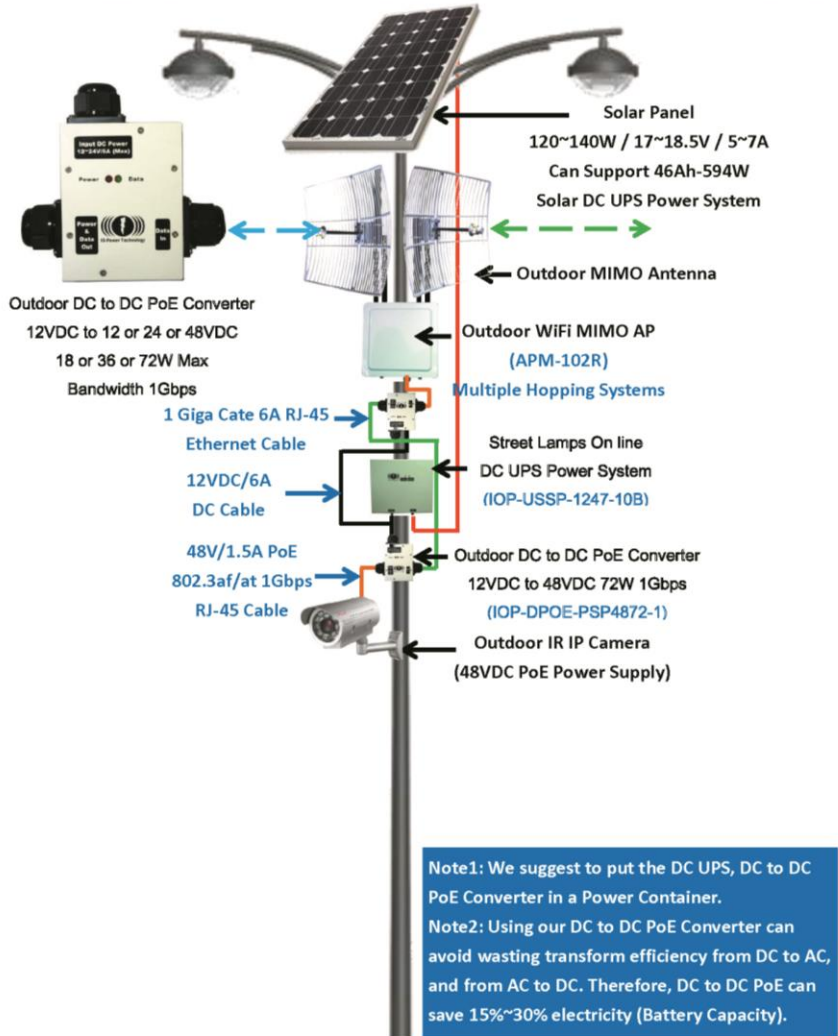
Road Cross Surveillance System

with Solar Power DC UPS & DC to AC Power Inverter Solution



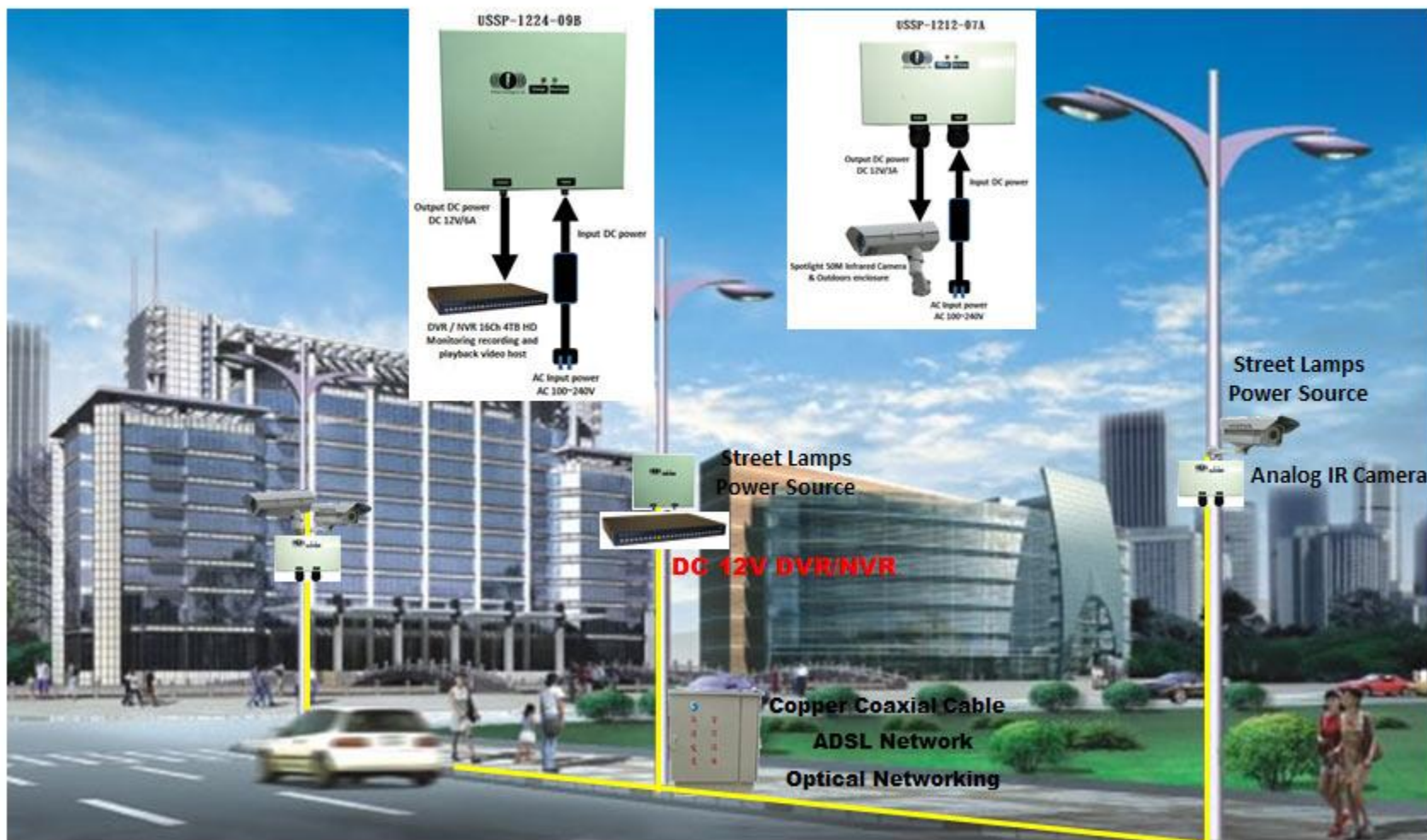
Outdoor WiFi MIMO Wireless Road Cross Surveillance System

with Solar Power DC UPS & DC to DC PoE Converter Power Solution



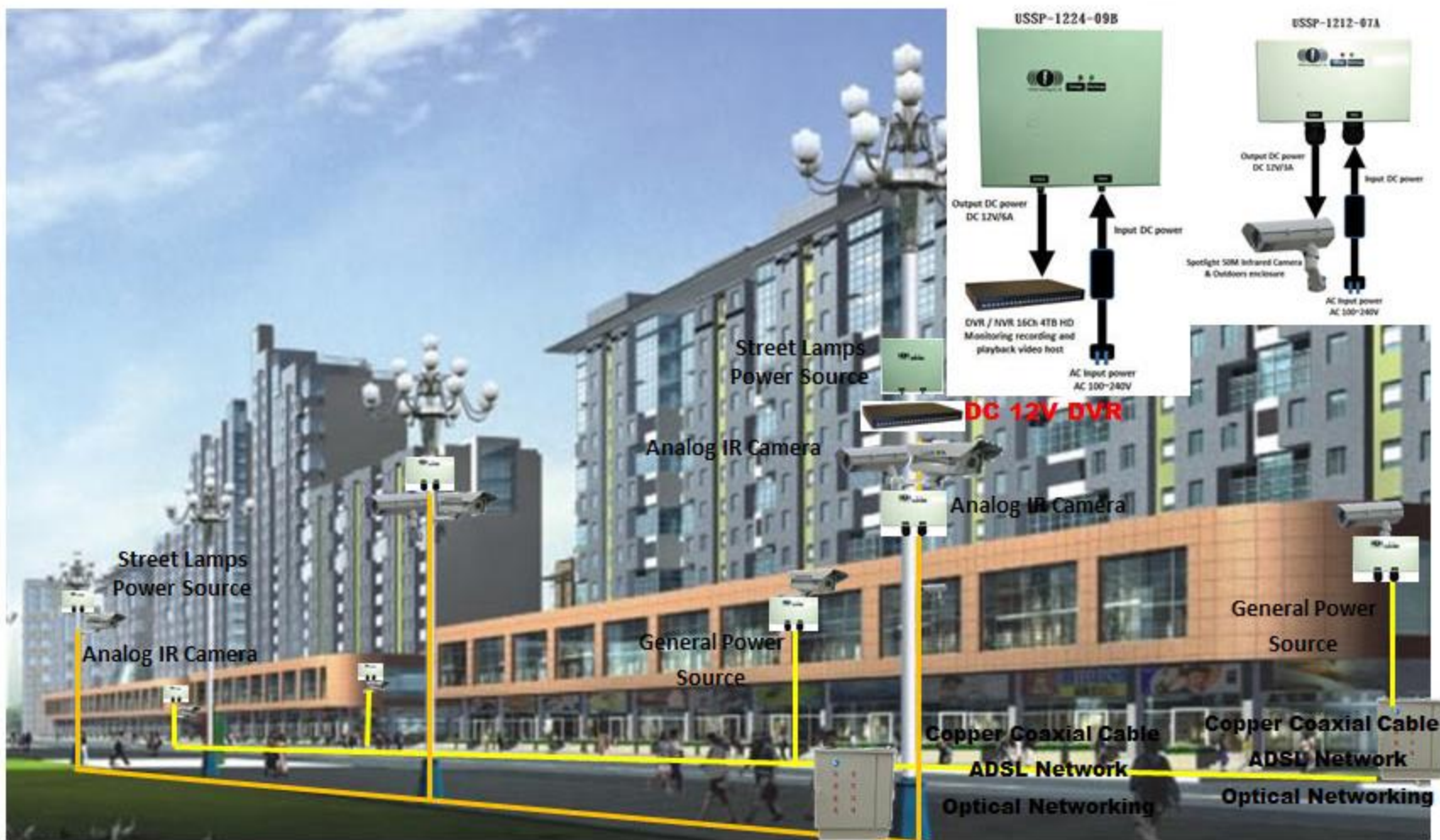
Outdoor Street Lamps Model

Online Type Uninterruptible Operating Surveillance System



Outdoor Street Lamps Model

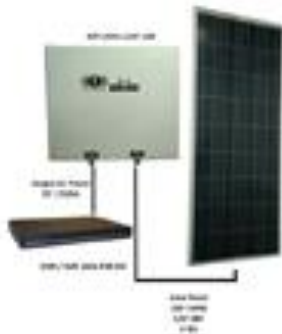
Online Type Uninterruptible Operating Surveillance System



IO-Power Technology

Solar Collection Cloudy Energy Power System

Products / Solutions / Applications



Solar Large Battery --12.8V / 34.8~46.4Ah

Solar Collection Cloudy Power System



Solar Large Battery --12.8V / 34.8~46.4Ah

Solar Collection Couldy Power System

Model	USSS-1224-09B	USSS-1235-10B	USSS-1247-10B	USSS-1256-10B
Capacity	297 WH (23.2Ah@12.8V)	445 WH (34.8Ah @ 12.8V)	594 WH (46.4Ah @ 12.8V)	717 WH (56Ah @ 12.8V)
Output Volte/Amp	11.5V~14.3V / 6A			
Intergrade with Solar Panels	110W / 16V~24V / 3~7A Suggest to use APS(Auto Power Selector) to upgrade charging current almost as 200% and even rainy days can support more power for devices and charging battery			
Camera 3.4W	3.5days (4.5days)	5.5days (7days)	7days (9days)	9days (11days)
Camera 4.5W	2.5days (3.2days)	4days (5days)	5.5days (6.5days)	6.5days (8days)
IR50M+Cam 10W	1.2days (1.5days)	2days (2.5days)	2.5days (3days)	3days (3.5days)
Life Cycle	7Years above (Working in +25°C , Life Cycle over 10 Years)			
Operation Temp	- 30°C ~ +70°C			
Power System Applications	1.Solar DC UPS Power supply for River Surveillance , Forest Surveillance, Sea Port Surveillance, Road Cross Surveillance System. 2.Uprade to use APS(Auto Power Selector)-- 『Street Lamps DC UPS + Solar Power + Wind Power』 ,Multi Power Source Input will add 200% above effect and almost 100% non stop power supply for system in 365 days, it is special design for River, Forest. Gun Control. Army. Sea Port. Road Cross Surveillance System.			

No.	Item	Lead-acid Solar DC UPS	General Li-Ion Solar DC UPS	C-LiFePO4 Lithium Solar DC UPS (IO-Power)	Remark
1	Battery Management	Non	Yes, but only high level power system, general level is Non	Yes	Lead-acid battery cannot cell management charging & discharge
2	Battery cycle life (for Indoor Used)	300~450 times, Left 50-60% Power capacity	500~1000 times, Left 80% Power capacity	>2000 times, Left 80% Power capacity	Real outdoor to test UPS of C-LiFePO4 Lithium Batteries after 1200 times are still have 95% power capacity
3	Service life (for Indoor Used)	1~1.5 years	1.5~2.5 years	>7 years	Solar DC UPS of C-LiFePO4 Lithium Batteries for indoor used, will have more battery cycle life
4	Battery cycle life (for Outdoor Used)	150~300 times, Left 50-60% Power capacity	300~600 times, Left 70% Power capacity	>1500 times, Left >80% Power capacity	At the time of system design, you want plus the power attenuation and doubled the capacity of the number and replacement of time and frequency
5	Service life (for Outdoor Used)	0.5~1 year (need replace 6 times in 3 years)	1~1.5 year (need replace 3 times in 3 years)	>5 year	Outdoor UPS of C-LiFePO4 Lithium Batteries real outdoor tested 3 years still 95%~ power capacity
6	Operation of high and low temperature	-0 ~ 45 °C (with Housing can support -10~55°C)	-5 ~ 45 °C (with Housing can support -20~55°C)	-20 ~ 70 °C (with Housing can support -30~75°C)	The cycle life for Lead-Acid battery is 300 times @ 25°C . When the temperature raises every 8°C, its cycle life cuts half. Therefore, it is 150 times @ 33°C , 75 times @ 41°C while 30 times @ 49°C. Working temperature over 55°C is considered as dangerous.
7	Proportional to the design capacity plus	More than 200% (Deep cycle battery required bonus 160%)	More than 160%	More than 110%	For the sake of the system enough power capacity of the equipment operation, designs are subject to decay to add on, to cope with the operation of the system power supply enough
8	Match Solar Panel	Design wattage required bonus 200%	Design wattage required bonus 160%	Design wattage required bonus 110%	Having regard to the increase in battery capacity to match more of the solar panel, so will affect the set up costs and space used for erection and erection equipment difficulties, for the system is satisfied that requirements for the assessment of projects.
9	Set up space and erection harder	Solar panel need more wattage and size	Solar panel need more wattage and size	Solar panel wattage can match the design and area	Solar panel is too large, would create a wind pressure of an area to improve many, resulting in erection and maintenance of security risks increase, too heavy batteries, too
10	Memory effect	Yes	No	No	C-LiFePO4 Lithium Batteries can fast charge and large current discharge
11	Security	Releasing toxic gas and explosion hazards	Have explosion hazards risk in 50~60°C	No explosion risk**	Solar DC UPS of C-LiFePO4 Lithium Batteries @short circuit conditions, maximum temperature up to 120~130°C, at the same time have the security design of the pressure relief valve, so no explosion risk (please see the test report)
12	Maintenance costs	Very higher	Higher	Lowest	General Li-Ion batteries for use in outdoor environments, will face 3 times in 3 years replacement cost ; While operation due to frequent battery replacement issues, resulting in low system properly rate
13	Battery cost	Cheap	Expensive	Very Expensive	Cost for 1 given to lead-acid battery < deep Lead-acid as 3 times< General Li-Ion as 4~5 times < C-LiFePO4 Lithium as 6~7 times



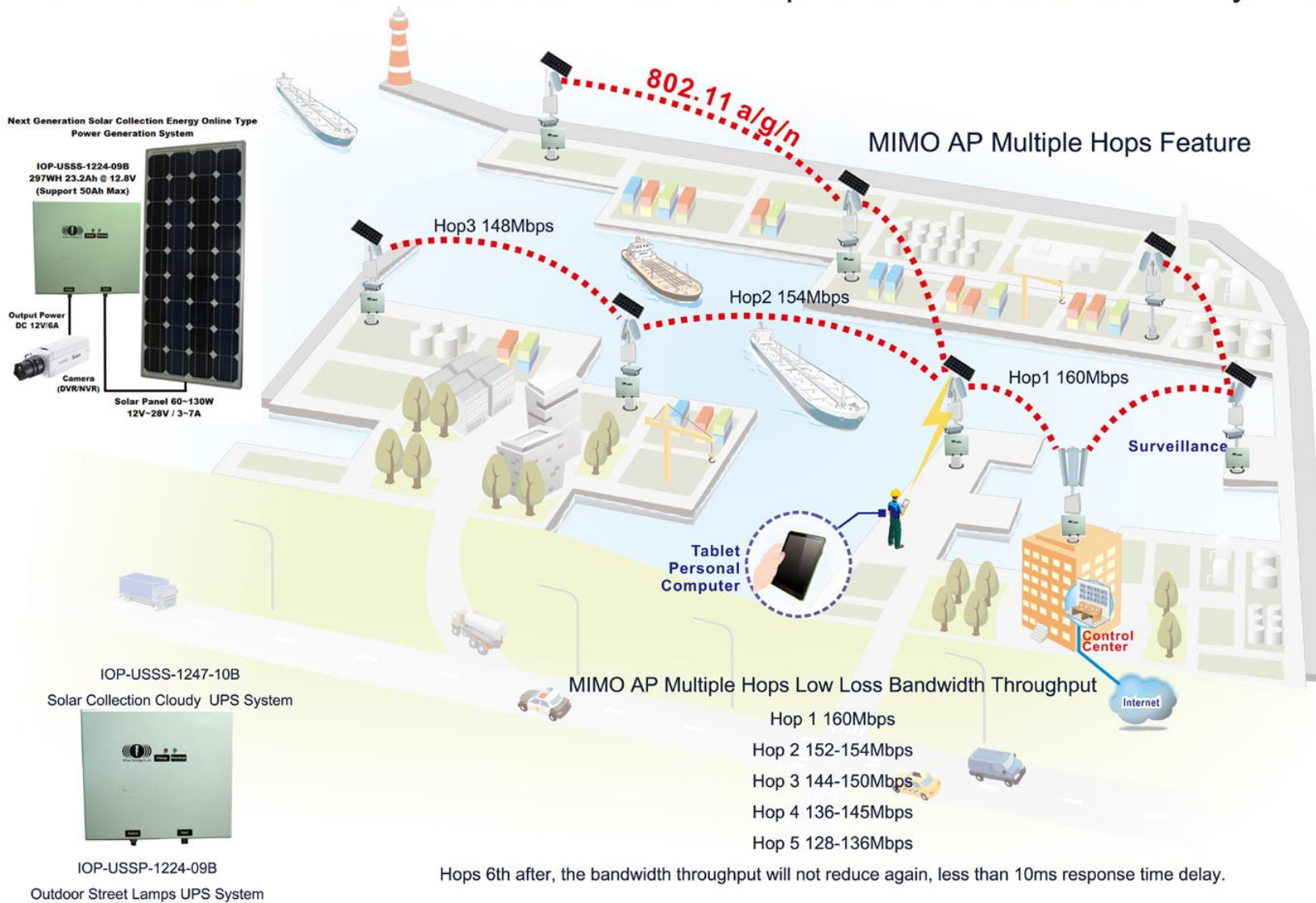


Solar Large Battery --12.8V / 34.8~46.4Ah

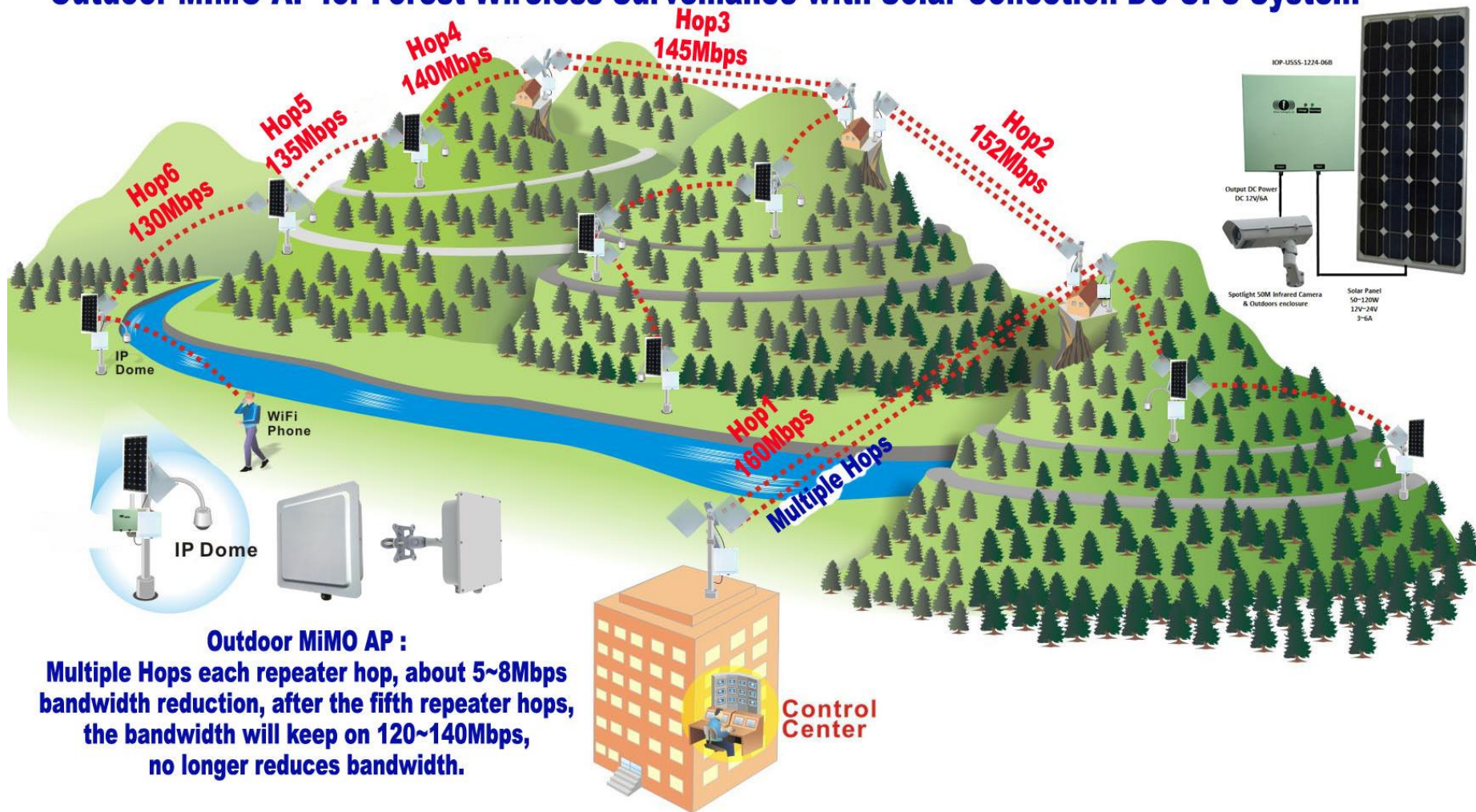
Solar Collection Couldy Power System



Outdoor Wireless Surveillance with Street Lamps & Solar Collection UPS System



Outdoor MIMO AP for Forest Wireless Surveillance with Solar Collection DC UPS System



Outdoor MiMO AP :
 Multiple Hops each repeater hop, about 5~8Mbps bandwidth reduction, after the fifth repeater hops, the bandwidth will keep on 120~140Mbps, no longer reduces bandwidth.



5- 1.WiFi MIMO Wireless System Design Key Diagram

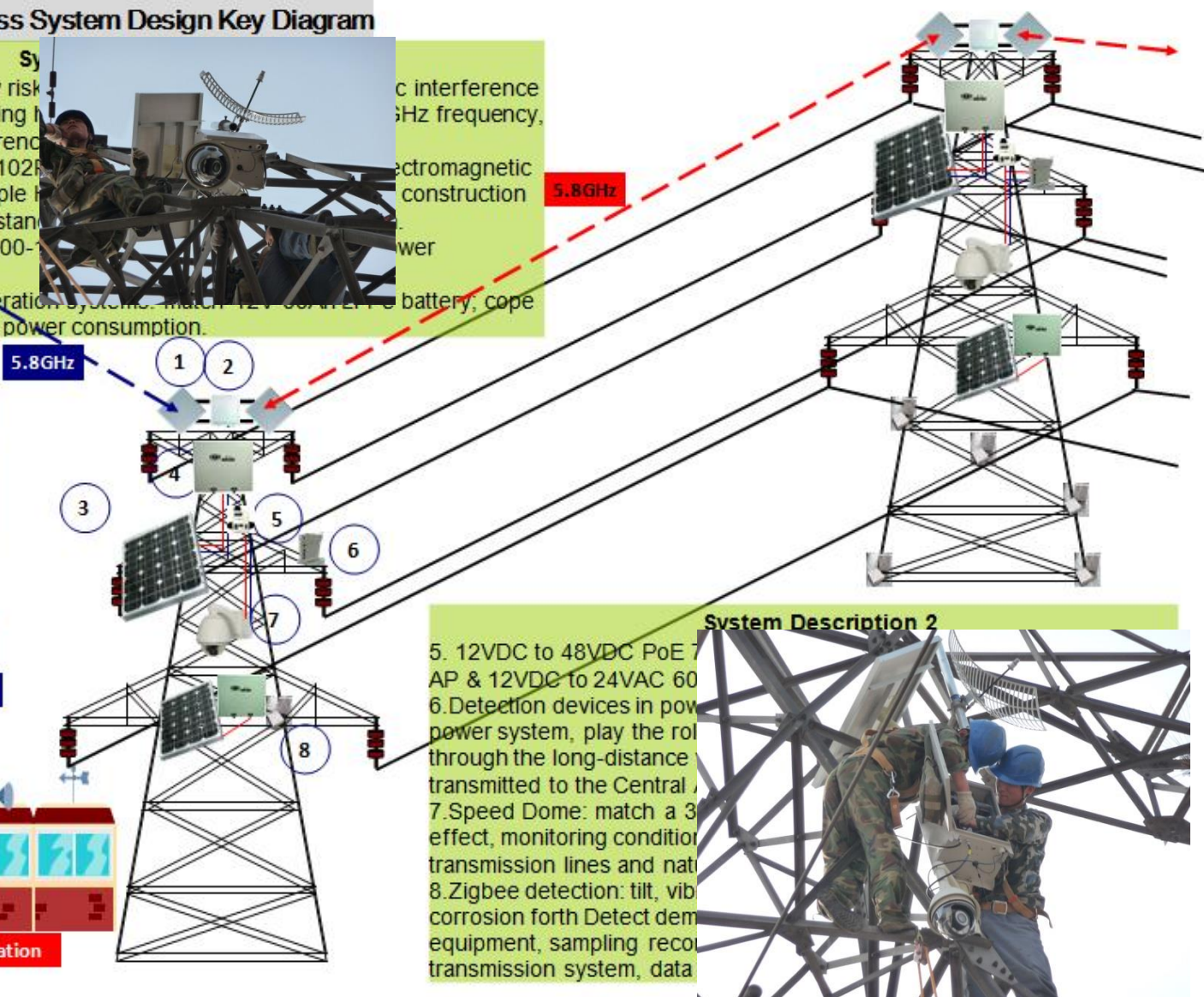
System
 1. Antenna: view of the snow risk problems, recommends using MIMO to reduce the risk of interference.
 2. Wireless devices: APM-102F, match 100-150W power consumption, and mix Multiple MIMO antennas for long-distance transmission.
 3. The solar plate: match 100-150W power consumption device.
 4. Solar energy power generation system: match 12V 30Ah battery, cope with 5-6 day cloudy device power consumption.



管控中心(Control Center)



Electric Power Substation

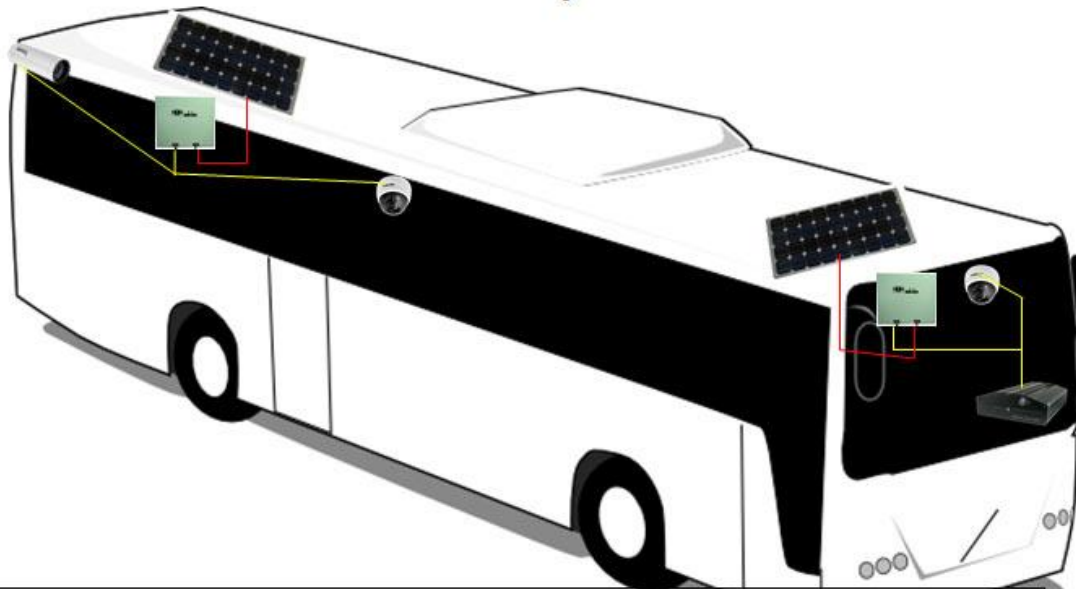


System Description 2
 5. 12VDC to 48VDC PoE 7. AP & 12VDC to 24VAC 60
 6. Detection devices in power system, play the role through the long-distance transmission to the Central,
 7. Speed Dome: match a 3 effect, monitoring condition transmission lines and national
 8. Zigbee detection: tilt, vibration, corrosion forth Detect dem equipment, sampling record transmission system, data



Solar Collection Cloudy Power System for Mobile DVR/NVR Surveillance System

1. For Bus Mobile DVR/NVR Surveillance System



Use of the solar energy collection power supply system, Mobile the DVR/NVR extension be 24 hour operation, the solution only then the vehicles starts only then carries on the video recording monitoring operation the limit. Through the vehicle roof addition solar energy collection to be able the power supply system, stops in the vehicles in the outdoor parking lot or the standing of vehicle has not started in the roadside, still could momentarily the video recording monitoring.

Solar power supply system of constant voltage characteristics' avoid the power source not steady surging high, because by the solar energy collection the instantaneous vehicles launch produces, creates the DVR/NVR main engine or the camera therefore suffers injury.

Roof solar day solar power generation, battery charge, matching the amount of battery capacity designed to meet 3-6 consecutive days cloudy environment operations.

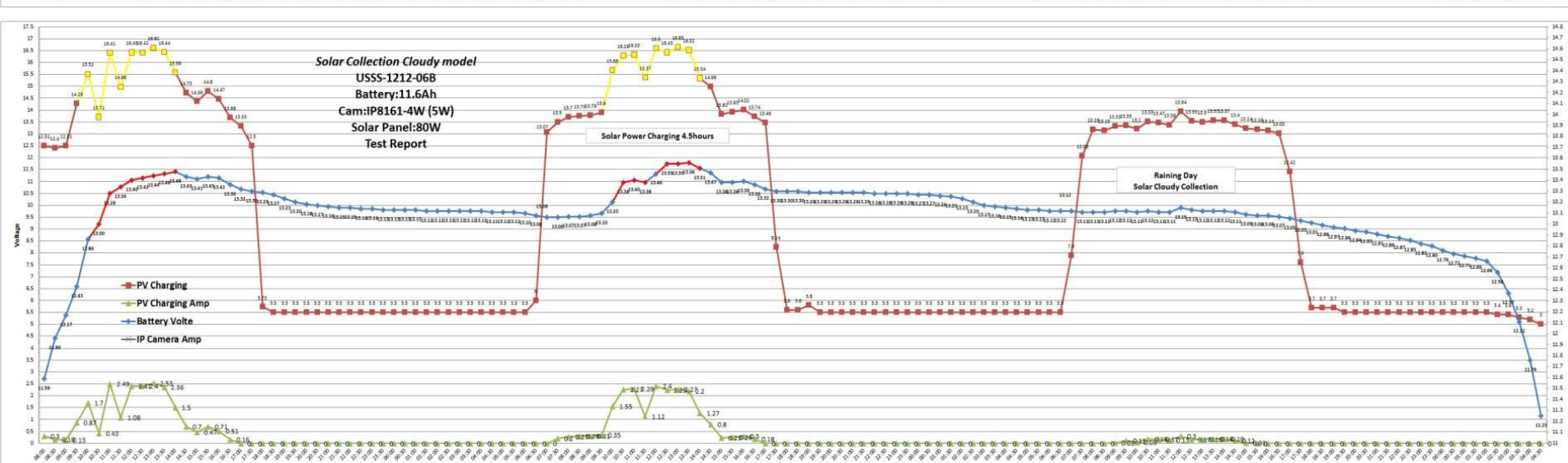
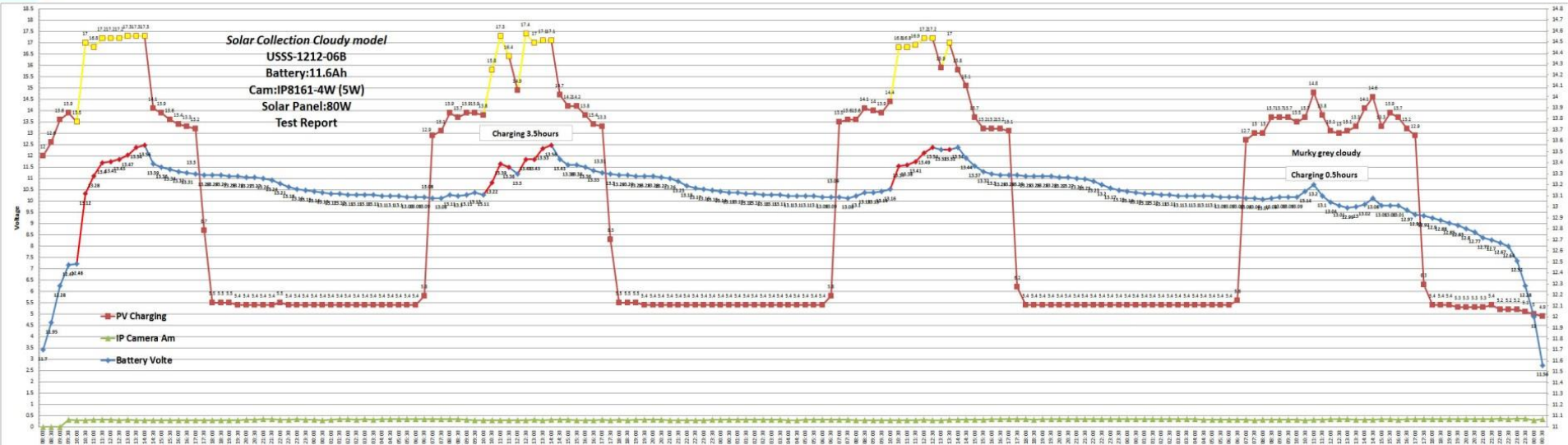
Form No. : IOP-OANC-001-001

Rev. : A.1

Retention date : 6Years



Solar Collection Cloudy Power Generation System Test Report





IO-Power Technology

Automobile (Vehicle) DC UPS Power Supply Over 7days as 168hrs

Products / Solutions / Applications



Automobile Model - 12.8V/6.9~11.6Ah

Online Boost & Stable DC UPS System



Automobile Model - 12.8V/11.6~23.2Ah

Online Boost & Stable DC UPS System



Automobile Model - 12.8V/34.8~46.4Ah

Online Boost & Stable DC UPS System





Automobile Model - 12.8V/6.9~11.6Ah
Online Boost & Stable DC UPS System



Model	USMC-1207-04A	USMC-1208-05A	USMC-1210-06A	USMC-1212-07A
Capacity	88 WH (6.9Ah@12.8V)	103 WH (8.05Ah@12.8V)	117 WH (9.2Ah@12.8V)	148 WH (11.6Ah@12.8V)
Output Volte/Amp	11.5V~14.4V / 3A			
Camera Work Time (IR Cam = 6W/H)	14hrs	17hrs	19hrs	24hrs
Camera Work Time (2 Cams * 4.5W=9W/H)	9.5hrs	11.5hrs	13hrs	16.5hrs
Life Cycle	7Years above (Working in +25°C , Life Cycle over 10 Years)			
Operation Temp	In Car - 30°C ~ +70°C			
Power System Applications	Police car & Ambulance & Preservation patrol car. when performing a service for a prolonged period of continuous video surveillance, directly from the car cigarette lighter or power sources powered by a car battery-charging engine. Independent external onboard power system, does not affect the vehicle's battery-powered, long uninterrupted operation and power voltage regulator to supply power to monitor video surveillance system.			





Automobile Model - 12.8V/11.6~23.2Ah
Online Boost & Stable DC UPS System



Model	USMC-1212-06B	USMC-1216-06B	USMC-1218-06B	USMC-1224-06B
Capacity	148 WH (11.6Ah@12.8V)	206 WH (16.1Ah@12.8V)	235 WH (18.4Ah@12.8V)	297 WH (23.2Ah@12.8V)
Output Volte/Amp	11.5V~14.4V / 6A			
Camera Work Time (IR30M Camera = 10W/H)	15hrs	19hrs	22hrs	28hrs
Server Work Time (8Ch DVR/NVR + 2HD =16W/H)	9hrs	12hrs	14hrs	18hrs
Life Cycle	7Years above (Working in +25°C , Life Cycle over 10 Years)			
Operation Temp	In Car - 30°C ~ +70°C			
Power System Applications	Fire-fighting vehicles or transport van & Preservation patrol car. when performing a service for a prolonged period of continuous video surveillance, directly from the car cigarette lighter or power sources powered by a car battery-charging engine. Independent external onboard power system, does not affect the vehicle's battery-powered, long uninterrupted operation and power voltage regulator to supply power to monitor video surveillance system.			





Automobile Model - 12.8V/34.8~46.4Ah
Online Boost & Stable DC UPS System



Model	USMC-1235-10B	USSP-1240-10B	USSP-1247-10B
Capacity	445 WH (34.8Ah @ 12.8V)	515 WH (40.2Ah @ 12.8V)	594 WH (46.4Ah @ 12.8V)
Output Volte/Amp	11.5V~14.3V / 6A	11.5V~14.3V / 6A	11.5V~14.3V / 6A
Camera Work Time (4 IR Camera *4W/H=16W)	27hrs (Bus/Truck/Wagon)	32hrs (Bus/Truck/Wagon)	37hrs (Bus/Truck/Wagon)
Server Work Time (16Ch DVR/NVR + 2HD =28W/H)	15hrs	18hrs	21hrs
Life Cycle	7Years above (Working in +25°C , Life Cycle over 10 Years)		
Operation Temp	In Car - 30°C ~ +70°C		
Power System Applications	Bus & Truck & Wagon. when performing a service for a prolonged period of continuous video surveillance, directly from the car cigarette lighter or power sources powered by a car battery-charging engine. Independent external onboard power system, does not affect the vehicle's battery-powered, long uninterrupted operation and power voltage regulator to supply power to monitor video surveillance system.		



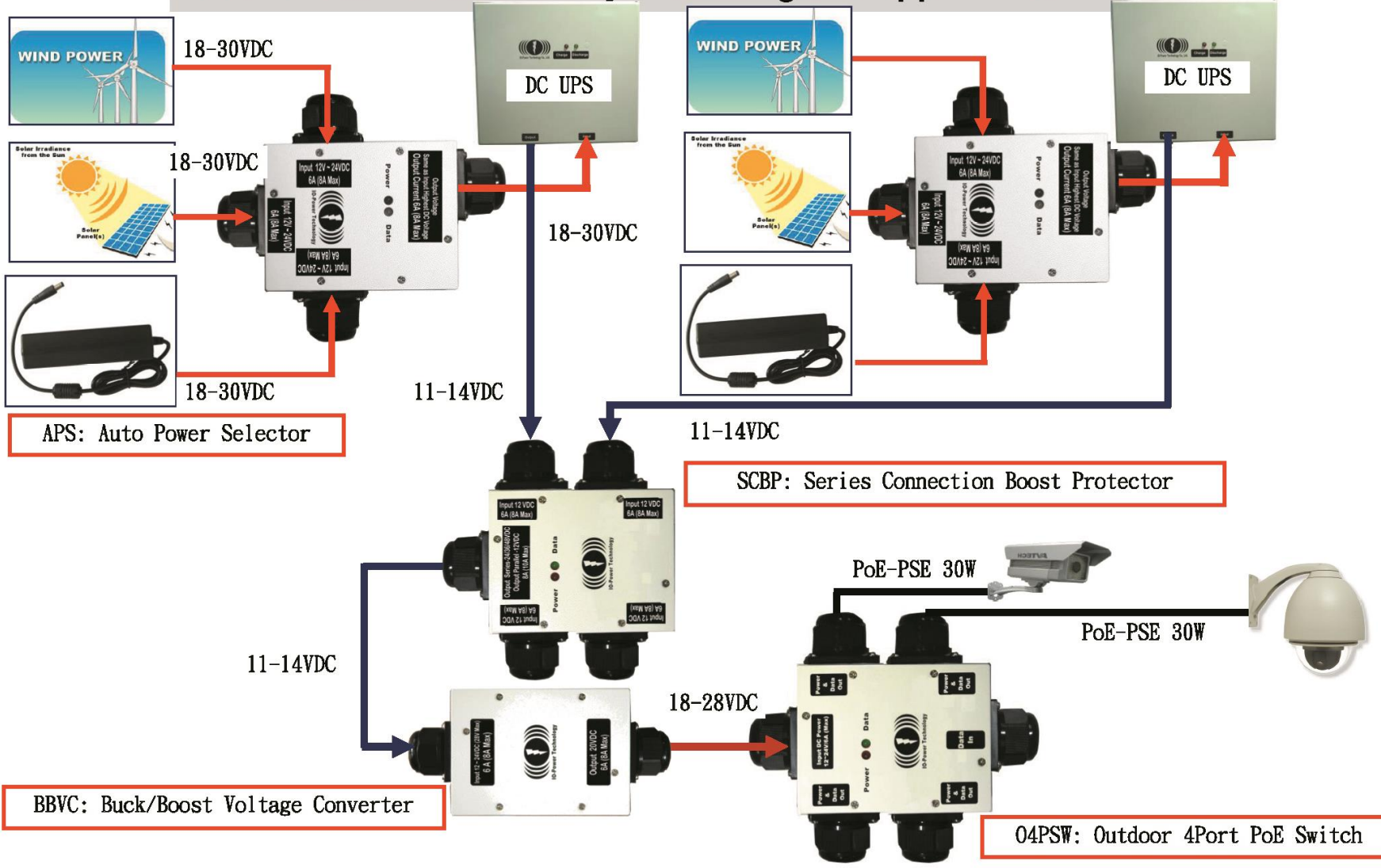
IO-Power Technology

Outdoor DC UPS Total Solutions System

Products and System Applications Diagram



IO-Power New Products System Integrate Application Diagrams



APS: Auto Power Selector

SCBP: Series Connection Boost Protector

BBVC: Buck/Boost Voltage Converter

04PSW: Outdoor 4Port PoE Switch








IO-Power Technology

12VDC to 48VDC PoE-PSE 30W Standard
1Gbps & 72W Passive

Products / Solutions / Applications



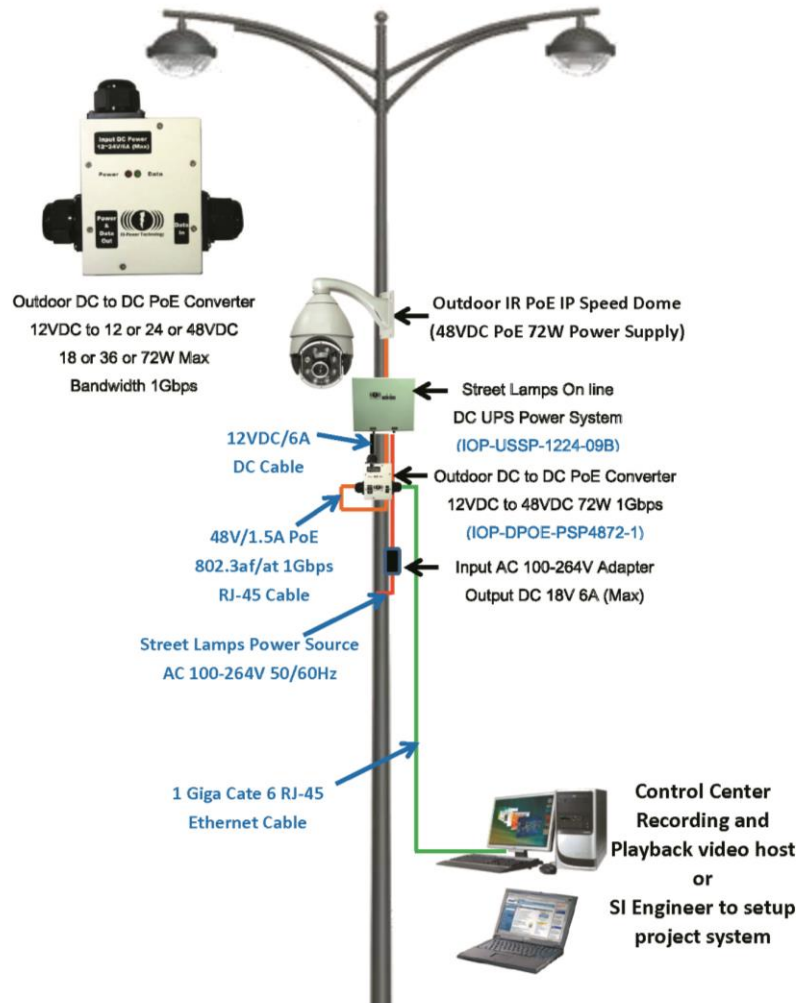


Model Number	IOP-DPOE-PSP1218-1	IOP-DPOE-PSP2436-1	IOP-DPOE-PSP3654-1	IOP-DPOE-PSP4872-1	IOP-DPOE-PSS4830-1
Outdoor PoE Passive Mode Iron Airtight Housing IP 67					
Input DC Voltage	12~24VDC (28V Max)				
Input DC Current	12VDC 6A Max 24VDC 3A Max				
Output PoE DC Voltage	12VDC	24VDC	36VDC	48VDC	48VDC
Output DC Current	1.5A Max	1.5A Max	1.5A Max	1.5A Max	0.6A Max
Output Power Consume Watts	18W Max	36W Max	54W Max	72W Max	30W Max
Ethernet Pin Number	Power + Data Output PIN : 4 & 5 (+) / 7 & 8 (-) Data Input PIN : 1 & 2 / 3 & 6				
Ethernet Compatible Support Ethernet Bandwidth	Compatible with IEEE802.3 / 802.3u / 802.3af / 802.3at PoE Passive or PoE Standard Auto Detect 10/100/1000Mbps (1Gbps)Bandwidth				
Ethernet Cable SPEC	RJ-45 Cat.5 / Cat.5e / Cat.6 / Cat.6e / Cat.6A / Cat.7~				
Transform Efficiency	95%~				
Protection	Built-in MCU management Automatic detection of Ethernet transmit bandwidth 10/100/1000Mbps Over discharge protection Input power overcurrent protection Input power supply over voltage protection Imported power polarity protection for anti-welding				
Industrial Housing & Connector	Iron Airtight Housing IP 67 Gland Connector				
Connector Type	Input DC Power: 9~28VDC Max DC Jack Female with LED Power + Data Output:RJ-45 Port with LED Data Input:RJ-45 Port				
LED Indicator	1.Plug DC Jack, Input DC Power, Red LED Light 2.802.3at Standard: RJ-45 Ethernet Cable Plug Into Power + Data Output Port, the Green LED Light 3.Passive Power: RJ-45 Ethernet Cable Plug Into Power + Data Output Port, the Green LED without Light				
Operating Temperature	-40°C ~ +70°C				
Storage Temperature	-40°C ~ +70°C				
Rel. Humidity	10~95%RH				
Dimension	155mm(L)x152mm(W)x42mm(H)				
Weight	0.5Kg				
Housing	IP67				
Approvals	CE FCC				
Installation	1.Street lamp pole mount or Upright pole mount 2.Wall mount installation				
Warranty	12 months				



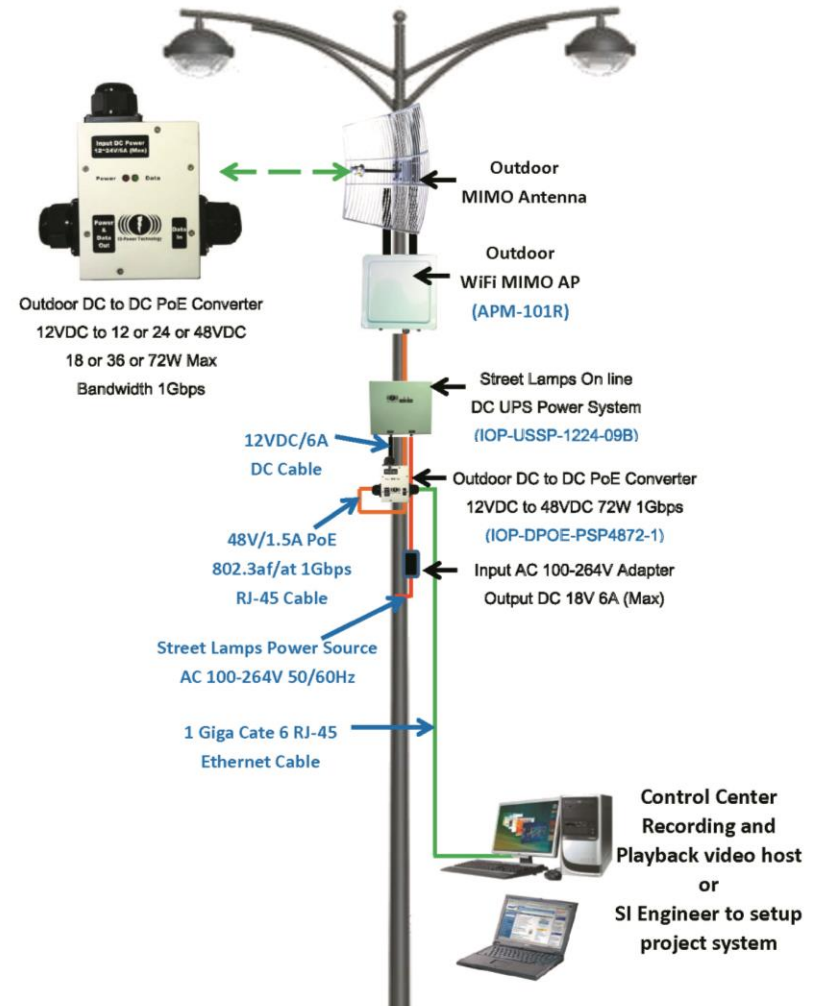
Road Cross Surveillance System

with Street Lamps DC UPS & DC to DC PoE Converter for IP Speed Dome Power Solution



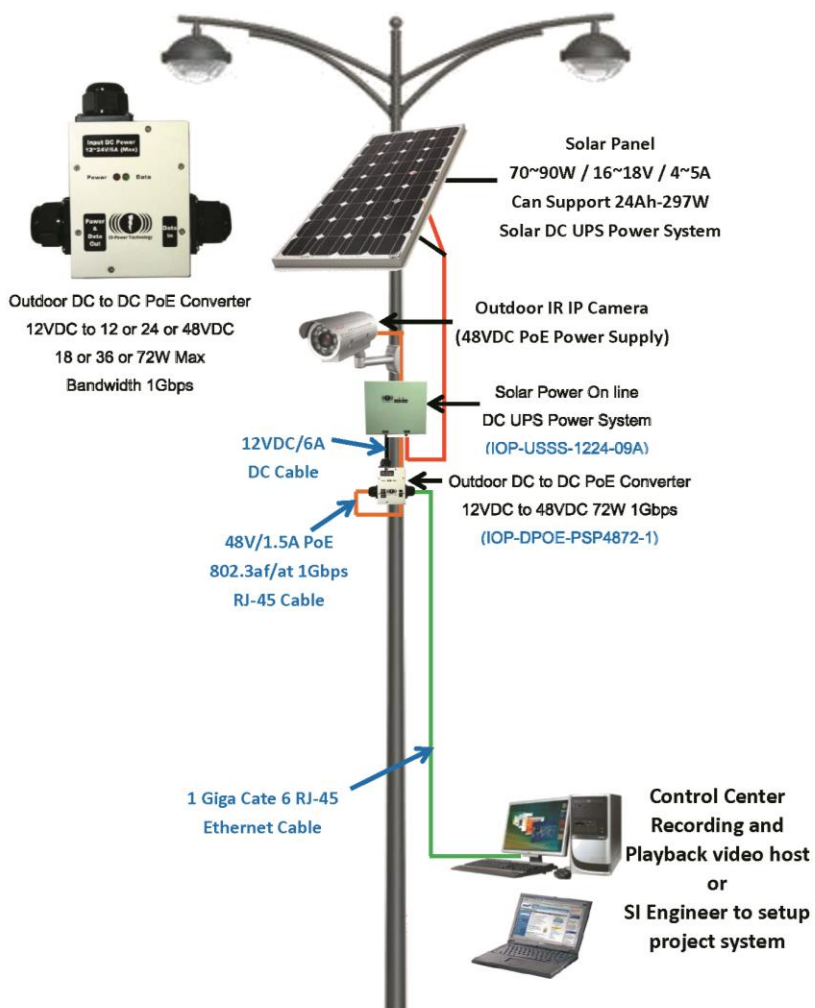
Outdoor WiFi MIMO Wireless Road Cross Surveillance System

with Street Lamps DC UPS & DC to DC PoE Converter for IP Speed Dome Power Solution



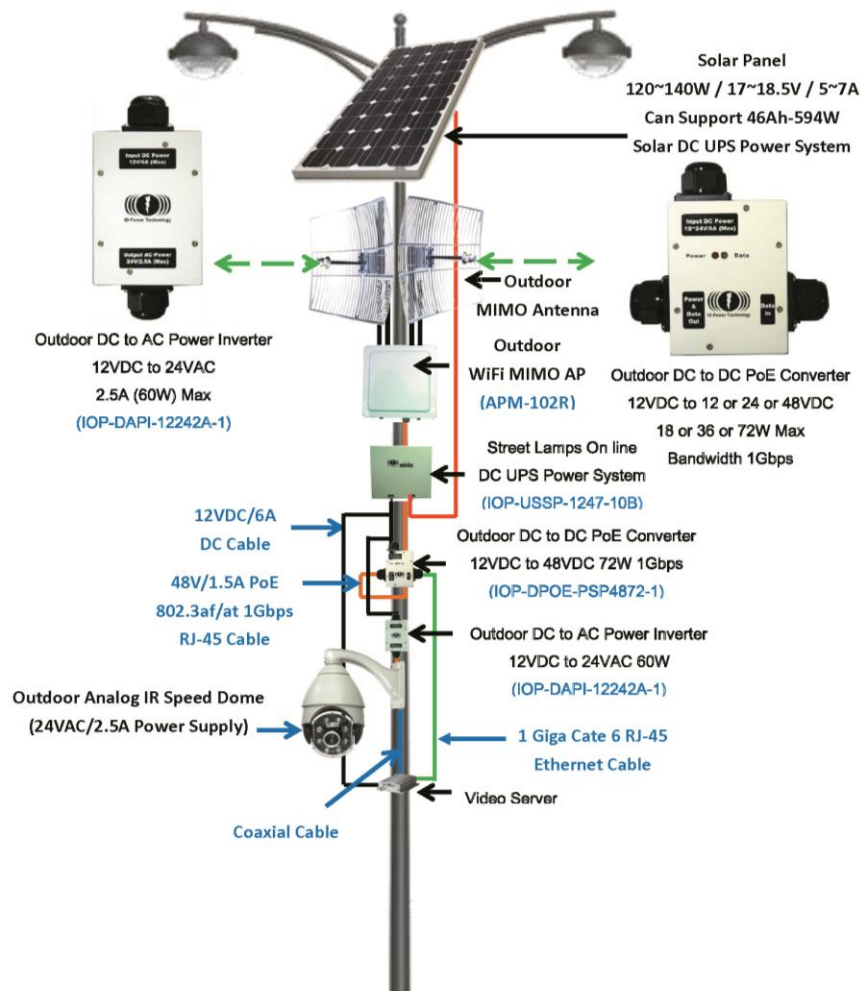
Road Cross Surveillance System

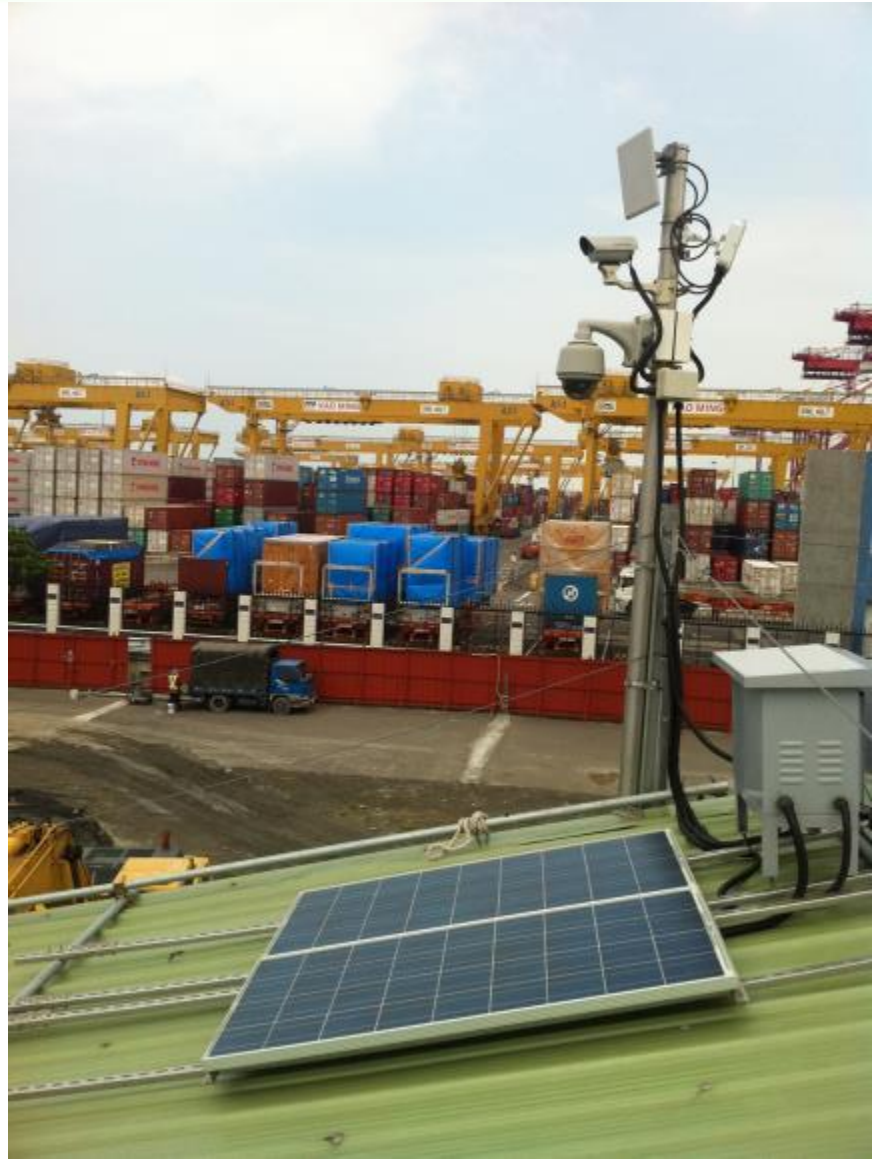
with Solar Power DC UPS & DC to DC PoE Converter Power Solution



Outdoor WiFi MIMO Wireless Road Cross Surveillance System

with Solar Power DC UPS & DC to DC PoE & DC to AC Power Inverter Solution





IO-Power Technology

12VDC to 24VAC 2.5A 60W Power Injector (Special Design for Speed Dome 24VAC Power Solution) Products / Solutions / Applications



12VDC to 24VAC 60W Power Inverter

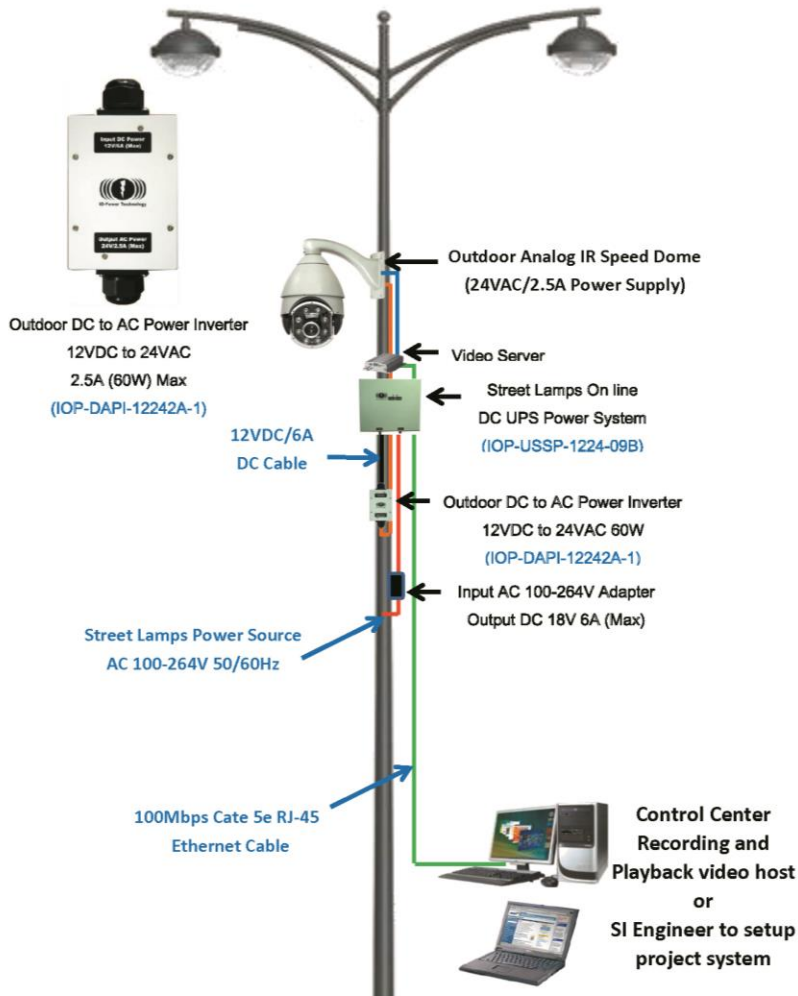


Model Number	IOP-DAPI-12242A-1
Input DC Voltage	12VDC (11VDC~15VDC Max)
Input DC Current	12VDC 6A Max
Output AC Voltage	24VAC (22VAC~25VAC Max)
Output AC Current	2.5A Max
Output Power Frequency	47-63 Hz
Output Power Consume Watts	60W Max
Input Connector	DC Jack Connector
Output Connector	DC Plug Connector
Transform Efficiency	85%~
Protection	Input power overcurrent protection Low input voltage protection High input voltage protection Output power overcurrent protection Short circuit protection
Industrial Housing & Connector	Iron Airtight Housing IP 67 Gland Connector
Connector Type	Input DC Power: 11~15VDC Max, DC Jack (Φ5.5mm*2.1mm) Output AC Power: 22VAC~25VAC Max, DC Plug (Φ5.5mm*2.1mm)
Operating Temperature	-30°C ~ +60°C
Storage Temperature	-20°C ~ 40°C
Rel. Humidity	0~95%RH
Dimension	155mm(L)x152mm(W)x42mm(H)
Weight	0.5Kg
Housing	IP67



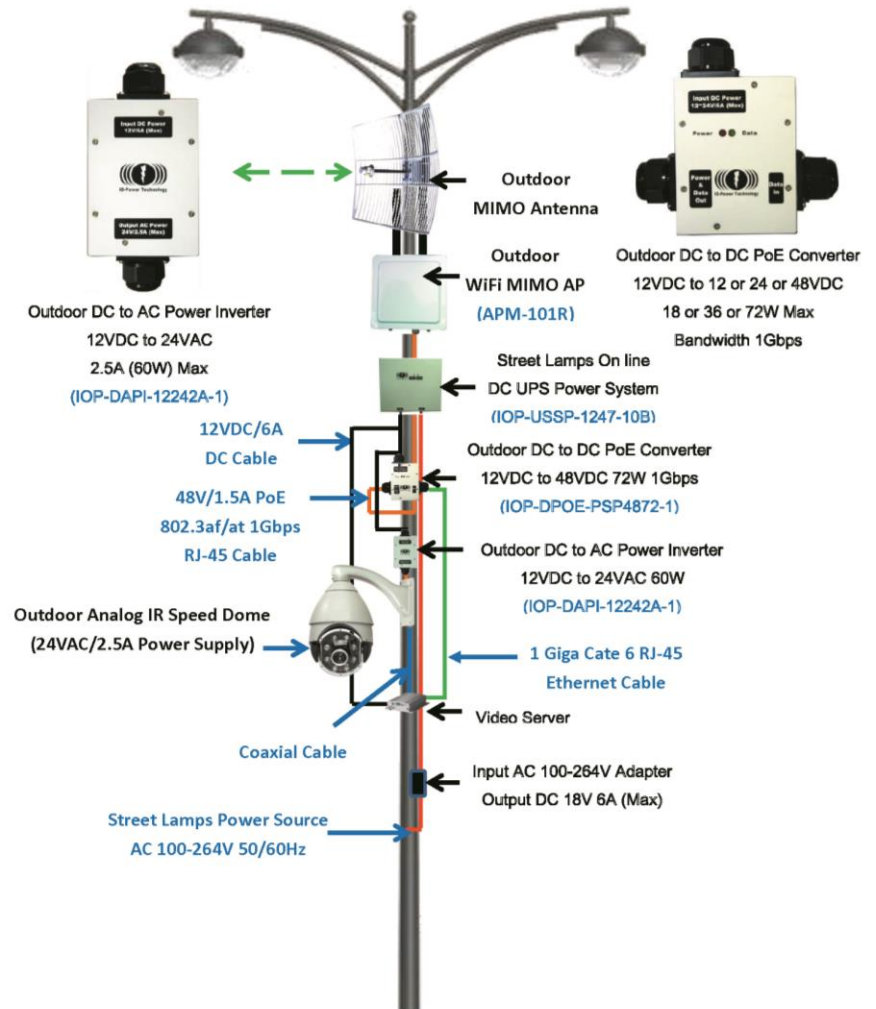
Road Cross Surveillance System

with Street Lamps DC UPS & DC to AC Power Inverter Power Solution



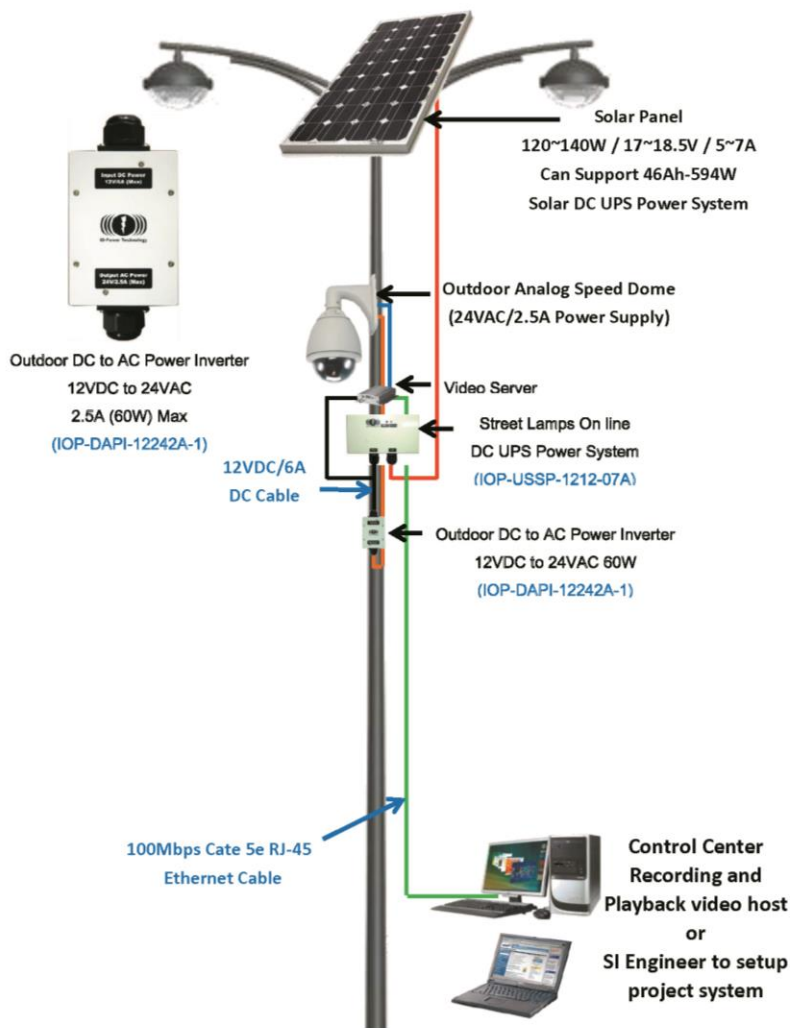
Outdoor WiFi MIMO Wireless Road Cross Surveillance System

with Street Lamps DC UPS & DC to DC PoE & DC to AC Power Inverter Solution



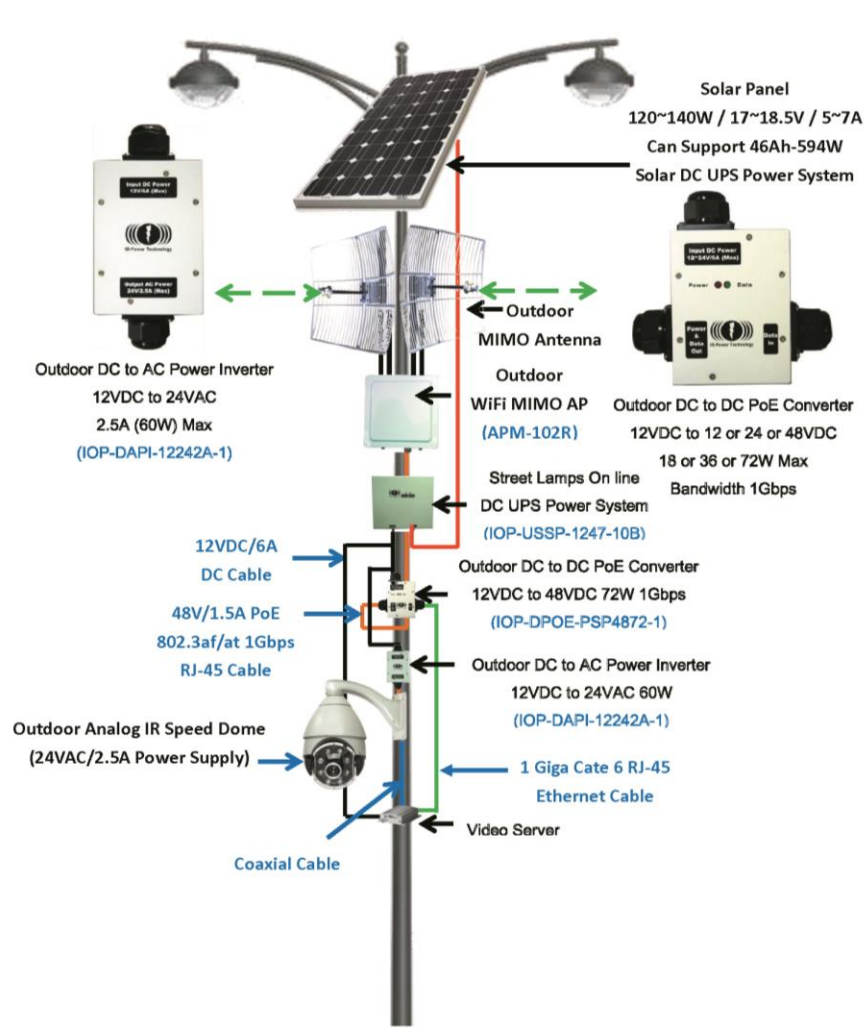
Road Cross Surveillance System

with Solar Power DC UPS & DC to AC Power Inverter Power Solution



Outdoor WiFi MIMO Wireless Road Cross Surveillance System

with Solar Power DC UPS & DC to DC PoE & DC to AC Power Inverter Solution



IO-Power Technology

Outdoor APS -- Auto Power Selector

(Special Design by Multi Parallel Power Source
for Solar DC UPS Power System)

Products / Solutions / Applications



Outdoor Auto Power Selector

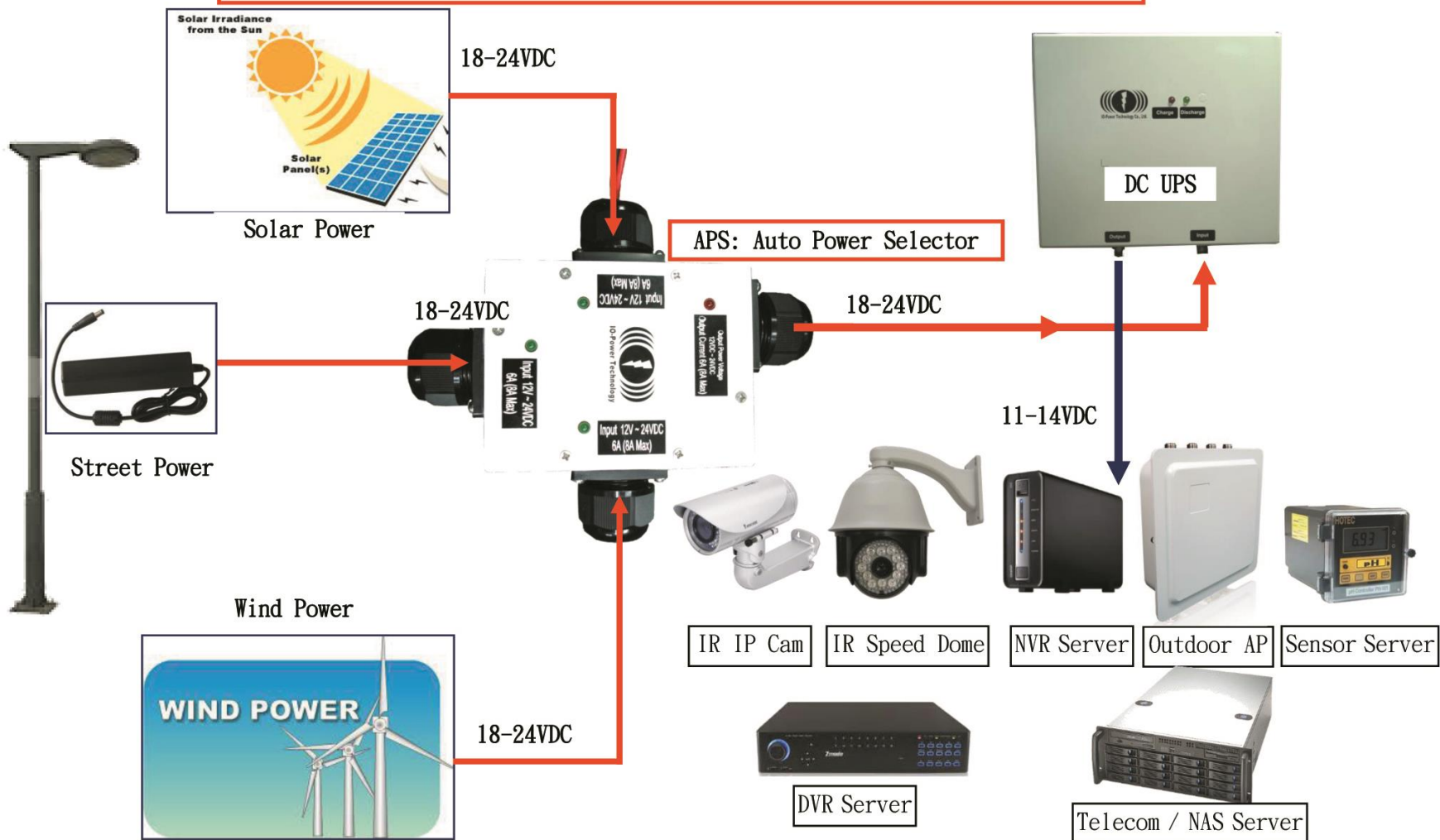


Model	IOP-DAPS-I3O18A-1
Input DC Voltage	12~24VDC (30V Max)
Input DC Current	12VDC 6A (8A Max) / 24VDC 6A (8A Max)
Output DC Voltage	12~24VDC
Output DC Current	6A (8A Max)
Output Power Consume Watts	72W ~ 144W Max
Input DC Power Connector	DC Jack Connector * 2 & + & - Bare Power Line
Output DC Power Connector	DC Jack Connector 5.1mm/2.1mm
Transform Efficiency	95%~
Power mode of operation	By Parallel mode power supply Support threaded expanding number of input power
Power supply selection	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
Protection	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)
Industrial Housing & Connector	Iron Airtight Housing IP 67 Gland Connector
Connector Type	Input DC Power Source: 12~24VDC 6A 8AMax, DC Jack & + & - Bare Power Line Output DC Power Port: 12~24VDC 6A 8AMax, DC Jack
LED Display	Input DC Power Source: 3 Green Color LEDs Output DC Power Port: 1 Red Color LED
Operating Temperature	-40°C ~ +70°C
Storage Temperature	-40°C ~ +70°C
Rel. Humidity	10~95%RH
Dimension	185mm(L) x 165mm(W) x 45mm(H)
Weight	1Kg
Housing Waterproof	IP67
Approvals	CE FCC in progress
Installation	1. Street lamp pole mount or Upright pole mount 2. Wall mount installation
Warranty	12 months

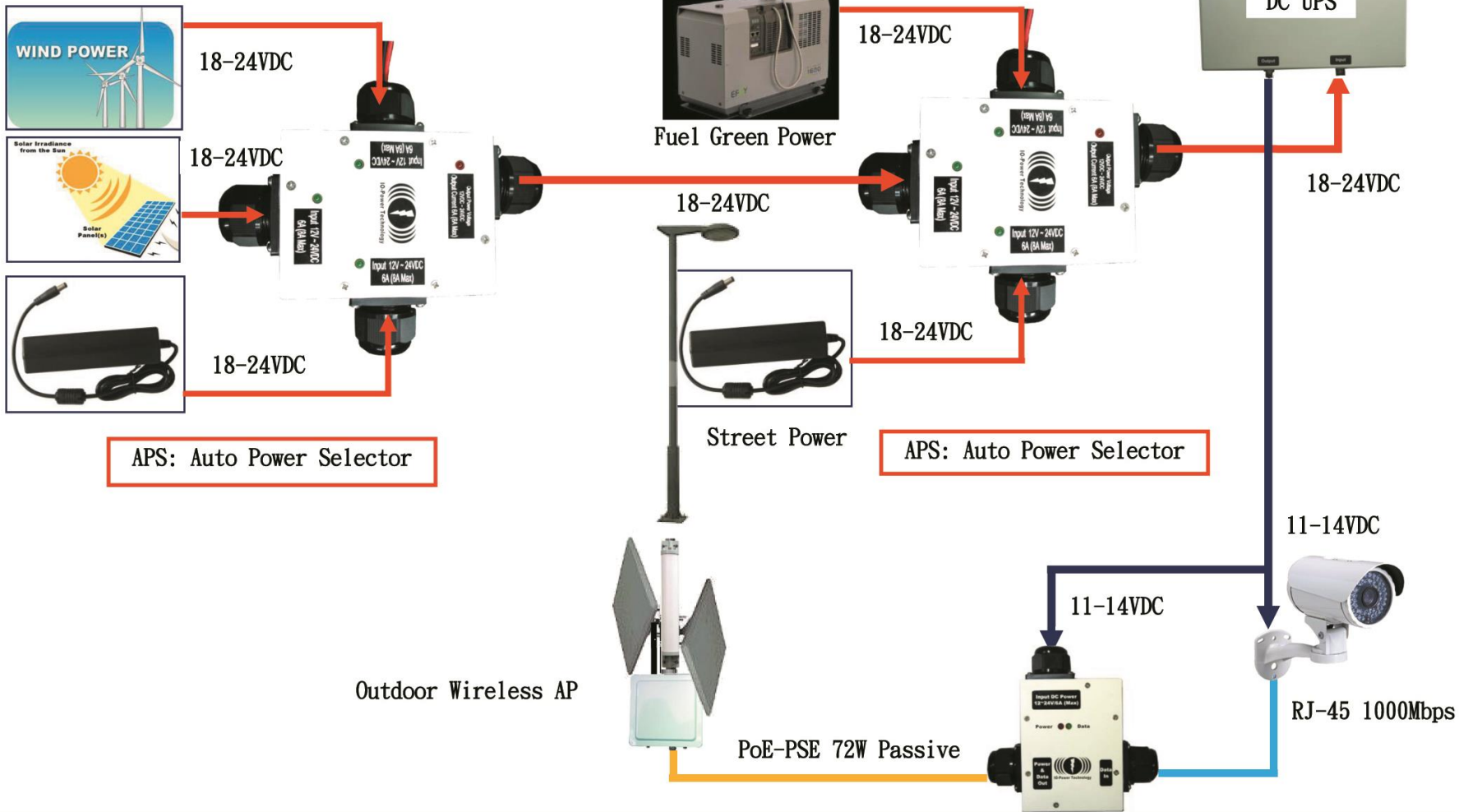


APS system applications

Support with Multiple Parallel Redundant Power Solutions



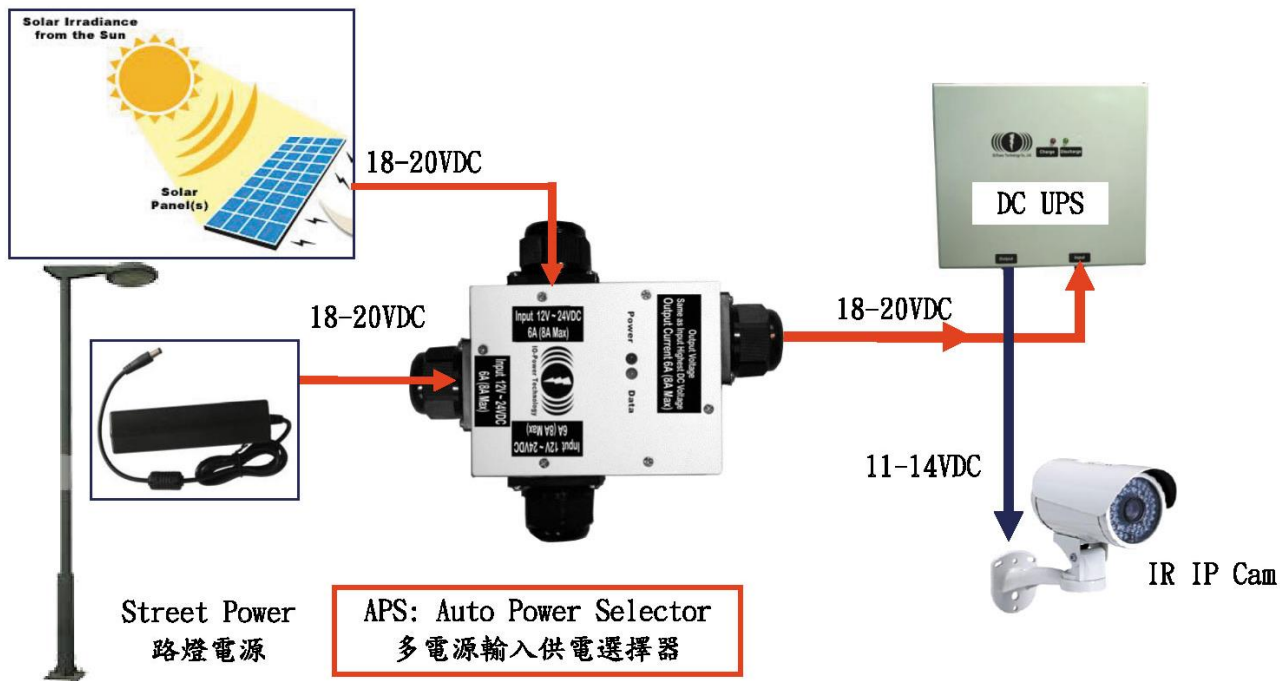
**APS system applications by Two APS Series Connection
 Support with Multiple Parallel Redundant Power Solutions**



APS – Auto Power Selector Test Model & Test Result

Test Model 01: Street Lamps Power Source + Solar DC Power Source → APS → Charging DC UPS → Power Supply for IR IP Camera for 24/7 Solution

Test Result: Almost 100% Power Supply and Full Charging Battery

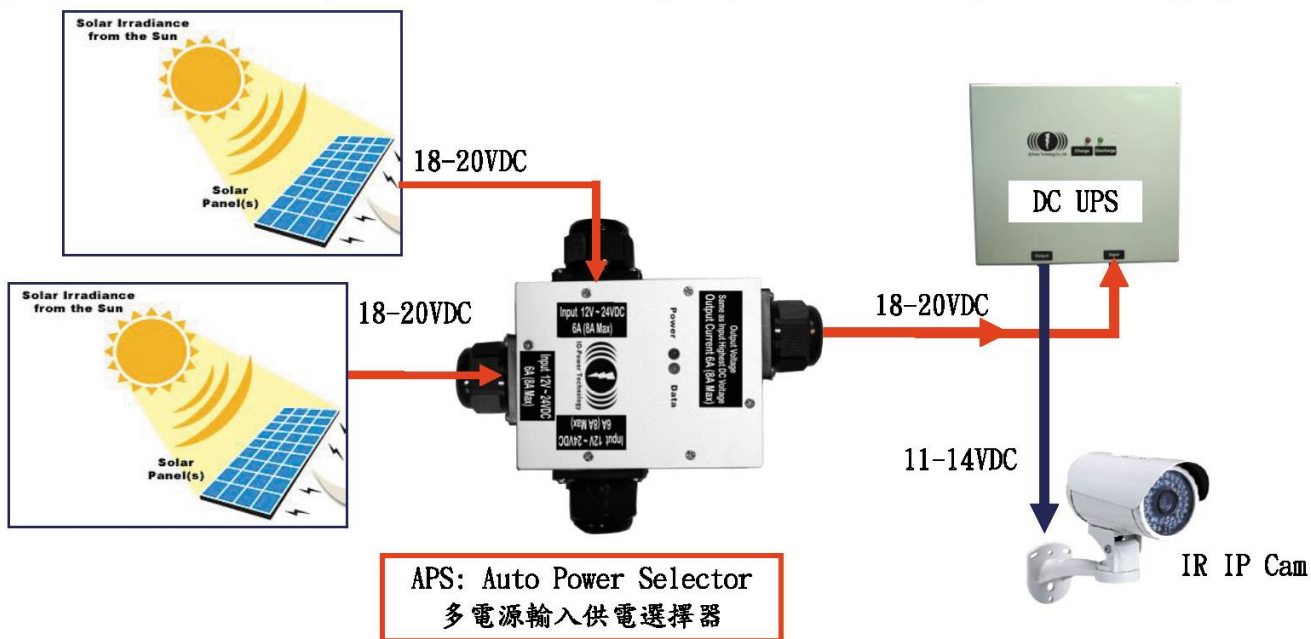


1. @day the solar DC power supply for APS, and then to charging Outdoor DC UPS, even @ rainy day can charging about 0.2~0.8 A in 14-16V, charging power as $0.2A * 14V = 2.8W$ ($0.8A * 14V = 11.2W$), so @ days almost didn't need battery to support power.
2. @night the street lamps AC to DC power source for APS, and then to charging Outdoor DC UPS and IR IP Cam, @night the DC UPS – Battery almost full charge, so even @day rainy day over 30 days, this solution almost 100% can power supply for surveillance system.



Test Model 02: Two Solar DC Power Source → APS (two Input & one output) → Charging DC UPS → Power Supply for IR IP Camera for 24/7 Solution

Test Result: Two Solar DC Power Sources in Rainy Day, will Add Almost Double Charging Amp, it will Upgrade Solar DC UPS Power System more Availability and Tolerance to rainy days and the battery will full charging almost all 365days.



1. @Sunny day two solar DC power supply for APS, and then to charging outdoor DC UPS power system by 6A current (7A Max), it will charging more power and more quickly to full charge battery.
2. @Rainy day two solar DC power supply for APS, and then to charging outdoor DC UPS power system by almost double current, when @ rainy day can charging about 0.4~1.6 A in 14-16V, charging power as $0.4A * 14V = 5.6W$ ($1.6A * 14V = 22.4W$), so Two / Three Solar DC Power + APS will upgrade to be as strong Solar DC UPS power system.



IO-Power Technology

Outdoor Buck / Boost Voltage Converter

(12~30V input DC voltage to automatically Lifted /
Reduced output voltage in 20VDC)

Products / Solutions / Applications





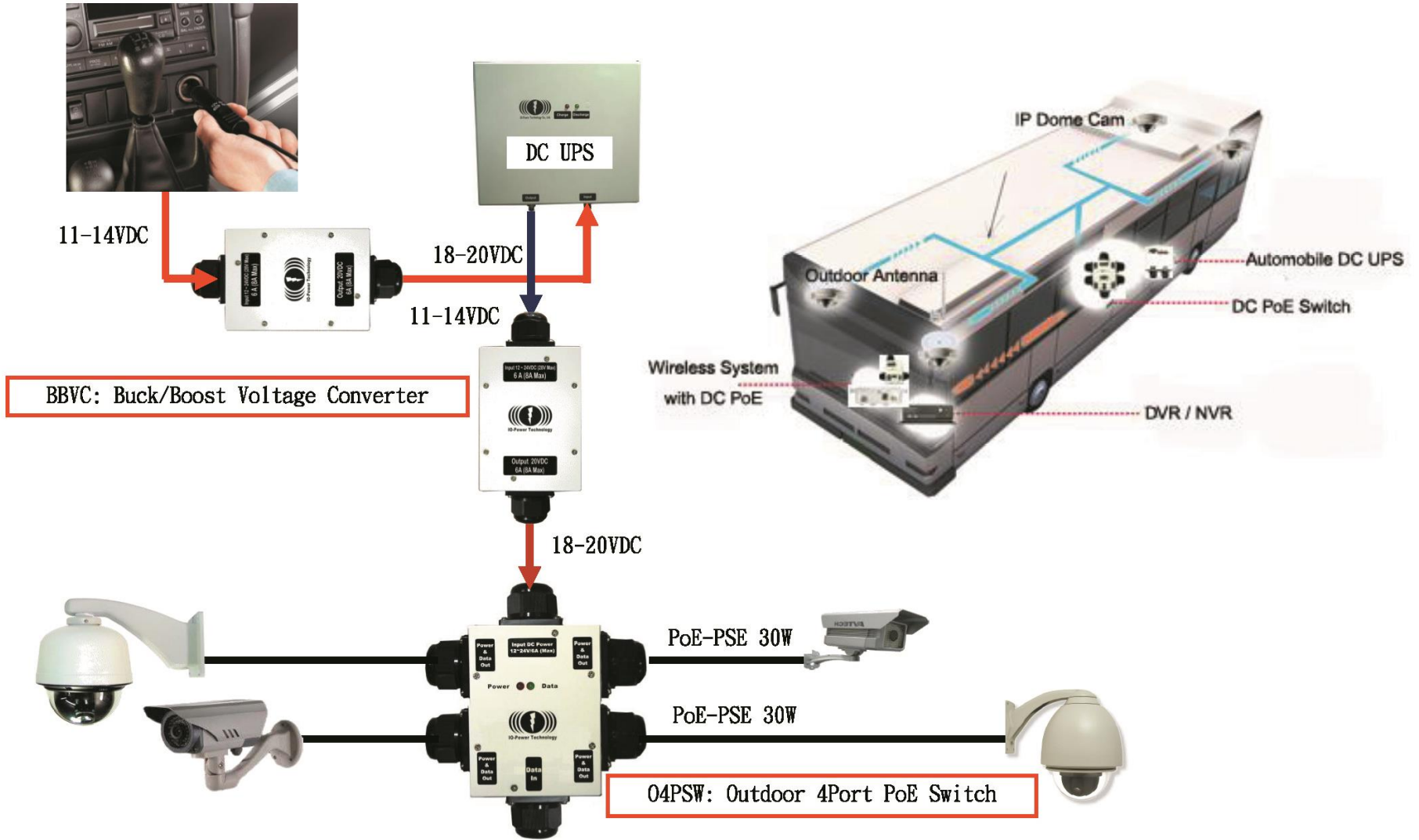
Outdoor Buck /Boost Voltage Convertor



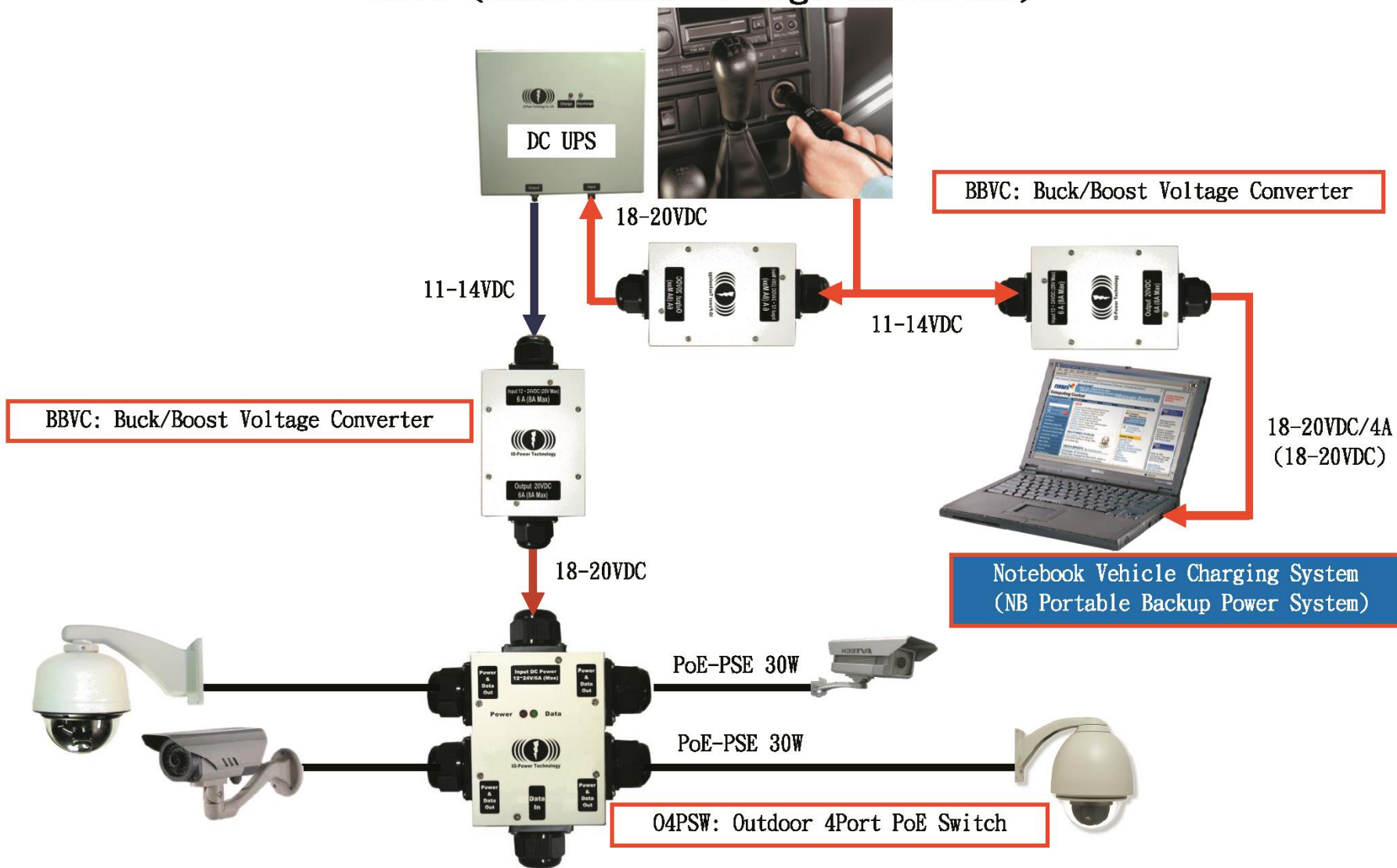
Model	IOP-DBBV-I12O20-1
Input DC Voltage	12~24VDC (30V Max)
Input DC Current	12VDC 6A (8A Max) / 24VDC 3A (4A Max)
Output DC Voltage	18~20VDC (Option 24VDC~30VDC)
Output DC Current	3A (4A Max)
Output Power Consume Watts	54W ~ 80W Max (Option 120W Max)
Input DC Power Connector	DC Jack Connector 5.1mm/2.1mm
Output DC Power Connector	DC Jack Connector 5.1mm/2.1mm
Transform Efficiency	90%~
Protection	Input power overcurrent protection Input power supply over low voltage protection Input power supply over high voltage protection Output power overcurrent protection Short circuit protection Imported power polarity protection for anti-welding Surge protect for each port (30V 1500W)
Industrial Housing & Connector	Iron Airtight Housing IP 67 Gland Connector
Connector Type	Input DC Power: 12VDC 6A (8A Max) / 24VDC 3A (4A Max), DC Jack Output DC Power: 18~20VDC (Option 24VDC~30VDC) / 3A (4A Max), DC Jack
LED Display	Input DC Power Port: 1 Green Color LED Output DC Power Port: 1 Red Color LED
Operating Temperature	-40°C ~ +70°C
Storage Temperature	-40°C ~ +70°C
Rel. Humidity	10~95%RH
Dimension	195mm(L)x92mm(W)x48mm(H)
Weight	0.5Kg
Housing Waterproof	IP67
Approvals	CE FCC in progress
Installation	1. Street lamp pole mount or Upright pole mount 2. Wall mount installation
Warranty	12 months



BBVC (Buck/Boost Voltage Converter)



BBVC (Buck/Boost Voltage Converter)



Q & A

IO-Power Technology

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