ZTT POWER SEED: FACILITATING LOW CARBON BASE STATION CONSTRUCTION

Minimalized Construction | Modular Design

Efficient Operation | 97% Efficiency

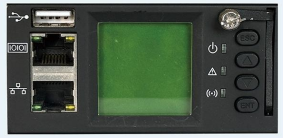
Intelligent Maintenance | Remote Control

WEB/Management Platform

SNMP/Modbus_rtu

Basic Component

Monitoring Module



Power Supply Module

Rectifier Module

Photovoltaic Module

Power Distribution Module

Dc Distribution Unit

Ac Distribution Unit

Core Component

Modular Power Supply

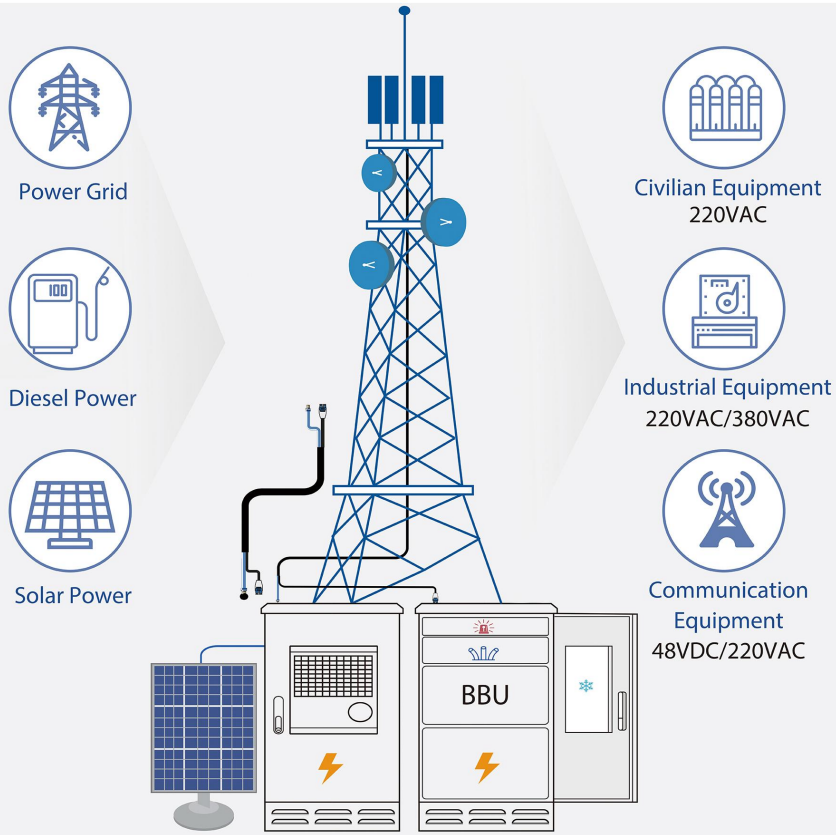
ZTT Battery

Converged Site

Blade power supply

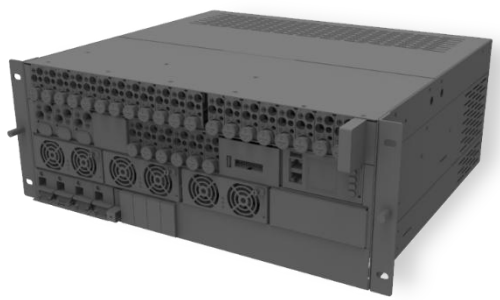
Cabinet power supply

Integrated Power Supply Site



◆ Outdoor/Indoor Modular Power system ◆ Outdoor Integrated Power system ◆ New Energy solution

Outdoor/Indoor Modular Power system



1U, 2U, 4U modular power supply

- **Smart metering:** smart MCB used in DC output unit，supporting graded power measurement, statistics, reporting, LLVD/BLVD and timing.
- **Intelligent peak-shaving:** control and regulate the output voltage of the rectifier module, ensuring the battery to discharge in peak load hours and charge in low load hours.
- **Green electricity utilization:** PV modules can replace rectifier modules, utilizing green electricity at ZERO extra cost.
- **Battery management:** the monitoring system can protect, test and manage the batteries.

Outdoor/Indoor Modular Power system

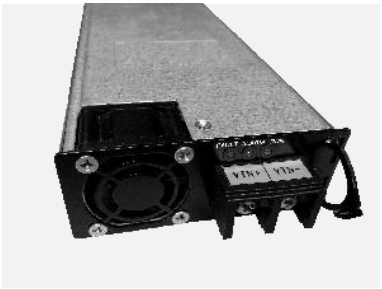
Core Modules

Centralized Management System EMS

Type：HEM4802

Specifications：

- Wireless monitoring extension
- Intelligent modular configuration for peak shaving
- Power-off intelligent modular configuration
- Rich southbound interfaces to replace FSU



48V DC Power Access Module

Type：HEP4850PR

Specifications：

- Peak efficiency≥96@3000W
- Automatic current sharing

Rectifier Module

Type：HEP4875MH

Specifications：

- Peak efficiency 96%@4000W
- Wide AC range input and automatic current sharing

Photovoltaic Modules

Type：HEP4850PVL（low voltage PV）

Specifications：

- MPPT efficiency Max：98%
- Modular design of forward and backward

Remote Power Supply Module

Type：HEP38015RS

Specifications：

- Module efficiency≥94%@100%load rate
- Remote DC intelligent power distribution module

DC Intelligent Power Distribution Unit

Type：HEP48DU-04

Specifications：

- Intelligent power on and off
- 4*40A output

Outdoor/Indoor Modular Power system

modular power supply 48V200A

air conditioner 1.5 ~ 3kw

device space reserved

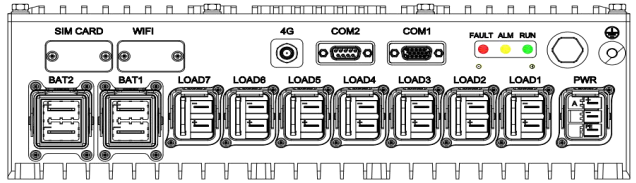
device space reserved

ZTT Li-ion battery

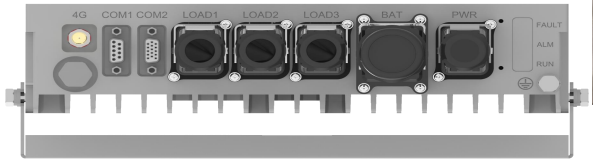
outdoor energy cabinet components

- **Fast installation**: installation and comissioning in 1 day， reconstruction cost reduced sharply;
- **Space-saving:** power distrubution cabinet, battery cabinet, device cabinet are built in on cabinet;
- **Effective cooling:** hot and cold aisle isolated, emergency ventilation system is automaticly shut and open;
- **Intelligent management:** efficient and intelligent power supply and distribution system and backup battery, equipped with intelligent monitoring, control, peak shaving, metering and other functions.

Outdoor Integrated Power system



DYX-6000 (440×350×103mm)
~16kg



DYX-3000 (385×277×70mm)
~8kg

4850Y (425×185×310mm)
~28kg

For Macro and Micro site, Maintenance-free, High reliability, Low Carbon emission

Outdoor Integrated Power system

comparision	traditional air conditioning cabinet	✓ Integrated power supply
Function	Air conditioner, power supply and power distribution unit are seperatedly installed.	Integrate rectifying, DC distributing,remote managing, self-cooling functions in one small and light aluminum case.
Dimension	900*900*2000mm	385×277×70mm 3KW weights 8kg　　440×350×103mm 6KW weights 16kg
Installation	install the cabinet, power supply, batteries and other equipent one by one, hard to manage, and the cost is high	1 personnel in 1 hour , saving materials and labor (about $277/station，construction cost reduced by 45%)
Maintenance	Air conditioner is needed, and the traditional power supply is fan-cooling type.	no air conditioner, self cooling power supply , reducing electricity cost (about $154/station), easier to maintain.
Application Scenarios	only for ground installtion	suitable for ground, wall, flat roof , pole and other places in wall-mounting, pole-mounting, and ground-standing method.

New Energy solution

Project: 6kw PV power generation

41° in the street

31° on the roof

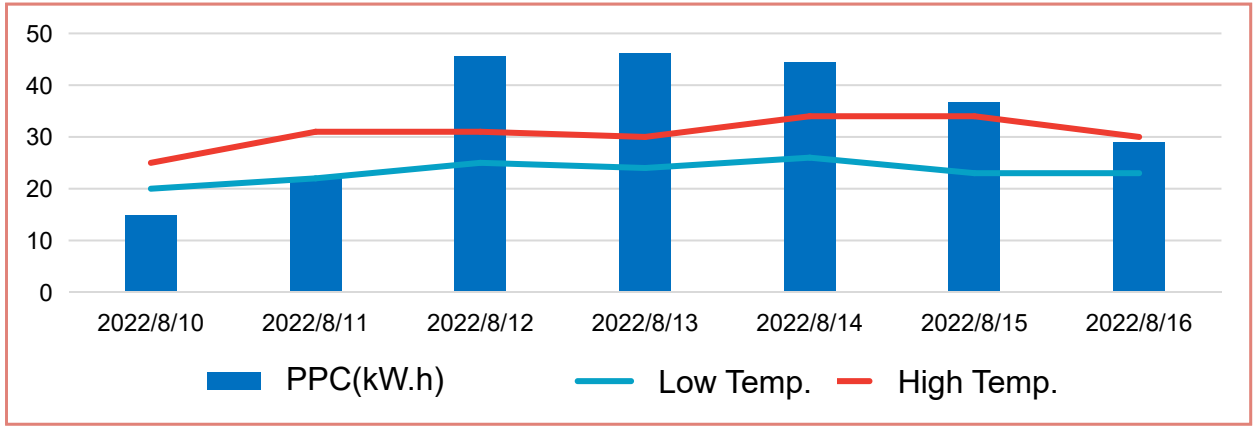
- Designed service life: 25 years
- PV module peak power: 550 Wp
- Average annual power generation: 6600kW·h
- Annual earnings: $ 820
- Emission reduced: 59.18 ton in 25Y
- Annual carbon emission reduction: 2.36 ton
- construction cost: about $ 4,600
- **ROI: 5.5 years**

about the PV base staion

New Energy solution

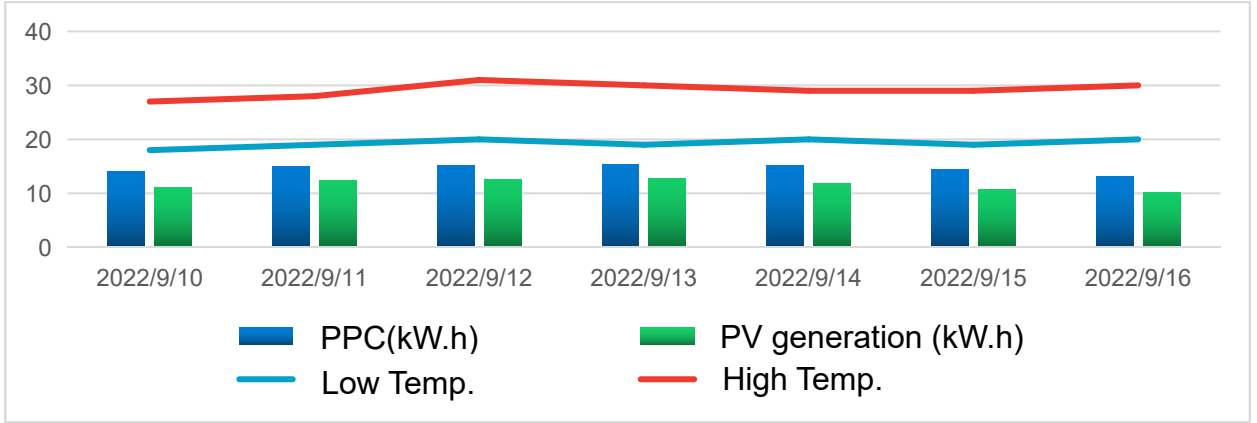
Measured data BEFORE the low-carbon PV system
（Xidaguo site 2022/8/10 -- 8/16）

date	temp. low	temp. high	inlet air temp.	Total consumption（kW·h)	peak（kW·h)	low（kW·h)	peak (0.853Yuan/ kW·h)	low (0.423yuan /kW·h)	total（Yuan）
8-10	20	25	23	14.94	11.95	2.99	10.19	1.26	11.45
8-11	22	31	26	22.11	17.69	4.42	15.09	1.87	16.96
8-12	25	31	28	45.6	36.48	9.12	31.12	3.86	34.98
8-13	24	30	27	46.1	36.88	9.22	31.46	3.90	35.36
8-14	26	34	30	44.5	34.88	9.62	29.75	4.07	33.82
8-15	23	34	28	36.7	37.36	9.34	31.87	3.95	35.82
8-16	23	30	26	29.04	23.23	5.81	19.82	2.46	22.28
ave.	23.28	30.71	26.86	34.14	28.35	7.22	24.18	3.05	27.24



Measured data AFTER the low-carbon PV system
（Xidaguo site 2022/9/10 -- 9/16）

date	temp low	temp. high	inlet air temp.	Total consumption（kW·h)	peak（kW·h)	low（kW·h)	PV generation（kW·h)	peak (0.853Yuan /kW·h)	low (0.423Yuan/kW·h)	total（Yuan）
9-10	18	27	23	13.96	1.52	1.42	11.02	1.3	0.6	1.9
9-11	19	28	24	14.92	1.28	1.24	12.4	1.09	0.52	1.61
9-12	20	31	26	15.25	1.4	1.25	12.6	1.19	0.53	1.72
9-13	19	30	25	15.34	1.28	1.26	12.8	1.09	0.53	1.62
9-14	20	29	25	15.08	1.98	1.21	11.89	1.69	0.51	2.2
9-15	19	29	24	14.45	1.85	1.8	10.8	1.58	0.76	2.34
9-16	20	30	25	13.08	1.24	1.64	10.2	1.06	0.69	1.75
ave.	19.29	29.14	24.57	14.58	1.51	1.4	11.67	1.29	0.59	1.88



New Energy solution

Comparison of electricity cost	
electricity cost BEFORE the low-carbon PV system (daily average) (yuan)	
in peak load hours	24.18
in low load hours	3.05
Total	27.24
electricity cost AFTER the low-carbon PV system (daily average) (yuan)	
in peak load hours	1.29
in low load hours	0.59
Total	1.88
cost saved(Daily)	25.36

Note: The average effective sunshine duration is 3.72h, and the annual power generation is 3.24KW*3.72h*365 days = 4399.27KWh (2021 national release data);
(Different latitudes, the distribution of solar energy resources in different cities is different)

PV station configuration

A PV module

Monocrystalline silicon 540Wp module * 6 pcs
Bracket (aluminum alloy) * 1 set

B Intelligent PDU

power supply with PV rectifier module * 1 set

C Lithium battery

48V100AH battery * 2 packs

site power consumption: -22%
(PUE droped from 1.4 to 1.09)