



# Telecom Energy Solution

Power Solutions for Telecom

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Power • People



# About 3Tech

For over 20 years, 3Tech has been providing reliable power solutions to telecommunication industries worldwide. Our professional team delivered thousands of complete solutions from design, installation, commissioning and ongoing maintenance to more than 30 telecom operators, over 40,000 generator sets have been delivered and in operation on site. 3Tech was awarded by both ZTE and Huawei “Global Best Partner” prize, which further recognize our contribution in the telecommunication industry.

## Our mission

To be the most credible, world class quality and best value power solution provider in the globe.

## Our vision

To fascinate and attain customers with high-valued power solution products to achieve high customer satisfaction in the globe.

## Manufacturing facilities

### 3Tech Power (Dongguan) Corporation Limited

Located in Dongguan, the most developed manufacture and industrial area in China. Certified as High-Tech Enterprise, with a plant area of 18,000 square meters, over 150 employees. Annual output over 5000 units.





# LionRock<sup>®</sup> Telecom Energy

LionRock Telecom Energy Solutions offer simple, efficient and reliable full range of power supply equipment at various output capacities to meet all applications. Telecom Energy products include

embedded power supply, photovoltaic system, battery system, AC and DC Rectification & power distribution system, control management system and data monitoring system.

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# LionRock<sup>®</sup> Hybrid Power Solutions



## The benefits of LionRock hybrid power solutions

With our LionRock Hybrid Power Solution, operators can now partially, or even completely substitute the traditional diesel generators and make use of renewable energy. Our solutions are fully integrated, all energy sources and equipment are managed by our proprietary controller, developed specifically for telecom application. The benefits are realized by numerous operators. LionRock hybrid solutions contribute to saving energy, fossil fuel and money in thousands of installations.



## Up to 80% OPEX reduction

By optimized generator, renewable energy and battery storage operation, fossil fuel and related maintenance cost will be reduced substantially. Even if all energy may not be completely replaced fossil fuel by renewable energy, LionRock hybrid power solutions will make sure you get the most out of every drop.

## Reduce carbon footprint

There are a lot of off grid telecom installations powered by generators today. These represent enormous potentials for reduction of carbon footprint. Many generators serving as the main energy source are operated in an inefficient way. By optimizing the control with LionRock hybrid solutions, the emission per kWh drops significantly.

## Modularity

With the modular design, our systems can be easily adapted to various power input sources and scaled to meet higher load requirements.

## > 96% efficiency

Whether input power comes from solar panels, generators or mains power, our high efficiency power conversion equipment make sure that power loss is minimized.

## Fully integrated

The fully integrated rectifier system can be used for various power supply applications. Unified configuration, convenient to be operated, helps to reduce the overall maintenance cost.





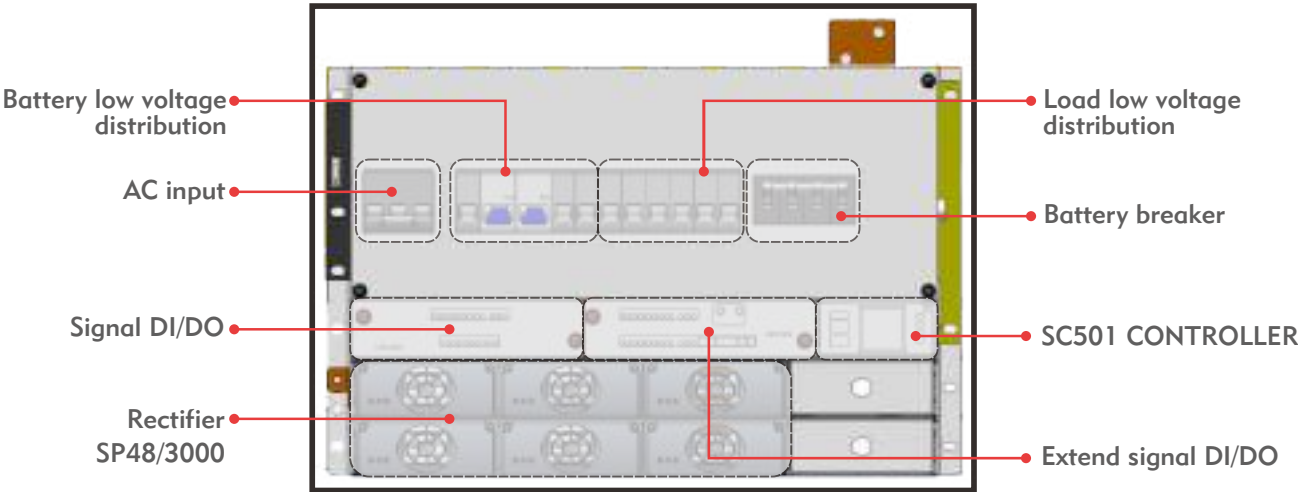
# Telecom DC Power System



## DC Power System

TEP 400R/48 System is a compact and intelligent power system rated at 400A containing SP48/3000 rectifiers, SC501 controller module, AC connection and DC connection.

It supports remote monitoring and management with SNMP. It is easy to install and of compact size.



## Features

- 19'' sub-rack, easy to be embedded into all standard telecom equipment, with structures design, strong commonality and easy installation
- Compact structure, high power density
- Sub-rack installed, facilitate customer configuration
- Hot-swappable modules without damage
- On-line maintenance, quick and easy
- Wide range of input rectifier module, possible strong adaptability for the grid
- Perfect battery management, improve the battery life, keep the battery in good working condition
- With variety of alarms and protective functions (eg. over current, over voltage, over temperature, etc.)
- Management priority: grid over battery over generator



## TEP400R/48 General Specification

System	Dimension	483mm(W)×400mm(D)×312mm(H)
	Weight	29 kg
	Installation Mode	19-inch width rack
	Cabling Mode	From the top, right & left
	Maintenance - Mode	From the front
Input	AC Input	200-240/346-415 Vac, three-phase, 50/60 Hz, Max. 35 A
	DC Input	-40 Vdc to -60 Vdc, Max. 200 A
Output	Voltage	-42 Vdc to -58 Vdc (typical: -48 Vdc)
	Capacity	Rectifier Max. 400 A
Output Distribution	Battery Circuit	400 A breaker
	LLVD1	2x63 A MCB, 2x32 A MCB, 2x16 A MCB
	LLVD2	1x16 A MCB, 2x100 A MCB, 2x32 A MCB
Surge Protection	AC Input	20/40kA (8/20 μs)
	DC Output	15/40kA (8/20 μs)
Environment	Operating Temperature	-40 °C to +65 °C (derating over 45 °C to 65 °C at 20%, system can run at -40 °C to -33 °C without damage)
	Storage Temperature	-40 °C to +70 °C
	Operating Relative Humidity	5% to 95% (without condensation)
	Altitude	0 to 2000 m

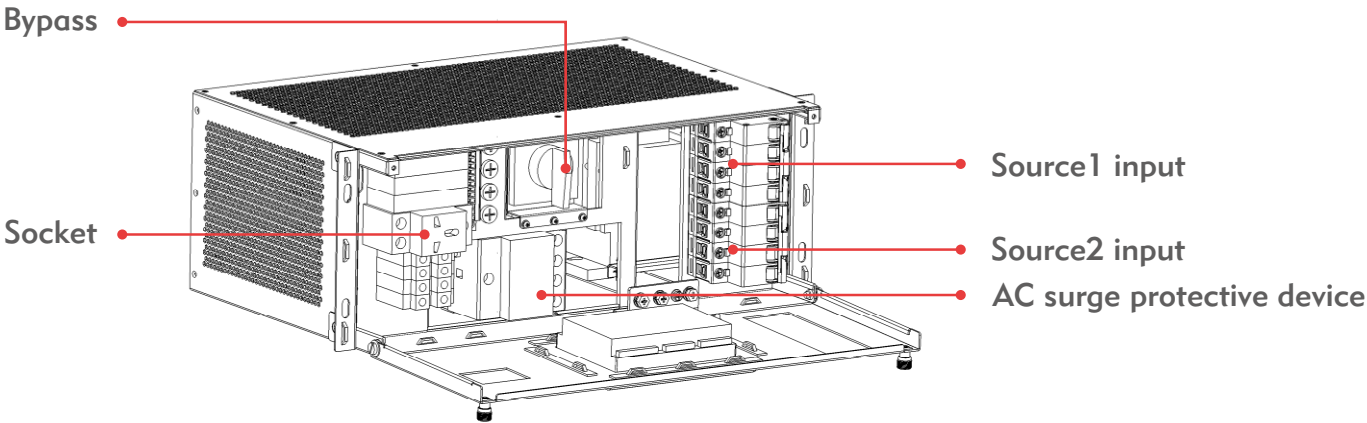
Remark: TEP200R and TEP600R are available, modular expandable to 2000A  
LLVD1: Load LV distribution 1; LLVD2: Load LV distribution 2

# Telecom DC Power System



## Automatic Transfer Switches - ATS

Transfer switches are traditionally applied between mains and generator supply as back up system.



### Features

- Capacity: 63A
- Large LCD display
- RS485 communication
- Measure and display voltage and frequency
- Over/under voltage, loss of phase, reverse phase
- Programmable timer delay automatic operation protection
- AC voltage sensing and monitor
- Output status monitoring
- Manual operation available



### General Specification

System	Dimension	482mm(W)×310mm(D)×175mm(H)
	Weight	23kg
	Installation Mode	4U height, 19-inch width rack
	Maintenance Mode	From the front
	Cable Routing	From the right and left
Input	Voltage	200-240/346-415VAC, Three phase; 50/60Hz, 63A max
Output	Voltage	200-240/346-415VAC, Three phase; 50/60Hz, 63A max
Surge Protection	AC Input	20/40kA (8/20μs)

### Operating Conditions

Operating Temperature	-20°C ~ 65°C
Storage Temperature	-40°C ~ 70°C
Operating Relative Humidity	5% ~ 95% (w/o condensation)
Altitude	0 ~ 4000m

# Telecom DC Power System



## Indoor Cabinet - 1000 series

3Tech developed their own telecom indoor cabinet system that can be applied to hybrid grid/generator/solar power. The power system can be used in indoor stations and the central computer room. The system can cope with a wide range of AC power input, equipped with a full range of

lightning protection system, comprehensive battery management, system automatic sleep function in energy-saving mode.



### Features

- Compact size, easy deployment
- Spacious internal design for installation of equipment
- MPPT modules and rectifier modules are hot-swappable to simplify maintenance
- High rectifier efficiency up to 96.5%
- Intelligent battery management function extends battery life
- Easy installation & maintenance through front door

## EC1010H8

### General Specification

System	Dimension (W x D x H)	600mm x 600mm x 2000mm
	Weight	56kg (without rectifier modules and battery)
	Installation	Indoor cement floor installation
	Cabling Mode	From the top and bottom
	Maintenance Mode	From the front
	Cabinet Material	Hull, inside frame, & base: steel
Input	Cabinet Color	Black: RAL 9004
	AC Voltage	200-240/346-415VAC, Three phase; 50/60Hz, 35A max
	DC Voltage	-40V ~ -60VDC; max 200A
Output	Solar Input	100 ~ 430VDC; max 15A x 16
	Voltage	-48VDC
	Rectifier	Max 600A
Output Distribution	Solar	Max 800A
	LLVD1	100A x 2, 63A x 3, 32A x 3
	LLVD2	100A x 2, 32A x 2
Equipment Cabinet	Inner Rack & Space	34U height, 19-inch width rack
	Protection Level	IP20 (EN 60529)
	Cooling Mode	Natural heat radiation
Environment	Operation Temperature	-10 °C to 45 °C
	Storage Temperature	-40 °C to 70 °C
	Operation Relative Humidity	5% to 95% (without condensation)
	Altitude	0 to 2000m (1 °C temperature derating per 200m over 2000m to 4000m)

Remark: LLVD1: Load LV distribution 1; LLVD2: Load LV distribution 2

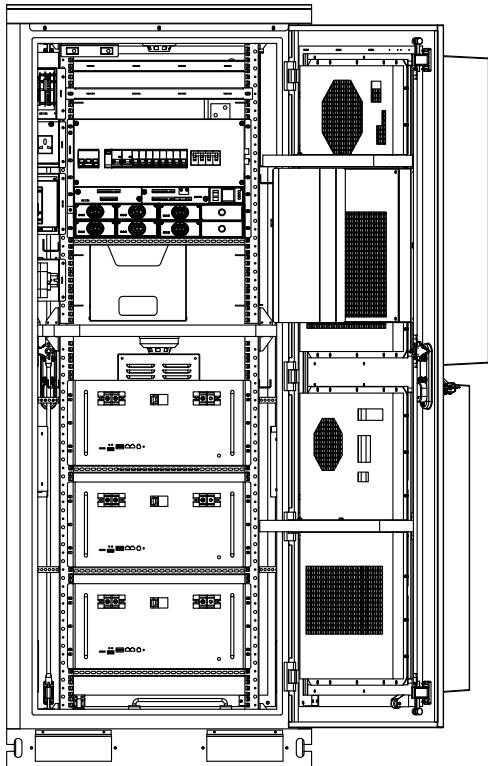
# Telecom DC Power System



## Outdoor Cabinet - 6000 series

3Tech also offers outdoor cabinet solutions that enable simple deployment, high system efficiency, versatility and energy saving. The energy cabinet integrates

various monitoring system functions to provide a safe and reliable operating environment for the main equipment.



### Features

- Standard size, easy deployment
- Ample internal space for installation of equipment
- Intelligent battery management function extends battery life
- Easy installation & maintenance through front door and rear
- Wide operating DC input range
- Full galvanic isolation
- Support CAN bus communication
- Open protocol of maintenance interface
- Anti-theft design
- Access control
- Remote monitoring
- Optional door mount heat exchange and air-conditioner

## EC6025R4

### General Specification

System	Dimension (WxDxH)	800mm x 1200mm x 2050mm (including base 800x950x100 mm)
	Weight	425kg (Excluding battery)
	Installation	Ground-mounted
	Maintenance	From the front and back
	Cable Routing	Entry bottom
	Cabinet Color	Light grey: RAL 7035
Input	AC Voltage	200-240/346-415VAC, Three phase; 50/60Hz, 35A max
	DC Voltage	-40V ~ -60VDC; max 200A
Output	Voltage	-48VDC
	Capacity	400A max
Output Distribution	BLVD	100A x 2, 32A x 2, 16A x 1
	LLVD	63A x 2, 32A x 2, 16A x 2
Space	Spare Space	17U height, 19-inch width rack
	Battery Space	Max 44U height, 19-inch width rack

### Cooling System (Optional)

Equipment Cabinet	120/150/180W/K heat exchanger cooling capacity
Battery Cabinet	600/1000/1500W air-conditioner

### Optional Accessories

Lighting	LED
Sensor	Smoke and water, detectors, door switch, temperature & humidity sensor available

### Operating Environment

Operating Temperature	-10°C ~ 45°C (Including solar radiation)
Storage Temperature	-40°C ~ 70°C
Operating Relative Humidity	5% ~ 95% (w/o condensation)
Altitude	0 ~ 2000m (1 °C temperature derating per 200m over 2000m ~ 4000m)
Protection Level	IP55
Noise	≤ 65dBA@1.5m



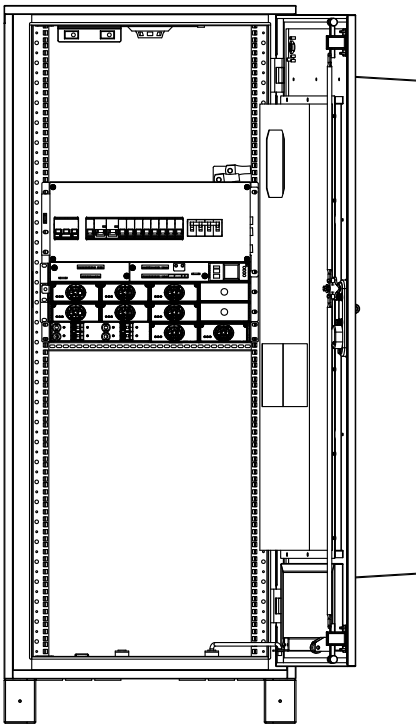
# Telecom DC Power System



## Outdoor Cabinet - 5000 series

The EC5000 series telecom power outdoor cabinet is a new and compact platform designed to meet customer

needs and support a variety of Telecom applications. It is suitable power, batteries and telecom equipment.



### Features

- Compact design, easy deployment
- Intelligent battery management function extends battery life
- Easy installation & maintenance through front door
- Wide operating DC input range
- Full galvanic isolation
- Support CAN bus communication
- Open protocol for maintenance interface
- Anti-theft design

## EC5012H1

### General Specification

System	Dimension (WxDxH)	650mm x 650mm x 1600mm
	Weight	157kg
	Installation	Ground-mounted
	Maintenance	From the front
	Cable Routing	From the bottom
	Cabinet Color	Light grey: RAL 7035
Input	AC Input	200-240/346-415VAC, Three phase; 50/60Hz, 35A max
	DC Input	-40V ~ -60VDC; max 200A
	Solar Input	100 ~ 430VDC; max 15A x 2
Output	Voltage	-48VDC
	Rectifier	Max 400A
	Solar	Max 100A
Output Distribution	LLVD1	16A×1, 32A×2, 63A×2, 100A×1
	LLVD2	32A×2, 63A×2, 100A×1
Space	Spare Space	10U height, 19-inch width rack

Remark: LLVD1: Load LV distribution 1; LLVD2: Load LV distribution 2

### Cooling System (Optional)

Cooling Type	Heat Exchanger (door mount)
Cooling Capacity	120W/K

### Optional Accessories

Lighting	LED
Sensor	Smoke, water, door switch, temperature & humidity etc

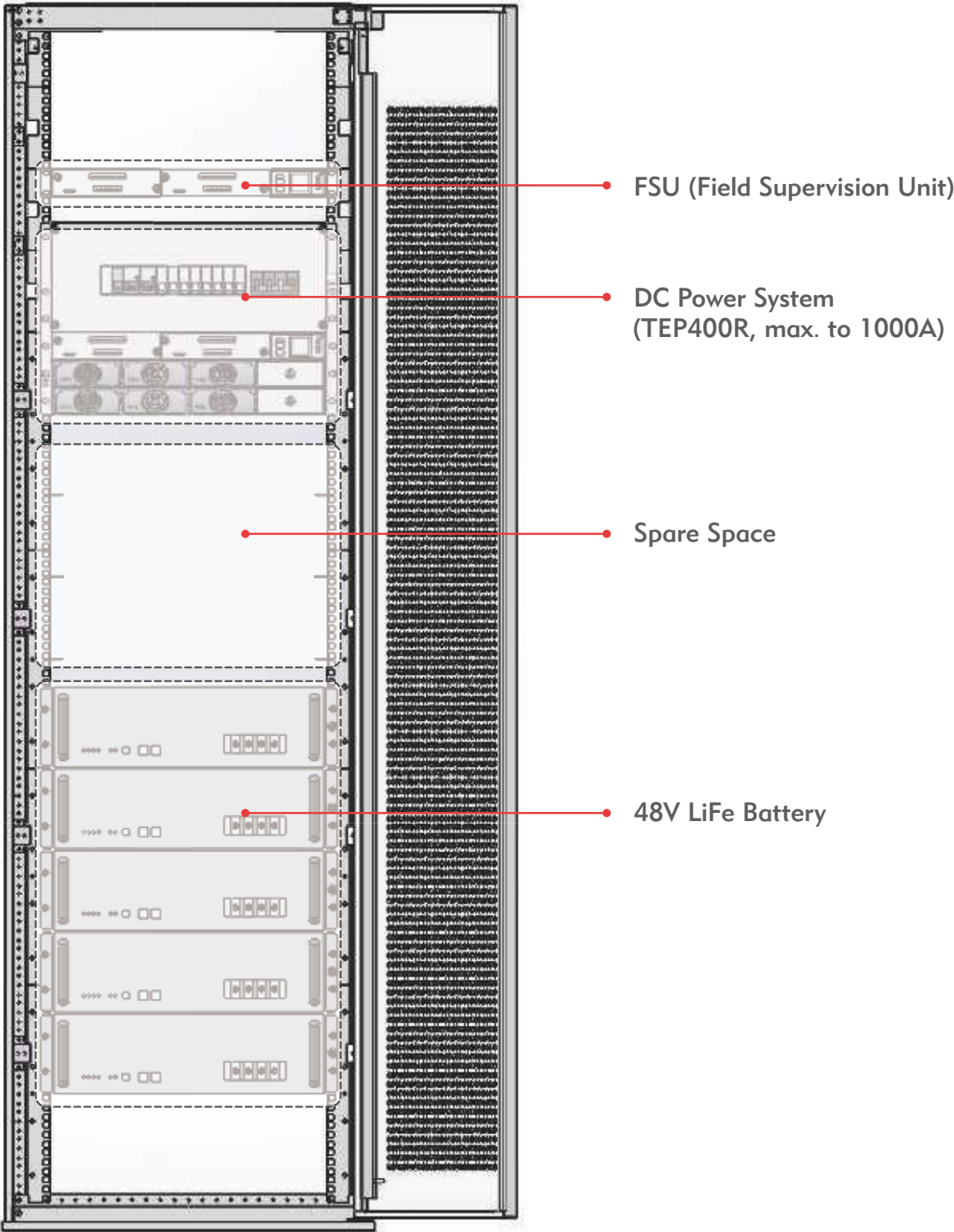
### Operating Conditions

Operating Temperature	-10°C ~ 45°C (Including solar radiation)
Storage Temperature	-40°C ~ 70°C
Operating Relative Humidity	5% ~ 95% (w/o derating)
Altitude	0 ~ 2000m (1°C temperature derating per 200m over 2000m to 4000m)
Protection Level	IP55
Noise level (SPL)	≤ 65dBA@1.5m

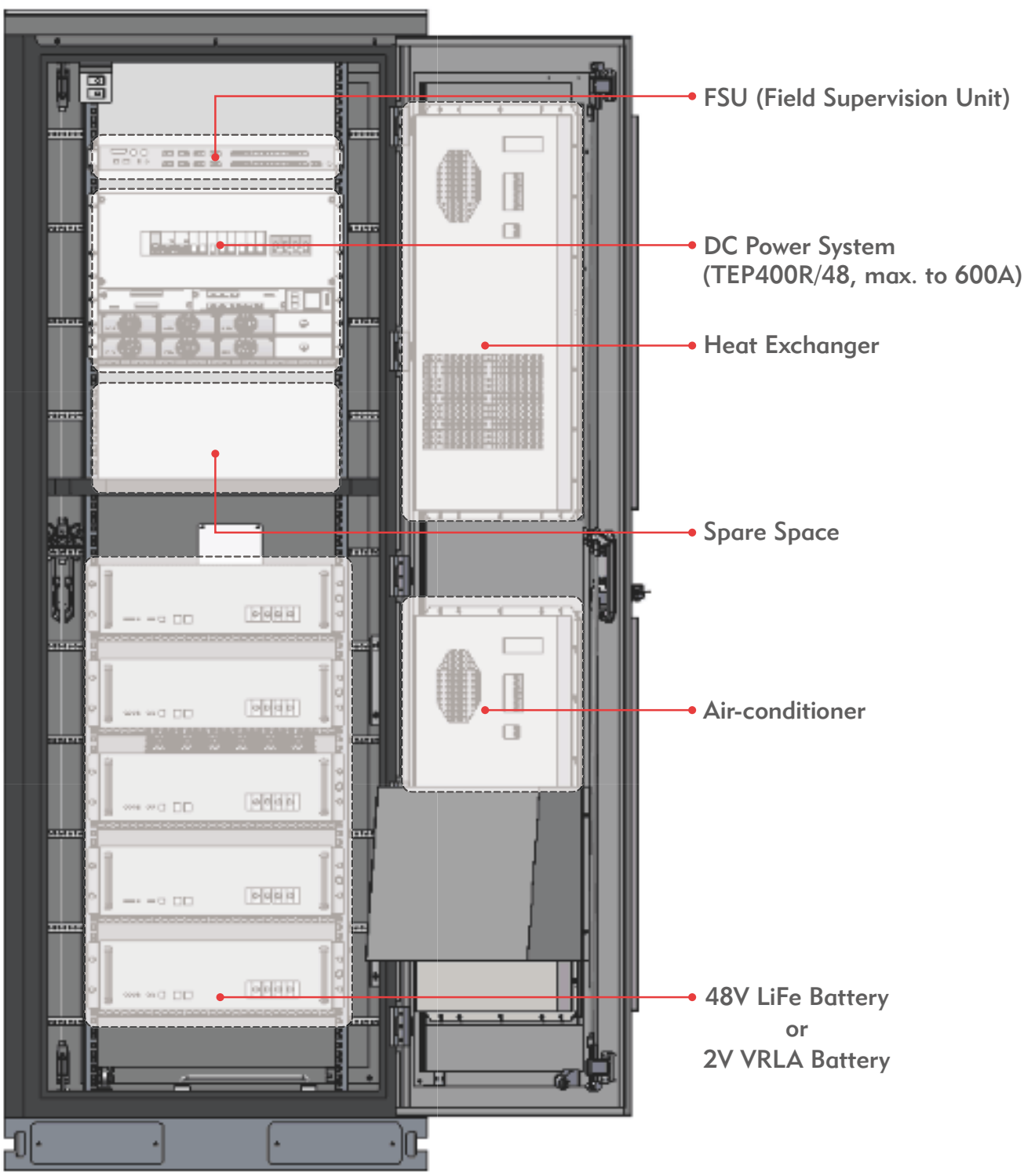
# Telecom DC Power System



Telecom Energy Indoor Cabinet



Telecom Energy Outdoor Cabinet





# Telecom DC Power System



## Controller Module



### Features

- The standard 1U\*2U structure reduces space
- RS485 and Ethernet interface for computer connection locally or remote
- Front panel LCD display and four buttons for on-site operation without computer
- Easily configuration file upload/download via USB or computer
- Easy update software for controller via USB or computer
- GPRS or 3G/4G function in optional
- Advanced battery management, both Lead-acid battery and Lithium-battery
- Support up to 86 digital outputs
- Support up to 46 digital inputs
- Multiple LVDs control
- Battery mid-point monitoring
- Multi-level access authority management
- Event log (up to 90,000 records)
- Alarm log (up to 10,000 records)
- More user-selectable languages
- Programmable Logic Control (PLC) function, more flexible requirements can be supported
- Low-interference and excellent susceptibility enhance reliability

### General Specification

Analog Inputs	1 bus voltage	Additional 4 SC210 boards
	1 load current	Additional 10 SC210 boards
	2 battery voltages	Additional 72 SC340 boards
	2 battery currents	Additional 6 SC210 boards
	2 load fuse alarms	Additional 6 SC210 boards
	2 battery mid-points	Additional 6 SC210 boards
	2 temperatures	Additional 10 SC320-AI boards
Digital Inputs	6	Additional 40 SC320-DI boards
Digital Outputs	6	Additional 80 SC320-DI boards
LVDs	2	Additional 6 SC210 boards

## Rectifier Modules



### Features

- High efficiency and high power density
- Digital control
- High reliability design
- Automatic disconnect during hazardous input
- Excellent EMC performance
- Low-interference and excellent susceptibility enhance reliability

### General Specification

Inputs	AC Supply	Nominal: 220/230Vac 1 ph; Tolerances: 85-300Vac 1 ph
	Frequency	45-300Hz
	Power Factor	> 0.99
	Input Current	≤ 15A rms at nominal input; ≤ 18A rms at 187Vdc input
	THD	< 5% at 100% load; < 10% at 50% load
	Input Protection	Varistors for surge protection (5kA 8/20us Surge protection)
DC Outputs	Output Capacity	3000W at nominal input
	Output Current	56.6A±0.5A with normal input
	Voltage Regulation	±0.6% from 5% to 50% load or from 50% to 100% load
	Efficiency	Typical 95%, max 96%
	Current Sharing	≤ ±5% of average total current of all paralleled modules
	Holdup Time	> 10ms (56,07A constant current when output voltage from 53,5V to 43,2V)
	Efficiency	Max: 96%
	Output Protection	Overvoltage shutdown; Short circuit protection; High temperature protection; Output fuse
	Ripple and Noise	< 200mV peak to peak, 20MHz bandwidth < 2mV RMS psophometric

# Telecom DC Power System



## Lead-carbon Battery



### Features

- Extra long life, design life of 20 years
- Excellent quick charge performance, reduce charging time by 30%
- Superior PSoC and deep cycling performance
- Excellent fuel savings when used with hybrid system applications

### Technical Parameters

Nominal voltage: V	2
Capacity: Ah	650 (10hr, 1.80V/cell, 25°C), other capacity available
Weight: kg	41.5
Dimensions: L*W*H (mm)	212*207*358
Total height: (mm)	372
Internal resistance (full charged): mΩ	0.28 (25°C)
Short - circuit current: A	7500
Self discharge@25 °C:	Less than 4% after 30 days storage
Operating temperature range: °C	Discharge: -40 ~ 65 / Charge: -20 ~ 60 / Storage: -20 ~ 45
Recommended operating temperature: °C	-15 ~ 30
Recommended charging current: A	90
Maximum charging current: A	180
Charging voltage@35 °C: V/cell	Float: 2.23 / Equalize: 2.35
Temperature coefficient:	-3.3mV / cell / °C
Terminal:	M8
Container materials:	ABS
Capacity verse temperature:	105% @ 40 °C / 85% @ 0°C / 60% @ -20°C
Design life@25 °C:	20 years

## LiFe Battery

### Features

- Support parallel connection with monitor function
- Wide operating temperatures
- Build-in battery control system for efficient operation
- Less weight for pole mounted sites
- Option: anti-theft/dry contact



### General Specification

Performance Parameter	Product Model	E48100T
	Nominal Voltage	48Vdc
	Nominal Charging Voltage	54Vdc
	Rated Capacity	100Ah (0.2C constant current discharging, 40.5V cut off)
	Energy	4800Wh
	Max Charge \ Discharging Current	50A
	Life Cycle	≥ 4500 cycle (35°C, 0.2C constant current discharge to 80%DOD )
	Dimension (W x D x H)	442mm * 405mm * 223mm (excluding mounting flange)
	Weight	About 60kg±0.5kg
	Design Life	≥ 12 year
	Certification	UN38.8
	Installation Method	Rack mounted / Wall mounted
	Communication Interface	RS232 / RS485 / CAN
	Indicator	ALM / RUN / SOC
	Parallel Communication	Maximum support for 32 sets in parallel
	Terminal Stud	M8
	Alarm and Protection	Over voltage, under voltage, short circuit, overload, over current, over temperature, low temperature protection

### Operating Conditions

Operating Temperature	Charging: 0°C ~ 45°C / Discharging: -20°C ~ 50°C
Storage Temperature	0°C ~ 45°C
Operating Relative Humidity	5% ~ 95%
Altitude	≤ 4000m





Mono-crystalline Solar Module

Mono-crystalline solar panels have the highest efficiency since they are made out of the highest-grade silicon. The efficiency of mono-crystalline solar panels are typically up to 20%. Mono-crystalline solar panels last longest. Our solar panels are provided with manufacturers 25-year warranty. The solar panel performance will be affected if it is covered with dust, dirt and snow. Regular maintenance is important to ensure the best performance and output from the solar panels.

Features

- The complete PV chain including silicon materials, ingot, wafer, solar glass, solar cell and module
- ISO9001 & ISO14001 certified factory, ensure excellent raw materials and production ensure customer satisfaction
- 100% EL test before and after lamination, and finished products, providing higher quality assurance
- Module certified by TUV Rheinland (IEC61215, IEC61730 standards) under the extreme conditions (temperature, load, impact) with good performance
- Pass strict tests of solar modules including Salt-mist Corrosion Test, Fire Test, Ammonia Resistance Test, PID Test, Sand Abrasion Test and Carbon Footprint Assessment by TUV



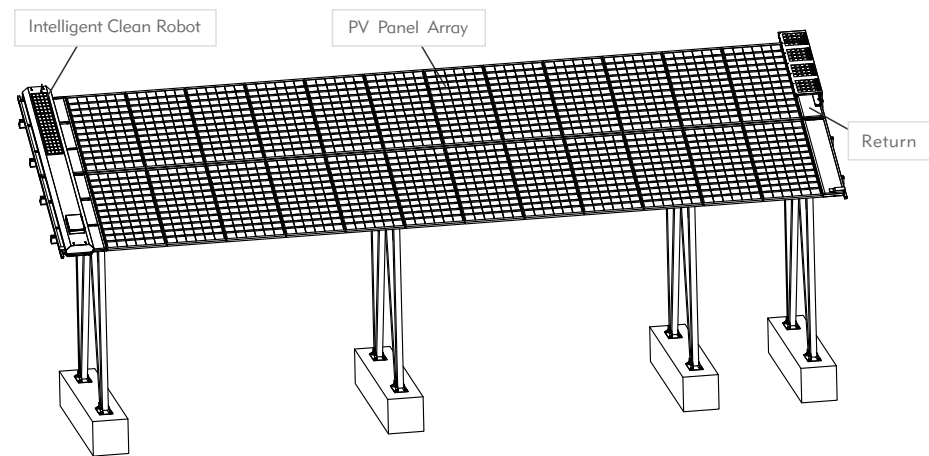
Typical Electrical Characteristics

Solar Cells	Mono - Crystalline 156.75*156.75mm 60pcs (6*10) - 5 bus bars
Maximin - power	310W
Power Tolerance	0 to + 3%
Voltage at Pmax (Vmp)	32.4V
Current at Pmax (Imp)	9.57A
Open-Circuit Voltage (Voc)	40V
Short-Circuit Current (Isc)	9.9A
Maximin - System Voltage (VDC)	1000 (IEC), 600V (UL)
Cell Efficiency	21.4%
Module Efficiency	18.9%
No.of Bypass Diodes (pcs.)	3
Maximin.Series Fuse (A)	15A
Temperature Coefficient of Pmax	-0.27% / °C
Temperature Coefficient of Voc	-0.36% / °C
Temperature Coefficient of Isc	0.07% / °C
Nominal Operating Cell Temperature	45±2 °C

\*STC Conditions (1000W/m², 1.5AM and 25 °C Cell temperature)

## Solar Panel Intelligent Cleaning Robot

In practical applications of solar, the dust on the surface can block the solar radiation reach the solar cell, and reduce the output of each panel. It also affect the cooling of the solar panel during operation and hence reduce the performance. So timely clean up the dust on the surface of solar panels is particularly important.



### Features

- The cleaning system employs the soft spiral brush to clean the panel up to 95% efficient
- The status of multiple cleaning robots can be deleted and controlled by computer in real time
- The product can analyze mechanical and electrical faults by itself, and upload data to the management department to mobile phones and computers
- Suitable for dry weather like desert

### Applications



## Maximum Power Point Tracking (MPPT)



### Telecom DC Power System - MPPT

Power	3000W
Input Voltage	187~430Vdc (full power range), 100~430Vdc (voltage range)
Input Current	≤18A rms at nominal input, ≤21A rms at 185Vdc input
Total Harmonic Distortion(THD)	<5% (full load); <10% (half load)
Output Voltage	53.5Vdc (rated); 42~58Vdc (adjustable)
Ripple and Noise	<200mVpp, 20MHz bandwidth
Maximum Output Current	56.6±0.5A
Efficiency	≥95.5%@normal; ≥96.2% max efficiency, MPPT efficiency≥99%
Environment	−40 to +75°C (operating temp), +50 to +75°C (derating apply)
Dimension	108W*327.8D*41.6H (mm)
Weight	2.5kg



# DC Generator Sets



## Applications

- Telecommunications
- Standby Power Supply
- Solar/Wind Hybrid Power option
- Rapid Electric Vehicle Charging



Saving  
**40%-60%**



Saving  
**50%-70%**

## Features

- Available in all voltages from 12 to 266 Vdc
- Currently available from 5 to 27 kW
- Proprietary microprocessor controller
- Variable speed design
- Rare earth, permanent magnet generator
- High efficiency: alternator exceeds 90%-95%
- Direct connection to battery bus (no transfer switch)
- Automatic three step charging circuit consisting of boost rate, equalizing charge, and float rate
- 1,000 hours maintenance-free system
- Low fuel consumption: fuel saving range from 40% - 60% against fixed speed AC genset
- Expandable: DC generators can be connected in parallel
- Maintenance cost: extend service period up to 1,000 hours, maintenance cost saving 50% - 70%
- Good compatibility performance
- Low EMI emissions
- Alternator has no bearing, couplings, brushes, slip rings, or rotating fields. There are no moving parts to wear.
- Automatic temperature compensation with temperature sensor inside the battery compartment
- Comprehensive system protection

Model		LRP8D	LRP12D	LRY16D	LRF24D	LRH10DR-G	LRH15DR-G
Output capacity	Voltage	Vdc	42-58	42-58	42-58	42-58	42-58
	Prime	kW	8	12	16	24	10
	Standby	kW	9	13.5	17.6	27	11
Fuel type			Diesel	Diesel	Diesel	Gas	Gas
Engine Manufacturer			Perkins	Perkins	Yanmar	Forward	Kohler
Engine Model			403D-11	403D-11	3TNV88	4JB1	CH740
Engine Speed		rpm	1200~3000	1200~3000	1200-3000	1650-3000	2200-3850
Bore		mm	77	77	88	93	83
Stroke		mm	81	81	90	102	67
Cylinders			3L	3L	3L	4L	2V
Dimensions, L*W*H		mm	1600*800*1280	1600*800*1280	1600*800*1280	2000*900*1280	1157*688*1156
Weight		kg	670	680	750	659	43

# AC Generator Sets



## All-In-One

AC Diesel Generating Set 6kVA to 4000kVA

Zimbabwe

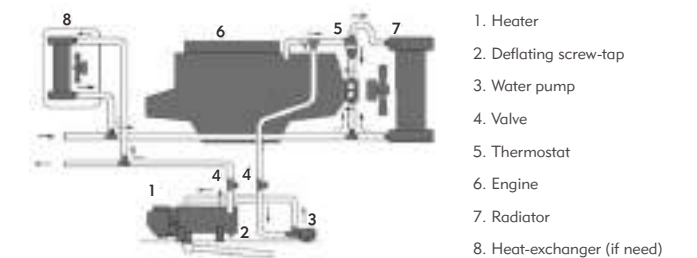


### Typical Features

- Set mount radiator with engine driven fan
- Cooling system standard for 40°C ambient
- Anti-vibration mounts between engine/alternator and baseframe
- Baseframe fuel tank
- Protective grille for fan and rotating parts
- Low noise-exhaust silencer with bellow
- Standard manual output breaker
- Coolant and oil drains with valve
- Easy operation - integrated control design reduces breakdowns and foolproof operation
- Easy maintenance - large and fully open doors on both sides for easy service
- Optional enclosure

### Applications

- Telecommunications
- Power station
- Data centre
- Mine sites
- Backup power of factory, hospital, bank, shopping mall etc. to meet these applications, capacity to 4000 kVA
- Electric and diesel fire jacket water heater for low temperature environment.
- Diesel fire jacket water heater suitable for off grid system



### Engine & Alternator





# Smart Control and Monitoring System



3Tech's OwlEye Smart Control and Monitoring System is designed for telecom sites and enables users to manage and monitor status, control equipment as well as analyze data. The web-based system provides a convenient way with user to monitor the equipment, identify alarms and receive alarm notifications by E-mail, SMS, significantly reducing the operation and maintenance costs. Depending on the demands of customers, we can offer both On-Cloud solution and On-Premises solution.

## Benefits including but not limited to:

- 24/7 Monitoring
- Multi-sites Management
- Data Analysis
- Alarm Management
- Device Remote Control Function
- Individual Site Schematic
- Security Management
- Location Tracking



## Multiple Sites Management System

The system makes multi-sites management possible and accessible regardless of how many sites to be monitored. It offers an overview of all sites including site information, user-customized parameters on real time basis and site update status in a single platform, and features to promptly filter the wanted sites by using smart site filtering function.

## Data Analysis

The system shows energy consumption and generation of Today, past 7 days and past 30 days by multiple graphic presentations. The line chart supports sliding X-axis for detailed time frame. Data can be exported to PDF, CSV or Spreadsheet for ease sharing and further analysis.

## Alarm Management System

By sending alarm notifications via E-mail and/or SMS, the system alerts users to any problems happening in real time to lower equipment damage. Meanwhile, the flexible system supports user-defined alarm rules and allows users to define alarm severity in the Administration Console.

## Site Schematic

The site schematic displays the major equipment in the site along with their operation status, energy flow directions as well as their important parameters.

## OwlEye Smart Control and Monitoring System



Our OwlEye Controller supports multiple interfaces like RS232, RS485, AI as well as DI etc.

# Our Projects



## Iraq (Energy Cabinet)

- 48V 100Ah lithium battery
- Intelligent battery management system
- DCDU-12, input -48V DC, 160A, 1U high
- Smart card access for securing energy cabinet
- OwlEye Remote Monitoring System

## Oman (Hybrid Solution)

- LRP20 LionRock diesel generator set
- 2200L base fuel tank
- 1000 hours maintenance free system
- OPzV2-780Ah battery bank (dual set)
- DC air conditioning.
- 7.68kW solar panels



## Chile (Hybrid Solution)

- LR9D LionRock diesel generator set
- 2000L bundled integrated base fuel tank
- 1000Ah battery bank
- Inverter (48VDC 2000W to 220VAC, 50Hz)
- Manual transfer switch for mobile generator
- 1000 hours maintenance free system



## Argentina (Hybrid Solution)

- 1.2kW load outdoor hybrid solution
- LRP22 LionRock diesel generator set
- Acoustic weatherproof enclosure
- 3.9kW poly-crystalline solar panels
- Mounting bracket at high level
- DC power system using 3kW rectifiers
- 48V 100Ah lithium battery

## Algeria (Hybrid Solution)

- LRP45 LionRock diesel generator set
- 1500 hours maintenance free system
- PV panel 300Wp with cleaning robot
- Energy cabinet with DC air conditioning
- DC power system TEP600R
- OwlEye Remote Monitoring System
- Total output power reached 42kW

