3Tech Corporate Limited

Power • People

Our Mission

Digitize energy use for all industries.

Our Vision

To become a comprehensive and innovative world-class supplier of Telecom Energy Solution.

Manufacturing Facilities

3Tech Power (Dongguan) Co., Ltd.

Located in Dongguan, the most developed manufacture and industrial area in China. Certified as High-Tech Enterprise, with a plant area of 12,000m^2, over 150 employees. Annual output over 5000 units.

About 3Tech

3Tech Corporate Limited was established in 2002, formerly known as 3Tech (Hong Kong) Corporate Limited, established in 1998. In the early stage of its establishment, 3Tech mainly engaged in the supply and after-sales service of diesel generator sets in the Greater China region. In 2002, 3Tech began to establish a local electrical and mechanical engineering team in Hong Kong, and participated in electrical and mechanical engineering projects of the Hong Kong SAR Government, public institutions and various major private institutions. Since 2003, 3Tech has actively developed its business in the overseas telecommunications industry. It has its own product brand LionRock and intelligent management platform OwlEye.LionRock's products have developed from diesel generator set products to energy solutions for communication base stations, actively participated in the booming 5G communication infrastructure construction, and extended from energy products to edge computing infrastructure products. OwlEye is the basic platform of the future Internet of Things (IoT), and its products have been widely used by different multinational operators in the world.

History

1998

3Tech was established and specialized in providing complete turnkey power solutions with after-sales services.

2002

3Tech established the building service engineering team in Hong Kong, focusing on E&M engineering and renewable energy projects.

2004

Packaged power solution for Telecom industries and became the major supplier of Telecom solution contractors like ZTE & Huawei.

2009

Established LionRock® brand to address the specific needs of the telecom industry. The products were designed and manufactured in our Dongguan factory in China.

2010

Town island renewable energy project completed by 3Tech was named 10 Hong Kong Engineering Wonders in the 21st Century.

2012

3Tech moved to the current factory and substantially increased production capacity to meet the market demand.

2013

Developed LionRock DC48V Generator set combined with hybrid energy solution including energy cabinet, battery, PV panel etc.

2014

Secured the first major DC genset hybrid system projects with over 100 sites for Chile telecom.

2015

3Tech has formally certified as a National High-Tech Enterprise in China.

2019

OwlEye, 3Tech's own remote monitoring system, was registered as our trademark.

3Tech Algeria established.

2023

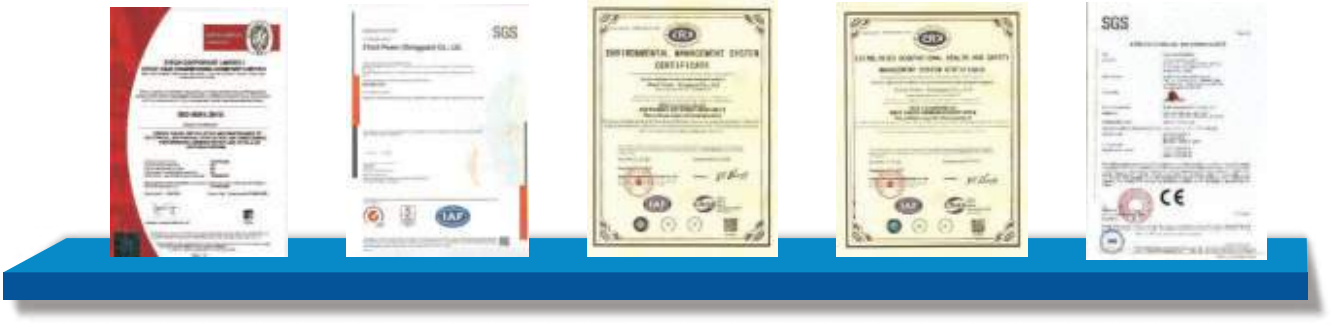
3Tech Indonesia established.

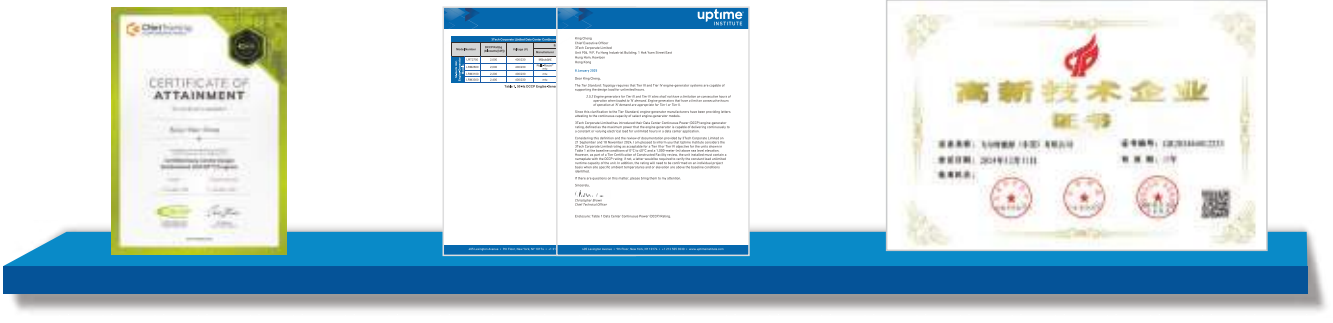
2024

3Tech has obtained the provincial Specialty and special new small and medium-sized enterprise certification, data center professional certification -CDCDP®, Uptime professional certification.

Quality and Certificates

3Tech production plant is ISO9001, ISO14001 and ISO45001 certified, National high-tech enterprise certificate ,data center professional certification -CDCDP®, Uptime professional certification& LionRock diesel generator sets CE marking certified.





Chartered Engineers certificates awarded by international renowned professional institutes.

3Tech Team

With more than 20 years history, our team is of extensive experience working in local and overseas environment.

Every year, various team building activities are organised for our staffs to relax and also to strengthen working relationship.

LionRock Genset

AC Genset 6kVA~4000kVA






LionRock Generator sets are suitable for commercial, industrial, telecom, Data Centre and infrastructure application.

Standard 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
- Exhaust bellow and industrial silencer
- 12/24VDC starter motor and battery
- Generator sets are CE Certified
- Standard 3P manual output breaker
- Coolant and oil drains with valve
- Each LionRock generating set will go through comprehensive factory test including full load test to 110%

Standard and Quality

- All generator sets comply with international standards including ISO8528, ISO3046, IEC60034, BS5000
- Manufacturing standard certified to ISO9001, ISO14001, ISO45001

Rating definition as per ISO8528

- **Prime** - Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated kWe with 10% overload capability for emergency use for a maximum of 1 hour in 12.
- **Standby** - Output available with varying load during a normal power supply failure. Average power output is 80% of the standby power rating. Typical annual operating time less than 500hours. No overload is available.

Engine & Alternator

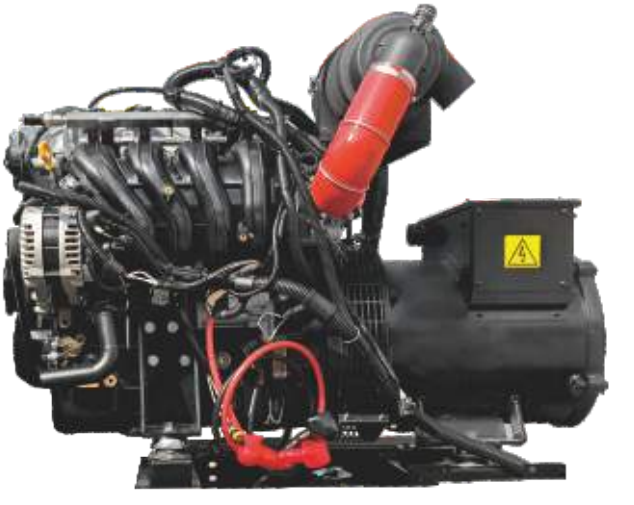
Perkins · Cummins · mtu · Mitsubishi · Yanmar | Leroy-Somer · Stamford · Energis

Methanol generator Sets

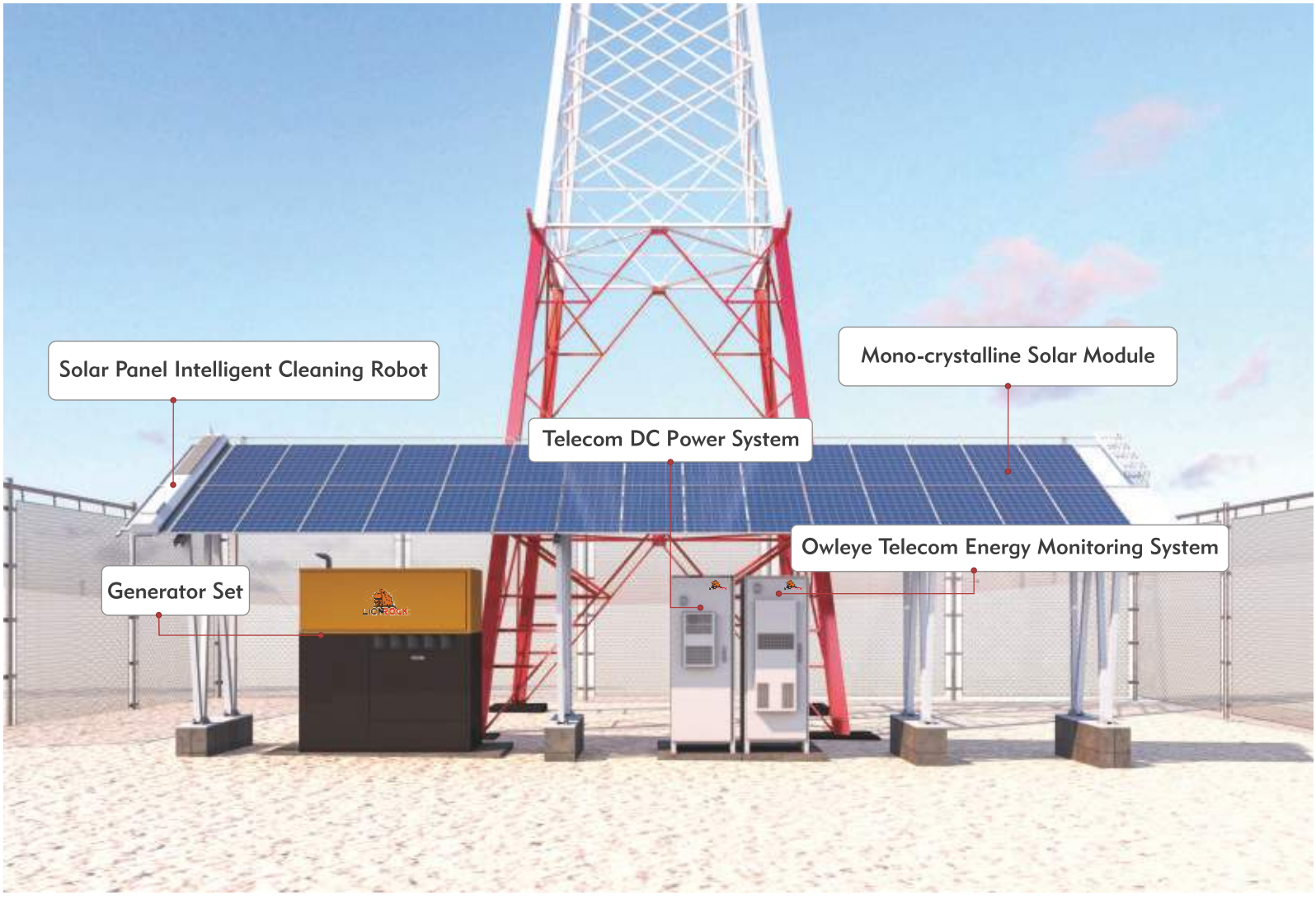
A Clean, Reliable, On-demand, Economic Power Solution Built

Product introduction

The methanol generator set is an important step for us in the field of environmental protection, it's can be used in various applications, including backup power, off-grid power generation hybrid power together with Solar power and storage system, and even in remote areas where conventional fuel access might be limited.



Diesel	VS	Methanol	VS	Green Methanol
CO^2		↓ 45-55%		↓ 60-95%
NO_x		↓ 60-80%		↓ 60-80%



Telecom Power System

Superior Energy Solutions Provider

LionRock developed their own telecom energy cabinet system that is applicable for hybrid grid/generator/solar power. 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. The energy cabinet integrates various monitoring system functions to provide a safe and reliable operating environment for the main equipment. LionRock offers both Indoor and outdoor energy cabinet design to suit each operating environment.

Energy Cabinet

Outdoor Cabinet - 6000 series

Indoor Cabinet - 1000 series

Features of Outdoor Cabinet

- Standard size, easy deployment
- Ample internal space for installation of equipment
- Intelligent battery management function extends battery life
- 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

Features of Indoor Cabinet

- Small size, easy deployment
- Compact design for installation of equipment
- Intelligent battery management function helps to prolong battery lifespan
- Easy installation & maintenance by front door design
- Wide operating DC input range
- Full galvanic isolation
- Advanced max power point tracking routines
- Support C AN communication
- Open protocol of maintenance inter face
- Anti-theft design

✶ Outdoor cabinet - 5000 series are also available with a more compact design to meet customer specific needs, which able to support wide range of telecom applications.

Hybrid Power Solutions

Comprehensive

We provide the most comprehensive range of DC Generators and DC Hybrid power systems for the telecom sector.

- **Power by Design**
- **Innovative engineering solutions**
- **Value added localization**
- **Open vendor independent platform**
- **Available in all voltages from 12 to 48 Vdc**
- **Currently available from 5kW to 27kW**
- **High efficiency: alternator exceeds 90% - 95%**
- **Low fuel consumption: fuel saving range from 40% - 60%**

Lithium System

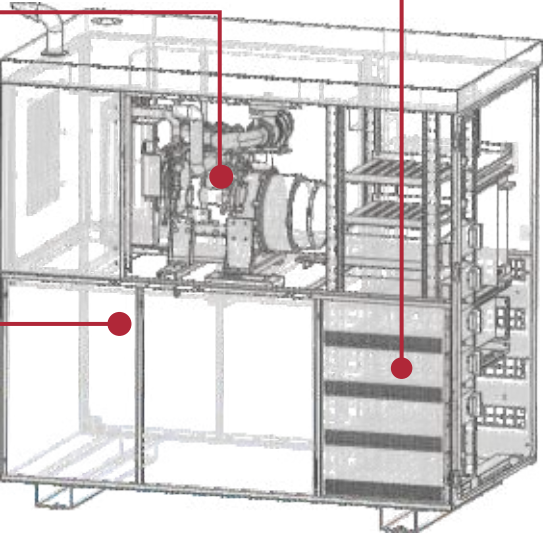
The PowerPod features up to 800Ah Lithium battery bank with a 6000 cycle life at 80% DOD.

Variable Speed Design

Variable speed engines are ideal for varying load. So when the load is low, the PowerPod ramp down the speed and maintain better fuel efficiency.

1000 hours maintenance kit

Extended oil capacity and additional filter system ensure proper engine lubrication even after prolonged running hours.



PowerPod - All-in-one Power System

Features

- On/Off Grid application
- Solar and Wind ready
- Single Operator and Multi-Tenant Systems

Lithium System

The PowerPod features up to 800Ah Lithium battery bank with a 6000 cycle life at 80% DOD.

Flexible Battery Options

Flexible cooling options suit various applications along with enclosure partition and insulation design.

Security

From fuel to batteries, the PowerPod is built against theft.

Filtered DC output

Field proven switch mode technology
Hot plug-able modules and integrated ATS Systems
Fully controlled by our Hybrid controller
Ripple below 20mV and within ETSI Standards

Smart City Power

SCS40 is a highly integrated smart city site power supply solution, widely used in security, transportation, urban construction, environmental protection, meteorology and forest fire prevention. Provide continuous power supply for transmission equipments, cameras, and sensing equipments.

Features

- It can power back-end devices at different voltages at the same time
- Different power distribution systems can be used according to the special requirements of customers

Scenarios

- Outdoor
- Solar/diesel/grid hybrid system
- Security/Transportation/Urban construction/Environmental protection/Meteorology/Forest fire prevention system

Battery

Sodium-ion Battery

LiFe Battery

Features of Sodium-ion Battery

- Standard 19-inch rack-mounted design, high energy density (3U height)
- Supports constant voltage remote power supply
- Long cycle life
- Integrated BMS and high-efficiency bidirectional boost module with autonomous charge/discharge control

Features of LiFe Battery

- 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

Distributed Blade Power System

Distributed blade power supply system is a power system specially developed for the 5G communication market, consisting of distributed blade power supply (rectifier, monitoring unit, communication unit, power distribution unit) and distributed blade battery (lithium battery module). The product has the characteristics of modularity, full digitalization and high energy density, which meets the installation scenarios of wall mounting, holding pole, angle steel, etc., supports flag installation and flat installation mode, and is suitable for outdoor tower lamp pole stations, indoor distributed weak electric wells, micro stations and many places with harsh environments.

Distributed Blade Battery

- Small size, light weight
- Wide operating temperature -40°C ~ 55°C (without sun radiation)
- IP65 high degree of protection for harsh environment applications
- Support pole, wall, tower installation

Distributed Blade Power

- Rapid Deployment, blade structure, Modular design
- Flexible design, Power Unit and Battery Power Support Modular Expansion
- Simple operation and maintenance, natural heat dissipation, free from daily maintenance

Telecom Embedded Power (TEP) System

Rectifier Modules

- Max 98% 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

Maximum Power Point Tracking (MPPT)

- Max 98% efficiency, energy saving
- Modular design, compatible with Huawei 50A module system
- CAN communication
- Support hot-swap
- Wide temperature range
- Support voltage and current regulation
- Built-in fan cooling

DC Distribution Unit

DCDU BOX-12

DCDU BOX-12 is a DC switch unit for 48V DC power distribution, it is located between the DC power bus and the DC equipment. Surge and transient overvoltage may be caused by lightning, electromagnetic interference etc from external environment. They also exists inside the system due to connect and disconnect of reactive and capacitive load. DCDU provides protection against surge and transient overvoltage for the equipment.

Features

- Rated input of 100A
- Two ways input and 12 ways output with lightning protection
- High carrying capacity as well as low residual voltage
- Alarm interface in fail safe normal close dry contact
- Sheet metal enclosure with good fire retardant properties to IP4X (IP5X options available)

Automatic Transfer Switches (ATS)

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

Solar System

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 in 15-20%. 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.



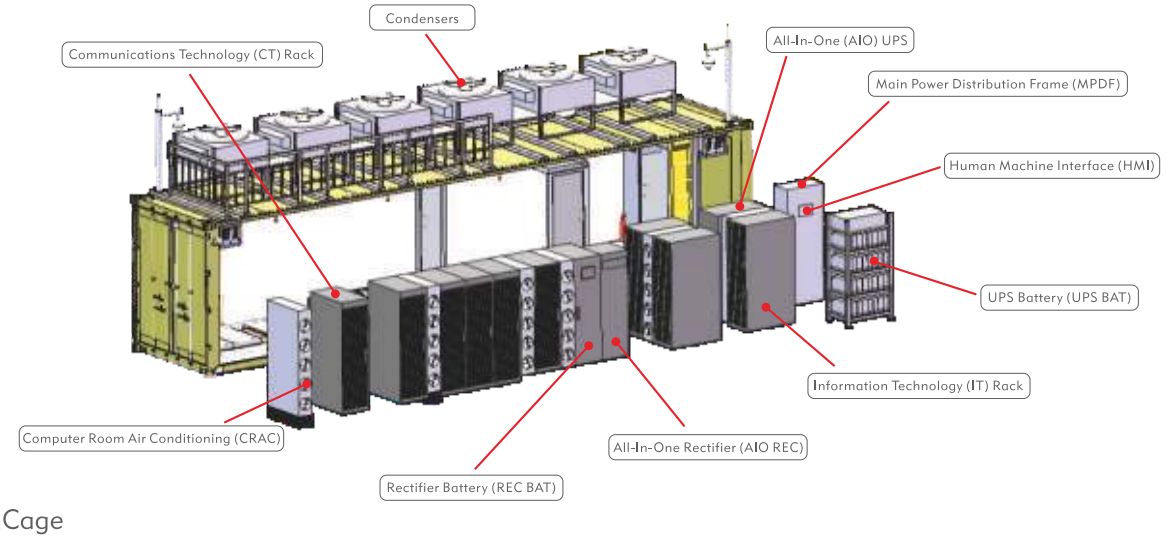
Features

- 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



DataCage

DataCage is a product developed to address the need in the data centre market. Other than typical mobile data centre, DataCage offers mixed IT (information technology) and CT (communication technology) power and energy infrastructure in a prefabricated ISO container allowing immediate installation of server and telecom equipment to shorten the deployment and commissioning time. DataCage is designed to operate in various terrains as well as harshest environments. The DataCage integrated power supply and distribution (UPS, rectifiers and batteries), CRAC (computer room air conditioning), IT and CT equipment racks.



DataCage

Features and Advantages

- High energy efficiency
- Reliability
- Modularity
- ICT cabinet flexibility
- ICT load flexibility
- Optimized space use
- Alternative power supplies
- Security
- Fire protection
- Central management

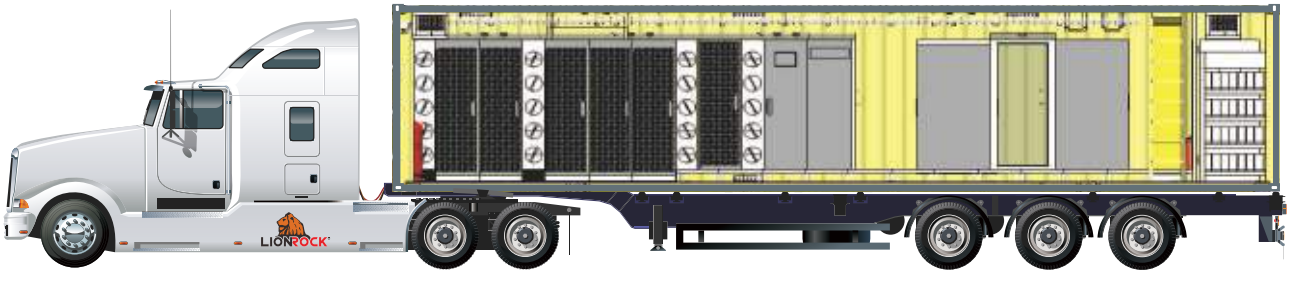
CRAC

AIO UPS

ICT

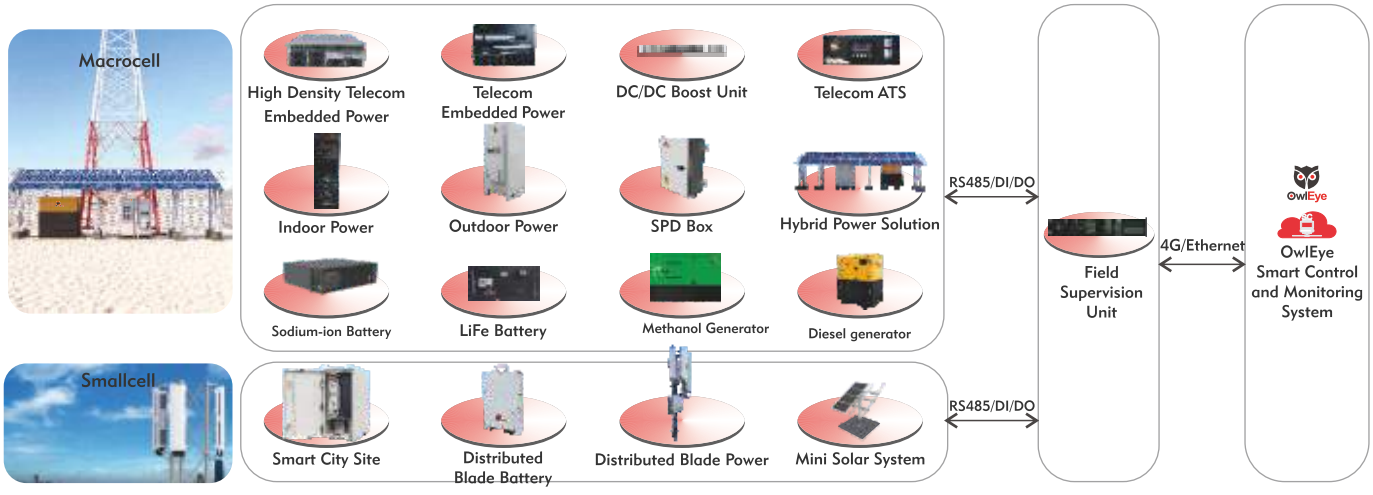
Application Scenarios

- Increase of processing and storage capacity in existing premises with space limitations.
- Data center deployment in distributed and remote locations for commercial and industrial use.
- Immediate transportation and installation of data center for temporary situations such as disaster recovery, military operations, or cultural/sporting events.
- Deployment of telecom equipment room for radio access and optical networks.
- Edge computing.



Owleye Telecom Energy Monitoring System

The OwlEye Telecom Energy Application Release 2 is an IOT platform employed in multiple projects, and provides funtions of proactive maintenance, reporting analysis, asset maintenance, assets monitoring to minimize the site down and extend equipment lifetime, and save energy.



Benefits

Energy statistics
to analyze energy proportion and usage, optimize the energy usage by adjusting the ratio and reduce carbon emission.

Highly efficient operation And maintenance
able to conduct O&M with Trouble Ticket, Proactive Maintenance to improve efficiency.

Prolong asset lifespan
extend assets lifespan and reduce the possibility of site down by corrective actions.

Improve site power reliability
Real-time monitoring power source operation status with proactive maintenance, remote control, PAV and so forth to minimize the downtime.

Lower operating expense
Less site visits and patrolling by remote control and modification in the platform, shorten maintenance time.

Global service network

Business Scope

70 Countries And Regions

Global staff

400 employees

3Tech takes "digitizing energy usage across all industries" as its mission and upholds the vision of "becoming a world-class digital energy solution provider." Headquartered in Hong Kong, the company has established a branch in Indonesia and owns a production base in Dongguan. With strong R&D capabilities and an elite team experienced in multi-country projects, after over 20 years of development, its high-quality projects cover more than 70 countries globally. It has not only forged strategic partnerships with multiple large state-owned foreign aid enterprises but also holds multiple product invention patents. Recognized as a national high-tech enterprise and a specialized, sophisticated, and innovative small and medium-sized enterprise, 3Tech—acting as a pioneering Hong Kong enterprise in China's "Belt and Road Initiative"—continues to deepen its involvement in the digital energy field.

Projects - Telecom Power

Algérie Télécom Mobilis (Algeria)

- LRYZ28 LionRock standby genset
- Lead Carbon battery of 2600Ah
- Solar panel of 21kW capacity

Multiradio (Argentina)

- LRP22 LionRock diesel genset
- 12 x 48V 100Ah lithium battery
- 3.9kW poly-crystalline solar panels

Moratel (Indonesia)

- 34 x LRP13.5D LionRock DC genset
- 22 x LRH5.5D LionRock DC genset
- Fully integrated design with 48VDC output

ENTEL (Chile)

- LR9D LionRock DC genset
- 1000Ah VRLA battery bank
- 2kW inverter for site AC load

Zain (Middle Eastern countries)

- Outdoor Cabinet IP55, 42U equipped with 2000W DC Aircon
- 5*High-grade Lithium Battery 48V 150Ah
- Rectifier modules with 6*3KW

Telefonica (South America Country)

- 1050 x EC5025 LionRock outdoor energy cabinets
- VRLA battery 8 x 12V 200Ah each site
- 48VDC rectifier system

Globe (Philippine)

- LRP13.5D LionRock DC genset with oil cooled engine
- 24 x 2V 1000Ah battery
- DC power generation up to 16kW

Large capacity DC power systems (Philippine)

- 14 x 6000A Large capacity DC power systems
- Original 2000A modular design
- 48VDC rectifier system

Projects - Data Centre

PT Digital Hyperspace Indonesia (Indonesia)

- This project was awarded the Safe production (3 million hours) no safety work-related accident award
- Phase 1：8 x 2300kW 、5 x 1200kW 、1 x 400kW LionRock diesel genset with enclosure for DATA HALL ; 6 x 80m^3 + 1 x 20m^3 Burried Bulf Fuel Storage Tank
- Phase 2：8 x 2300kW 、2 x 1200kW 、LionRock diesel genset with enclosure

DataCage (Botswana)

- A fully integrated mobile data centre meeting tier III standard
- 2 * 96kW rectifier system 1+1 redundancy, installed in the customer room
- 2 * 72kW rectifier system 1+1 redundancy
- 2 * 2000Ah intelligent lithium battery system
- OwlEye intelligent management platform

Ethio Telecom (Ethiopia)

- 2 x 2000kVA LionRock genset with enclosure
- Double container design, noise level of 80dBA@1m
- 200Ah/DC24V Dual starter battery system
- Woodward 3200 controller
- 40 degree electric drive Roof mounted radiator
- 20,000L fuel tank and automatic fuel supply system, meets Tier3 standard design requirements

DataCage (Maldives)

- A fully integrated mobile data centre meeting tier III standard
- 2 x 600A 48VDC rectifier system for external data communication
- Fully battery backup for upto 90minutes continuous operation
- Air conditioning with 2+1 redundant cooling systems
- LionRock diesel generator sets in 1+1 configuration
- Embedded inside enclosure to noise level of 65dBA@1m
- Fully bunded 1000L fuel tank for 60 hours continuous running during mains power failureaintenance for 10 years Operation

Huizhou, China - Tonghu Data Centre

- 13 x 2750kVA DCP rated at 11kV
- Neutral Earth Resistor with VCS
- Dual hot standby PLC parallel mastercontrol system
- Dual fuel pumps in each of the four 40000L underground bulk tank
- 1000L daily fuel tank with level sensor
- IP54 customized weatherproof acoustic containers to meet 75dBA@10m
- Full turnkey supply, design deliver, installation and maintenance for 10 years Operation

Other Project

Fujian, China - Solar powered EV charging Carport

Phase I

- Two-row 16 parking space carport structure
- OwlEye remote management system
- Achieves more than 43.8 tons of greenhouse gas missions reduction per year

Phase II

- Photovoltaic power generation system through PV panels on roof
- Energy storage battery system
- 1 x 60kW Charging stations

The Hong Kong People Engineering Wonders in the 21st Century – Renewable Energy Project

- Off-grid 180kW solar-wind hybrid system
- 100 pieces of 200W panel (phase I)
- Combined use of wind turbines (2nd phase)
- Data logging and on-site operation monitoring
- Minimize maintenance costs
- Annually reduction of Greenhouse gas emissions by 70tons

Hong Kong - HK Television Broadcast Co.

- Total generating capacity is 9.6kW
- Grid connected
- Special installation infrastructure to suit existing roof
- Surge protection for all solar panel
- Regular maintenance provided

PCCW (Hong Kong)

- 6 * 2250kVA/1800kW LionRock genset
- Dual redundant fuel system upgrade
- Switchboard and power cable installation

Hong Kong Housing Authority Diamond Hill phase 1 and 2 (Hong Kong)

- Supply and install LRP450, LRP500, LRP560, 2 x LRP660, LRP700 (410-650kVA) total 6 units
- Monthly services at 2 years DLP
- Exhaust system, separate daily tank

Other Project

Medan Water treatment plant (Indonesia)

- LRT2075 and LRP700 LionRock genset
- Daily fuel tanks of 1000L and 2500L
- Relocate existing 1500kVA genset

Integrated Waste Management Facilities including Shek Kwu Chau Incinerator (Hong Kong)

- 6 x 3000kVA DCP rated at 11kV
- Neutral Earth Resistor with VCS
- Dual hot standby PLC parallel master control system

Macao Sands/Venetian (Macau SAR)

- LRP500 LionRock diesel genset with enclosure
- Two gensets in two separate locations
- Back up power for the two Casinos

Global Switch (Hong Kong)

- Global Switch is a leading owner, operator and developer of large scale network dense, carrier and cloud neutral multi-customer data centres in Europe and Asia-Pacific.
- Supply more than 8300 nos VRLA Battery

Long Mun, Tuen Mun

- 214 trolley charging posts
- Mechanical and electrical engineering

Ho Man Tin Ya Liju

- 154 trolley charging posts
- Mechanical and electrical engineering

Yau Tong Peninsula East - Tram charging pile

- Mechanical and electrical engineering

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