Product Solutions

NEOCOM
SOLUTIONS (PTY) LTD

Tailors of Technology

Supplying the African market.

Our Vision is to be the supply company of choice for the African market, while making it our mission to supply cost effective and innovative solutions to our clients.

NEOCOM
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Neocom Introduction

EMPOWERLOGIC

Broad Based Black Economic Empowerment Verification Certificate

Issued to

Neocom Solutions (Pty) Ltd

Level 1 Contributor

Measured Entity

Company Name	Neocom Solutions (Pty) Ltd
Registration Number	2018/064420/07
VAT Number	4110281138
Address	74 Regency Drive, Route 21 Corporate Park
	Irene, Gauteng
	0157

B-BBEE Status

B-BBEE Status Level	Level 1				
Total Points Obtained	101.06	EO: 22 points; MC: 14.48 points; SD: 14.58 points; ESD: 45 points; SED: 5 points			
Discounting Principle Applied	No	Procurement Recognition	135.00%	Participated in Y.E.S Initiative	No
Empowering Supplier	Yes	Measurement Period Year End	31/03/2023		
Black Voting Rights	51.09%	Black Women Voting Rights	30.05%	Black Designated Groups	0.00%
Black Economic Interest	51.09%	Black Women Economic Interest	30.05%	Black Youth	0.00%
51% Black Owned	Yes	30% Black Women Owned	Yes	Black Disabled	0.00%
Normal Flow Through Applied	Yes	Black New Entrants	19.69%	Black Unemployed	0.00%
Modified Flow Through Applied	No	Mandated Investment Exclusion Applied	No	Black People Living in Rural Areas	0.00%
				Black Military Veterans	0.00%

Issue Date	16/10/2023
Expiry Date	15/10/2024
Certificate Number	ELC12064RGENBB
Version	Final
Applicable Scorecard	Amended Codes - Generic
Applicable BBBEE Codes	Amended Generic Codes Gazetted on 11 October 2013 and Amendments Gazetted on 31 May 2019

EmpowerLogic (Pty) Ltd
Reg. No. : 1995/000523/07
BBBEE Verification Agency

Per Gianna Le Roux
Member - Verification Committee

SANAS Accredited

sanas
BVA018

This certificate is the result of an independent and impartial verification of the BBBEE status of the measured entity measured against the Codes of Good Practice on Broad Based Black Economic Empowerment and has been issued in accordance with the EmpowerLogic Verification Certificate Policy. This certificate supersedes any previous certificates issued to the Measured entity. For enquiries please contact EmpowerLogic at 086 111 4003.

CERTIFICATE

Standard	ISO 9001:2015
Certificate Registr. No.	01 100 928670

TÜV Rheinland Inspection Services Certifies:

Certificate Holder:
Neocom Solutions (pty) Ltd
74 Regency drive,
Route 21 Corporate park
Irene
Pretoria
0157

Scope:
Design, source and provide solutions and products to the telecommunications markets in Africa.

An audit was performed, Report No. 928670. Proof has been furnished that the requirements according to ISO 9001:2015 are fulfilled.

The due date for all future audits is 14 – 01 (dd.mm).

Validity:
The certificate is valid from 2022-05-31 until 2025-03-31
First Certification 2019

South Africa, 2022-06-07

TÜV Rheinland Inspection Services (Pty) Ltd
4th Floor
138 West Street
Sandton
2196
Certification Body No. C09

sanas
C09

TÜVRheinland®
Precisely Right.

www.tuv.com

NC
NEOCOM
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Innovation

Idea Generation

Design and Engineering

Prototype Development

Product Commercialization

Product Certification

Customer Approval

Market Penetration

Product Supply and Logistics

Continuous Product Support

Continuous Improvement

Continuous Improvement and Development

Product Range

Cooling

Smart

AC and DC

Combined Active and Passive Cooling

Multiple version

Locking Solutions

Smart keyless Locks

Mechanical Locks

High Security Bunkers

Drop on site

Cast on Site

High Security Safes

Single door 6 Tier Battery

Double Door

DC Cooled version

Energy

Batteries
Generators
SPDU

Tailor-made Energy Solution
Renewable Energy

PAAS/ ESCO

Remote Management

Site Load Management

Fuel Management

Power Management

PAAS

Accessories

Cable Kits

Solar AWL

Solar Kits

Tools and Accessories

Services

PAAS

Battery As A service

NOC Facility

Batteries on a trailer

The below diagrams illustrates a typical site layout with required points of security integration required for a smart lock secured controlled access.
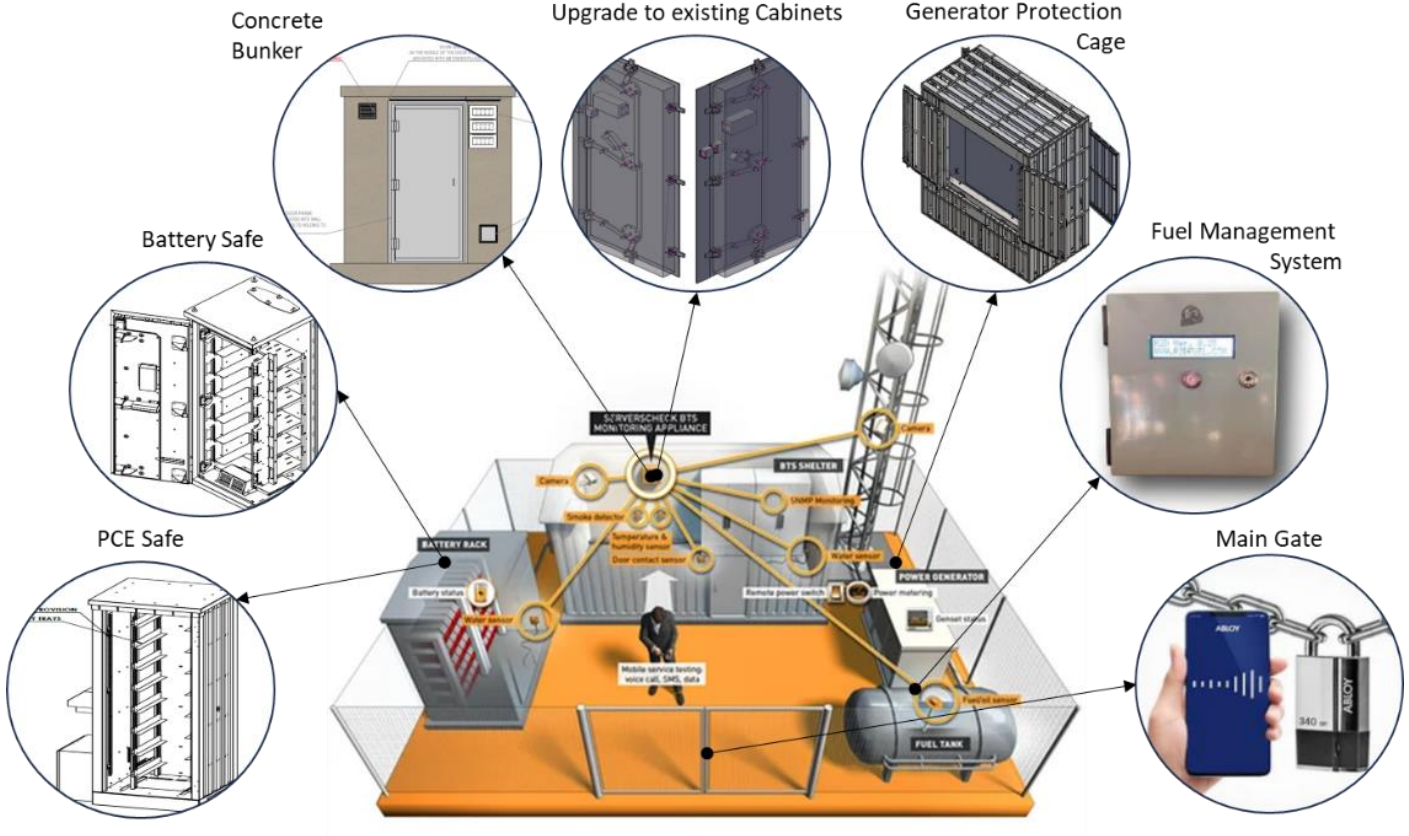
Hybrid Rectifier Solution

Vertiv Esure Rectifier 4300kW module

The 4.32 kW high-efficiency Vertiv eSure rectifier is designed to convert standard AC supply voltages into stable nominal -48 V DC voltage that is adjustable to application needs. This constant power rectifier offers the latest patented switch mode technology, using DSP (Digital Signaling Processor) functionality for efficient operation.

For a higher load capacity, rectifiers can be connected in parallel to support a variety of telecom applications. Remote management and control of the power system is enabled when combined with a Vertiv™ controller.
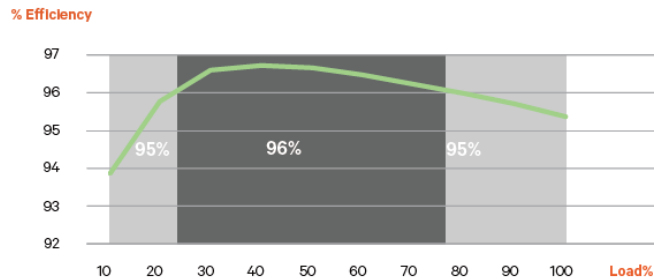
Vertiv™ eSure™ Solar Converter

The S48-4300E4 Vertiv™ eSure™ Solar Converter efficiently delivers 4300 watts of power at -48 VDC to the load and battery. This constant power converter designed with the latest patented switch-mode technology, uses DSP (Digital Signal Process) to provide clean power to the load with acute control and management.

The S48-4300E4 can be connected in parallel with other converters and rectifiers to support a variety of telecom applications. Unified remote management and control of the power system is enabled when combined with a controller. Implementing solar conversion and control from Vertiv, ensures your critical network is highly available and extremely affordable to operate.
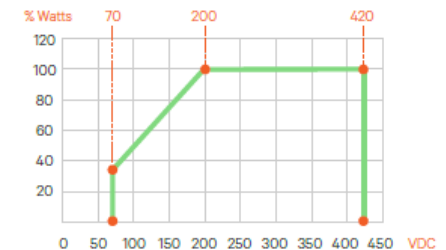

Figure 1: Output Power vs. Input Voltage and Vo > 48 VDC at Tamb < 55°C

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Hybrid Rectifier Solution

Vertiv™ NetSure™ Control Unit (NCU)

The NetSure™ Control Unit (NCU) is an advanced controller designed for a wide range of DC power applications, enabling remote monitoring and control of modern communication sites. The factory-installed (standard) or field-added NCU is backward compatible with existing NetSure power systems, controlling all aspects of the power chain, including AC mains, DC power plant, battery backup, diesel generator, and the local site environment. Optional interface boards enable the user to access an even greater set of site parameters.

Remote monitoring through the NCU enables cost saving techniques like Peak Shifting and Peak Shaving. When utility pricing is high during a predictable time frame, Peak Shifting allows you to plan a repeating routine to put rectifiers on standby and support the load with batteries or other energy sources instead. Shifting the load is scheduled to save energy and reduce operating costs. Peak Shaving is another energy-saving strategy for unpredictable utility cost fluctuations that allows operators to shift a site load in real time when demand spikes and the cost of electricity goes up.

NETSURE 7100

The NetSure 7100 Standard Series DC power system is designed for Deployment in telecom access network applications requiring a reliable and high power density supply up to 31.5 kW at 48 VDC. The system is available as a subrack for integration in an outdoor enclosure or existing cabinet, mounted on top of a battery rack or integrated in a cabinet.

The 17.5 kW subrack comes in a 5U high integrated power shelf and the 31.5 kW subrack in a 6U high integrated power shelf, both supporting 19" rack mounting. The distribution section supports up to (29) load circuit breakers and up to (6) battery circuit breakers. The distribution circuit breakers can be divided into two priority load disconnect levels via dedicated LVD contactors. Prioritized load disconnect can result in significant savings on the backup battery investment.

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Shoto Li Ion Batteries

Model	48-100	51.2-100
Nominal Capacity (kWh)	4.8	5.12
Depth of Discharge	90%	
Usable Capacity (kWh)	4.32	4.6
Cycle Life	≥5000 @25 ℃	
Charge Voltage (V)	54	57.6
Discharge Voltage (V)	45	48
Nominal Voltage (V)	48	51.2
Max Parallel Quantity (Pcs)	16	
Charge/Discharge Current(A)	Recommend 50（0.5C）	
	Max 100 (1C)	
Communication Port	RS485 & CAN	
Weight (Kg)	41	43
Dimensions (W*H*D)mm	442*133*420	
Operating Tempature	Charge -5℃~+45℃	
	Discharge -20℃~+50℃	
Recommend Operating Tempature	Charge +15℃~+35℃	
	Discharge +15℃~+35℃	
	Storage -20℃~+35℃	
Humidity	5%-95%	
Altitude	≤4000m	
Certificate	TUV(IEC 62619)/CE-EMC/UN38.3	
Compatible Inverters	Growatt,Goodwe,Victron,Deye,Sofar and more brands to be announced	

Neocom Solutions has partnered with Shoto, a global giant in the Telecoms Industry who supplies batteries to 127 countries across the 5 continents.

The Shoto battery SANS approved and has IEC Certification.

Neocom being a bespoke solutions partner in the industry has together with Shoto developed a battery security solution for the South African market, which we know will assist the network to bring the high theft rate being experienced currently significantly down. And we will continue to look at newer more effective ways to prevent theft of equipment from sites.

The current solution comprises of the most advanced mechanical, technical and software enhancements.

Following options of batteries available LidePO4:
- 4.8kW 100 Amp
- 5,12kW 100 Amp
- 5,12kW 150 Amp
- 5,12kW 200 Amp

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High Security Safe 20U

High Security Battery Safe:

- High security battery safe to secure high value assets on smaller sites such as Lamp Post, Low Profile, Street Furniture and DAS sites.
- Fitted with a 19" Rack for easy equipment installation
- Safe securely locked with keyless lock for additional security and access control.
- Various colours available for seamless integration into surroundings.
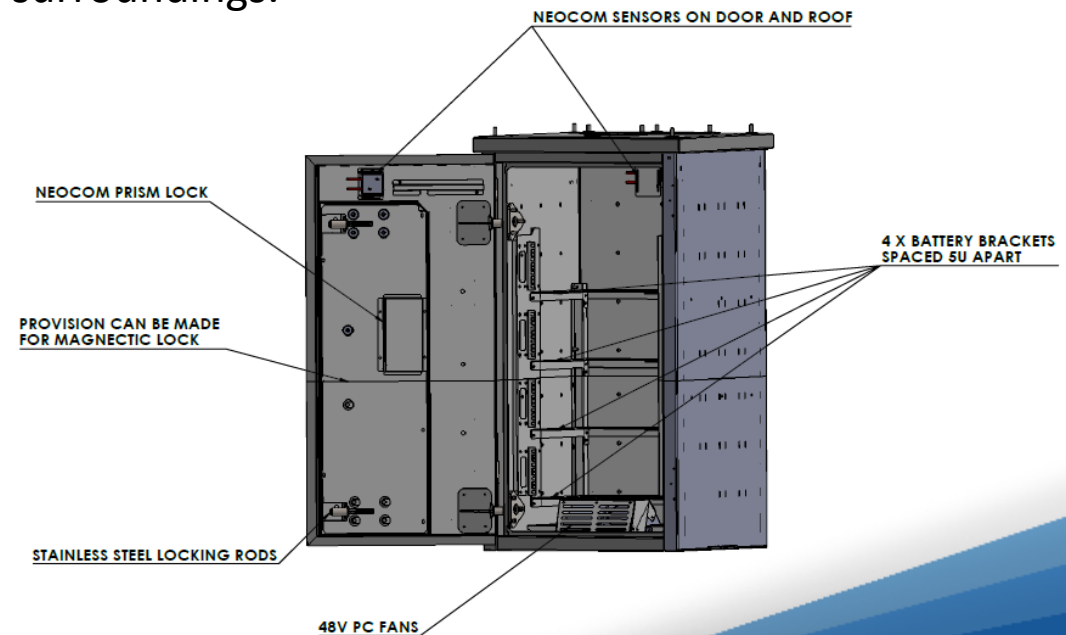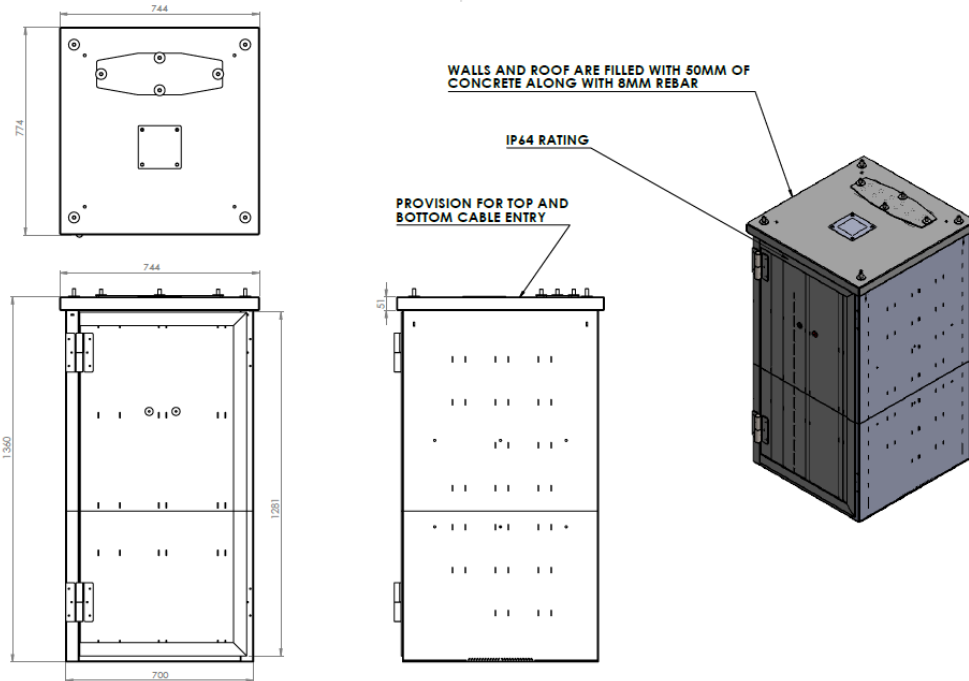
6 Teir 38U Battery Safe

Overview

- ✓ Category 3 Safe.
- ✓ Ultra-High level of security to protect critical assets.
- ✓ Manufacturing in compliance of ISO 9001 – 2015 requirements.
- ✓ Designed for Indoor and Outdoor use.
- ✓ IP 56 and IP65 Compliant.
- ✓ Available with various corrosion protection coatings and colours.
- ✓ Cooling ventilation provided at bottom and top.
- ✓ Internal Cable Management.
- ✓ 6 Individual shelves

- ✓ 710mm (L) x 700mm (B) x 1770mm (H)

Technical Specifications

- ✓ Battery safe is manufactured from 3CR12 material.
- ✓ SS304 External hinges.
- ✓ Overall weight 297kg.
- ✓ Cavity walls filled with specialized concrete mixture
- ✓ for quick curing cure and hardening.
- ✓ Gland entry plates provided for easy cable routing.
- ✓ Fitted with a Hybrid Controller to power optional
- ✓ AC devices and air conditioners.
- ✓ Fitted with tamper and vibration sensors to raise alarm when sensed.
- ✓ Auxiliary 12V power points provided in door to power up the system
- ✓ in the event of total power failure on site to obtain access.
- ✓ Fitted with a keyless, smart lock. (Various platform integration options available)
- ✓ Fitted with a powerful actuator to lock and unlock door
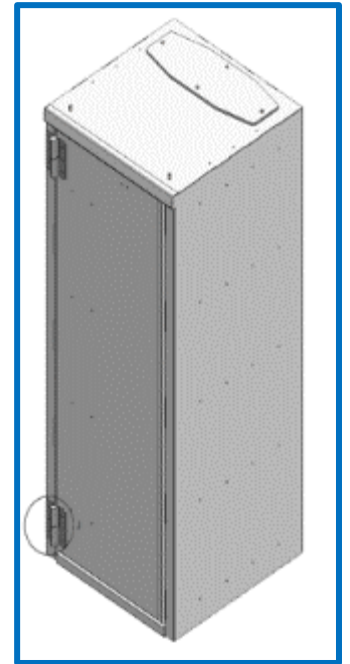
Single Door Cabinet – High Security

- Single door 48U outdoor Equipment Cabinet with 3mm 3cr12 stainless steel plate with special high security crete
  - 12000 BTU Smart Air Conditioner mounted on door for active & passive cooling
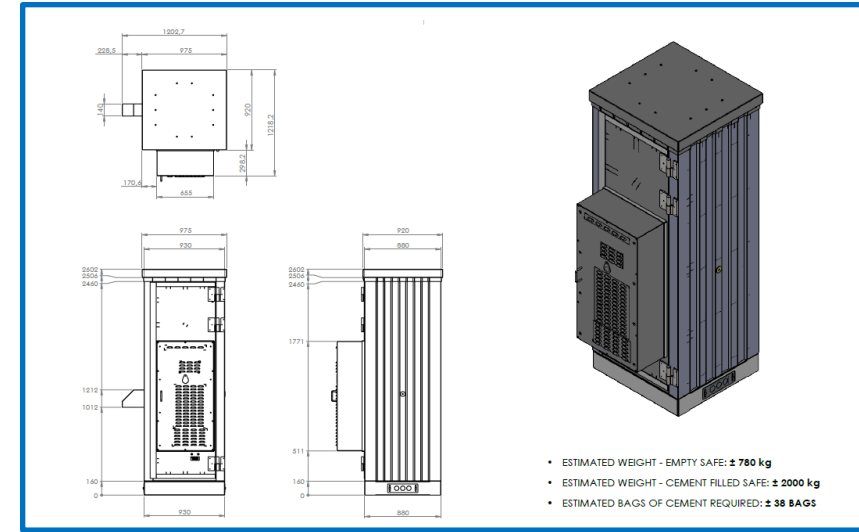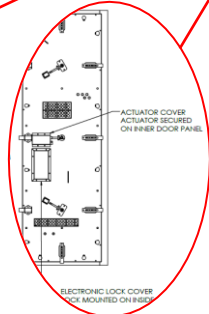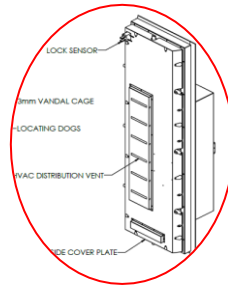
Business Continuity:
Base station sites are critical for maintaining telecommunications services, and battery backups are a key component in ensuring business continuity during power outages or other emergencies. Our fortified battery safe helps ensure that the batteries are protected and ready to provide uninterrupted power when needed.

Enhanced Security for Asset Protection:
Backup batteries are valuable assets, and protecting them from theft, vandalism, or environmental damage is essential. Our fortified battery safes come with a robust
locking and security mechanisms to deter unauthorized access and protect the batteries from external threats.

Peace of Mind:
Knowing that the critical battery backup system at a cell site is well-protected can give operators and stakeholders peace of mind. This confidence in the safety and reliability of the site's infrastructure can be invaluable, particularly in remote or hard-to-reach locations.

- ESTIMATED WEIGHT - EMPTY SAFE: ± 780 kg
- ESTIMATED WEIGHT - CEMENT FILLED SAFE: ± 2000 kg
- ESTIMATED BAGS OF CEMENT REQUIRED: ± 38 BAGS

Front Layout View

Side Layout View

Internal Layout View

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Single Door Cabinet – High Security

- Single door 48U outdoor Equipment Cabinet with 3mm 3cr12 stainless steel plate with special high security crete
  - 12000 BTU Smart Air Conditioner mounted on door for active & passive cooling

Optional Smart AC/DC 12000 BTU air conditioner installed on door with security cage for protection. Smart Air conditioner provides Passive and Active cooling with up to 70% energy savings.
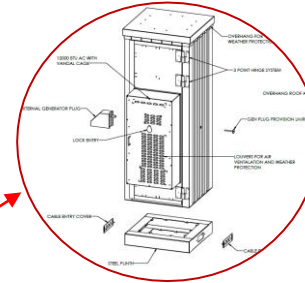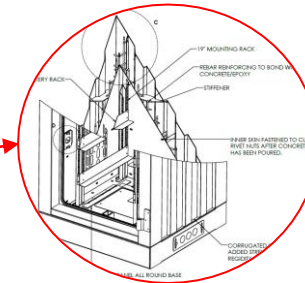
Fitted with NCS PRO MAX Keyless lock for secure controlled access.

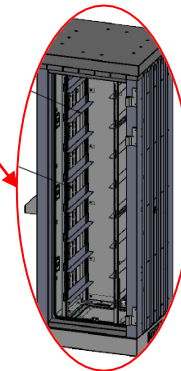Door fitted internally with air ducts to provide effective cooling for the installed equipment.

Battery safe constructed of 3CR12 stainless-steel material to withstand vandalism attacks and protect against weather conditions and corrosion.

Designed with reinforced cavities which is filled with special filler to provide additional support and the highest protection.

Fitted with a standard 19" rack system for easy equipment installation.

Designed for a 5U rectifier and 7 x 200Amp hr batteries.

5 Point robust locking and security mechanisms inside the door.

NEOCOM
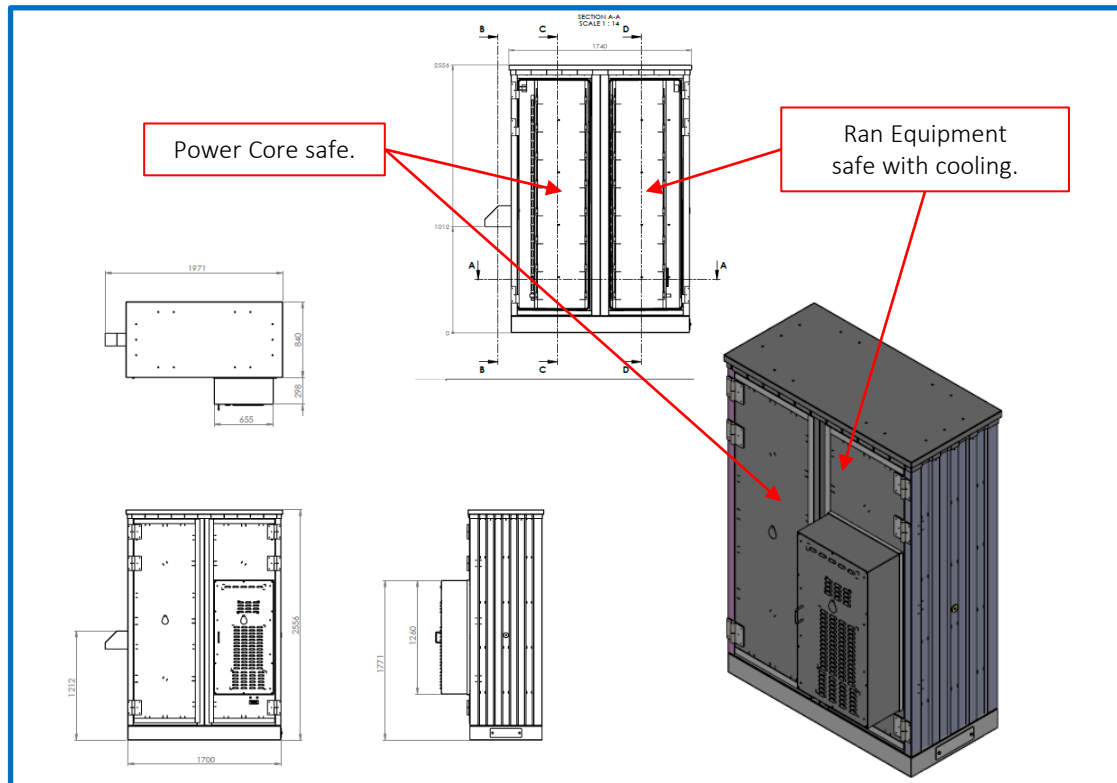SOLUTIONS (PTY) LTD

Double Door Cabinet – High Security

- Double door 48U outdoor Equipment Cabinet with 3mm 3cr12 stainless steel plate with special high security crete
  - 12000 BTU Smart Air Conditioner mounted on door for active & passive cooling

Power, Cooling and Environment Design (PCE)

The fortified double door battery safe has been design to the same high standards of the single door battery safe but now can provide
security, cooling and environment for the necessary active equipment on site.

Peace of Mind:

Knowing that the critical battery backup system at a cell site is well-protected can give operators and stakeholders peace of mind.
This confidence in the safety and reliability of the site's infrastructure can be invaluable, particularly in remote or
hard-to-reach locations.

Power Core safe.

Ran Equipment safe with cooling.

Front Layout View

Side Layout View

Internal Layout View

NCS PRO MAX Smart Keyless Locking Solution

✓ Keyless Solution

✓ iCrypto Integrated (Android and IOS)

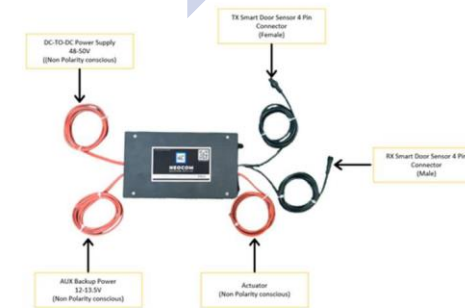✓ End-to-end Accountability

✓ Enhances iCrypto

**Authentication** | **Authorization** | **Accountability**

ONE CONTROLLER FOR ALL

Smoke Detector

Intelligent Door Sensor set

Wi-Fi AP

Field Equipment Cabinet/safe

Mobile Web App

Seismic Sensor

Actuator

IR Passive

PRISM Controller with Tamper Detection, PSU and AUX backup

OVER VIEW WIRING DIAGRAM

DC-TO-DC Power Supply 48-50V ((Non Polarity conscious)

TX Smart Door Sensor 4 Pin Connector (Female)

RX Smart Door Sensor 4 Pin Connector (Male)

AUX Backup Power 12-13.5V (Non Polarity conscious)

Actuator (Non Polarity conscious)

NCS PRO MAX Smart Keyless Locking Solution

- ✓ No traditional key required - Smart device is the "KEY"
- ✓ Telecoms grade design: DC-DC converter
- ✓ End-to-End Encryption (Cloud to Controller)
- ✓ Workflow process ensures Authentication, Authorization, Accountability
- ✓ Strong Bluetooth (BLE5.0) and Wi-Fi signal (locks works on low signal strength)
- ✓ Works with different site solutions (cabinets, bunkers, containers, etc.)
- ✓ OTA function for upgrades of software, firmware and updating encryption keys to devices
- ✓ Infra red addressable door sensor with random frequency modulation
- ✓ Reliable effective measures to detect and protect against physical tampering
- ✓ Local manufacturing and Support
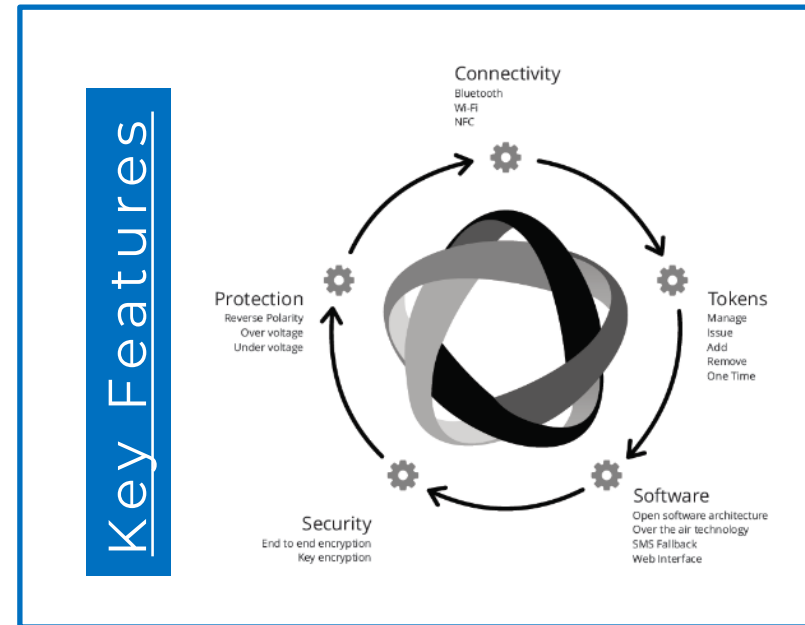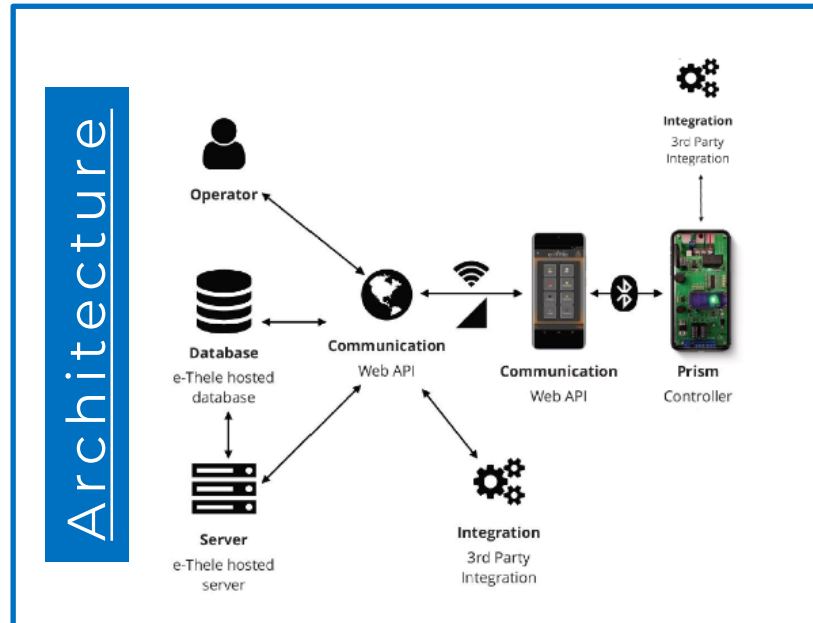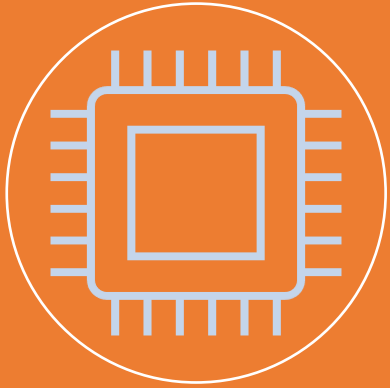
Programmable

* Create Users
* Allow or Restrict access to certain sites, locks or areas
* Generate encrypted access tokens/keys
* Unlock and lock a system
* Site standdown
* Mobile or PC

Reliable

* Power Redundancy
* Isolated DC/DC Converter main PSU
* Offline functionality
* Over current and voltage protection on the driver circuit
* Short circuit and over voltage protection
* Reverse polarity protected Aux power input
* Wide range input voltage (18-72VDC)

Intelligent

* Over current and voltage protection on the driver circuit
* Realtime monitoring of the current and voltage output of the driver circuit with instant shutdown
* LED and buzzer indicators
* Tamper detection
* System testing
* Hardware and Software watchdogs

Secure

* End to end Encryption
* Secure Token generation
* User management
* Site management
* End to End tamper detection

Maintainable

* Support for OTA Software updates
* Quick & easy component swop out
* 2 Year Warranty
* Realtime Monitoring

End To End Solution Encrypted

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Secure App Login

Dashboard

Connecting to Lock

Works Order & Token

Works Order & Token

*Workflow customizable per client requirement.
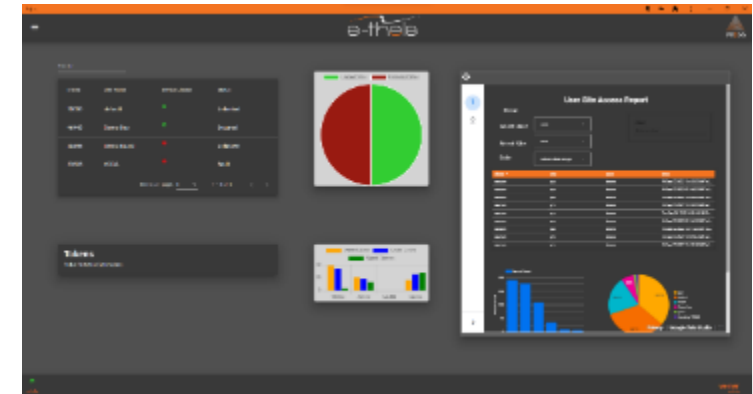
Works Order & Token

User Token

Lock Open

Full Functional Test

Dashboard View

N E O C O M   S O L U T I O N S   (P T Y)   L T D

Super Weather Proof Bluetooth padlock for all conditions

- Award-winning keyless access solution operated with digital key and mobile app.

- Super Wather Proof and made to perform at all times in the most demanding environments.

- Available in two versions: with a fixed and removable shackle
  - Model series
    - PLK340 – Fixed shackle
    - PLK348 – Removable shackle

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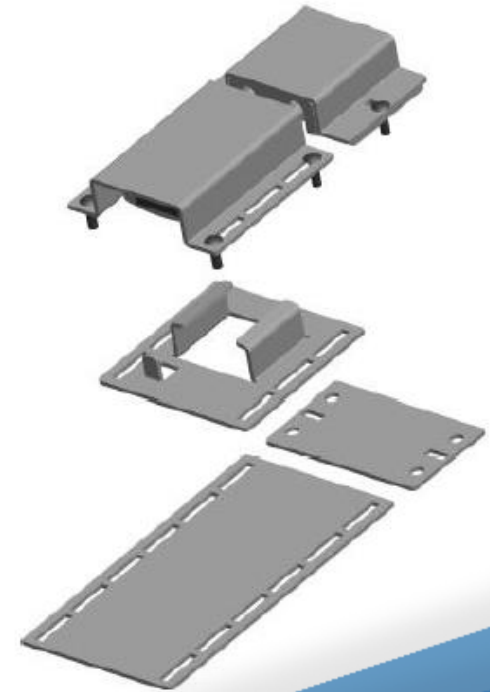
ABLOY BEAT
padlock specifications

Body
- Material: Case-hardened steel
- Finish: Chrome
- Non-metallic part: Grivory

Shackle
- Fixed or removable shackle
- Material: Case-hardened steel
- Finish: Chrome
- Thickness: 10mm

Battery lifetime
- 5 years or 5000 access cycles
- Battery types: Panasonic CR2 and Saft LS14250
- Back up power through USB cable

Operating temperature
- -25°C to 60°C

Security Grade
- EN16864 grade 4 for retained and Removable shackle versions

IP class grading
- IP68
- IP66

Connectivity
- Bluetooth® Low Energy 4.2
- Range up to 50m

Shackle monitoring
- LED indications for lock status
- Audit logs

Award-winning
- Govies Government Security Award in the Lock and Locking systems category (2020)
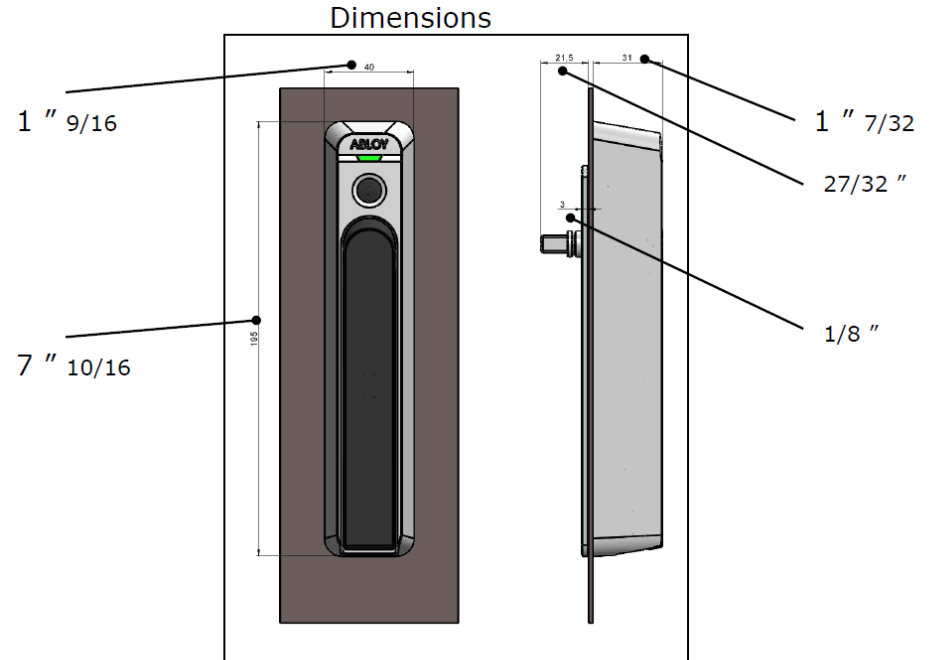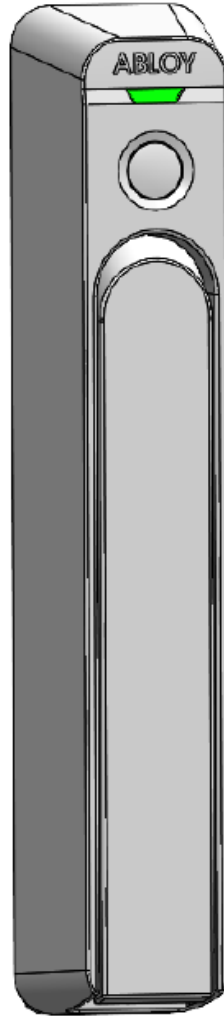
ABLOY® BEAT Swing Handle

Standalone (operated only with mobile)

•Standard functions
- LED status indication
- Wake up button
- Handle
- Internal sensors under metal frame
- Back up power USB C port

Dimensions

1 ″ 9/16

40

1 ″ 7/32

21.5   31

27/32 ″

195

3

1/8 ″

7 ″ 10/16

Container door lock – BTS Option 2

•**Voltage:** 11.4 - 26VDC
•**Current:** Peak Current: 1000mA, Idle Current: 35mA @12VDC with LED activated
•**Unlocking Pre-Load:** Side Load rated: Motorised unlocking - 100kg max at the bolt
•**Strength:** Maximum 1000kg
•**Monitoring:** Lock Status Monitoring: NO/NC, Door Position Monitoring: NC
•**Unlocking Time:** 1 Second under Preload
•**Locking Time:** 3 Seconds
•**Environment:** Weather resistant construction to IP53
•**Operating Temperature:** -10 to +60 Degrees Celsius
•**Endurance:** 500,000 operations (120N Unlocking, 50N Locking)
•**Dimensions:** Body: 210L x 24W x 42D (mm), Faceplate: 256L x 30W (mm), Strike Plate: 256L x 30W (mm)
•**Construction:** Stainless Steel lock body, Face plate and Strike Plate

Solar Structure with Panels

540~555W	0~+5W	21.5%	≤ 2.0%	≤ 0.55%
POWER RANGE	POWER SORTING	MAX MODULE EFFICIENCY	FIRST YEAR POWER DEGRADATION	YEAR 2-25 POWER DEGRADATION
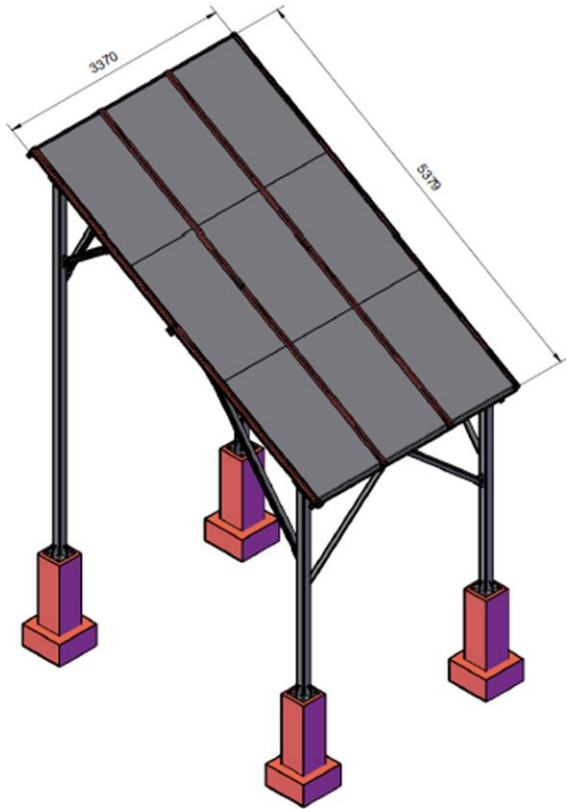
ASTRO 5

CHSM72M-HC

Monofacial Series（182）
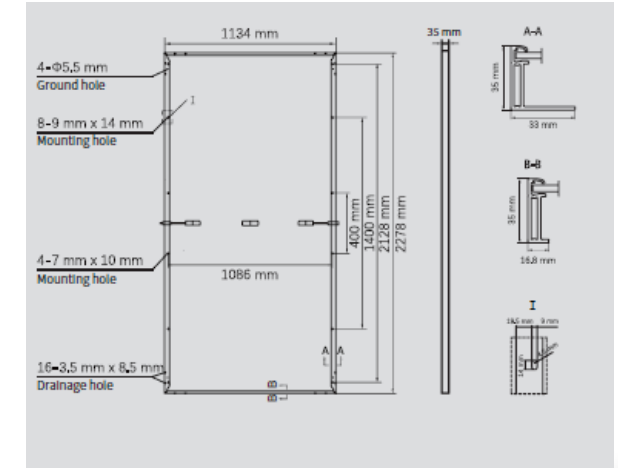
PERC+ / Multi-busbar / Half-cut
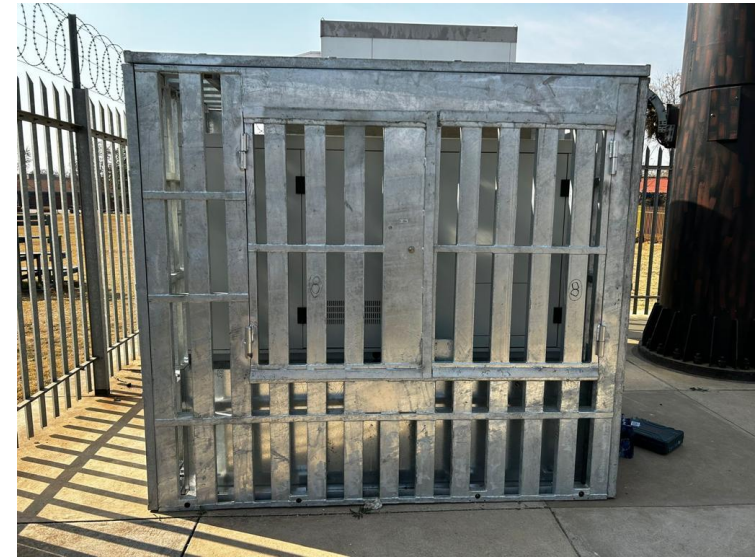
Non-destructive cutting

PID resistance

Low BOS cost & LCOE

12 Years Product Warranty

25 Year linear Power Warranty

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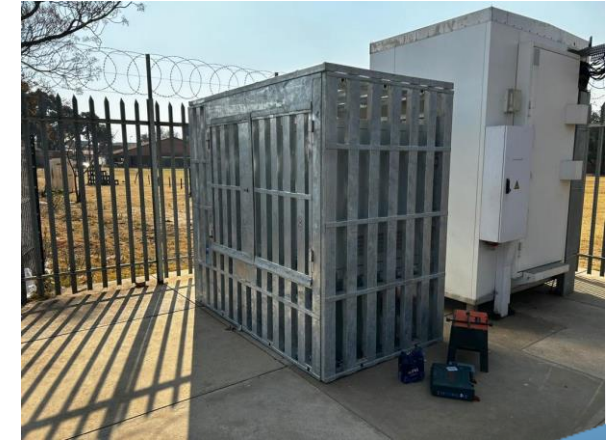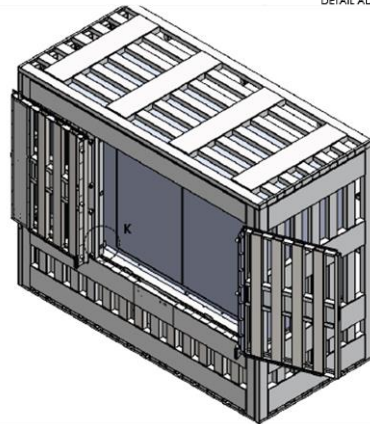
Generator Vandalism Cage
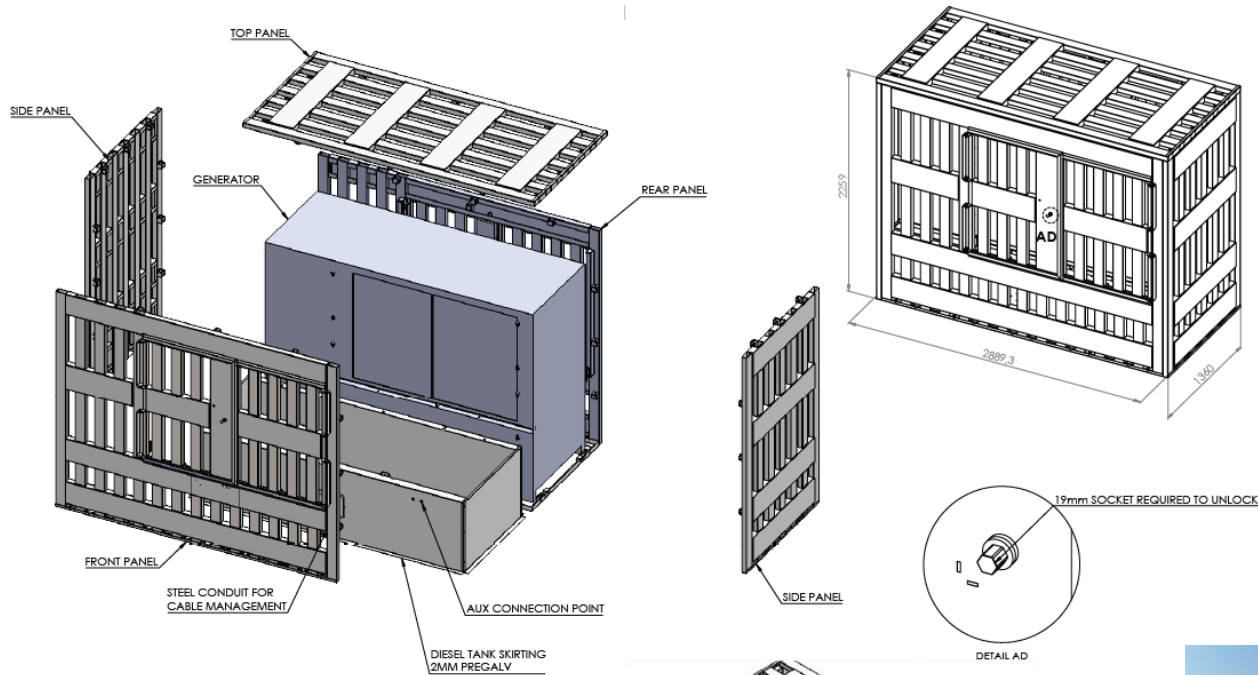
Generator vandalism cage design from high strength steel for protection against vandalism and theft of diesel and batteries

Fuel Management System

Telecommunication companies face several challenges with securing their assets. One of the main challenges is the financial loss caused by the theft of diesel which can be costly to replace.

Neocom Solutions FMS is a comprehensive fuel management system installed into new or existing non-commercial fuel storage or dispensing systems. Suitable for use on static tanks and mobile bowsers to monitor and control both fuel receipts and various site dispensing with live residual tank levels displayed after each event both on the controller and the web portal, all viewable from any mobile device or computer.

Neocom management solution, convenient for many stationary and mobile applications with live 30 second updates on current tank volumes. Fuel theft and unauthorized dispensing reporting via SMS and email. With all dispensing values and activities recorded on the cloud server offering a convenient accurate audit trail and accounting of the liquid asset.

Live monitoring
Live information and activity transmitted within seconds on the GSM network of your choice, with low-cost international roaming options available.

Current GPS location
Our multi-constellation GNSS receiver provides accurate positional data and real time stamping.

Mobile Friendly
Our web-based app is super easy and friendly to use on your computer, tablet and phone.

NEOCOM
SOLUTIONS (PTY) LTD

A Great solution for the Management of your fuel

How does it
Work

Cloud Server
Saved to the cloud

All data is updated every few minutes to the server and made instantly available on our online portal. Receive alarm notifications directly to your phone and have all your site history instantly accessible

R2D Controller
Main fuel controller

The NEOCOM Controller with remote adjustable LCD display including covert non-display settings. The adjustable brightness allows easy viewing from any angle.

Pump Control
Solenoid switch

Control the flow of fuel from the pump with an electrically controlled valve and/or pump motor contactor, both prevent dispensing from unauthorised ID tags.

Live Levels
Tank level sensor

Our Tank level sensor displays live fuel levels at the controller and web portal while monitoring fuel drops and adds with precision, providing fuel theft alerts and low-level alarms.

Remote Access
Reports and control

Access your sites from anywhere in the world. View the latest fuel events or pull up reports from months back. See current fuel levels and a live summary health report on all your sites from the comfort of your home, office or holiday destination.

Reading Flow
Flow meter

The accurate volumes dispensed can be metered by an array of different flow meters.

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Management made easy

With more than 14 years' experience in telemetry and IT systems we are making this proudly South African product affordable and available for easy integration with both existing and new infrastructure. Managing and accounting for every liter received and dispensed is essential for profitability, with the current prices of fuels can you afford not to?

You have taken the step to install a state-of-the-art fuel depot at your premises and now you want to add a system that can do fuel monitoring.

Our system integrates directly with your already owned hardware and making your remote site fuel visible from the comfort of your office and if you do not have an office, check in via your cell phone and get notified on live fuel events directly to your phone.

Fuel Dispensing

The NEOCOM controller will display the current fuel volume dispensed at the pump as well as the remaining fuel in each storage tank. With data uploading to the cloud this information is available on your computer within seconds.

Fuel Levels

A maximum of 3 fuel tanks can be monitored from a single NEOCOM controller. The scrolling display reports the current level in each tank while a convenient summed value and percentage is displayed permanently.

Secure Dispensing

The system automates control and security, with only authorized button tags and users accepted. Easy allocation of up to 1400 different tag numbers with our USB powered Tag2Text readers.

01 Level Sensor

The primary fuel monitoring device is a level sensor on your physical bowser/fuel storage tanks. All live levels and any changes are frequently recorded on the server, even a one litre change in 9000L can be recorded.

02 Measurement

If possible we integrate into your existing flow meter pulse or provide you with a reputable and calibrated alternative to measure the flow and volume dispensed in any one event.

03 Control

When it comes to saving money you need control to account for every litre dispensed, know where it was issued, by whom and record the asset or vehicle receiving the fuel. We also offer fleet management platforms to report and compare the fuel volumes received by the same vehicle.

04 Secure PSU & Controller

The secure aluminum box enclosure includes a power supply with back-up battery. It houses the LCD screen and tag receptacle, giving you peace of mind back-up power and fuel monitoring during a power outage.

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Easy Reporting

From the online software a general dashboard overview of user and controller information is available below a map of the current live position of the controller. A controller can monitor up to three storage tanks with a simple representation of the live liquid level in each tank. The software platform offers an extensive range of services and reports to manage and control your liquid assets. Reports included are **Tag Specific Reports, Tag Summary Reports, Fuel Add/Drop Report, Dispense Report, Fuel Level Report, Controller health report** and many more.
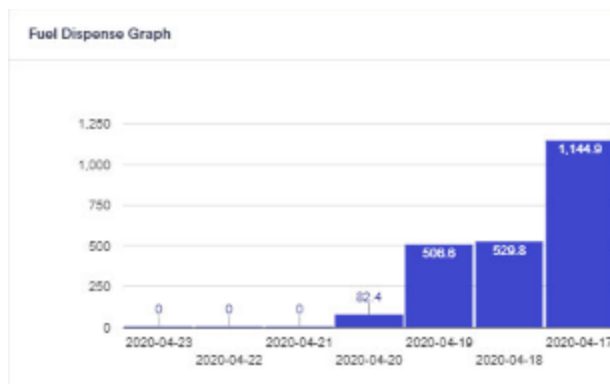
Multi tier setup

Setting up companies and assigning users with various levels of access and information is really simple.

Remote device setup

All setting and adjustments can be handled remotely by administrator. Instantly add or delete user button tags. Remotely lock or unlock device in emergencies

Instant Notification

Setup the NEOCOM controller to SMS nominated personnel with notifications specific to fuel drained from main tanks, fuel pumped outside of authorized time frames, fuel dispensed in excess of your chosen maximum volume, low level alarms, tank sensor cable detection, water detected in tanks and many more.

Management Tools

It is great to have a consumer solution that has extensive reporting structures, however if it does not integrate into your existing company, IT structure it is not going to be utilised to its full potential. NEOCOM has a full suite API to integrate into existing systems. We have the experience and services to assist with data availability and access to the right level of audience.

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Smart Inverter Air Conditioner Functions

- TCP Communication
  - Direct communication via Transmission backbone
  - Fully set-point customisation remotely
  - Performance data remotely

- AC & DC Operation
  - AC powered; With load shedding operating DC with energy safe profile
  - Build in free cooling with customized set-points for various conditions

- Preventative Alarms
  - In advance warnings for maintenance on all system components like filter and compressor

- Event Alarms
  - Soft alarms fully customised

- Temperature alarms
  - Internal, External, container and ambient data

- Power consumption
  - Report on actual power consumption

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Smart Inverter Air Conditioner VS Standard

	Invertor Window Unit	Smart Invertor Window Unit
Energy Saving	66-76% energy savings compared to legacy on/off technology	87% energy saving compared to legacy on/off technology
Communication	No communication to air conditioner	TCP/IP communication interface to the air conditioner CPU with read and write functions
Alarms	Alarms generated from site controller	Warning, maintenance and fault soft alarms relayed via communication link
Predictive Maintenance	No remote evaluation	Maintenance algorithms providing in depth analysis on individual components and condition
Remote Optimization	None	Setting and operational modes can be adjusted remotely via communication link
Reporting	No Reporting	Health, performance and load performance reporting
Dual Powered	AC Only	AC & DC

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Power To The Antenna (PTTA)

Power to the antenna solutions can offer several advantages, especially in the context of networking and communication systems.

Simplified Installation: Eliminates the need for separate power lines for devices like wireless access points or antennas. This simplifies the installation process, reduces costs, and makes it easier to deploy devices in various locations without worrying about proximity to power outlets.

Flexibility and Scalability: With PTTA, it's easier to add or relocate antennas or access points since they aren't reliant on traditional power sources. This enhances the flexibility and scalability of the network infrastructure, allowing for adjustments or expansions as needed.
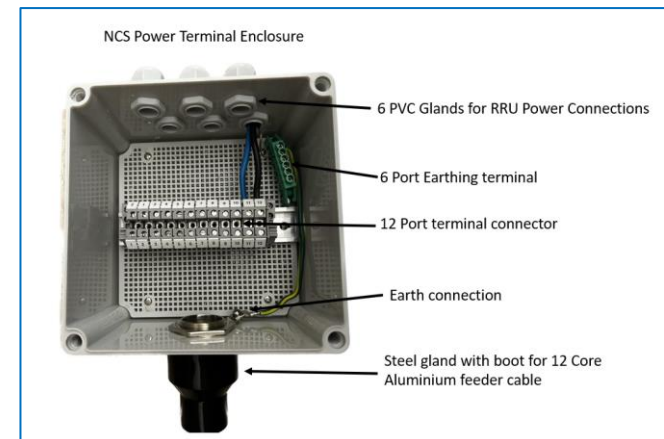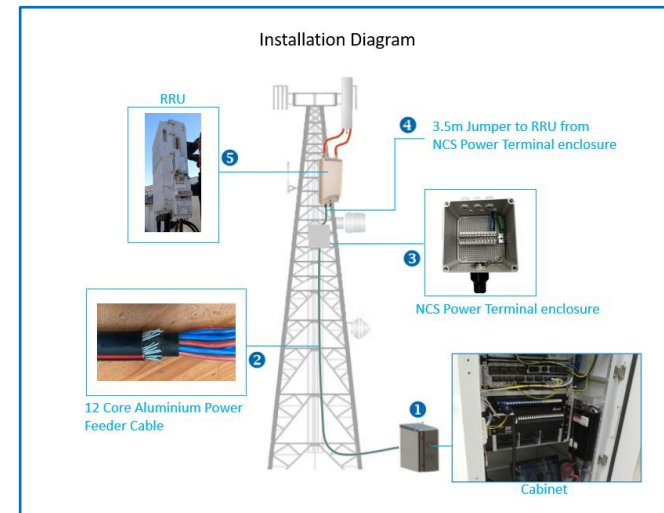
Cost-Efficiency: Implementing PTTA reduces the overall cost of cabling, vandalism and theft. This can result in significant savings in cabling, installation, and maintenance costs.

Reliability and Redundancy: PTTA systems can provide reliable power to critical devices. Moreover, in some cases, redundant power supplies can be implemented, ensuring continued operation even if one power source fails.

Energy Efficiency: PTTA systems can incorporate power-saving features, such as intelligent power management, to optimize energy consumption. Devices can be powered down or put into low-power modes when not in use, contributing to overall energy efficiency.

Safety and Standards Compliance: PTTA systems adhere to industry standards, ensuring compatibility and safety. The Power Distribution Box (PDB) is a pre-configured enclosure designed for use in the external environment with an IP rating of IP65.

Various cable options are available for the power feed cable: 10x6 LH Plain Copper, 10x6 LH Tin Copper, 16x6 LH Plain Copper, 16x6 LH Tin Copper, 16x6 Aluminum and 25x6 Aluminum.

Installation Diagram

- RRU
- ④ 3.5m Jumper to RRU from NCS Power Terminal enclosure
- ⑤
- ③
- NCS Power Terminal enclosure
- 12 Core Aluminium Power Feeder Cable
- ②
- ①
- Cabinet

NCS Power Terminal Enclosure

- 6 PVC Glands for RRU Power Connections
- 6 Port Earthing terminal
- 12 Port terminal connector
- Earth connection
- Steel gland with boot for 12 Core Aluminium feeder cable

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Fiber To The Antenna (FTTA)

FTTA has become increasingly popular in the deployment of cellular networks, especially for technologies like 4G and 5G. Its ability to efficiently handle high-speed data transmission and maintain signal integrity over longer distances makes it a preferred choice in modern wireless communication infrastructure.

High-Speed Data Transmission: FTTA enables high-speed data transmission between the base station and the antenna unit using optical fiber. Fiber optics offer significant advantages over traditional copper cables, such as higher bandwidth and immunity to electromagnetic interference.
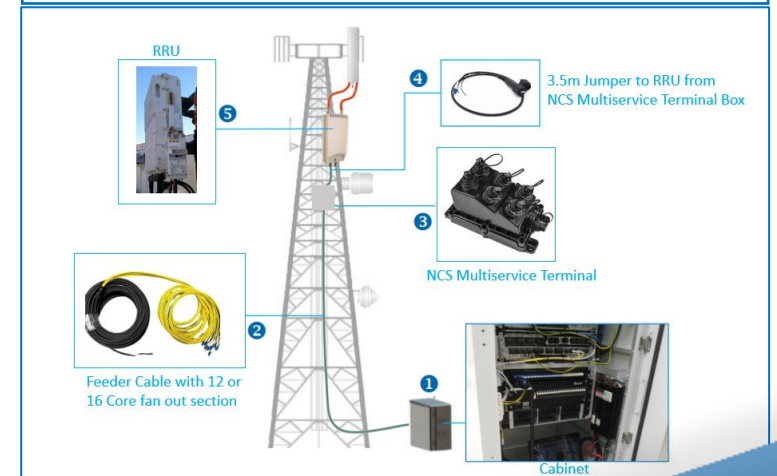
Reduced Signal Loss: Fiber optic cables experience less signal loss compared to copper cables over long distances. This means that FTTA setups can maintain signal integrity over extended lengths between the base station and the antenna, which is crucial for reliable wireless communication.

Remote Radio Heads (RRH): FTTA often involves the use of Remote Radio Heads, which are essentially radio transceivers located at the top of cell towers or in close proximity to antennas. These RRHs are connected to the baseband unit (BBU) through optical fibers and handle radio signal processing and transmission.

Deployment Flexibility: FTTA offers flexibility in deploying and managing antennas because the optical fiber allows for longer cable runs without compromising signal quality. This flexibility in deployment locations can optimize network coverage and performance.

Performance and Reliability: The use of fiber optics enhances the overall performance and reliability of the wireless network. It provides greater capacity for data transmission and is less susceptible to environmental factors or electromagnetic interference.

Ease of Maintenance: Fiber optic cables are known for their durability and reliability. FTTA setups often require less maintenance compared to traditional copper-based systems, reducing downtime and operational costs.

RRU

3.5m Jumper to RRU from NCS Multiservice Terminal Box

NCS Multiservice Terminal

Feeder Cable with 12 or 16 Core fan out section

Cabinet

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Thank You