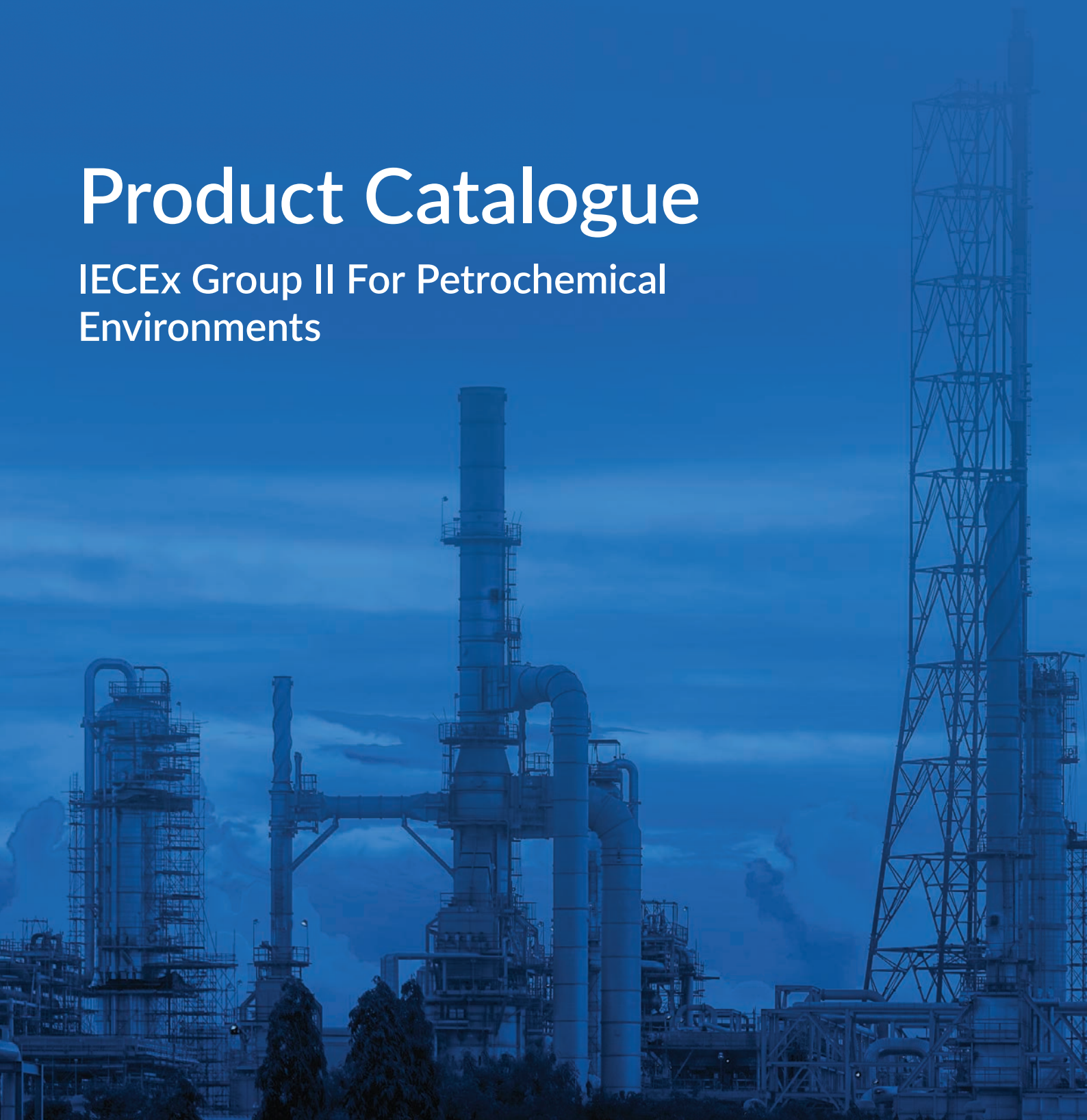


ROOBUCK

North American Edition
May 2024

Product Catalogue

IECEX Group II For Petrochemical
Environments



Roobuck is a leading provider of MineloT Solutions and Devices, Cap Lamps, Safety Lights, and other Explosion-proof Products

Accreditations

Subject to market and regional requirements, products can comply to:

- Ex Certificates/Approvals: IECEx, MSHA, IA, CNEC
- Ex Quality Standards: ISO/IEC80079-34
- Certification & Compliance Marks: FCC, CE, RCM

Mining IoT Solutions

- Personnel, Vehicle, Asset Tracking and Emergency/Evacuation.
- IoT Device/Data Management with Solution Customisation.
- Personnel Sign-In, Sign-Out and/or Assignment of Assets.
- Collision Avoidance and Proximity Detection Systems using a variety of Technologies including DSRC and UWB.
- Intrinsically Safe versions are available using IECEx Certification.

Products

- **Wireless devices** - Long-Range WiFi Access Point, Cap Lamps, Belt Tags, Badge Tags and Vehicle Tags utilising various wireless technologies including WiFi, BLE, LTE, DSRC, UWB, LoRa, RFID, NFC.
- **Cordless Cap Lamps** - To suit all working conditions and needs. High performance or great value. Complete charging facilities and accessories.

R&D Services for Wireless Devices

Roobuck provides development services for integration with our partners/customers. Roobuck offers expertise and engineering resources for intrinsically safe or industrial device design and manufacture.



R&D Projects

Industry, Federal and State Government supported MineloT projects in collaboration with world leading universities including CRC-Ps, ARCs, TDRI, ACARP, GGCIP and PSF. Roobuck is constantly bringing cutting edge technology to the METS sector.

Global Reach - Exports from Australia to:

USA, Canada, NZ, PNG, Mongolia, Uzbekistan, Kazakhstan, UAE, Qatar, Saudi Arabia, Egypt, Indonesia, Singapore, South Africa, Zimbabwe, Peru, Colombia, Chile and Sweden

Customers

BHP, Rio Tinto, South32, Glencore, petroleum companies, military and government

IECEX Certified Cordless Cap Lamp: KH4E-Ex	5
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Which Cordless Cap Lamp is best for my needs?

Questions - Do you need	KH4E-Ex	KH2T-Ex	KH2M-Ex	KH4E-WB-Ex
WiFi Tracking Cap Lamp Solution?				✓
IECEX Certificate?	✓	✓	✓	✓
Bright light?	✓			✓
Low cost product?		✓	✓	
An angle adjustable cap lamp?	✓		✓	
To wear a helmet visor?		✓		
A light for ceiling spotting and distance?	✓			
Both focused & spread beam?		✓		
The lightest Cap Lamp in our range?		✓		

Cap Lamp Accessories: RRS, ML, HS, RCB, TG57***	11
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Cordless Cap Lamp

Performance series – for Underground Hardrock Mines, Tunnels and Petrochemical Environments

Features



Three operating modes – Main, High Beam, Auxiliary



Adjustable beam angle to point wherever you look



Lightweight, comfortable and ergonomic



Rugged casing made from GERMAN FRAS material for rough handling & wide ambient temperature range



World's safest and most reliable Panasonic battery



Made from Top Brand, high quality components and parts

Optional Extra



UHF 860 - 960 MHz RFID can be integrated into registration and access control systems



13.56 MHz for use with your Kiosk, Digital Tagboard and Inventory solutions



Product Specifications



IP Rating - IP67

Submersible in water up to 1m for 30min



Illumination

6800 Lx Main Mode
10000 Lx High-Beam Mode



Charging Time

9 h



Running Time

14 h Main Mode



Ambient Temperature

-20°C ≤ Ta ≤ 40°C
-4°F ≤ Ta ≤ 104°F



Weight

154 g / 5.4 oz

Certifications:

- Certificate #: IECEx TSA 19.0008
- Ex Marking: Ex ia op is IIB T3 Gb

Standard #:

- IEC 60079-0
- IEC 60079-11
- IEC 60079-28



CB8E Charging Bank For 8 Cordless Cap Lamps



Features

- Portable, Wall Mountable, Vehicle Installation
- Locking Plate is optional extra (CB8(E)-LPU)
- Charging Indicator on Charging Bank
- Charging Indicator on Cap Lamp
- Automatic over-load protection – cuts off that circuit when Cap Lamp battery is fully charged

Specifications

Input	110 VAC or 12-24 VDC
Dimensions	33 x 21 x 5.5 cm/13 x 8.27 x 2.17 in
Weight	1.1 kg / 2.43 lb

CB35E/CB53E - Charging Banks For 35/53 Cordless Cap Lamps

Features

- Automatic over-load protection – cuts off the circuit when Cap Lamp battery is fully charged
- Label groove
- Padlock bracket
- Charging Indicator on Charging Bank
- Charging Indicator on Cap Lamp
- Includes wall mounting kit
- 2 x foot pads
- Circuits are easily accessible for servicing

Specifications

Input	110 VAC
Dimensions	84 x 13 x 110 cm/33.07 x 5.12 x 43.31 in
Weight	31 kg / 68.36 lb



Individual Chargers & Accessories

- MCE:** Single Mains Charger - AU, EU, UK, USA
UCE: Single USB Charger



Cordless Cap Lamp

Lightweight series – for Petrochemical Environments and Surface Operations

Features



Three operating modes – Standard Focus, High-Beam Focus, Spread



Thin design means Cap Lamp fits behind visor and allows it to go up and down



Lightweight, comfortable and ergonomic



Rugged casing made from GERMAN FRAS material for rough handling & wide ambient temperature range



World's safest and most reliable Panasonic battery



Made from Top Brand, high quality components and parts



Product Specifications



IP Rating - IP67

Submersible in water up to 1m for 30min



Illumination

2800 Lx Standard Focus
5500 Lx High-Beam Focus



Charging Time

7 h



Running Time

13 h Standard Focus



Ambient Temperature

$-20^{\circ} \leq T_a \leq 40^{\circ}$



Weight

97 g / 3.42 oz



Certifications:

- Certificate #: IECEx TSA 19.0008
- Ex Marking: Ex ia op is IIB T3 Gb

Standard #:

- IEC 60079-0
- IEC 60079-11
- IEC 60079-28



CB8T Charging Bank For 8 Cordless Cap Lamps



Features

- Portable, Wall Mountable
- Charging Indicator on Charging Bank
- Charging Indicator on Cap Lamp
- Automatic over-load protection – cuts off the circuit when Cap Lamp battery is fully charged

Specifications

Input	110 VAC
Dimensions	33.4 x 18.2 x 6.6 cm 13.15 x 7.17 x 2.6 in
Weight	860 g/1.9 lb

CB28T Charging Bank For 28 Cordless Cap Lamps

Features

- Wall Mountable
- Locking Bar for Cap Lamp safety
- Charging Indicator on Charging Bank
- Charging Indicator on Cap Lamp
- Automatic over-load protection – cuts off the circuit when Cap Lamp battery is fully charged
- Space to attach identification label

Specifications

Input	110 VAC
Dimensions	84 x 60 x 11.5 cm 33.07 x 23.62 x 4.53 in
Weight	9 kg / 19.85 lb



Individual Chargers & Accessories

UCT: Single USB Charger

RCB: Angle Adjustable Bracket



Cordless Cap Lamp

Lightweight series – for Petrochemical Environments & Surface Operations

Features



Two operating modes – Main, Low



Well distributed light pattern



Adjustable beam angle to point wherever you look



Lightweight, comfortable and ergonomic



Made from Top Brand, high quality components and parts



Product Specifications



IP Rating - IP67

Submersible in water up to 1m for 30min



Illumination

2000 Lx Main Mode



Charging Time

7 h



Running Time

20 h Main Mode



Ambient Temperature

-20°C ≤ Ta ≤ 40°C

-4°F ≤ Ta ≤ 104°F



Weight

119 g / 4.2 oz



Certifications:

- Certificate #: IECEx TSA 19.0008
- Ex Marking: Ex ia op is IIB T3 Gb

Standard #:

- IEC 60079-0
- IEC 60079-11
- IEC 60079-35-1



CB8 Charging Bank For 8 Cordless Cap Lamps



Features

- Portable, Wall Mountable, Vehicle Installation
- Locking Plate is optional extra (CB8(E)-LPU)
- Charging Indicator on Charging Bank
- Charging Indicator on Cap Lamp
- Automatic over-load protection – cuts off the circuit when Cap Lamp battery is fully charged

Specifications

Input	110 VAC or 12-24 VDC
Dimensions	33 x 21 x 6 cm 13 x 8.27 x 2.36 in
Weight	1 kg / 2.21 lb

CB53 - Charging Banks For 53 Cordless Cap Lamps

Features

- Automatic over-load protection – cuts off the circuit when Cap Lamp battery is fully charged
- Label groove
- Padlock bracket
- Charging Indicator on Charging Bank
- Charging Indicator on Cap Lamp
- Includes wall mounting kit

Specifications

Input	110 VAC
Dimensions	84 x 13 x 110 cm / 33.07 x 5.12 x 43.31 in
Weight	31 kg / 68.36 lb



Individual Chargers & Accessories

MC: Single Mains Charger - AU, EU, UK, USA

VC: Single Car Charger - Cigarette Lighter

RRS: Rubber Ring Sheath

Protect your Performance Series Cordless Cap Lamp with a cost effective, coloured rubber ring. It can protect the cordless cap lamp when dropped, bumped or from dripping water. Comes in seven colours that can be used for easy identification of position, department or shift.



ML: Mining Lanyard

Keep hold of your Cordless Cap Lamp if you drop your helmet. Enables Cordless Cap Lamp to be fastened to your belt or belt loop.

HS: Head Strap

Fastens your Cap Lamp to hard hats without a mounting bracket. Uses four brim clips to for secure attachment to the helmet.



RCB: Angle Adjustable Cap Lamp Bracket

Roobuck's patented Cap Lamp Bracket transforms a fixed Cap Lamp into a flexible one. Move it up and down as you are working or to stop the light from shining in your co-workers eyes.

For Safer, more efficient and productive mining

Through collaboration with leading Australian universities, industry partners and mining digitalisation leaders, Roobuck has developed cutting edge solutions that reduce mine operation costs, increase productivity, improve safety and enable customers to attain ESG targets in the mining sector.

Roobuck's Mine IoT Solutions:

- Are modular and scalable, allowing solution deployment in sync with the implementation schedule of your digitalisation roadmap
- Are easy to integrate into your existing onsite mine network. Our solutions can run entirely onsite, enabling smooth initial setup and minimal IT maintenance.
- Enhance the value and capabilities of Roobuck's Intrinsically Safe WiFi/BLE cordless cap lamp.

Roobuck provides the following Mine IoT Solutions for use in petrochemical environments:

- Personnel, Vehicle and Asset Tracking and Emergency/Evacuation
- Personnel Sign-In, Sign-Out and/or Assignment of Assets
- IoT Device and Data Management with Solution Customisation

Technological solutions need to be implemented at an operational level and require people and process to enable them to succeed. Our technology is flexible and can be integrated into your current network. Roobuck can assist you with a systemic approach to tackling problems and solving your pain points. Roobuck solutions provide immediate high value returns by improving safety and significant long-term value through productivity and efficiency enhancements.

The data produced by the Mine IoT Solutions can be used to for operational insights and improvements.

The Mine IoT Solutions can be used separately or together and are explained in more detail on the following pages. Roobuck's Mine IoT Solutions work with Roobuck's Intrinsically Safe IoT Devices. Please see page 23.

Personnel Tracking and Emergency/ Evacuation Solution for Underground Coal & Petrochemical

Increase Safety, Improve Decision Making and Asset Performance

Maximise the efficiency of your operation and hand back time to your team by implementing an Intrinsically Safe personnel, and asset tracking solution. Roobuck offers a comprehensive suite of software and IoT devices to form a tracking solution that allows you to monitor the location and provide instantaneous two-way signalling with your personnel underground where there is network connectivity available.

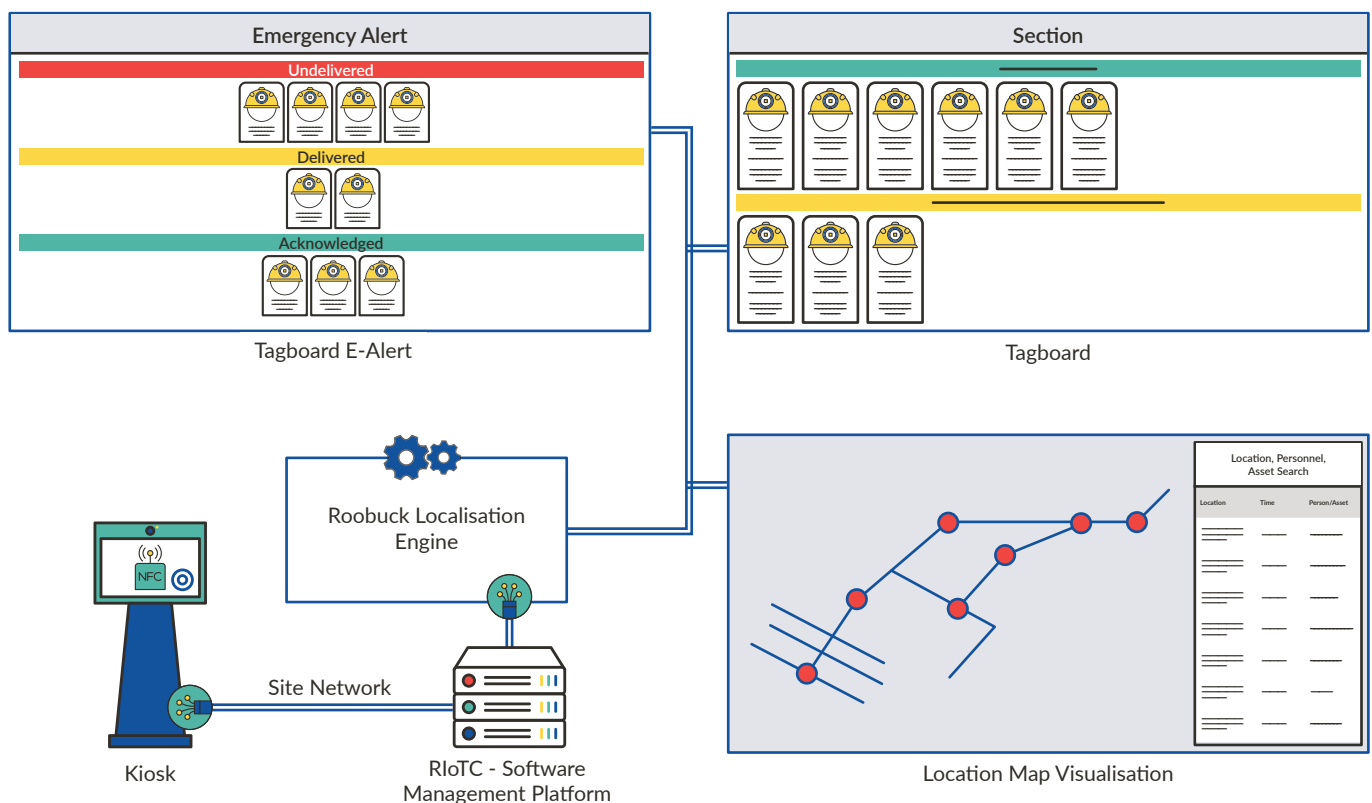
This solution enables you to implement:

- Personnel tracking
- Emergency evacuation
- Lone and isolated worker tracking
- Incident investigation

Enabling:

- Incident investigation
- Live monitoring and equipment control
- Data visualisation
- Big data collection

Personnel onsite can sign-in using their ID cards and IoT devices such as Roobuck's Intrinsically Safe WiFi/BLE Cordless Cap Lamp. These devices send out location, battery usage, IMU and other data to the Roobuck onsite server that feeds information to a Localisation Engine and Visualisation System. The locations of signed-in personnel can be seen on a map that updates as they move throughout the mine.

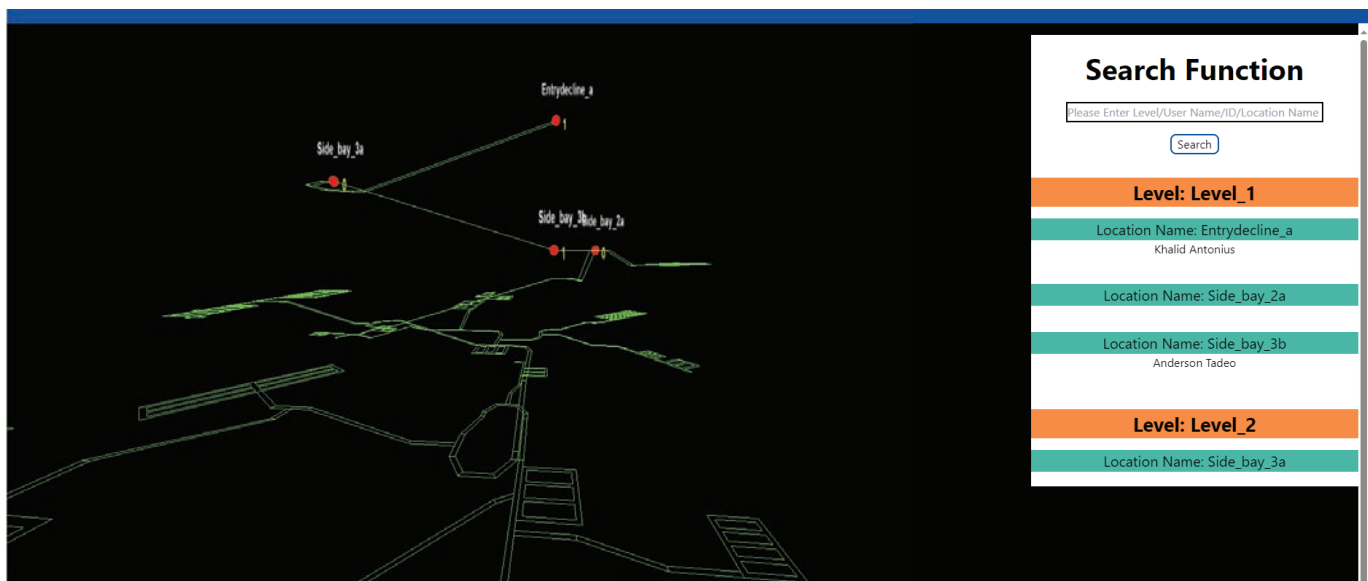


Digital Tagboard

Incorporating miner and cap lamp registration, shift sign-in/sign-out, miner to cap lamp pairing and inventory record, the Digital Tagboard is a comprehensible solution to record:

- Who is tagged in
- What section of the mine they are working
- Which kiosk they used to sign in
- What department they are assigned to
- What devices are assigned to the person. Examples are cap lamps, self-rescuers, gas monitors
- Nearest Access Point to identify personnel's location. Users paired with Roobuck IoT devices can have their locations with time stamps updated on the Digital Tagboard.

The Digital Tagboard has multiple views of all personnel tagged in. Personnel and their associated assets can be viewed by Section, Department, Kiosk and nearest AP location. It is now easy to search for personnel and their associated information using multiple large screens strategically located underground. Operational Supervisors & Safety Managers can access views on their PC screens and tablets.



Location Map Visualisation

Emergency Alert and Duress Call

On the Digital Tagboard there is a view to see the current status and location of all signed-in personnel during an emergency call event. Personnel that have yet to receive an emergency alert called by the control room are placed into one category, **Undelivered**. A second category, **Delivered**, displays personnel who have received the emergency alert, but are yet to respond. A final category, **Acknowledged**, displays personnel that have acknowledged the emergency alert by pressing the button on their flashing I.S. WiFi/ BLE cordless cap lamp.

The Digital Tagboard also displays and alerts the control room to any signed in personnel that make a duress call using the IoT device. To make a Duress Call, hold down the button on the cap lamp or belt tag.

IoT Device/Data Management with Solution Customisation for Underground Coal & Petrochemical

Increase Safety, Improve Efficiencies Through Technology

Roobuck's IoT device management solution is essential for maximising the value provided by your personnels' equipment and Intrinsically Safe cap lamps on site. Intrinsically Safe IoT devices enable critical solution deployments such as Tracking and Digital Kiosks. Over-the-Air updates and mass device configurations ensure your site can rapidly deploy new solutions/network improvements/expansions without the risk of making your IoT devices redundant.

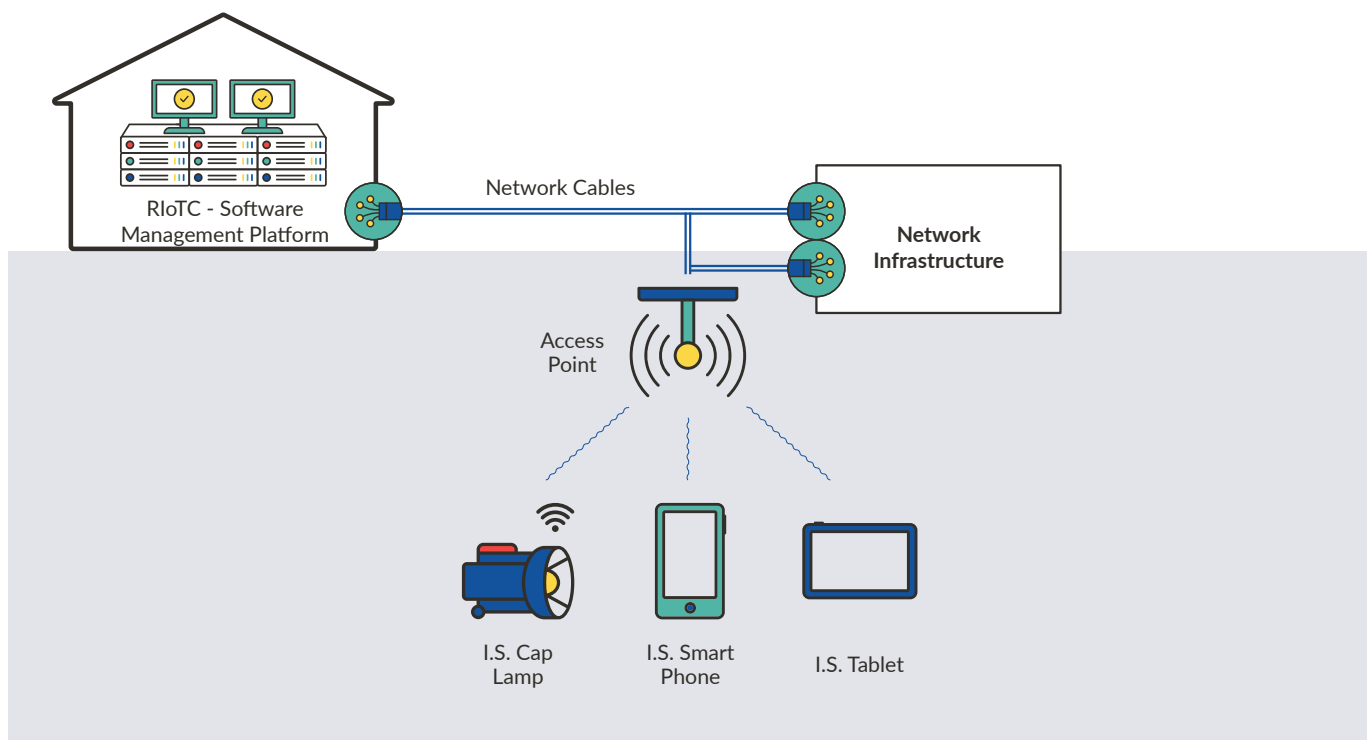
This solution includes our device management platform which includes:

- Over-the-Air updates
- Bulk configuration
- Customisation opportunities
- Integration services

Enabling:

- Big data collection
- Knowledge generation
- The ability to facilitate AI

Roobuck's team of specialist engineers can create custom solution integrations for your site specific projects.

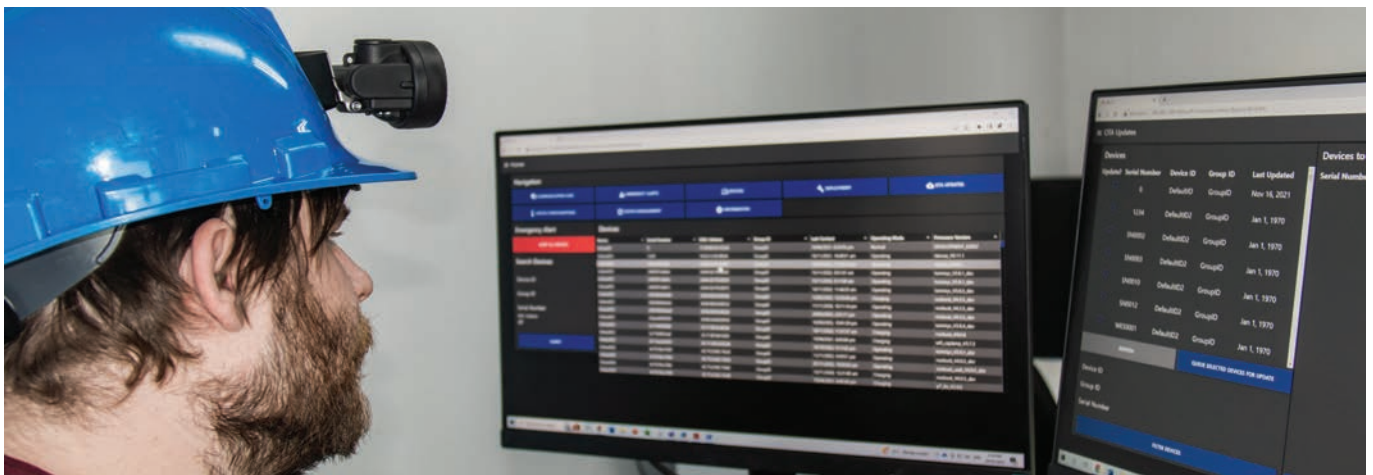


RloTC – Device Management Software Platform

The Roobuck Internet of Things Configurator, RloTC, is a platform for managing Roobuck IoT Devices such as Roobuck's WiFi/BLE cap lamps or belt tags. This software runs in an onsite server and can be configured to connect to devices that are registered on your network.

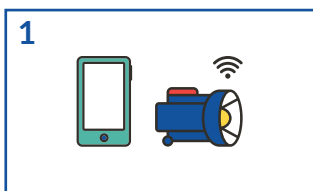
This platform performs the following functions:

- Over-the-Air firmware updates
- Historical data of communication logs from IoT devices
- User device allocation and management. This is for sites with devices permanently assigned to personnel
- Configurations: network, lighting, flashing patterns and operations
- Two-way signalling, including individual paging with historical data of communication logs
- Systems integration via MQTT to Roobuck solutions or external platforms

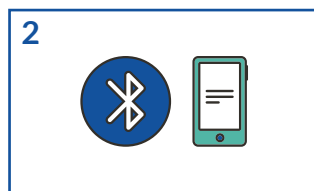


Mobile RloTC

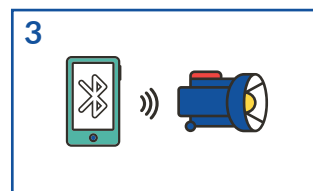
Roobuck's Mobile Configuration App for Android devices allows for immediate diagnosis and configuration of Roobuck IoT devices via Bluetooth pairing.



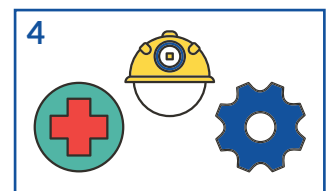
1
A device's internal NFC tag is scanned using an Android device.



2
The BLE MAC address and serial number is read from the tag and displayed on the device.



3
By using BLE, new WiFi and MQTT credentials and settings can be set on the device.



4
Device health checks and user registration details can be retrieved from central database via MQTT. Current device configurations can be read via BLE.

Personnel Sign-In, Sign-Out &/or Assignment of Assets

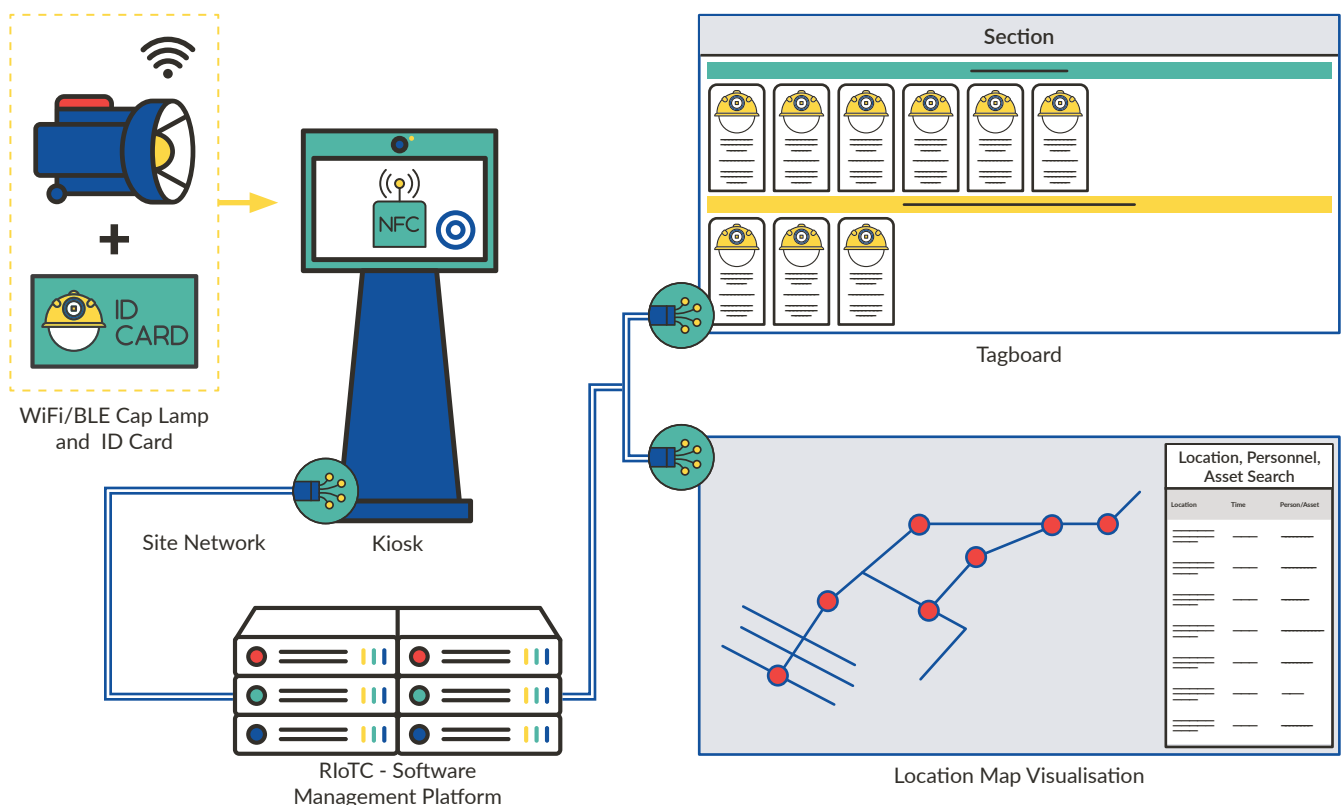
Increase Safety, Improve Productivity & Operational Efficiency

Hand back time to your busy team by implementing an automated sign-in/sign-out solution that is linked to your tracking and asset assignment systems. Avoid human error and equipment misplacement by assigning assets to personnel who sign-in, then track their location underground using WiFi and BLE. IoT Solutions using Intrinsically Safe devices are available.

This solution enables you to:

- Trace who is signed-in & signed-out
- Implement automation tracking
- Automate processes to avoid human error
- Integrate into systems
- Implement asset management
- Comply to safety policies and procedures
- Implement productivity enhancements
- Collect big data for analytics & reporting

Roobuck provides IoT personal devices such as WiFi/BLE cordless cap lamps and belt tags that are designed to be assigned to your staff via a kiosk terminal. Rugged touch screens with NFC scanners run our Digital Kiosk software that allows personnel to scan their ID and IoT devices. These devices then send data to our Roobuck onsite server that can be hosted locally onsite to enable tracking and emergency alert applications. Roobuck has a specialist R&D team that can integrate your existing ID card system into our Digital Kiosk as a customised site specific project.



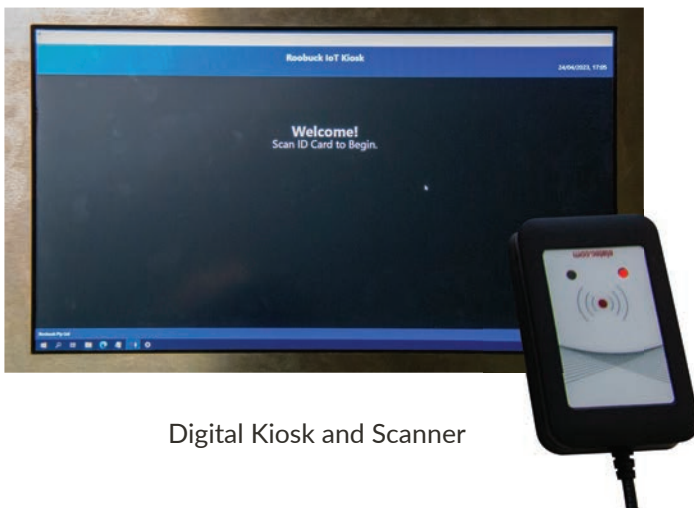
Digital Kiosk Linked to Live Applications

Personnel scan their ID card, then their equipment. Equipment can include a Roobuck IoT device, such as a WiFi/BLE cap lamp or belt tag or any device with an NFC sticker or tag attached. This person is then displayed on the Digital Tagboard and is visible on the Location Map Visualiser in real time. They will also receive emergency alerts sent via the evacuation tool, and can send duress calls, which will be received and displayed on the Tagboard. Emergency Alerts and Duress Calls are simultaneously displayed on operational PCs and tablets.

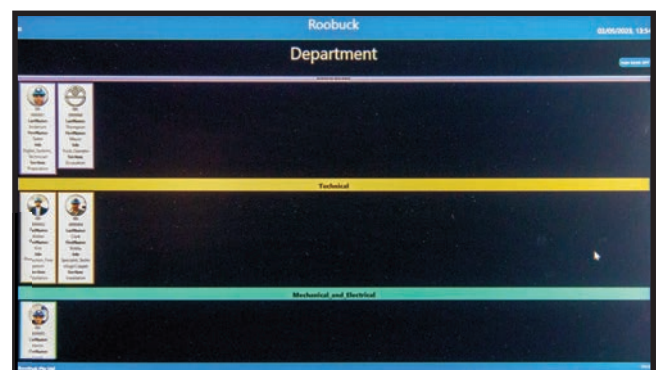
Asset Assignments

Equipment such as a hard hat or respirator can be registered into the system database.

- NFC tags or stickers are attached to equipment.
- The equipment is registered using the Tag Configurator Tool
- When a member of your team is signing-in to work, they scan their ID card, IoT device, and any registered equipment they are taking underground.
- If a vital piece of equipment is not scanned as part of sign-in, a digital record is kept and the control room can be alerted. This procedure can be configured to match your current compliance policy system.
- When a signed-in person is selected on the Digital Tagboard, a list of all their equipment is displayed
- Equipment usage data is stored and available for integration into your maintenance cycle system so you can make sure there is a record of all critical equipment going underground.



Digital Kiosk and Scanner



Tagboard

Intrinsically Safe Cordless Cap Lamps

Currently, Roobuck has one Intrinsically Safe IoT device to complement our MineloT solutions for petrochemical environments. The brochure for the KH4E-WB-Ex with product information and specifications is on the next page.



KH4E-WB-Ex

I.S. WiFi/BLE Cordless Cap Lamp

Technology



WiFi 802.11 b/g/n



13.56 MHz for use with your Kiosk, Digital Tagboard and Inventory solutions



Bluetooth V4.2, BLE



IMU for your movement data collection and personnel safety applications



UHF 860 - 960 MHz RFID can be integrated into tracking, registration & access control systems



Compatible with Roobuck solutions or your choice of enterprise tracking software

Roobuck is developing Cap Lamps, Belt Tags and Portable Tags utilising various wireless technologies including LTE, DSRC, UWB and LoRa.

Emergency Management

Using the Roobuck Emergency Management System you can dramatically reduce the time it takes to inform personnel underground to evacuate. Roobuck's I.S. WiFi/BLE cordless cap lamps, that are signed-in using the Digital Kiosk, will respond to emergencies sent from the emergency management system by flashing.

When personnel press the button on their flashing device, they acknowledge receipt of the emergency message. They can also make a Duress Call by holding down the button of their device, prompting the control room to respond and make contact.

I.S. WiFi/BLE Cordless Cap Lamp

The Intrinsically Safe WiFi/BLE cordless cap lamp is designed to enable the following Mine IoT Solutions for petrochemical environments:

- Personnel, Vehicle and Asset Tracking and Emergency/Evacuation
- Personnel Sign-In, Sign-Out and/or Assignment of Assets
- IoT Device and Data Management with Solution Customisation

Technical Features



WiFi 802.11 b/g/n



Bluetooth V4.2, BLE



UHF 860 - 960 MHz RFID can be integrated into tracking, registration and access control systems



13.56 MHz for use with your Kiosk, Digital Tagboard and Inventory solutions



IMU for your movement data collection and personnel safety applications



Cap Lamp Features



Three operating modes – Main, High-Beam, Auxiliary



Adjustable beam angle to point wherever you look



Lightweight, comfortable and ergonomic



Rugged casing made from GERMAN FRAS material for rough handling & wide ambient temperature range



World's safest and most reliable Panasonic battery



Made from Top Brand, high quality components and parts

Product Specifications



IP Rating - IP67

Submersible in water up to 1m for 30min



Illumination

5000 Lx Main Mode
8000 Lx High-Beam Mode



Charging Time

9 h



Running Time

14 h Main Mode



Weight

160 g / 5.64 oz

Certifications



IECEx

- Certificate #: IECEx TSA 19.0008
- Ex Marking: Ex ia op is IIB T3 Gb

Standard #:

- IEC 60079-0
- IEC 60079-11
- IEC 60079-28



FCC ID:

2BDKT4EWB



CE



RCM

Integration Specifications

MQTT Compatible

API Available

LED Flashing Modes
Configurable

Running Time/Brightness
Configurable

Charging Banks for 8/35/53 Cap Lamps

IoT Device Charging Options R00BUCK

CB53X - Charging Bank

For 53 IoT Cap Lamps, Belt Tags and Portable Tags

Features

- Automatic over-load protection – cuts off the circuit when Cap Lamp battery is fully charged
- Label groove
- Padlock bracket
- Charging Indicator on Charging Bank
- Charger Indicator on Cap Lamp
- Includes wall mounting kit
- 2 x foot pads
- Circuits are easily accessible for servicing

Specifications

Input	110 VAC
Dimensions	CB53X: 84 x 13 x 110 cm / 33.07 x 5.12 x 43.31 in
Weight	CB53X: 31 kg / 68.36 lb



CB8X - Charging Bank

For 8 IoT Cap Lamps, Belt Tags and Portable Tags



Features

- Portable, Wall Mountable, Vehicle Installation
- Locking Plate is optional extra (CB8X-LPU)
- Charging Indicator on Charging Bank
- Charging Indicator on Cap Lamp
- Automatic over-load protection – cuts off the circuit when Cap Lamp battery is fully charged

Specifications

Input	110 VAC or 12-24 VDC
Dimensions	33 x 21 x 5.5 cm 13 x 8.27 x 2.17 in
Weight	1.1 kg / 2.43 lb

Individual Chargers & Accessories

MCX: Single Mains Charger - EU, UK, AU, USA

UCX: Single USB Charger



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Other North American Catalogues

Product Catalogue for Surface Operations
and Industrial Applications

Product Catalogue for Underground
Hardrock Mines and Tunnels