



Industrial Batteries (UK) Limited

Main distributor of Alcad Ni-Cd Batteries in the UK and suppliers of Battery Support Services

Application Note No. 5

Industrial Batteries (UK) Limited

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Batteries for Emergency Systems

Our modern society is almost totally dependant on the provision of electricity for our day to day living. When this source of power fails, for whatever reason, it is essential that emergency systems, which are dependant on electricity to function correctly, should not be disabled. It is important, therefore, that a suitable back-up system is put in place.

Emergency lighting systems are battery-backed lighting devices that come on automatically when a building experiences a power outage. They are standard in new commercial and high occupancy residential buildings, such as college dormitories, and most building codes require that they are installed in older buildings as well.

In the case of exit signs, they are critical to the safety of the individual and most relevant codes (fire, building, health or safety) require them to be permanently lit, particularly when there is a loss in mains power.

In the case of automatic fire or intruder alarm systems, these are designed to detect the unwanted presence of a fire or an intruder by monitoring a change to the environment. These environmental changes will be typically heat, smoke, movement or similar measurable parameters and depend on the application. In both types of application, the sensors are linked to an automatic alarm system and must be independent of mains power.



In emergency lighting applications the battery is often required to provide an emergency source of power for periods in excess of three hours and so the value of the current drawn from the battery is low in comparison with the total stored energy.

It is normal practice for legislating authorities to specify that the battery must be capable of repeating its duty cycle no more than 12 hours after the termination of any emergency discharge.

In the case of fire and intruder alarms the battery is called on to work in a very similar way to emergency lighting batteries except that discharge is triggered by a fire or an unauthorised entry.

It is essential that batteries are able to retain their charge for long periods when on open circuit. This means that the emergency duty can still be performed at the end of a long power breakdown or in the event of a charger failure which may go unnoticed for some considerable time.

Modern alarm systems have relatively small energy requirements and require a smaller battery back-up system than an emergency lighting system.

Emergency lighting, despite the improvements which have been made in lighting efficiency, still require a substantial battery back up system if they are to provide good light levels for several hours.

It is often found that batteries in emergency lighting and fire & security alarms applications are used on a fit and forget basis and so the choice of the battery may therefore depend on its ability to recover from the effects of poor maintenance and to be always available to supply power when needed.

The requirements for a reliable and successful emergency lighting, fire or security alarm application can be summarised as follow:

- The highest level reliability is required as the system is designed to ensure the safety of people and equipment.
- Long life is required to reduce the high maintenance cost of replacing batteries in an occupied building.
- The low maintenance requirement is of primary importance as the system may not have easy access and life cycle cost is a major parameter.
- Good operation in uncontrolled environments has to be considered as the location of the system may experience extremes of temperature.

Nickel-Cadmium offers the following advantages to ensure complete system reliability and security.

- ✓ Ni-Cd offers complete reliability with lifetimes in excess of 20 years
- ✓ Ni-Cd has a high lifetime independent of performance.
- ✓ Ni-Cd has a simple and infrequent maintenance requirement.
- ✓ Ni-Cd lifetimes at elevated temperature are degraded far less than lead acid and it has a superior low temperature performance.
- ✓ Ni-Cd has no frequent battery replacements due to long lifetime and reliability
- ✓ Ni-Cd performance can be optimised for the duty cycle.
- ✓ Ni-Cd cycling ability is well within the requirements of the application.



Our Battery Ranges for emergency systems.

IBLUK supply premium quality Alcad industrial nickel-cadmium batteries. Our range of batteries suitable for this application include:

- A new concept in Nickel-Cadmium batteries, the Vantex high-technology, low-maintenance' design ensures a very high level of gas recombination and very low gas emission levels without the need for a pressure vent. This advanced battery conception means that the Vantex battery gives all the advantages of conventional open cells with the convenience of the Vantage ultra-low maintenance technology.
- The Small Single Cell Ranges are for general purpose applications, where reliability is a key factor, such as emergency lighting and alarms. An economical solution for your application, these optimised small capacity single cells will fit into existing cabinets, and also newly developed cabinets.

IBLUK Support

Industrial Batteries (UK) Limited has been serving the industrial battery market in the United Kingdom since 1997 and specialises in nickel-cadmium industrial battery supply and support.

We will size the optimum battery for your application from our extensive ranges, provide battery layouts, supply battery stands where required and help you to choose the most cost effective solution.

We also provide battery training, maintenance equipment, accessories and support services. Please do not hesitate to contact us.

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