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Charging of Excalibur Ni-Cd Battery Packs In New Luminaires and in Replacement Battery Packs

The Emergency version of the Excalibur Luminaire is a twin lamp product running either 18 or 36W T8 bi-pin or mono-pin lamps. In normal operation power would be on, both lamps would be operational and the battery pack would be on charge.

When mains power fails, for any reason, one lamp will switch off completely and the second will stay on at a reduced output of 35% for the 18W & 30% for the 36W. The emergency lamp will remain on for the duration of the battery capacity.

- The ballast circuit will prevent any deep discharge of the battery during this operation.
- The duration of a good / fully charged battery pack is in excess of 3 hours.

When new Excalibur Emergency luminaires or replacement battery packs are supplied the batteries will not be in a fully charged state.

It is the responsibility of the installer / user to

- Commission the luminaire when 1st installed and / or when the battery pack is replaced.
- Periodically test the luminaire to ensure it operates as designed in Normal & Emergency mode
- Periodically cycle the battery pack to ensure its operational capability is maintained.

Note – in some circumstances Excalibur luminaires may be

- Required to be switched on or off from a switch or photocell. To operate in this mode a second Live switch wire is required to maintain the battery pack charge when the luminaire is off.
- Required to be supplied with battery monitoring. The catalogue option for this is: “/BCM”. The battery control & monitoring function allows the ballast to go into self test mode and carry out automatic testing & cycling of the battery. (Further details of the test sequence and LED signals can be found in “Victor Technical Bulletin 10/03”).

Victor’s recommendations for commissioning and testing of luminaires / battery packs are as follows:

Commissioning of New Excaliber Luminaire:

The charge/discharge/charge sequence must be carried out once to ensure the full capacity of the battery is reached.

The method for this would be as follows:

- Ensure the power supply is on and the luminaire is operational in normal mode (lamps on, battery pack on charge) for a minimum period of 24 hours
- Switch the power supply off and ensure the luminaire is operational in emergency mode. (One lamp will be off, the second lamp /emergency lamp will continue to operate at reduced output)
- Allow the luminaire to continue to operate in emergency mode until the battery is fully discharged and the emergency lamp extinguishes..
- Reinststate the power supply and ensure the luminaire returns to operation in normal mode.
- After a minimum period of 24 hours the battery will be fully charged.

New fully charged batteries will continue to operate the luminaire in excess of 3-hours.

Fully maintained batteries which are periodically cycled should give a minimum of 6 years of useful life. This is dependant of usage and ambient temperature.

High ambient temperatures, in excess of +30°C, can shorten the lifetime of Nickel Cadmium batteries.

- The 6 years of useful life guarantees that the full 3 hours duration will be achieved.
- As the battery ages, this duration may be as low as 2 hours in a 10 year old battery.



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Commissioning of Replacement Battery Packs:

This should be a repeat of the steps above carried out for a new Luminaire.

Periodic Test of Luminaire in Emergency Operation & Cycling of Battery Packs:

It is essential to test the emergency operation and to cycle the batteries to ensure correct operation and full capacity is achieved.

Note: Premature reduction in capacity of battery will occur if regular cycling is not carried out.

Victor Lighting would recommend that this is carried out at least once every year.

The method for this would be as follows:

- Ensure the power supply is on and the luminaire is operational in normal mode (lamps on, battery pack on charge) for a minimum period of 24 hours.
- Switch the power supply off and ensure the luminaire is operational in emergency mode (One lamp will be off, the second lamp /emergency lamp will continue to operate at reduced output).
- Ensure the luminaire continues to operate in emergency mode for the minimum duration required for the individual site.
- Allow the luminaire to continue to operate in emergency mode until the battery is fully discharged and the emergency lamp extinguishes. (This will be in excess of 3 hours for a battery pack in good / fully charged condition).
- Reinstate power supply and ensure the luminaire returns to normal mode of operation

It should be noted that a fully discharged battery requires 24 hours charge to return to a fully charged state.

Periodic replacement of lamps

Fluorescent lamps should be replaced in line with the manufacturer's instructions with regards to lamp life. Expected life of lamps will vary from one manufacturer to another.

Prior to the introduction of EOL (End of Lamp Life) functionality into electronic ballasts used in Exe luminaires, there was a possibility for lamps reaching the end of their life to damage the ballast. For further information on this subject and on lamp types suitable for use in the Excalibur, refer to the following bulletins, found in the tech support section of our website:

1. 06/01 – Victor Lighting End of Lamp Life
2. 07/01 – T8 or T12 Lamps

If any further information is required on this subject please contact the Technical Support Department at Victor.

Ian MacLeod - Technical Manager

Additional Victor reference documents (available to download from the tech support section of our website: www.victor-lighting.com)

1. 10/02 - Excalibur VL24E fault diagnosis
2. 10/03 - Excalibur VL24E – Battery Monitoring Functionality