

Lithium Battery State of Charge**LITHIUM BATTERY STATE OF CHARGE****General**

Recently, there have been a couple issues arising whereby customers are replacing their old lead batteries with new Lithium ones, only to find that the new Lithium Batteries are not lasting more than a couple hours in their application (particularly, in Alarm systems). The reason for this, relates to the State of Charge that Lithium Batteries are shipped at.

State of Charge

Transportation regulations call for all Lithium Batteries to be shipped at between 30% - 50% state of charge. This was implemented as a safeguard for Transporters, Shippers and even Couriers, carrying Lithium Batteries around the world. As such, all Uniross Lithium Batteries are required by law, to be transported at this state of charge. If you've ever purchased a replacement battery for a laptop, or even a new Laptop or Cellphone for that matter, the first instruction given, is to fully charge the battery. This is because these products are also using Lithium batteries and as such, are also governed by these State of charge shipping regulations.

Loadshedding

Combine this state of charge issue with Loadshedding and you could be faced with a further problem. If a new Lithium battery is installed into an alarm panel during a bout of Stage 4 loadshedding, for example, the battery never has an opportunity to fully charge before it is called upon to power up the alarm. In essence, the battery is being expected to power the alarm during a 2-4hr power outage, but only starts out with 30% charge.

This is further exacerbated when only a few hours later, loadshedding hits again, and the battery has once again, not had the opportunity to fully recharge. And so, the cycle continues, until loadshedding is suspended and the battery is finally given the chance to fully charge. Thereafter, this problem should resolve itself. Once a fully charged Lithium battery is installed, it should have no problem lasting through any stage of loadshedding, but it needs to start out fully charged to be given a fighting chance.

Lithium Batteries in Alarms

In addition to the problem of the battery only starting at between 30% -50% state of charge, an Alarm Panel is designed to charge a battery fairly slowly (remember, the battery backup was designed to power the alarm only once in a while, in the case of a power failure and certainly not as frequently as we experience here in South Africa during Loadshedding). So, combine this slow rate of charge coming from the Panel, with the low state of charge as required by law, and you have a "perfect storm" that results in the battery not being able to fully charge before the power fails.