



## DOUBLE THE LIFE OF VRLA BATTERIES



**MONITORS  
BATTERY  
VOLTAGE**



**AUDIO AND  
VISUAL  
ALERTS**



**AUTOMATIC  
CONFIG**

VRLA batteries fail and are replaced too frequently. These batteries are maintenance free but are susceptible to permanent damage from over discharge. Buying a better battery won't help this as even the best quality VRLA battery can be killed by one major discharge event.

The LVA from Philadelphia Scientific will alert operators that they need to put the batteries on charge before costly damage has occurred.

Stop replacing and start saving.

### HELPING TO PROTECT BATTERIES

#### UNAWARE



Machines like scissor lifts, floor cleaners and golf carts are often left idle for long periods of time. Due to parasitic loads and normal self-discharge, the batteries will over discharge all by themselves.

When machines are in more frequent use, operators will sometimes use a vehicle until the battery is flat and then just move on to another machine, rather than take the discharged one back for charging. Both result in over discharged batteries meaning:

- Machines not usable when required.
- Battery capacity permanently damaged.
- Batteries need replacing frequently.

#### ALERT



The LVA prevents fatal battery damage by emitting an audible alert when the battery should be critically charged.

The loud alarm protects the batteries on infrequently used machines and prevents operators from abandoning discharged machines instead of recharging.

With both an audio and visual alert, the LVA makes it easy to know when a battery in a vehicle needs charging,

- Double battery life.
- Reduce cost of premature battery replacement.
- Reduce the probability of a major over-discharge.

## WHY DO VRLA BATTERIES DIE EARLY?



### THE PROBLEM

Due to the perceived problems battery watering and safety of liquid electrolyte, valve regulated, known as VRLA batteries, are often the first choice to be power pallet trucks, floor cleaners, buggies, aerial lift platforms, and mobility vehicles. These machines are used in retail environments, airports, warehouses and more.

While the main failure mode of flooded batteries is poor watering practices, valve regulated batteries are particularly vulnerable to over discharge. When a VRLA battery is over discharged internal corrosion will permanently reduce the capacity and reduce charge acceptance. This has nothing to do with the quality of the batteries, in fact it is often the opposite, it has been shown that even the best made VRLA battery can be rendered completely useless with one major over discharge event.

This problem is caused by the users not being alerted when it is critical that the batteries are recharged. If operators abandon discharged machines instead of recharging, that machine will not be usable by the next operator and the batteries will degrade rapidly in the discharged state.

Similarly, the batteries on infrequently used machines will slowly self-discharge, which means those machines will not be usable when needed and the batteries will degrade rapidly.

The performance of a machine is only as good as the batteries that power it, and as a degraded battery stores less energy, the run time and the performance will reduce. This can result in expensive service calls to try to diagnose the poor performance but eventually the performance reduces to the point where the batteries need to be replaced. It is common that these batteries only achieve half of their expected service life, doubling the total cost of ownership.

## DOUBLE THE LIFE OF YOUR BATTERIES

### THE SOLUTION

The LVA is a low voltage alert that monitors the battery and will alert operators when it critically needs to be charged to avoid damage. If the state of charge is acceptable the LVA flashes green. If the battery drops below the critical state of charge the LVA emits a loud audible warning tone, flashes red, and displays an illuminated a charger plug icon, universally understandable without instruction. If the LVA starts to make a sound, the operator can look at it and immediately see that charging is critically required. The LVA is attached to the battery so it cannot be defeated by simply disconnecting the truck from the battery like the vehicle battery gauges.

The alert continues until the battery is put on charge. After start of charge is detected, the audio alert will stop but the charge indicator and red flashing will continue until the battery reaches at least 60% charged. If the charger is disconnected before this, the audio alert will resume. This SmartSense feature stops operators from plugging in for just a few minutes to continue to use a vehicle with an over discharged battery.

The LVA could not be easier to install. It is connected to the full output of the battery and is polarity insensitive. The waterproof housing and self-adhesive strip allows for internal or external mounting. Our unique Flexitap electrical connectors mean that the installation takes less than a minute and no tools are required. The LVA automatically configures itself and can be connected to 24v to 80v batteries\* and is universally compatible with all manufacturers of VRLA batteries.

VRLA batteries are often the best choice for powering industrial machines. Unfortunately, as VRLA batteries are severely damaged by over discharge they often need to be replaced too frequently.

By using the LVA it is possible to double the useful life of VRLA batteries by eliminating unintended over discharge.

## PROVIDING FULL BATTERY LIFE POTENTIAL

CLEAR, EASY TO UNDERSTAND ALERTS

SIMPLE INSTALLATION

LOW PROFILE, DURABLE SHELL

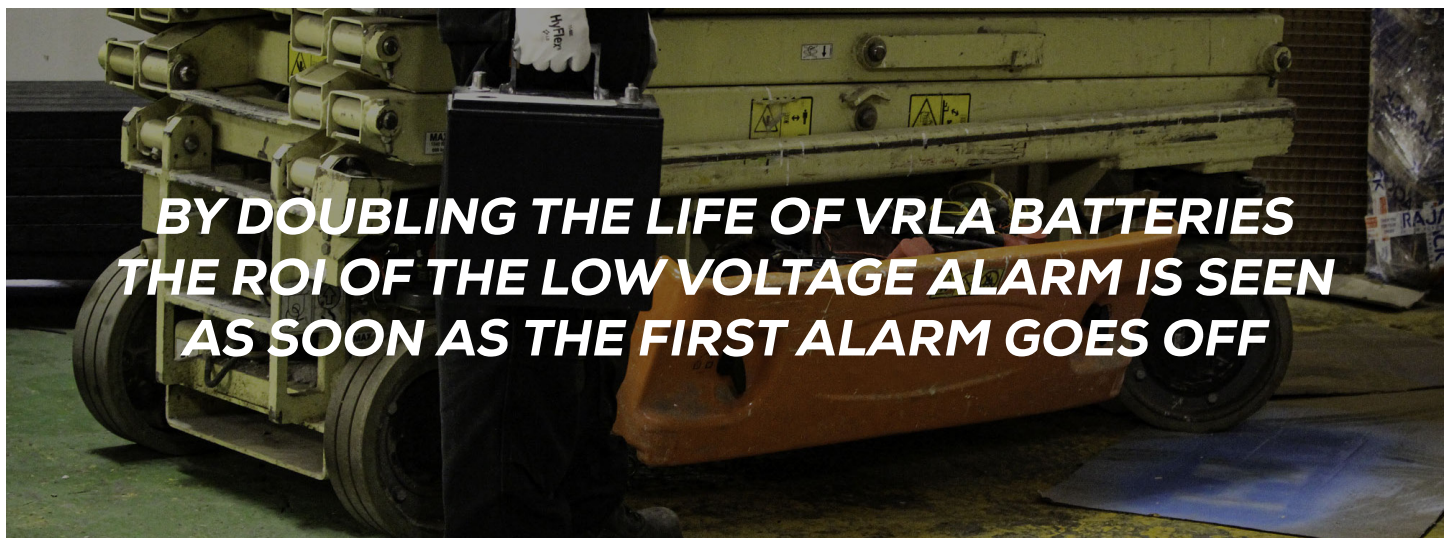
ULTRA LOUD ALARM

Once connected to the output of the battery, the LVA checks the voltage of the battery and automatically configures itself.

The LVA is constantly monitoring the battery voltage and calculating a rolling average of the state of charge. If the voltage is in an acceptable range, there is a short green flash every 30 seconds. As the rolling average starts to dip below acceptable levels, there is a single orange flash followed by a short alarm. Once the rolling average reaches a critical stage there is a constant alarm with alternate flashing red and orange LED's.

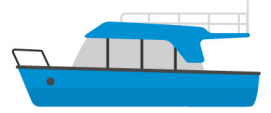
This constant alarm prompts operators to check the alert and plug the machine in or report it if required.

### LED INDICATIONS

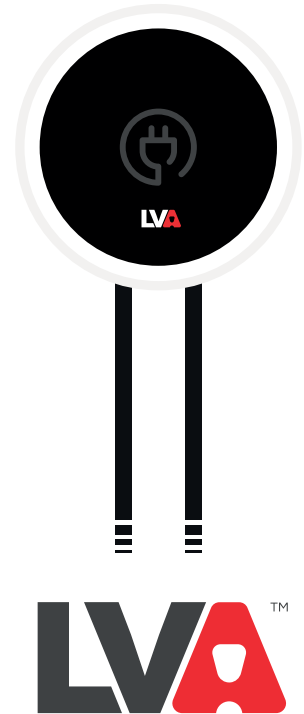


**BY DOUBLING THE LIFE OF VRLA BATTERIES  
THE ROI OF THE LOW VOLTAGE ALARM IS SEEN  
AS SOON AS THE FIRST ALARM GOES OFF**

## TECHNICAL SPECIFICATIONS - LVA: LOW VOLTAGE ALERT



SPECIFICATION	
Operating voltage	24-80V Nominal (72V Excluded)
Nominal Current	5-20mA
LED Indications	Green: OK Yellow (Centre): Charge Soon Red (Edge) + Yellow (Centre): Charge Now
Reverse Polarity Protection	Yes
Over-discharge Threshold	80%
Connections	(Q) FlexiTap
Fuses	125mA (FlexiTap)
Warranty	1 Year
Flame Retardant	UL-VB
FlexiTap Connection	ACC-LVA-Q
Cable Colour(s)	Black (-), Black (+)
Cable Length(s)	(-) 645mm (+) 645mm
Dimensions	
Length	44mm
Width	44mm
Height	18mm
Weight	42g



# LOW VOLTAGE ALERT™

PROTECTING YOUR BATTERIES AGAINST PROLONGED OVER-DISCHARGE



**FOR PRODUCT SPECIFICATIONS, USER GUIDES AND FURTHER INFORMATION PLEASE VISIT:**

[HTTPS://WWW.PHLSCI.COM/PRODUCT-LINES/BATTERY-ALERTS/LOW-VOLTAGE-ALERT/](https://www.phlsci.com/product-lines/battery-alerts/low-voltage-alert/)

\* Please note an LVA for a 72v battery can only be ordered via direct enquiry.

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