

# Integrel

ADVANCED POWER GENERATION & CONTROL

## Integrel Smart Switch

### Features

- Prevents damage to Lithium Ion or Lead Acid batteries.
- Ensure batteries stay within manufacturer's safe levels of use.
- Provides fast, secure disconnect.
- Helps extend battery life.
- Protects against temperature spike, voltage and overcharge.
- Works with existing Battery Management Systems as an additional layer of protection.
- Can operate as a stand alone layer of protection, when all other protections have failed
- Additional benefits when connected to the integrel system include:
  - Screen feedback
  - Integrel charge on/off
  - Integration with integrel battery bank sensors to provide even more feedback
- Can optionally connect directly to inverter charger to prevent overload.
- Provides selective shutdown of high DC loads to allow longer operation of critical functions



# 01 Why do I need an intelligent switch?

The Integrel smart switch forms your first line of defence against battery damage. The switch is designed to prevent damage to Lithium Ion or Lead Acid batteries by disconnecting the bank when certain alarm conditions are met. It ensures batteries are operated within the manufacturer's operational and warranty conditions to maximise battery life expectancy. The Integrel safety switch protects against temperature, voltage and over current. These are provided natively whilst an additional layer can be added by connecting to the battery's own battery management system (BMS) if available. The switch can work as a stand-alone device which gives protection even when everything around it has failed.

# 02 Integrel system integration

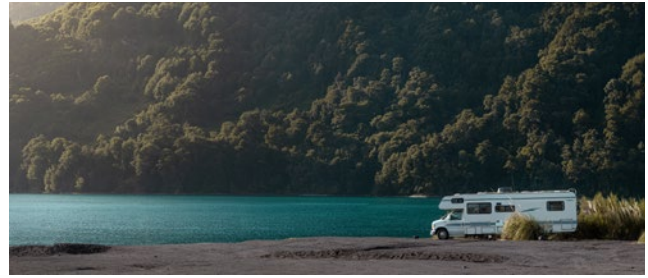
Connecting the switch to the Integrel system adds additional benefits including screen feedback, Integrel charge on/off control and integration with the Integrel battery bank sensors which provides even more protection.

# 03 Fail safe operation

The switch can be used in conjunction with the battery manufacturer's safety switch to provide a secondary level of protection. The switch can optionally connect to an inverter/charger to turn this off BEFORE loads get too great for the battery charge state, providing a softer protection mode. The switch can also drive a 12V fan to keep the battery box cool and this is done from the 48V supply via an onboard DC/DC converter.

# 04 Selective shutdown of high loads

The switch can work as an addressable switch to selectively shut down heavy DC loads sequentially to maximise battery life for more critical functions.



## Specifications

<b>Voltage input:</b>	up to 60V
<b>Breaking current capacity:</b>	400A nominal, 730A peak
<b>Bus bar breaking standards:</b>	UL583 and UL508
<b>Breaker voltage drop:</b>	<50mV
<b>Durability:</b>	> 1,000,000 cycles
<b>Contact material:</b>	Weld resistant Silver alloy
<b>Dual temperature sensors:</b>	-80 to 200°C
<b>Onboard switch temperature sensor:</b>	-20 to 80°C
<b>Operation:</b>	Automatic or manual actuation Arc suppression Switch position LED feedback
<b>Low parasitic load: Communications with the native BMS: Communications with Integrel: Fan output with battery temperature control:</b>	~ 1mA CAN, RS485, RS232, simple dual signal line CAN 12V @ 5A

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