

Booma RC

BRC-IS2A *Intelliswitch V2*



www.boomarc.com

Congratulations for choosing the Booma RC Intelliswitch. Intelliswitch is the result of 24 months of design and testing and was designed for giant scale RC and Robotics enthusiasts by a giant scale RC and Robotics enthusiast. Intelliswitch offers features never seen before in Radio Control applications in a compact, light weight and affordable package.

Before you install Intelliswitch please take the time to read these instructions. A few simple steps will have you successfully using this advanced product in no time at all.

Intelliswitch Features:

- **Microprocessor control** - of 2 x independent high powered digital switching circuits.
- **Fail Safe Switching** - of both batteries.
- **DualBat Battery Redundancy** - if a battery fails (BRC-IS2A only).
- **Battery Voltage Monitoring** - of each battery.
- **Lowest Battery Voltage since last battery connection** (BRC-IS2A only).
- **Battery Consumption** - of each battery in mA (BRC-IS2A only).
- **Temperature** - of the internal components.
- **Time of Last Flight** or usage time.
- **Built in Flight Log** - Displays the number of flights on your models frame.
- **Selectable Battery Type** - for monitoring of LifePO4, LiPo and Lion battery chemistries.
- **Low Voltage Alarm** via LCD indication.
- **2 x 10 Amp** constant current capability.
- **2 x 12 Amp** for 30 seconds.
- **Calibration Algorithm** for accurate current consumption monitoring (BRC-IS2A version).
- **Micro-Power** design less than 0.4mA in standby mode.
- **Input Voltage 6v to 13v.**
- **Weight 28 grams.**
- **Dimensions 56mm x 22.8mm (2.2 x 0.9 inches).**

DO'S and DON'TS

Intelliswitch comes with 2 completely independent solid state digital switches **and the new V2 is designed to isolate 2 batteries of the same chemistry and capacity for receiver and servo switching.** A matched pair of batteries will give best performance.

DO NOT use Intelliswitch with batteries of different voltages or different battery chemistries unless you are an advanced user that is aware of the consequences. Mixing of different battery voltages or chemistry types when using Intelliswitch may cause the battery with the highest voltage to be consumed first. This may be desirable if you are experienced with modeling or Robotics, however you do this at your own risk.

It is recommended that Intelliswitch is used in conjunction with a Booma RC Dual Battery isolator for battery fail-safe single receiver usage.

NEVER USE INTELLISWITCH (OR ANY DUAL SWITCH) TO SWITCH AN IGNITION SYSTEM AND RECEIVER SYSTEM AT THE SAME TIME. INTERFERENCE FROM THE IGNITION SYSTEM MAY CAUSE LOSS OF CONTROL OF YOUR MODEL.

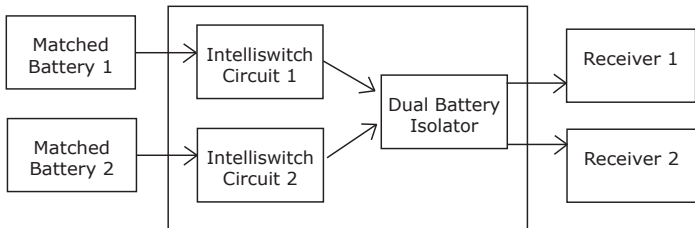
To switch your models gas ignition system we recommend the Booma RC Ignition Switch, designed to isolate any ignition interference from your receiver system.

WARNING

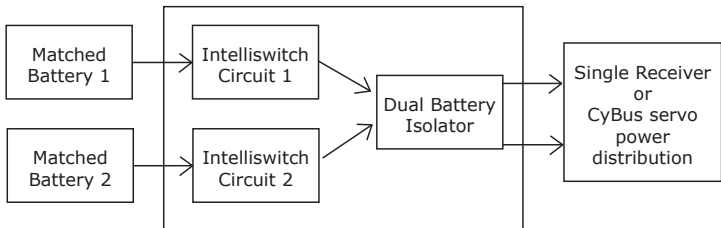
Please observe correct connection polarity i.e. **RED is battery positive** and **BLACK is battery negative**. Incorrect polarity will damage the main circuit output capacitor(s) voiding warranty.

Typical Connection Examples for Intelliswitch V2 with DualBat DualBat Battery Redundant System.

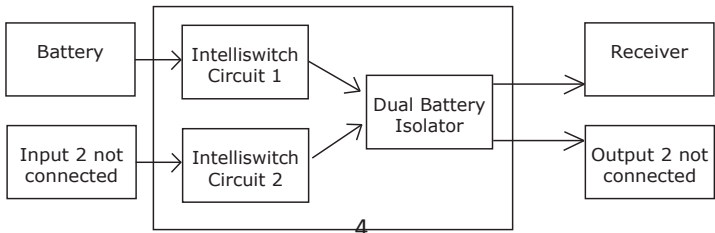
Intelliswitch Version 2 with DualBat Battery Redundant System and Dual Receivers



Intelliswitch Version 2 with DualBat Battery Redundant System and Single Receiver.



Intelliswitch Version 2 with Single battery System



Lets get started

Connect both batteries to Intelliswitch (see page 15 for connection details). Do not connect Intelliswitch to the receiver just yet. The display will show the letters “RSET”. Intelliswitch is asking whether you want to reset the battery capacity usage meters which of course you want to after each battery recharge.



This functionality allows you to monitor how much capacity has been drawn out of your batteries. Intelliswitch will present you with the reset option every time the batteries are connected.

After connecting **freshly charged** batteries to Intelliswitch you reset the battery usage meters by pressing the **GREEN “ON/OFF”** button once.



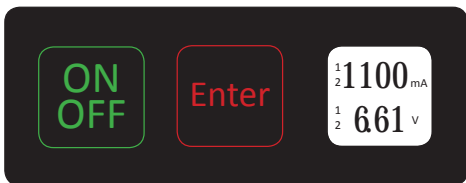
Intelliswitch will then flash the letters “SURE”.

To confirm that you want to reset the capacity meters press the **GREEN “ON/OFF”** button again and Intelliswitch will reset the meters to show 0 mA. To cancel the reset after selecting sure, press the **RED “ENTER”** button once.

HINT - If you don't want to reset the meters just press the **RED “ENTER”** button once after connecting batteries and Intelliswitch will keep the existing capacity information.

IT IS IMPORTANT THAT YOU RESET THE CAPACITY METERS AFTER EACH RECHARGE OF YOUR BATTERIES. CAPACITY METERING IS YOUR RESPONSIBILITY!

Turning Intelliswitch ON and OFF



Intelliswitch is supplied with 2 x fail-safe switches. As long as power is supplied to Intelliswitch it will hold the state of the switch. Intelliswitch also comes with additional protection circuitry to avoid an accidental ON or OFF state.

To Switch Intelliswitch ON (after battery connection is made) **PRESS AND HOLD** the **GREEN "ON/OFF"** button. Intelliswitch will start to FLASH "TURN ON". While flashing press the **RED "ENTER"** button once and Intelliswitch will switch both batteries on supplying power.



To Switch Intelliswitch OFF - PRESS AND HOLD the **GREEN "ON/OFF"** button. Intelliswitch will start to FLASH "TURN OFF". While flashing press the **RED "ENTER"** button and Intelliswitch will switch both batteries off and removing power to the receiver(s).



Sleep Mode

SLEEP MODE WILL ONLY ACTIVATE WHEN INTELLISWITCH IS IN THE OFF STATE

Intelliswitch uses a state-of-the-art low power technology to maximise the life of your batteries. While in the off state Intelliswitch will go into a sleep mode using only 0.4mA to conserve power. You can leave Intelliswitch connected to the batteries however it is advisable to disconnect Intelliswitch from the batteries if storing your model for a long period.

WHAT HAPPENS IN SLEEP MODE?

To conserve power Intelliswitch turns off all unnecessary circuits, blanks the display and turns off the display processor to conserve battery power.

WAKING INTELLISWITCH FROM SLEEP MODE.

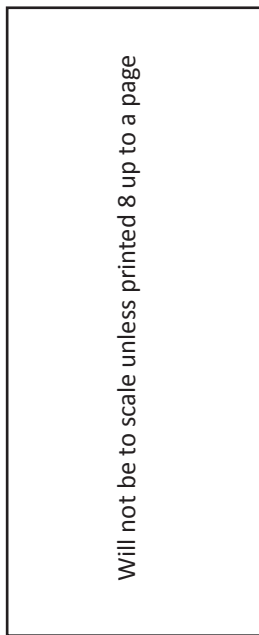
In sleep mode INTELLISWITCH is monitoring the front panel buttons.

To wake Intelliswitch from sleep mode press either of the front panel buttons. The display will light up and show "SYST OFF". Intelliswitch is awake and set to display page 1.



Template Cutout for Intelliswitch

22.8 mm (0.9 in)

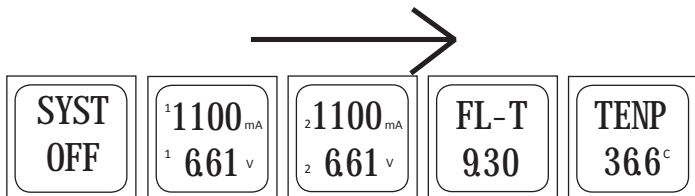


56 mm (2.2 in)

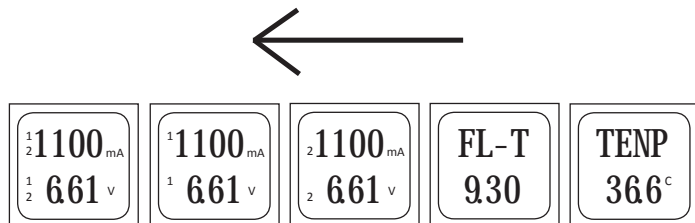
Paging Through the Displays

In both ON and OFF state, Intelliswitch displays several pages of information.

Pressing **"ENTER"** moves one page to the right.



Pressing **"ON/OFF"** moves one page to the left.



Intelliswitch Pages



Page 1- In (**Switched Off Condition**) shows that both battery circuits are switched off. Paging is active. Sleep mode will commence if a button is not pressed within 2 seconds

Intelliswitch Pages

¹ 1100_{mA}
¹ 6.61_v

Page 1- **(Switched On/Off Condition)** shows battery 1 mAh consumption and battery 1 voltage.

² 1100_{mA}
² 6.61_v

Page 2- **(Switched On/Off Condition)** shows battery 2 mAh consumption and battery 2 voltage.

FL-T
930

Page 3- **(Switched On/Off Condition)** shows Flight Time in Minutes and Seconds. This is the time the model is switched on.

FL-N
10

Page 4- **(Switched On/Off Condition)** is a built in flight log which shows the number of flights on the airframe.

TENP
36.6^c

Page 5- **(Switched On/Off Condition)** shows the temperature. This is useful to monitor the internal temperature of the model.

¹ 6.61_v
² 6.61_v

Page 6 NEW to V2 - Shows the each Battery's lowest voltage since last connection. The values are reset each time the battery is reconnected.

BATT
LIFE

Page 7- **(Switched On/Off Condition)** shows the selected battery chemistry.

Battery selection

Intelliswitch comes pre-calibrated to monitor voltage levels and current consumption of LiFePO4 chemistry batteries. If you are using LiPo or Lion batteries you will need to re-calibrate Intelliswitch. Don't worry, Intelliswitch is easy to calibrate.

IMPORTANT - DO NOT MIX BATTERY CHEMISTRY WHEN USING INTELLISWITCH. ALWAYS USE BATTERIES OF THE SAME CHEMISTRY AND CAPACITY.

How To Calibrate - connect both batteries to Intelliswitch. The display will flash "RSET". Reset Intelliswitch (page 5).

After resetting, press the RED "ENTER" button to page to the battery "BATT" display page.



SYST OFF	¹ 1100 _{mA} ¹ 6.61 _v	² 1100 _{mA} ² 6.61 _v	FL-T 9.30	TENP 36.6 ^c	BATT LIFE
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Once at the battery type page PRESS AND HOLD the **RED "ENTER"** button until the "BATT TYPE" changes. Repeatedly pressing the **RED "ENTER"** button will cycle through the different battery chemistry.



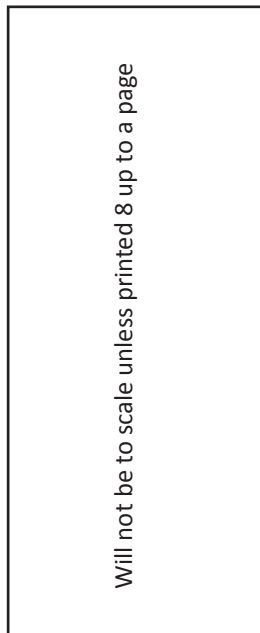
BATT LIFE	BATT LIPO	BATT LION
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After selecting the correct chemistry remove your finger and Intelliswitch, after a brief time will start to calibrate for the selected battery type. Calibration will take up to 2 minutes.

IMPORTANT - FOR BEST CALIBRATION RESULTS, DO NOT CONNECT INTELLISWITCH OUTPUTS WHILE CALIBRATING

Template Cutout for Intelliswitch

22.8 mm (0.9 in)



56 mm (2.2 in)

FACTS

Why does one Intelliswitch mA meter show a different consumption value to the other?

Batteries have an internal resistance. Think of this as a force attempting to stop current from flowing out of the battery. Not all batteries have the same internal resistance. A battery with a lower internal resistance will offer its power more readily. Intelliswitch has two completely independent switching and metering circuits. Each circuit switches and meters one battery. The combination of battery internal resistance, connector and extension lead resistance may show as a higher mA usage from one battery when compared to another. The aim of metering battery capacity with your Intelliswitch is to get to know the characteristics of your batteries so you can monitor the health of your battery packs.

Connecting the outputs of Intelliswitch together.

This will work fine in a single receiver/Cybuss system (as long as the batteries are the same chemistry and cell count). The battery with the highest voltage will supply the load to the receiver/servos and try to balance the 2 batteries. Think of 2 buckets of water, each bucket filled slightly differently. If you connect the 2 buckets with a hose then the bucket with higher water level will try to fill the bucket with the lower water level until they are equal. It is the same with batteries and this is why we should always use the same battery type and cell count when connecting the outputs of Intelliswitch together.

Using Intelliswitch with a Booma RC DUAL-BAT circuit.

Intelliswitch now comes with the Booma RC DUAL-BAT circuit built in. This technology provides you with built in battery redundancy effectively isolating the batteries from each other. You can also safely connect the 2 Intelliswitch outputs together, In a single receiver setup this is like having 2 separate battery circuits. The Intelliswitch internal microprocessor circuit also uses a separate internal micro Dual Bat circuit to guarantee supply to the Intelliswitch microprocessors.

Battery Capacity

DO NOT EVER try to get the full mA capacity out of your batteries! An attempt to do this may end in disaster. Intelliswitch meters consumption conservatively but **YOU SHOULD ALWAYS RECHARGE AT 30% to 35% OF BATTERY CAPACITY.**

Battery Recharge Guide:

Battery capacity = 1200mA - recharge at 800mA usage.

Battery capacity = 2600mA - recharge at 1800mA usage.

Battery capacity = 3600mA - recharge at 2500mA usage.

Current carrying capacity of connectors.

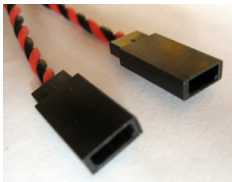
Intelliswitch V2 will handle 10A per circuit (20A total). However, JR or Futaba type servo connectors are designed to carry a maximum of approximately 5 Amps per connector. This is sufficient for most RC models up to 9 servos. If your model has more than

9 servos it is recommended to use a deans style ultra connector. Current capacity will then be limited to Intelliswitch design.

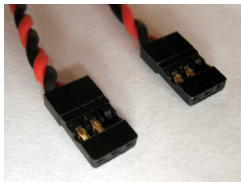
Using Intelliswitch with a voltage regulator

Intelliswitch was designed to work with all current RC products regulated and unregulated. If you prefer using LifePO4 chemistry batteries (nominal 6.4v) then Intelliswitch will work excellently in most RC and Robotics applications without a regulator.

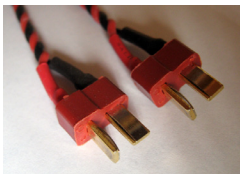
If you prefer to use newer higher 7.2 volt servos then we recommend using Intelliswitch with Lion (nominal 8.2v) or Lipo batteries (nominal 8.4v). These batteries will in most cases require a voltage regulator like the Booma RC Intelli-Reg, Regulator-Pro or Helli-Reg Pro. These regulators have been designed to deliver professional results for the most discerning hi-end user. Intelliswitch may also be used with all other types of regulators and power buss circuits.



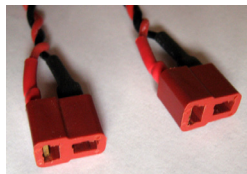
Battery Inputs



Intelliswitch Outputs



Battery Inputs



Intelliswitch Outputs

Intelliswitch V2 Specifications

- 2 x independent switching circuits in a double pole single throw combination.
- Battery chemistry
 - LifeP04 (2 - 3 cells),
 - LiPo Life (2 - 3 cells),
 - Lion (2 - 3 cells).
- Maximum input voltage 13 volts.
- Minimum input voltage 6 volts
- Max continuous current:
 - 2 x 10 Amp (20 Amp),
 - 2 x 15 Amp (30 Amp for 15 sec),
- Max instantaneous current 2 x 20 Amp.
- Weight 28 grams.
- Approximately 0.4 mA current draw in power-down mode.
- Length 56 mm x width 23 mm x Depth 25 mm

12 Month Replacement Warranty

Booma RC will replace this product within 12 months if found to be defective in material and/or workmanship when used in the intended purpose. The warranty does not cover - Shipping charges related to any warranty claim. An over voltage or over current usage beyond stated specification. Damage due to system failure, negligence, abuse, accident, improper installation or freezing. Loss of time, inconvenience, loss of model, or other incidental or consequential damages.