Booma RC

BRC-IR1HD

IntelliReg Pro

www.boomarc.com

Congratulations for choosing the Booma RC IntelliReg Pro or HD. IntelliReg is the result of 18 months of design and testing and was designed for giant scale RC and Robotics enthusiasts by a giant scale RC and Robotics enthusiast. IntelliReg offers features never seen before in Radio Control applications in a compact, light weight and affordable package.

Before you install IntelliReg 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.

IntelliReg Features:

- **Microprocessor control** - of 2 high powered digital switching circuits.
- **Fail Safe Switching** - of both batteries.
- **DualBat Battery Redundancy** - if a battery fails the other continues to supply power.
- **Battery Voltage Monitoring** - of each battery.
- **Lowest Battery Voltage since last battery connection**. Can be reset
- **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 LifeP04, LiPo and Lion battery chemistries.
- **Low Voltage Alarm** via LCD indication.
- **8A continuous with 20A peak capability - IntelliReg Pro**
- **18A continuous with 35A peak capability -IntelliReg HD**
- **Micro-Power** design less than 0.4mA in standby mode.
- **Joystick control for selection of parameters**
- **High quality long life tantalum output capacitors.**
- **Ball bearing fan (IntelliReg HD).**
- **Input Voltage 6v to 10v.**
- **Output Voltage 4.8 - 8.0 depending on battery chemistry.**
- **Weight 70/74 grams Pro/HD.**
- **Dimensions 56mm x 22.8mm (2.2 x 0.9 inches).**

DO'S and DON'TS

IntelliReg comes with 2 completely independent solid state digital battery isolation circuits 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 IntelliReg 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 IntelliReg 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.

NEVER USE IntelliReg 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.

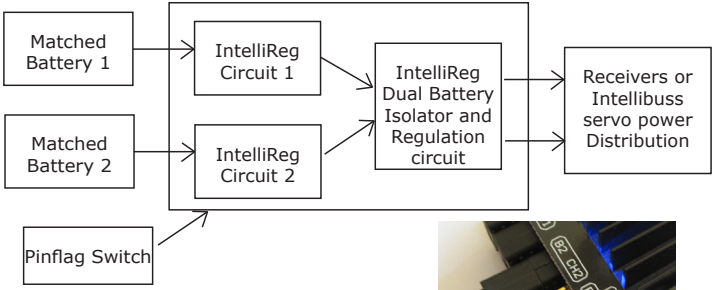
To switch your models gas ignition system we recommend the Booma RC Ignition Switch, designed to isolate any ignition interference from your receiver system.

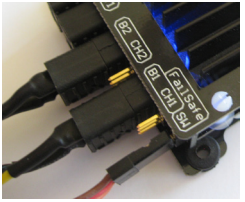
WARNING

Please observe correct connection polarity i.e. ***RED is battery positive*** and ***BLACK is battery negative***. IntelliReg is polarity protected however incorrect polarity may damage your models circuitry.

Typical Connection Examples for IntelliReg

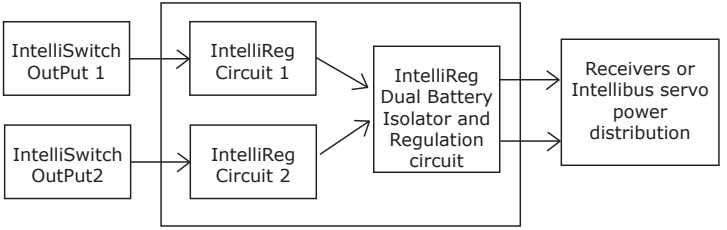
IntelliReg with Pinflag switch





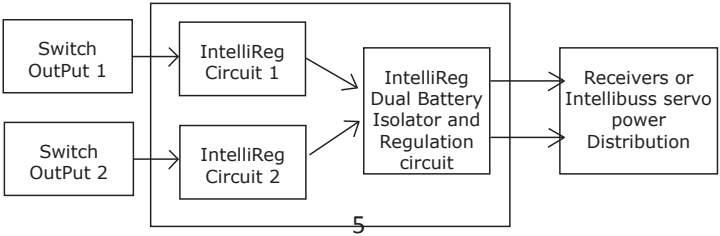
1) Using the supplied pinflag switch - connect the pinflag to the "Fail Safe SW" connector on the IntelliReg. With the pinflag inserted (off position), connect both batteries to the IntelliReg inputs. PLEASE NOTE: When using the pin flag system IntelliReg will draw a small amount of power from the batteries.

IntelliReg with IntelliSwitch or Wallaby Switch Dual.



2) Using IntelliReg with an Intelliswitch - connect both batteries to IntelliSwitch and the output of IntelliSwitch to the IntelliReg. IntelliSwitch controls the power switching of IntelliReg.

IntelliReg with Mechanical switch



3) Using Dual Mechanical switches - connect both batteries to the switches and the output of each switch to the IntelliReg. Power switching of IntelliReg is controlled by each switch.

Lets get started

With the switches or pin flag in the off position, connect both batteries. For the pin flag switch the IntelliReg display will show the software version and will then automatically select the battery type based on the voltage of the connected battery pack. You can adjust the battery type by simply pushing the joystick up or down. Available battery types are "LIPO", "LION", "LIFE", "NIMH", "NICD". IntelliReg is telling you that the regulated output is in the "OFF" state.

If you are using any other switch you simply connect the batteries to the switch and then the outputs of the switch to IntelliReg. For this type of connection you will need to tell IntelliReg the battery type.

Do not connect IntelliReg to the receiver just yet.

Try paging through IntelliReg pages using the micro joystick to get a feel for how the system works.

Important Regulator Information

IntelliReg has been designed to accommodate standard and high voltage systems. IntelliReg offers a microprocessor controlled regulated voltage range of between 4.8v and 7.5v.
Depending on your choice of battery type regulated voltage ranges are:
- LiFeP04 from 5.0v to 6.0v.
- NiMH from 4.8v to 6.0v.
- Nicd from 4.8v to 6.0v.
- Lion from 6.0v to 7.5volts.
- LiPo from 6.0v to 7.5volts

The maximum regulated output voltage attainable is dependent on the type of battery chemistry you use. A general rule is that IntelliReg will give you a regulation range up to approximately 0.4v less that the battery terminal voltage.
Examples:
- LiFeP04 voltage @ 6.4v under load = IntelliReg max approx 6v
- Lion voltage @ 7.4v under load = IntelliReg max approx 7.0v
- LiPo voltage @ 7.6v under load = IntelliReg max approx 7.2v

Please note that IntelliReg is a linear regulator and difference between the input voltage and output voltage generates heat. ***The larger the difference between battery input voltage and regulated output voltage the more heat generated.***

The best rule is to keep the regulated voltage reasonably close to the voltage of the battery output and match the battery chemistry to the required system voltage. Examples:
For a 5v system use 2 cell LiFeP04, or 5 cell NiMH batteries.
For a 6v system use 2 cell LiFeP04, 2 cell Lion or 2 cell LiPo.
For a 7.2v system use 2 cell Lion or 2 cell LiPo.

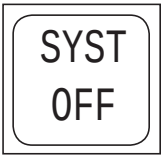
Setting Regulated Output Voltage

To set IntelliReg output voltage you will need to turn ON the IntelliReg. Then, using the Micro Joystick page to the right until the IntelliReg shows the letters **"REG"** at the top to the screen. From the **"REG"** page you adjust the IntelliReg output voltage by moving the joystick up to increase or down to decrease the regulated output voltage. **Between each voltage adjustment it will take approximately 1 second for the output voltage to settle.** Once the desired output voltage is reached IntelliReg will automatically store this voltage setting even if the power is removed.

Hint. IntelliReg has 64 different voltage positions between 4.8 and 7.5 volts however once the regulated output voltage reaches approximately 0.4v less than the battery terminal voltage further joystick up movements will have no effect.

To Switch IntelliReg ON (after the appropriate swich and battery connection is made) ***turning on IntelliReg will supply power from*** both batteries and the display will show "SYST ON". The "SYST ON" messge will flash on each page for a short period.

To Switch IntelliReg OFF - Using the desired switch mechanism (as shown on page 5) turning off the IntelliReg will show "SYST OFF" on the display when in the off state. PLEASE NOTE you cannot adjust the output voltage of IntelliReg in the "Off" state.



Sleep Mode

SLEEP MODE WILL ACTIVATE WHEN INTELLIREG IS IN THE OFF STATE

IntelliReg uses a state-of-the-art low power technology to maximise the life of your batteries. When using the Pin Flag switch system, while in the off state IntelliReg will go into a sleep mode using only 0.4mA to conserve power. You can leave IntelliReg connected to the batteries however it is advisable to disconnect IntelliReg from the batteries if storing your model for a long period. IntelliReg will use 0mA when using Intelliswitch or Wallaby Switch as described on page 4 and 5.

WHAT HAPPENS IN SLEEP MODE?

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

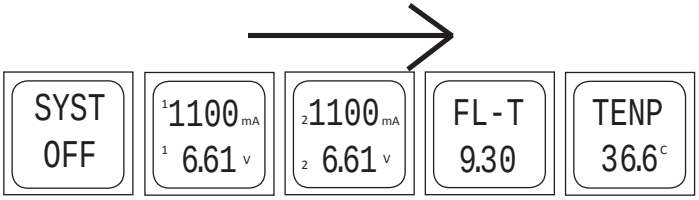
WAKING IntelliReg FROM SLEEP MODE.

In sleep mode IntelliReg is monitoring the front panel buttons. To wake IntelliReg from sleep mode simply pull out the pin flag. The IntelliReg display will light up and show "SYST ON". IntelliReg is awake and set to display page 1.

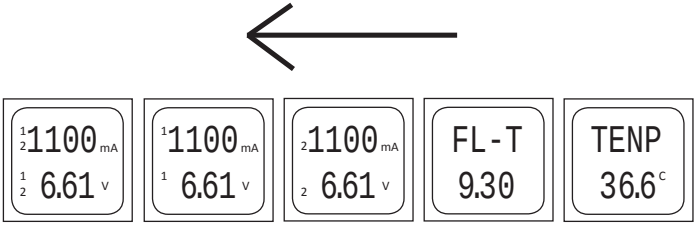
Moving through IntelliReg Pages

IntelliReg displays several pages of information.

Pressing the joystick right moves one page to the right.



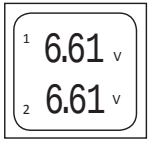
Pressing the joystick left moves one page to the left.



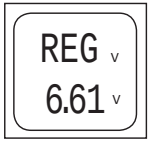
IntelliReg Pages

IntelliReg Pages

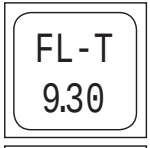
Page 1- In **(Switched Off Condition)** shows that the regulator circuit is switched off. Paging is active. Sleep mode will commence if a button is not pressed within 2 seconds



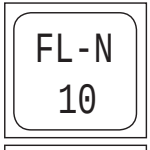
Page 2- shows IntelliReg 1 and 2 input terminal voltage. This would generally be battery 1 and 2 voltage.



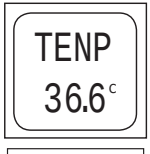
Page 3 - shows IntelliReg regulated output voltage. Regulator voltage is set on this page by pressing the joystick up to increase or down to decrease the voltage.



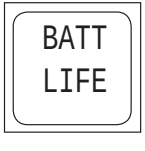
Page 4 - shows Flight Time in Minutes and Seconds. This is the time the model is switched on for any given session



Page 5- is a built in flight log which shows the number of flights on the airframe. The flight log can be reset by pressing the joystick in the centre.



Page 6 - shows the temperature. This is useful to monitor the temperature of IntelliReg. A temperature of 60c or higher means IntelliReg should be positioned in a direct airflow.



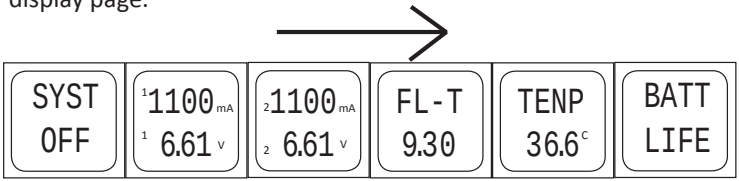
Page 7- shows the selected battery chemistry. Change the battery type on this page by pressing the joystick up or down.

Battery selection

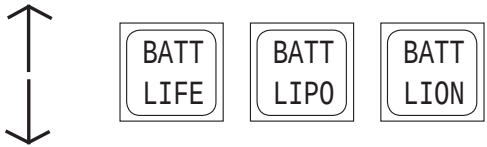
IntelliReg comes pre-calibrated to monitor voltage levels of all popular Battery types. Regulated voltage range is dependant on the battery type.

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

How To select the battery chemistry - connect both batteries to IntelliReg and remove the pinflag switch. The display will show the software version and then attempt to select the appropriate battery type. After turning on IntelliReg page right "BATT" display page.



Once at the battery type page press the **joystick up or down** to cycle through the different battery types.



After selecting the correct battery chemistry remove your finger and IntelliReg will store your selected chemistry.

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. **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.

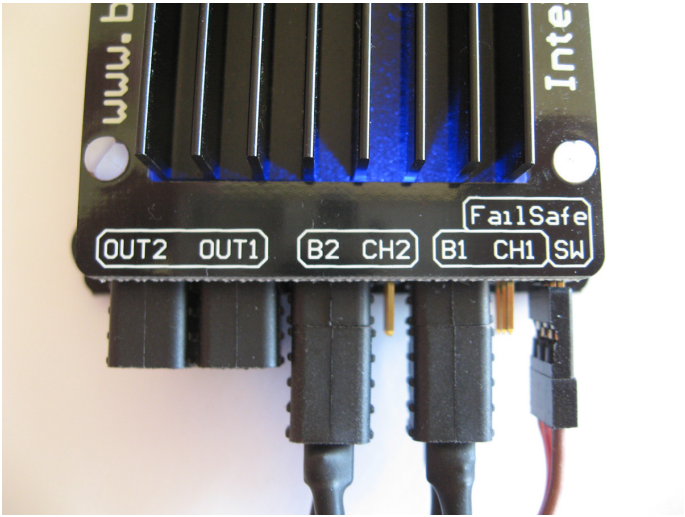
Current carrying capacity of connectors.

IntelliReg is supplied with Ultra connectors for inputs and outputs to realise the full specification of current carrying capacity.

IntelliReg is supplied with 2 x 50A FETS but due to cooling restrictions we have limited current capacity in the design. IntelliReg will work excellently at an output voltage of between 5 and approximately 6 volts.

If you prefer to use newer higher 7.2 volt servos then you will need to use IntelliReg with Lion or Lipo batteries. These batteries will allow you to set the output voltage of IntelliReg between 6 volts and approx 7.5 volts. PLEASE NOTE To reduce heat and energy loss it is advisable to minimise the voltage difference between input voltage and output voltage.

Input and Output Connections



When using a FailSafe Pinflag switch
B1 = Battery 1 input
B2 = battery 2 input
CH1 = battery 1 charge jack
CH2 = battery 2 charge jack
OUT 1 = Regulated output 1
OUT 1 = Regulated output 2

When using an IntelliSwitch, Wallaby or mechanical switches
B1 = Connect Switch 1 output to B1
B2 = Connect Switch 2 output to B2
CH1 = Not used in this configuration
CH2 = Not used in this configuration
OUT 1 = Regulated output 1
OUT 1 = Regulated output 2

System Status, Battery 1/2 and Regulator Voltage

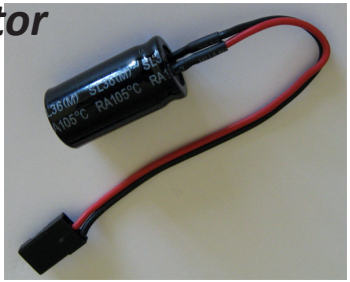
Flight Time, Flight Number and Temperature

Battery Selection LifeP04, Lion, LiPo

Battery 1 and 2 Lowest Voltage

Pinflag Switch

Optional Charge Jacks & Power Smoothing Capacitor



IntelliReg Specifications

- High Power regulated digital switching circuit
- Battery chemistry
LifeP04 (2 cells),
LiPo Life (2 cells),
Lion (2 cells).
NiMH (5 cells).
NiCD (5 cells).
- Maximum input voltage 10 volts.
- Minimum input voltage 6 volts
- IntelliReg HD
Max continuous current - 18 Amps
Max peak current - 35 Amp for 10 sec
- IntelliReg Pro
Max continuous current - 8 Amps
Max peak current - 20 Amp for 10 sec
- Weight 70 grams.
- Approximately 0.4 mA current draw in power-down mode when used with PinFlag switch.
- Dimensions 56mm x 22.8mm (2.2 x 0.9 inches)

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.