**Key Features Document – Emergency Insight System**

**Overview**

The Emergency Insight bicycle mounted lighting system has been specifically designed to provide emergency services personnel with a modular, rugged, high performance lighting system for use in extreme conditions. It utilises elements of the Lumicycle InSight™ light system containing Patent Pending accelerometer technology coupled with high performance LED units and a high performance siren with programmable tones controlled by a simple handlebar mounted switch.

The LED light units include specifically developed Emergency Services Blue LEDs developed by Osram Semiconductor for use on emergency vehicles. This unique LED’s have a specific coating included on the LED die that generates a dual bandwidth peak – one in the blue spectrum, the other in cool white. This results in a very high intensity blue colour that is more readily recognised by the human eye than a single wavelength blue alone.

The entire system is designed to be modular, such that any number of light units can quickly and easily be attached to a bike depending on end user requirements; all controlled by a single handlebar mounted switch. A separate on/off provision is provided for the Siren.

**Hardware Features:**

Shared features between Front and Rear Emergency InSight:

* Unique custom extruded aircraft grade aluminium profile for thermal management and toughness
* Vertical or horizontal mounting options, including rack mounting as an option.
* Integral side illumination
* External DC socket for charging
* External interface socket for control and battery capacity sharing
* Single or multiple charge point options.
* Loud waterproof Siren which can have specific tones programmed if necessary (factory option).
* Modular wiring loom.
* Quick release light mounting.

**Emergency InSight Front Light Features**

* Two CREE™ XPE2 high performance white LED driver units provide 400Lumens of bright white light.
* 25 degree beam angle as standard (factory options include 45 and 60 degree flood options)
* 6 Osram EVL high intensity Blue LEDs for use in response mode.
* On board battery charge control and battery protection
* Integral 2Ah Lithium Ion battery provides up to 15 hours of operation.
* Compatible with all Lumicycle Lithium Ion external battery packs for increased run times.
* Auto charge detection – will accept inputs from 5V (USB) to 16.8V DC (External battery) and adjust charge times accordingly.
* Light control by handlebar mounted switch. (Headlight On/Off, response flash White/Blue).
* Indication of battery charge state at switch on by LED.

**Emergency InSight Tail Light Features**

* Two Cree™ XPE2 high performance Red LED driver units provide both solid tail light illumination plus high intensity brake light.
* Patent Pending g force detection for brake light function, constantly monitors g force in 3 dimensions and determines when bicycle is slowing down and activates brake light function.
* Constantly monitors terrain and adjusts sensitivity of the g force detection to reduce false triggering as bicycle is ridden over different surfaces, cornering etc.
* 45 degree beam angle as standard.
* 6 Osram EVL high intensity Blue LED’s for use in response mode.
* On board battery charge control and battery protection
* Integral 2Ah Lithium Ion battery provides up to 15 hours of operation.
* Compatible with all Lumicycle Lithium Ion external battery packs for increased run times.
* Auto charge detection – will accept inputs from 5V to 16.8V DC and adjust charge times accordingly.
* Light control by handlebar mounted switch. (Headlight On/Off, response flash White/Blue).
* Indication of battery charge state at switch on by LED.

**Emergency InSight Siren Overview**

* Pre programmed emergency dual tone with option for specific tones programmed at the factory
* Waterproof
* Rear control switch for activation in response mode
* Programmable output from 60 to 95db (factory option)
* Quick release mounting bracket.

**System overview**

The Emergency InSight system is designed to be modular and user configurable, however it is envisaged that there will be three levels of installation:

1. Entry Level - Single Front Light; Single Tail light, Siren and control switch
2. Mid Level - Twin Front Light; Single Tail Light, Siren and control switch
3. Top Level – Twin Front, Twin Rear, Siren and control switch

Any of the above combinations will share available battery capacity via the wiring loom, so if one light has a lower amount of charge it will “top up” from the others connected in the system, resulting in balanced run times between front and rear lights connected to the system.

External battery pack can also be added to the system for increased run times.

**Basic functional overview**

1. Connect control loom to all lights, move control switch to centre position (on). Low power LED’s on front will flash to show a valid control signal has been received, and rear tail light will cycle through initial start up sequence (blue LED’s flash several times). System will then be in stand by mode (no LED’s illuminated).
2. Single switch push will enter the lights into normal mode. Front white LED’s will illuminate, and rear red LED’s will power at approx. 50% intensity for tail light indication – brake function is engaged and microprocessor is active.
3. Second switch push will enter response mode. Front and rear LED units strobe white/blue (front) and red/blue (rear), and Siren is activated; Siren operation controlled by separate switch.
4. System will then toggle between normal and response mode by pressing the control switch.