EXPOSURE
LIGHTS

Six Pack Mk.2

2012 Owner's Manual

CfD
Cable Free Design

SPT+
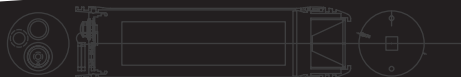SMART PORT TECHNOLOGY

ITM

Contents

Features covered in this Manual

Please read all instructions before using your EXPOSURE LIGHT

EXPOSURE LIGHTS - the lightest high output production sports lights. Designed for high performance, EXPOSURE LIGHTS combine the latest LED technology with a powerful Lithium Ion battery. Before using, please familiarise yourself with this manual, so that you understand how to operate and care for your EXPOSURE LIGHT.

⚠ WARNING

EXPOSURE LIGHTS are very powerful lighting systems. Always take care when operating. Do not look directly into the light. This may cause serious injury. Do not shine directly at others.

EXPOSURE LIGHTS/USE Ltd. accept no liability for any injuries or other damages arising from the use of their product in any circumstances.

Important Information

EXPOSURE LIGHTS are weatherproof under normal conditions but are NOT waterproof.

Do NOT submerge lights. If moisture does appear in the unit do not use it and contact Exposure's service department.

Never attempt to disassemble the light unit. This will invalidate your warranty.

Do not attempt to use any other chargers or batteries with the unit. This will cause damage and could be dangerous.

Long periods of non-use will lower the voltage of the battery. Please follow the charging instructions and top-up the charge monthly when not in use.

Warranty

Please register your EXPOSURE LIGHT online at www.exposurelights.com. IMPORTANT: Keep your proof of purchase from your retailer. You will require this should you have a claim.

EXPOSURE LIGHTS provide a 2-year warranty to the original owner of the light unit, brackets and charger. This warranty covers material and manufacture. Accidental damage and neglect are not covered by warranty. Modifications or improper use also void the warranty.

All EXPOSURE LED's are covered by lifetime warranty, in accordance with proper use.

Exposure Lights service department :
Tel: +44 (0)1798 344477
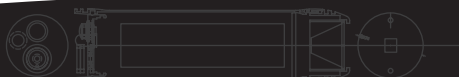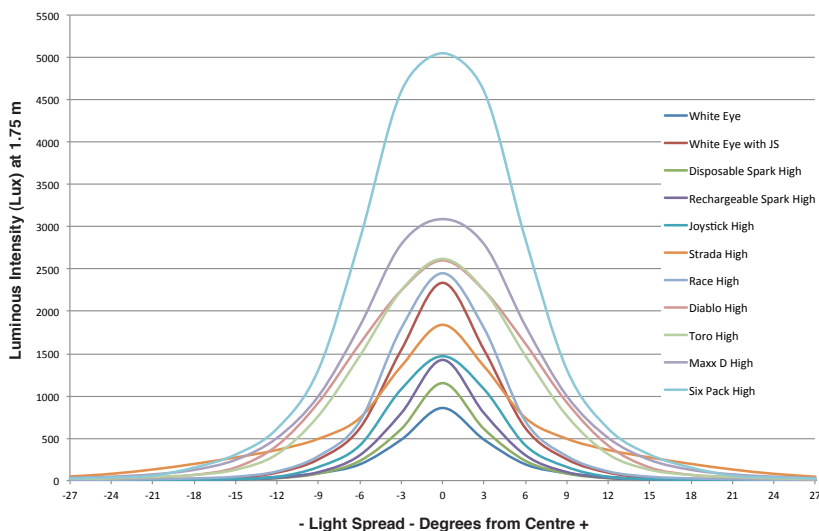E-mail: service@exposurelights.com

Exposure Lights Specification

	LEDs (Cree XPG)	High Output	Battery (mAh)	Burntimes by setting High	Medium	Low	weight (gms)
Six Pack Mk.2	6	1925	15600	3	10	24	445
MaXx-D Mk.4	4	1285	10400	3	10	24	304
Toro Mk.3	3	975	7800	3	10	24	245
Race Mk.6	2	645	5200	3	10	24	192
Strada Mk.3	2	645	5200	3	(dip) 8		244
Diablo Mk.3	3	975	2600	1	3	10	112
Joystick Mk.6	1	325	2600	3	10	24	91

Recommended Operating Temperature Range: -15°C / +40°C

Exposure Lights use collimated Lens technology. These high-tech resin lenses are specifically designed to optimise light collection from each LED.

A great deal of time is invested in research to ensure the optimal beam and output is achieved.

Luminous Intensity (Lux) at 1.75 m

Legend:
- White Eye
- White Eye with JS
- Disposable Spark High
- Rechargeable Spark High
- Joystick High
- Strada High
- Race High
- Diablo High
- Toro High
- Maxx D High
- Six Pack High

- Light Spread - Degrees from Centre +

Soft Shell Pack Contents

Please ensure that the following contents are included with your purchase. If any of the items are missing please contact your place of purchase.

Sixpack, MaXx-D, Toro, Race, Strada.

Smart Charger

Cleat

Cleat bolt

QR Handlebar bracket

Light Unit

Bracket bolt

25.4 – 26.0 spacer

Silicone strip for 31.8

Joystick and Diablo with helmet bracket

High

Smart Charger

Lanyard

Light Unit

Short & long nylon blots

Helmet bracket lower disc

Helmet bracket upper

CFD
Cable Free Design

SPT+
SMART SPORT TECHNOLOGY

ITM

Quick Release Bracket – Six Pack, MaXx-D, Toro, Strada, Race, (Diablo and Joystick with clip)

The Exposure QR bracket is a triumph in design that brings to life the full benefit of Exposure's principle feature, Cable Free Design (CFD). The light unit is easily and quickly attached and removed. The bracket stays with the bike and the light will be in the perfect position every time it is attached.

• Mounting to a 31.8mm bar – Remove the spacer from the bracket. Wrap the supplied Silicone band, (marked Exposure 31.8) around the handlebar and clamp bracket over the band to protect the bars. Tighten the clamp with a 4mm hex key. (Maximum 5Nm)

DO NOT OVER TIGHTEN!

• Mounting to a 25.4 or 26mm bar - Clip the plastic spacer over your bar, attach the bracket over the spacer and tighten the clamp with a 4mm hex key. (Maximum 5Nm)

1 Attach the cleat to the light unit using the provided bolt (Already fitted to new lights).

2 Locate the cleat into the V section of the bracket and slide forward until the steel pin "clicks" into place

3 To adjust the horizontal angle of the light, loosen the cleat bolt. A hole in the bracket enables access to the bolt when the light is in the bracket. Use a 4mm hex key to adjust and tighten the bolt securely (Maximum 5Nm)

4 To release the light from the bracket pull down on the red button and gently pull back the light with your hand. This is a simple one-hand operation.

⚠️ Warning - Make sure that brake and gear cables cannot catch on or interfere with the light or the bracket or release button.

Racers beware - check number boards do not interfere with bracket button. If the steel pin can not pop-up fully the light will not be fully engaged to the bracket and may come off.

QR bracket also available as accessory:

EXPQRBK-10   Bracket Only (no cleat or bolt)
EXPQRBKSET Bracket with clip for Joystick/Diablo/Spark
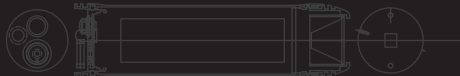
Helmet Mount – Diablo, Joystick, (Spark)

The highly acclaimed Joystick helmet bracket works as a ball joint, to infinately adjust the position of your light. Follow these instructions for set up and position of the light for riding. The clamp is made up of three parts: Lower clamp disc, upper clamp with ball joint socket and a nylon clamp bolt.

• Put the shorter plastic bolt through the lower clamp disc and align with a selected vent on the inside of your helmet.

• Place the upper clamp through the top of the vent to meet the bolt.
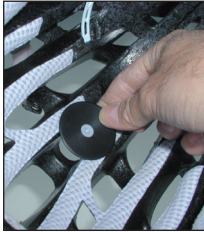
• Tighten the bolt. Take care not to damage your helmet.

• Use the shorter bolt first and if not long enough then go to the longer bolt. Do not use the long bolt on thinner section helmets, as this will stop the ball joint working or possibly pop it out.

• Clip the Joystick body into the top part of the clamp

• The Joystick can be adjusted by rotating the ball joint when holding the light and is easy to do when you are riding to get the best position.

We suggest you attach the lanyard through the holes provided at the back of the light unit and loop the lanyard through a vent in your helmet or round the handlebar if using it there. This is for added security of your light.

Handlebar clip - Diablo, Joystick, (Spark)

The QR Clip allows you to mount your Joystick, Diablo or Spark light to the Quick Release bracket.

• Simply press the light into the QR clip with the point of the clip towards the front of the light

• Now engage the clip and light into the QR bracket.

A simple cable tie handlebar bracket is also available as an accessory, as supplied with the Spark light.

EXPHM - Helmet Mount
EXPQRCLIP - Quick release bracket clip
EXPHBZIP - Handlebar zip-tie bracket

Light Operation

Multi Function Button

Located on the back of the light unit is the function button. This operates the light unit and informs you of the mode setting and the battery power status.

When the light is on and the function button is pressed, the colour of the button for the first two seconds informs you which mode has been selected. Thereafter the colour of the button is your fuel gauge. See below.

Green (High) – Amber (Medium) – Red (Low)

On the Strada model there are just two main modes
Green (High) – Red (Dipped)

Mode Function

• To turn on the light, double click the button; the light is now operating in the brightest mode.

• To switch between the constant settings, press the button once.

• To activate the flashing mode, press and hold the button, release immediately after one flash. The flashing mode can be activated from any of the constant modes. To return to the high mode, press the button once.

• To turn off the light, press and hold the function button. The light will flash once then twice and the function button will rapid flash red, release the button and the light will have switched off.

Fuel Gauge Function

After two seconds the function button becomes the fuel gauge. The colour of the button now indicates the approximate percentage of battery power left.

Button	Battery
Green	100% - 50%
Amber	50% - 25%
Red	25% - 5%
Red Flash	5% - Empty

When the battery has only 5% charge remaining in whichever mode, the light will automatically switch to the low setting and the function button will flash red. Light output will slowly dim over the next hour and this is the extended burn time on reserve power.

The light level of the Diablo will drop far quicker due to the increased voltage drawn from the battery.

Mode and Fuel Gauge functions will operate as normal when using a remote switch. When using a Piggyback Battery the function button will only flash green to indicate the light is charging.
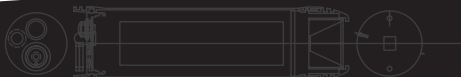
Smart Port Technology Plus (SPT+)

Each EXPOSURE light has the ability to detect the accessory connected to it. With "Automatic Accessory Recognition" the accessories can be swapped over in a plug and play fashion. This allows the user to quickly change between accessories to adapt to the needs of their surroundings.

With Smart Port Technology Plus there is the option to run various accessories from the Power Port such as the RedEye rear light or the WhiteEye.

All SPT+ accessories work on 2009 (MaXx-2) models onwards, these lights display the SPT or SPT+ logo etched on the bodywork of the light. They will NOT work on 2008 MaXx model lights.

If you are a cyclist using an Exposure Light you will be aware of how important it is to be seen from behind as well as from the front to remain safe from other road users. SPT+ enables Charge Port to become a Power Port to power the RedEye rear lights or WhiteEye.

You can not run two Smart Port Technology accessories at the same time.

RedEye

RedEye Helmet

RedEye Micro

Charger

In-Car Charger

Beacon

Piggy Back Batteries

Smart Charging Exposure Lights

Before using your Exposure Light please charge it fully.

Use only genuine Exposure Lights chargers. International chargers, in-car chargers and USB top-up cables are also available.

EXPOSURE LIGHTS use the highest quality Lithium Ion batteries. This allows them to be recharged at any point during the discharge cycle. Burn times will not be affected by multiple re-charging.

Re-charging instructions

•   Ensure the light unit is turned off.

•   Plug the Smart Charger into the power supply and switch on the supply. The LED on the charger will show green (operational).

•   Remove the storm cap from the charge port then insert the charger connection plug into the light's charge port. The charger's LED will show red when the light unit is charging.

The function button on the light will continuously flash green to inform you that the charger is connected and functioning.

From empty the light unit will rapid charge till full - at this point the LED on the charger will go from red to green.

function button

charge port

Charging Times	
Six Pack	24 Hrs
MaXx-D Mk.3	16 Hrs
Toro Mk.2	12 Hrs
Race Mk.5	8 Hrs
Strada Mk.2	8 Hrs
Diablo Mk.2	4 Hrs
Joystick Mk.5	4 Hrs

Long periods of non-use will lower the voltage of the battery. If the unit is being stored for long periods, please ensure the battery is periodically charged. We suggest once per month.

Exposure Lights from 2008 (MaXx range) onward use the same Smart chargers. The new 2012 Smart charger now has USB compatibility.
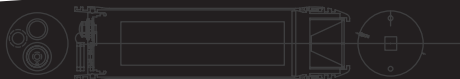
Piggyback Battery

A feature of the Exposure range is the ability to extend burn times with Piggyback batteries.

Piggyback batteries are available as single or triple cells and are supplied with Velcro attachment strap and fitting block. They can be mounted under the stem, to the helmet, on the light unit itself or carried in your pocket or backpack.

Piggyback battery triple cell

Piggyback battery single cell

Piggyback battery single cell

Piggyback batteries give you peace of mind for safety and security by extending your burn times.

When the Piggyback battery is plugged in, the fuel gauge will not be operative; the function button will flash green as when charging.

Options available: EXPPB1 – Single cell Piggyback battery
                       EXPPB3 – Triple cell Piggyback battery

BURN TIMES (hours approx) WITH PIGGYBACK BATTERIES

	Mode	CFD	1 Cell	3 Cell
Six Pack Mk.2	High	3	3.30.	4.3
	Med	10	11.40.	15
	Low	24	28	36
MaXx-D Mk.4	High	3	3.45	5.15
	Med	10	12.30.	17.3
	Low	24	30	42
Toro Mk.3	High	3	4	6
	Med	10	13.2	20
	Low	24	32	48
Race Mk.6	High	3	4.30.	7.3
	Med	10	15	25
	Low	24	36	60

	Mode	CFD	1 Cell	3 Cell
Strada Mk.3	High	3	4.5	7.5
	Dipped	8	12	20
Diablo Mk.3	High	1	2	4
	Med	3	6	12
	Low	10	20	40
Joystick Mk.	High	3	6	12
	Med	10	20	40
	Low	24	48	96

Remote Recharging

When the light is switched off and the Piggyback battery is plugged in it will pass charge into the light unit. The cells will average out the available power between the light unit and the Piggyback battery.

Remote Switch

Smart Port Technology plus allows you to run various accessories with your Exposure light such as the Remote Switch.

Available as an accessory, the remote switch simply plugs into the Smart Port on the back of the light unit. Using the Velcro strap supplied, fit the Switch to your handlebar near the grip or were you want it. You can now turn the light on/off and switch between modes as normal, without having to touch the light itself. The Function and Fuel Gauge indicators on the button remain operative when using the Remote Switch.

Use the Remote Switch for easier switching in the dark, especially when wearing winter gloves, taking advantage of the larger button on the Remote Switch.

Dip your lights. Just as cars dip their headlights for oncoming traffic and cyclists, we recommend that Exposure Light users respect others in the same way. On the road or on the bike path our lights are so bright in high mode that it is recommended to "dip" down to Low light mode when someone is coming towards you. With the Remote Switch this can be easily and quickly done with two clicks of the button. One more click and you are back up to high mode. Be seen but also respect others and be safe in the dark.

The Strada model is designed with just two main modes: High Beam and Dipped Beam. It is supplied as standard with the remote switch. On Low Beam the Strada displays a flat (horizontal) beam pattern that will not dazzle on-coming traffic or cyclists. It is simple to "toggle" quickly between the two modes.
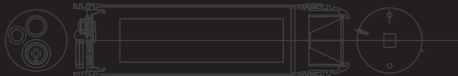
Warning: Do not plug in the Remote Switch with the Power Port active as the remote switch will not operate in this case.

Remote Switch

Smart Port for Remote Switch
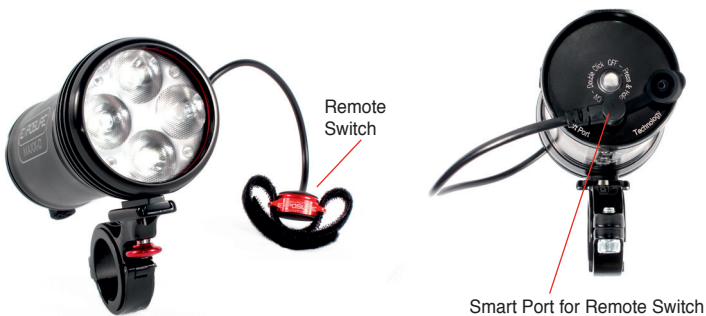
Remote Switch fits MTB handlebars

Remote Switch fits Road handlebars

RedEye rear light accessories and
White Eye accessory.

RedEye rear Light: Encased in tough CNC machined aluminium body and fully waterproof, the RedEye is possibly the brightest (80 lumens) rear light on the market. It uses a red P4 LED. Burn times will be reduced on you front light when running the RedEye.

The 2012 RedEye uses a new bracket that attaches to the seatpost with a silicone band. The bracket is suitable for posts from 25.0mm to 34.9mm in diameter.

Be clearly seen from the rear both day and night. RedEye comes highly recommended to cyclists even in daylight hours. It is so bright that you can always be seen with this accessory.

RedEye Helmet rear light: A neat solution. It is the same as the RedEye but with clip and short cable. Attach to the body of the Joystick or Diablo. Only to be used when the light is helmet mounted or handheld.

WhiteEye front accessory: A 240 lumen white P4 LED that clips onto the Joystick or Diablo in the same way as the RedEye Helmet accessory. Used to boost main beam output.

WhiteEye fitted to Joystick


RedEye fitted to seat post

RedEye Micro: An affordable plug-in rear light for the Joystick or Diablo. There is minimal drain on burn time for main light when using RedEye Micro. It is a very focused beam of light. As your head moves about it will catch the eye of the driver behind you. It is very effective but should be thought of as a supplement to your main rear light on the bike when cycling.

Intelligent Thermal Management (ITM).

Exposure's new patented technology combats the loss in efficiency of LEDs at elevated temperatures, maintaining optimum output keeping you shining 'Brighter for Longer'!

Exposure Lights have undertaken extensive research into the affect of temperature on LED light output. There is an optimum temperature where the balance between light output and battery burn time peaks, beyond this the LED becomes inefficient. The LED draws more current from the battery resulting in shortened burn time but actually produces less light. The intelligent circuitry of ITM monitors the temperature of the LEDs and lowers the power accordingly to cool the LED to the optimum efficient operating temperature. The lowering of the power doesn't noticeably drop the light output, it only maximises burn times. The combination of ITM and new improved body designs for increased heat dissipation ensures that no power is wasted, maximising burn time.

Effect of Temperature on Lumen Output

ITM managed efficient phase

Light

Temp/Amps
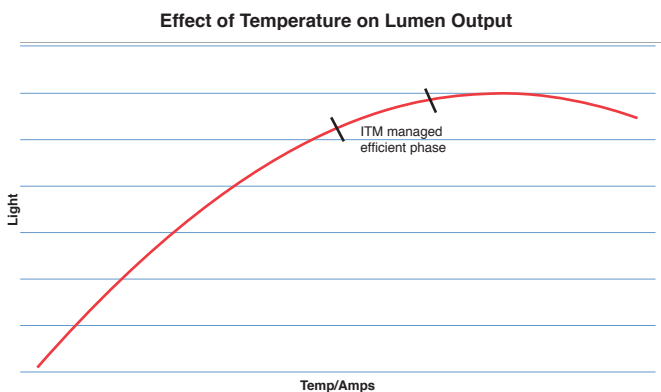
This graph shows the relationship between the Temperature of the LED and the Light output. As the power to the LED increased the light output increases but so does the temperature. There is then a peak in light output beyond which the LED becomes inefficient and light output actually reduces. ITM continually measures the temperature of the light and by managing the power holds the light output at the optimally efficient phase of the curve.

When ITM is active the function button will flash rapidly but still operate as the Fuel Gauge indicating the level of charge. Once the light has cooled, ITM will switch off and the function button will stop flashing.
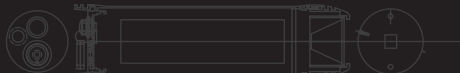
Maintenance

Inspect and test your EXPOSURE light before every outing in the dark.

Keep your EXPOSURE light clean, and the lenses free of dirt. The lenses are made of hi-tec plastic but can be scratched. Be careful when cleaning any mud or dirt from the lens. Never use a high pressure spray or hose on your EXPOSURE light. Do not use harsh abrasive or corrosive materials to clean your EXPOSURE light.

Follow all charging instructions. If the unit is being stored for long periods, please ensure the battery is periodically charged fully. We suggest once every month. The same applies to Piggyback batteries.

History

Exposure Lights are designed and manufactured to exacting standards in the UK by USE Ltd (Ultimate Sports Engineering). We have been riding and racing bikes in the dark since 1997. Unsatisfied with other lighting systems we recognised that the future of lighting was LED technology. In 2005 we launched the Exposure Lights brand and a revolution in lighting technology began. Our 2012 range is the most advanced, compact, lightweight and complete lighting range available to day. Thank you for investing in your Exposure Light. We wish you many happy years of use from it. Welcome to a better night time experience. Many of our dealers run night cycle rides. Why not join in or take part in one of the many night events we sponsor.

We design them. We make them. We are here to help.

If you are experiencing any problems with your Exposure Light or accessories please contact us directly at:

Tel: Exposure/USE Ltd +44 (0)1798 344477
or Service: +44 (0)1798 344471

e-mail: info@exposurelights.com   or   service@exposurelights.com

Alternatively contact your Exposure Dealer/Distributor - check web for details

www.exposurelights.com

Designed and made by

www.use1.com

**MaXx-D
Mk.4**

**Toro
Mk.3**

**Strada
Mk.3**

**Race
Mk.6**

**Diablo
Mk.3**

**Joystick
Mk.6**

Ultimate Sports Engineering Limited

Petworth, West Sussex GU28 9NR England
Tel:+44(0) 1798 344477 E: info@exposurelights.com