

BUSHRANGER

4x4 GEAR

5 YEAR
WARRANTY



NIGHT HAWK

LED DRIVING LIGHT

VLI
SERIES

VARIABLE LIGHT INTENSITY

OWNERS MANUAL

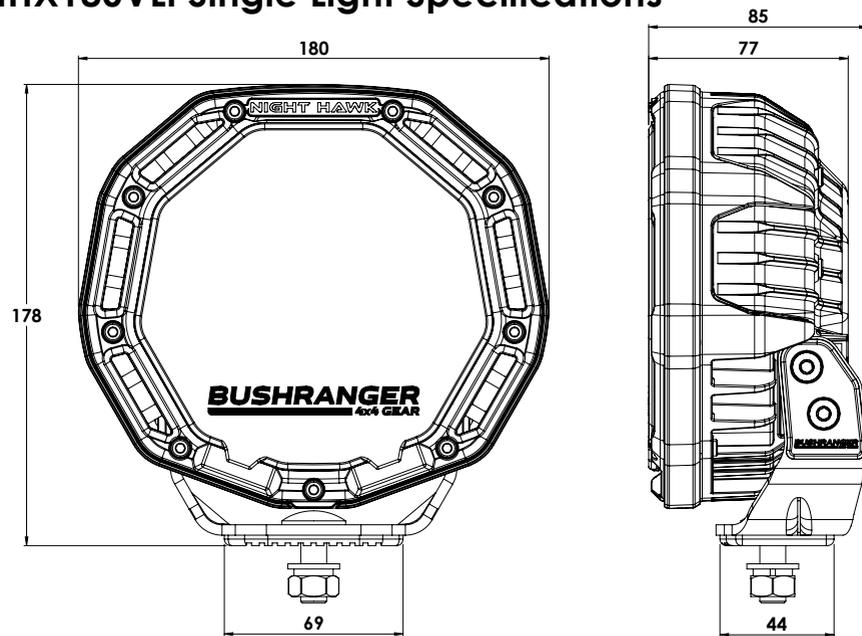
NHX180VLI
NHX230VLI

BUSHRANGER

4x4 GEAR

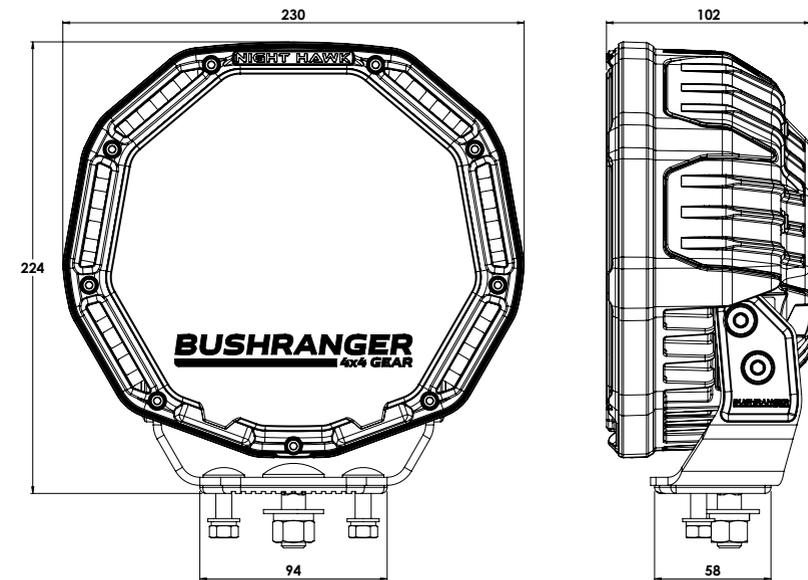
Congratulations on your purchase of the Bushranger® Night Hawk® LED Driving Lights. To take full advantage of this product, please read this manual carefully before using. Retain this manual for future reference for installation and warranty.

NHX180VLI Single Light Specifications



POWER	85W
CURRENT DRAW	5.9A@14.4V
VOLTAGE RANGE	10-30VDC
LED TYPE	19 x Genuine OSRAM LED's
LUMINOUS FLUX	6,450 lumens (effective)
COLOUR TEMPERATURE	5700K
POWER PLUG	Deutsch DT
CONTROL PLUG	4 pin custom (use with VLI Wiring System, sold separately)
DIMENSIONS	180mm (W) x 178mm (H) x 85mm (D)
WEIGHT	1.7kg
COMPLIANCE	CE, UNECE R10, IP67 & IP69K, ROHS

NHX230VLI Single Light Specifications



POWER	175W
CURRENT DRAW	12.2A@14.4V
VOLTAGE RANGE	10-30VDC
LED TYPE	37 x Genuine OSRAM LED's
LUMINOUS FLUX	10,800 lumens (effective)
COLOUR TEMPERATURE	5700K
POWER PLUG	Deutsch DTP
CONTROL PLUG	4 pin custom (use with VLI Wiring System, sold separately)
DIMENSIONS	230mm (W) x 224mm (H) x 102mm (D)
WEIGHT	3.1kg
COMPLIANCE	CE, UNECE R10, IP67 & IP69K, ROHS

Overview

Bushranger® Night Hawk VLI Series LED Driving Lights have been developed from the ground up by our team of engineers to offer a truly unique design which takes performance, looks and usability to a whole new level.

The bold, modern aesthetic incorporates clever cooling ducts which channel cool air directly over the heatsink to greatly increase the heat dissipation of the LED's. The Advanced Temperature Control System takes advantage of the superior cooling design to run the LED's at their maximum potential by monitoring and adjusting the output according to the environment.

These lights are so bright, we've also incorporated a brightness control function, which allows complete control of the light intensity in conditions where too much light can be detrimental to clear vision. The brightness is controlled by our pioneering, relay-free VLI Series Wiring System, which is the first of its kind, and leads the way with simpler wiring, easier installation, more user control and greater reliability over traditional systems.

Each light is supplied with two protective covers which allow the user to change the beam pattern quickly and easily. With the spot protective cover fitted, the light projects a clean, focused spot beam pattern which reaches extreme distance; great for highway driving. Clip on the flood protective cover and the light changes significantly to a wide, flood beam pattern which illuminates all the surroundings for excellent short to medium distance vision.

Bushranger® Night Hawk lights are engineered tough to withstand the rugged outdoor terrain and harsh climate experienced down under. They are backed by a 5 year warranty and our 40+ year history of supplying quality engineered 4x4 products to the Australian market.

Key Features

Superior Cooling Design

- Large air intakes channel cool air over the heatsink for unmatched cooling efficiency
- Superior cooling allows for the use of higher powered LED's

High Output OSRAM LED's

- Genuine high output OSRAM LED's for unmatched performance
- Tested by an Australian NATA accredited photometry lab to produce real light performance data

Active Temperature Control System

- Intelligent onboard monitoring of the LED temperatures, combined with the superior cooling design allows for maximum output in all conditions.

Modern Electronics Design

- Built in Transistor switching simplifies wiring installation by removing the need for traditional 12V relay switching
- PWM dimming capability for brightness control at the turn of a dial
- Over voltage and Reverse Polarity Protection

Changeable Beam Pattern

- Clip on/clip off protective covers allow for quick changes between beam patterns
- Two covers supplied – Spot (Clear) and Flood (Fluted)

Durable Exterior

- Hard Coated polycarbonate lens offers long term scratch resistance ensuring maximum optical efficiency for years to come.
- UV stable AkzoNobel Powder coat, polycarbonate lens and covers ensure long term durability in the harsh Australian environment

Built Tough

- Pressure Die-Cast aluminium housing and strong, 4mm thick steel bracket will handle even the toughest tracks.
- Designed, engineered and extensively tested in Australia

Sealed Tight

- Waterproof and submersible, IP67 & IP69K rated
- Genuine GORE breather manages the internal air pressure of the light, preventing water ingress in all conditions.

Versatile Installation

- Unique shape and low profile design allows for diverse fitments where regular round lights may not suit.

Light Performance - NHX180VLI

SINGLE LIGHT

	Spot	Flood
Max distance @ 1 lux	684m	353m
Max width @ 1 lux	43m	108m

PAIR OF LIGHTS

	Spot	Spot + Flood	Flood
Max distance @ 1 lux	967m	748m	498m
Max width @ 1 lux	60m	110m	153m

Light Performance - NHX230VLI

SINGLE LIGHT

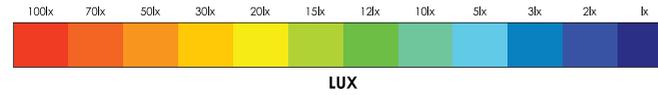
	Spot	Flood
Max distance @ 1 lux	950m	463m
Max width @ 1 lux	52m	141m

PAIR OF LIGHTS

	Spot	Spot + Flood	Flood
Max distance @ 1 lux	1342m	1035m	636m
Max width @ 1 lux	74m	147m	200m

Isolux Data - NHX180VLI

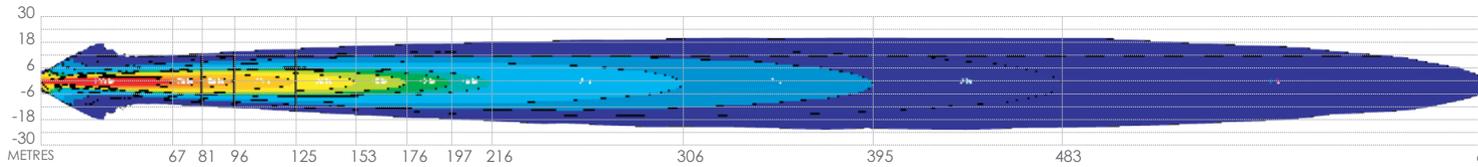
All results shown below are obtained from real scientific testing carried out by a NATA Accredited Photometric Laboratory in Australia.



NATA ACTUAL PHOTOMETRIC TEST DATA
PERFORMED BY NATA
ACCREDITED LABORATORY
IN AUSTRALIA

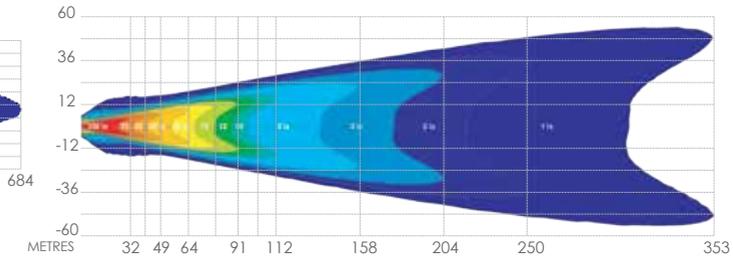
Single Light - Spot Beam (using spot cover)

Max distance @ 1lux = 684m | Max Beam Width @ 1lux = 43m



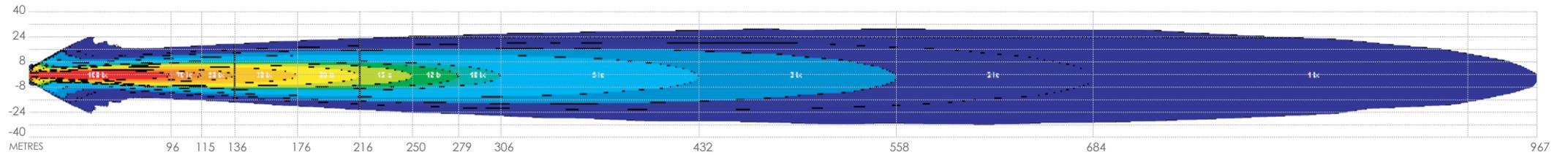
Single Light - Flood Beam (using flood cover)

Max distance @ 1lux = 353m | Max Beam Width @ 1lux = 108m



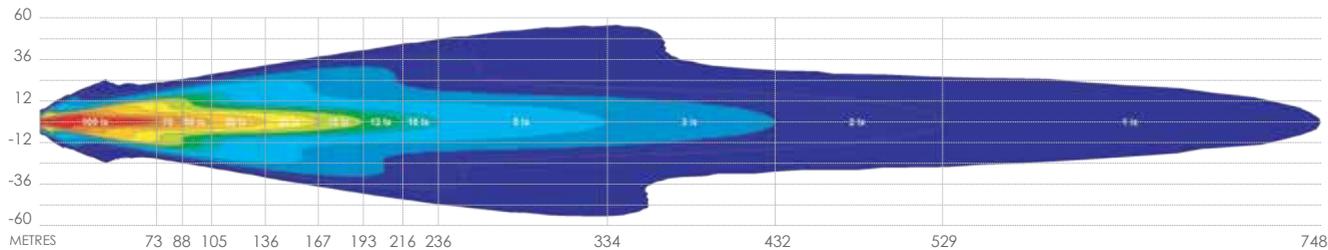
Pair Of Lights - Spot Beam Covers

Max distance @ 1lux = 967m | Max Beam Width @ 1lux = 60m



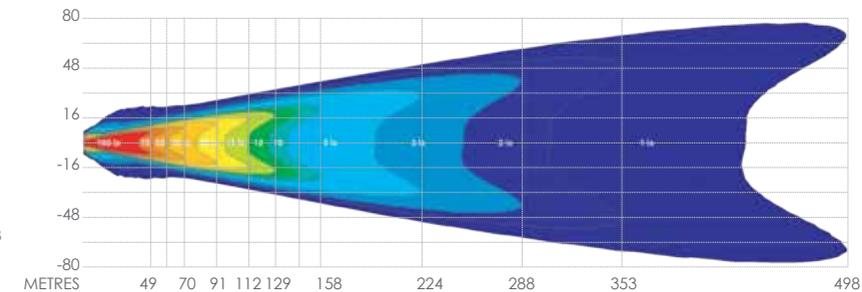
Pair Of Lights - 1 x Spot Beam Cover + 1 x Flood Beam Cover

Max distance @ 1lux = 748m | Max Beam Width @ 1lux = 110m



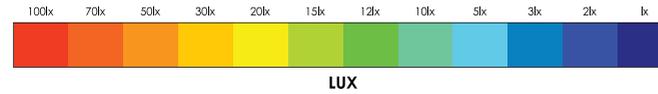
Pair Of Lights - 2 x Flood Beam Covers

Max distance @ 1lux = 498m | Max Beam Width @ 1lux = 153m



Isolux Data - NHX230VLI

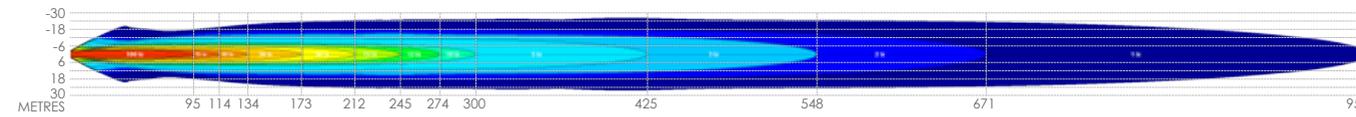
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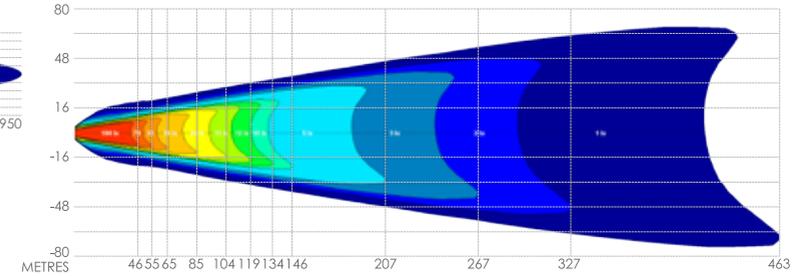
Single Light - Spot Beam (using spot cover)

Max distance @ 1lux = 950m | Max Beam Width @ 1lux = 52m



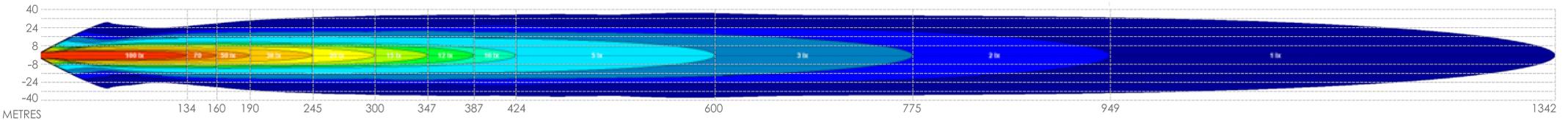
Single Light - Flood Beam (using flood cover)

Max distance @ 1lux = 463m | Max Beam Width @ 1lux = 141m



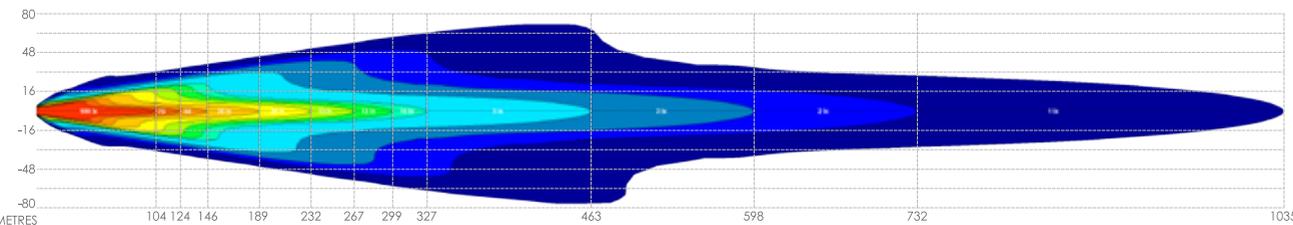
Pair Of Lights - Spot Beam Covers

Max distance @ 1lux = 1342m | Max Beam Width @ 1lux = 74m



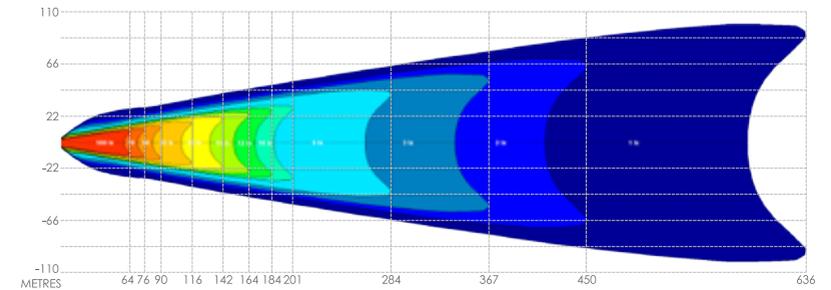
Pair Of Lights - 1 x Spot Beam Cover + 1 x Flood Beam Cover

Max distance @ 1lux = 1035m | Max Beam Width @ 1lux = 147m

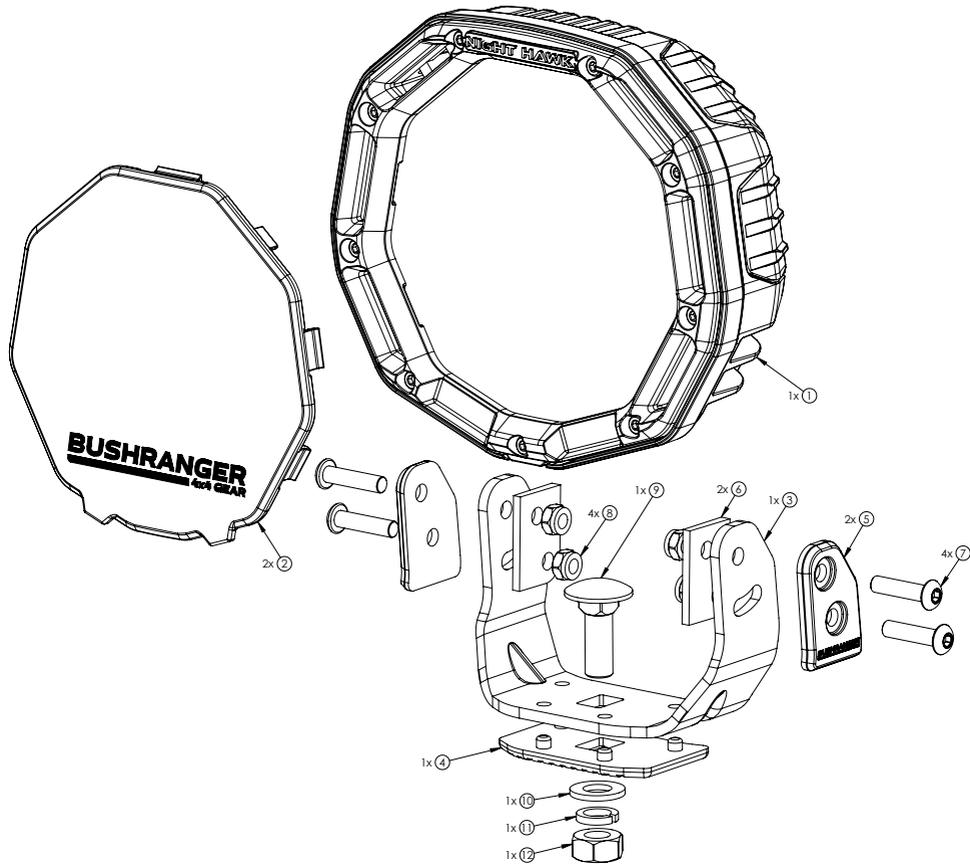


Pair Of Lights - 2 x Flood Beam Covers

Max distance @ 1lux = 636m | Max Beam Width @ 1lux = 200m



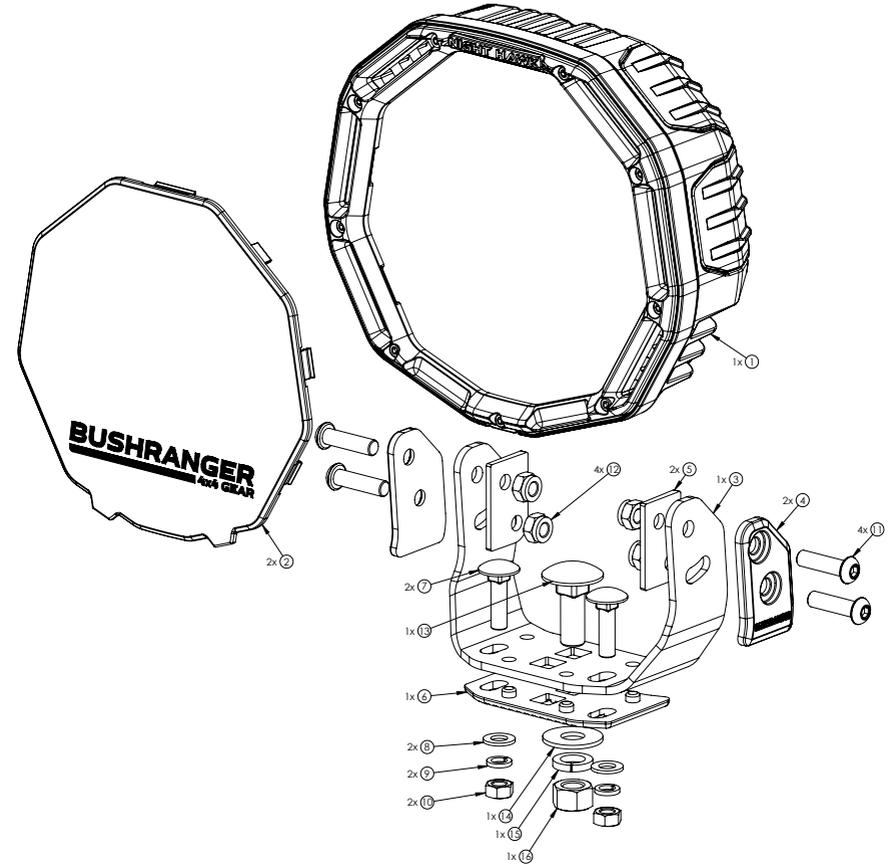
Components Supplied - NH180VLI



Item#	Component Name	Qty
1	NHX180VLI Driving Light	1
2	Cover (1 x Clear, 1 x Flood)	2
3	Mounting Bracket	1
4	Bottom Rubber Isolator	1
5	Side Plate (1 x Left, 1 x Right)	2
6	Side Rubber Isolator	2
7	M6 x 25mm Button Head Bolt	4
8	M6 Nyloc Nut	4
9	M10 x 30mm Cup Head Bolt	1

Item#	Component Name	Qty
10	M10 Flat Washer	1
11	M10 Spring Washer	1
12	M10 Nut	1
13	Power Lead 2.5m with fuse (Not Shown)	1
14	Anti-Seize Lubricant Sachet (not shown)	1
15	Dielectric Grease Sachet (not shown)	1

Components Supplied - NH230VLI



Item#	Component Name	Qty
1	NHX230VLI Driving Light	1
2	Cover (1 x Clear, 1 x Flood)	2
3	Mounting Bracket	1
4	Side Plate (1 x Left, 1 x Right)	2
5	Side Rubber Isolator	2
6	Bottom Rubber Isolator	1
7	M8 x 30mm Cup Head Bolt	2
8	M8 Flat Washer	2
9	M8 Spring Washer	2
10	M8 Nut	2

Item#	Component Name	Qty
11	M8 x 30mm Button Head Bolt	4
12	M8 Nyloc Nut	4
13	M12 x 35mm Cup Head Bolt	1
14	M12 Flat Washer	1
15	M12 Spring Washer	1
16	M12 Nut	1
17	Power Lead 2.5m with 20A fuse (not shown)	1
18	Anti-Seize Lubricant Sachet (not shown)	1
19	Dielectric Grease Sachet (not shown)	1

Installation Instructions

Important Notes

- We recommend the lights/wiring to be fitted by a qualified automotive electrician.
- A forward facing light system may be used only as an auxiliary to high beam. Check compliance and regulations with local authorities.
- Vehicle accessories mounted on the outside of the vehicle may need to comply with regulations governed by your local state authority. Please check before installation.
- When mounting lights, position them appropriately so they do not obstruct existing automotive function. If fitting to front of vehicle, check for Bonnet clearances.
- Consideration should be given for airflow requirements of the vehicle and its mechanical components when mounting lights.
- All stainless steel hardware must have anti-seize lubricant applied to the threads before tightening to avoid binding or galling of components.
- Ensure all recyclable parts/packaging are discarded in accordance to local regulations.

Light Mounting Bracket

The mounting bracket is supplied loosely fitted to the light. The stainless steel M6 x 25mm or M8 x 30mm button head bolts that secure the mounting bracket to the light must be removed and have anti-seize lubricant applied to the threads before final installation. The use of anti-seize greatly reduces the risk of thread galling or binding commonly seen between stainless steel nuts and bolts during tightening. Anti-seize must also be applied to the M8, M10 and M12 mounting fasteners used to secure the light to the vehicle.

Vehicle Mounting & Adjustment

Ensure the mounting location for fitment of the light/s to the vehicle is flat, stable, sufficiently strong and has enough clearance around the light to avoid damage to the vehicle from any movement during installation and use. If drilling is required for mounting, ensure raw edges are coated with corrosion resistant paint or inhibitor.

The light can be adjusted horizontally and vertically. All adjustments are to be made before final tightening of fasteners. Horizontal adjustment is gained by rotating the light body to the desired position and tightening the centre M10 or M12 bolt. Vertical adjustment is gained by tilting the light body up or down and tightening the 4 x side bolts.

The 9" light should always be secured to the vehicle using 1 x M12 centre bolt and 2 x M8 side bolts as supplied. Apply anti-seize lubricant to these fasteners when fitting to the vehicle. For initial setup and adjustment, the fasteners should be finger tightened. Once all adjustments have been made, all fasteners should be tightened and torqued to the following specification:

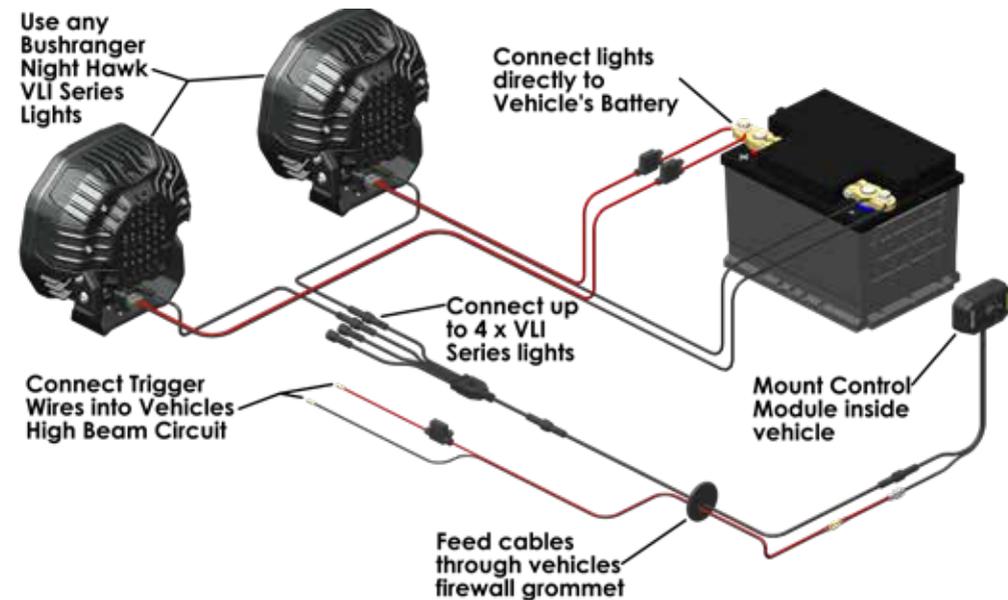
RECOMMENDED TORQUE SETTINGS

M8 Fasteners	17Nm
M10 Fasteners	33Nm
M12 Fasteners	57Nm

Wiring Options

The driving light can be wired into the vehicle using 2 methods:

1. VLI Wiring System (P/N: NHW20VLI, available separately)

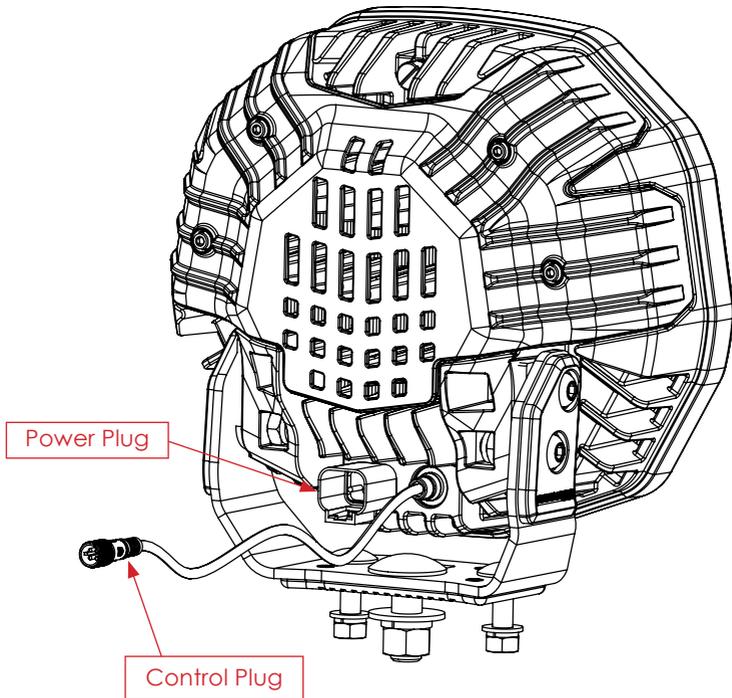


Our unique, relay free VLI Wiring System greatly simplifies the installation of these driving lights into modern vehicles and allows the full functionality of the VLI Series lights to be achieved. Not only is this system easier to install and more reliable than traditional relay-based wiring looms, but it also allows the brightness of all lights connected to be varied, which gives the driver full control of light intensity at the turn of a dial. Up to 4 x VLI Series Lights can be controlled by the one system with no limitations on the power draw of each light.

The VLI Wiring System utilises the control plug on the rear of the light to provide the control signals. The basic principles of operation are:

When the control plug on the back of the light is connected to the wiring system, and the power plug is connected directly to the vehicles battery using the supplied power lead, the light will only turn on/off & vary in brightness when signals are received from the in-cabin control module. The in-cabin control module is connected through the vehicles high beam circuit so that the lights can only be operated when the high beam is activated.

NOTE: After installation of the wiring system, the lights may briefly flash when first connected to the power source. This is normal operation and not a malfunction.



2. Traditional Wiring Looms

All VLI Series lights can also be used in a more traditional, 12V relay-based wiring loom / harness setup. Care needs to be taken to ensure that the wiring harness is rated for the high-power requirements of the VLI Series lights.

The basic principles of operation are:

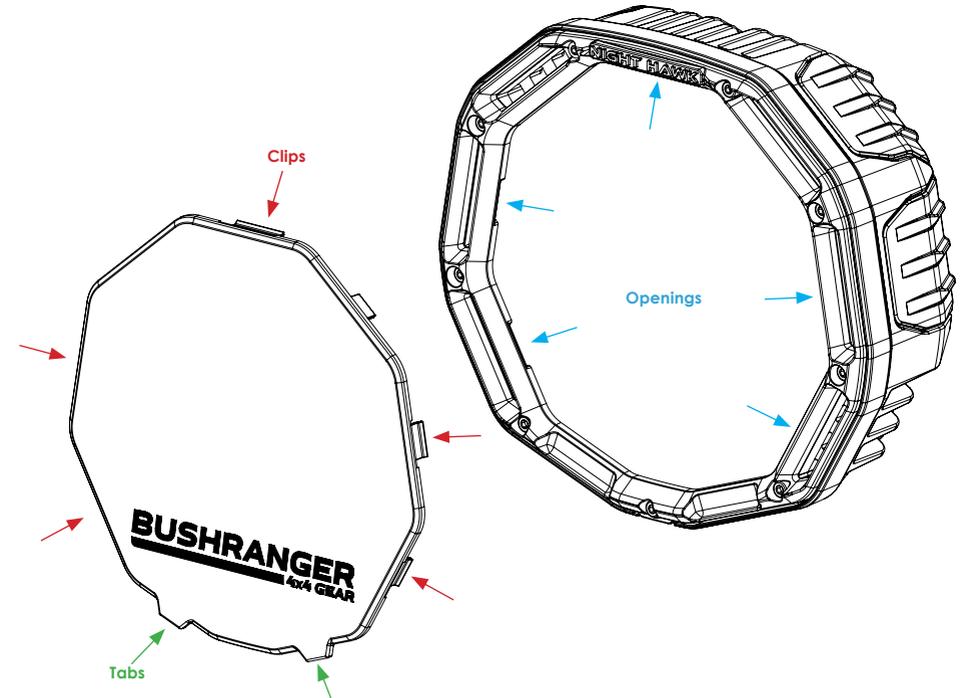
When the control plug on the back of the light is not used and power is supplied to the power plug on the back of the light, the light will turn on and operate at maximum output. Ensure that the attached sealing cap is fitted to the control plug when not in use.

Cover Removal / Installation

Each driving light is supplied with two protective covers, a clear spot beam cover and a fluted flood beam cover.

To fit a cover, align the 5 x clips on the cover with the openings in the front of the light, then push cover firmly until the clips 'click' into the openings.

To remove cover, pull out on the 2 x lower tabs until the clips release from the light.



Care and Maintenance

- The light is not serviceable – DO NOT disassemble.
- Clean lights using pH neutral soapy water and a soft nonabrasive brush or sponge. Rinse thoroughly after cleaning.
- DO NOT use solvents, Alkaline based cleaners or abrasive materials to clean the light.
- If lights are exposed to a high salt environment or any other corrosive substance, remove the light and mounting bracket from the vehicle and thoroughly clean and rinse the components as outlined above.
- Remove the clear cover and plastic cover on the rear of the light periodically to clean any dirt and grime build up.
- Regularly check all fasteners to ensure they are secured and properly torqued.

KINGSLEY PRODUCTS - WARRANTY POLICY

1. Our Warranty

We warrant to you that the Kingsley product is free from defects in workmanship and materials for the warranty period.

2. Fitting and use

Please ensure you:

- a. fit the Kingsley product in accordance with the product information and all relevant vehicle safety and compliance laws
- b. use the Kingsley product for the purpose for which it was originally designed and in accordance with the product information and all relevant vehicle safety and compliance laws

3. Exclusions

Our warranty doesn't cover:

- a. normal wear and tear
- b. fitting the Kingsley product other than in accordance with the product information and any relevant vehicle safety and compliance laws, including incorrect fitting
- c. using the Kingsley product other than for the purpose for which it was originally designed or other than in accordance with the product information and any relevant vehicle safety and compliance laws, including unusual, improper or negligent use or misuse or overloading
- d. misuse or neglect of the Kingsley product, including improper repair or maintenance or failing to repair or maintain
- e. alteration, abuse, acts of nature, terrorism, vandalism, collision, road hazards or adverse conditions

4. Making a claim

Please immediately contact us as soon as you become aware of a possible defect in the Kingsley product. We'll arrange for you to either attend a Kingsley outlet (at your cost) for a Kingsley representative to inspect the Kingsley product (as fitted to your vehicle) or for you to return the Kingsley product to us. We'll also request you to provide the purchase receipt and complete a warranty claim form. In order to ensure our warranty is not voided, please keep the purchase receipt as proof of purchase and don't remove the fitted Kingsley product from your vehicle before contacting us. Note: Non-transferable warranty. The original purchaser can only claim warranty. If your claim's in order, we'll notify you and (at our sole discretion) either repair or replace the defective workmanship or materials (at our cost) or refund to you the purchase price you paid for the defective Kingsley product. If further information or investigation is required or if the claim does not meet the requirements under our warranty, we'll let you know.

5. Australian Consumer Law

The Kingsley product comes with guarantees that can't be excluded under the Australian Customer Law. You're entitled to a replacement or refund if there's a major failure and compensation for any other reasonably foreseeable loss or damage. You're also entitled to have the Kingsley product repaired or replaced if it fails to be of acceptable quality and the failure doesn't amount to a major failure.

6. Other consumer rights

The benefits to you under our warranty are in addition to any other rights and remedies you are entitled to under relevant consumer laws. Our warranty replaces any other warranty given by Kingsley or it's supplier in respect of the Kingsley product.

7. Terms

The following terms have the following meanings:

Term	Meaning
Product information	information about the Kingsley product which may be contained in any of the documentation provided with the Kingsley product, including safety instructions, installation instructions, operating instructions, owner's manual, service manual, labels and packaging
Purchase date	the date you purchased the Kingsley product from a Kingsley outlet, as specified in the purchase receipt
Kingsley outlet	an outlet authorised by Kingsley to sell Kingsley products
Kingsley products	products or components which Kingsley manufacturers or sells through Kingsley outlets
Warranty period	commences on and from the purchase date and ends as follows: Night Hawk LED Driving Lights - 5 year warranty
We/Us	Kingsley Enterprises Pty Ltd (ABN 23 001 592 749) E: sales@kingsleyenterprises.com.au A: 6A Brooks Road, Ingleburn NSW 2565 P: 1800 654 767 W: www.kingsleyenterprises.com.au
You	the purchaser of the Kingsley product from a Kingsley outlet

BUSHRANGER

4x4 GEAR

bushranger.com.au



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International | +61 2 8700 0400

Fax | +61 2 8700 0499

Email | sales@kingsleyenterprises.com.au

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