

NIGHT HAWK

WIRING SYSTEM



OWNERS MANUAL





Congratulations! on your purchase of the Night Hawk® Variable Series Wiring System by Bushranger 4X4, for your Variable Series LED 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.



Register Your Product

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Overview

The Night Hawk Variable Series wiring systems provide the platform for gaining complete control over your Variable Series LED driving lights and light bars. Each wiring system is design to control either the VBP, VCT or VLI series of lights, and provides a modern, electronically controlled solution to alter the brightness (VBP, VCT, VLI), colour temperature (VCT only) and beam pattern (VBP only) at the turn of the dial.

Wiring System Features

Variable Series Lights

- Utilise the corresponding Variable Series lights with no limitation on the power rating of • each light connected.
- Each wiring system, as supplied, controls up to 2 x lights. ٠
- Capacity to control up to 4 x corresponding Variable Series lights simultaneously with ٠ the use of additional control leads (sold separately).

PWM Control

Modern, PWM controlled wiring system offers a simpler, more reliable and smarter alternative to regular relay-based wiring harnesses.

Plug & Play Connectors

- 'Plug and Play' modular design provides versatility to suit any vehicle and reduces • installation time compared to traditional wiring harness installs.
- Use with 'Plug and Play' headlight adaptors for simple and reliable high beam signal • pickup in a wide range of vehicles (sold separately).

Polarity Detection

Automatic Polarity Detection simplifies connection into the high beam circuit and works on positively and negatively switched vehicles.

Soft Start Programming

Soft Start programming reduces eye fatigue by ramping up the brightness within the first second of operation.

Pivoting Lead Design

Pivoting lead design on the in-cabin control module offers the option of hiding the wiring when installing into the vehicles dashboard area.







VBP WIRING SYSTEM SPECIFICATIONS	
Voltage Range	10 - 30V DC
Controller	Backlit with two rotary control dials & mounting cradle
Light Intensity Control	8 x Brightness settings (0% - 100%)
Beam Pattern Control	8 x Beam pattern settings (Spot - Flood)
Light Capacity (as supplied)	Connect and control 2 x VBP Series lights simultaneously
Light Capacity (max)	Connect and control 4 x VBP Series lights simultaneously (additional lights and control leads sold seperately)
Compliance	CE, UNECE R10

Variable Colour Temperature | Wiring System

Variable Light Intensity | Wiring System









VCT WIRING SYSTEM SPECIFICATIONS		
Voltage Range	10 - 30V DC	
Controller	Backlit with two rotary control dials & mounting cradle	
Light Intensity Control	8 x brightness settings (0% - 100%)	
Colour Temperature Control	8 x colour temperature settings (3000K - 6000K)	
Light Capacity (as supplied)	Connect and control 2 x VCT Series lights simultaneously	
Light Capacity (max)	Connect and control 4 x VCT Series lights simultaneously (additional lights and control leads sold seperately)	
Compliance	CE, UNECE R10	

VLI WIRING SYSTEM SPECIFICATIONS	
Voltage Range	10 - 30V DC
Controller	Single rotary control dial & mounting cradle
Light Intensity Control	8 x brightness settings (0% - 100%)
Light Capacity (as supplied)	Connect and control 2 x VLI Series lights simultaneously
Light Capacity (max)	Connect and control 4 x VLI Series lights simultaneously (additional lights and control leads sold seperately)
Compliance	CE, UNECE R10

Parts Included





1 x Control Lead (3m)



2 x Control Leads (1.5m)



Miscellaneous Parts



2 x Control Module Sticker (VBP Pictured)



1 x Control Module Connector



1 x Trigger Wire (4m) with 2A fuse



1 x 3M Adhesive Pad









Installation Guide

Fitting Time: 45 Minutes (Approximately)

IMPORTANT!

- 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.
- Ensure all recyclable parts/packaging are discarded in accordance to local regulations.

Wiring Diagram

Installation Procedure

General notes prior to installation

Before starting, remove the negative (-) cable of the battery to prevent short circuits.

Refer to the Wiring Diagram shown on previous page when reading through installation instructions and your vehicles owner's manual if required.

Apply dielectric grease to all control plug connections to ensure a long term, reliable water tight connection. Follow directions shown below or on separate instruction sheet provided named "Important Fitting Instruction".

When connecting the control plugs throughout the system, align the arrows on each mating plug to ensure correct alignment of pins, and ensure the o-ring is seated correctly before final tightening of the screw lock.



2. Align the arrows on the 2 mating plugs to ensure the keyways are positioned correctly. Firmly push the male plug into the female plug, noting that some Dielectric grease should flow out of the plug. Push firmly until the red O-ring is properly seated against the shoulder of the female plug and wipe away excess grease.



IMPORTANT FITTING INSTRUCTION

The following procedure applies to all control plug connections used throughout the Bushranger Night Hawk Variable Series wiring systems.

To ensure long term, reliable operation of the Night Hawk Variable Series wiring system, the control plugs need to be correctly assembled and well-sealed to prevent water ingress. A poorly sealed control plug can allow water into the electrical pins and cause corrosion over time, which can lead to intermittent issues and faults. Careful attention needs to be paid to the seating of the O-ring, as well as the use of di-electric grease (silicone grease) on the electrical pins to act as a barrier to water ingress.

3. Tighten the screw lock to form a secure, waterproof connection. Ensure metal to metal contact between the electrical pins has been retained by trialling the full operation of the Variable Series wiring system before finalising the installation.



4. Use heat shrink to secure connection.

It is recommended to use a 40mm length of Ø14mm (minimum) heat shrink over each control plug to further act as a barrier to water ingress, as well as holding the screw lock in place over the life of the connection.





Wiring Installation Steps

1. Mount the control module

- Find a suitable location for mounting the Control Module (Item 1) in the vehicle's cabin, then use supplied screws or 3M tape to secure the mounting cradle in position.
- Connect the control module to the Control Module Connector (Item 2) using the white 2-pin plugs, then clip the control module into the mounting cradle and run wires under the dash.
- Clean the face of the control module, then firmly apply one of the supplied stickers to the control module (two differently orientated stickers are provided choose the correct one to suit the installation).

2. Route the high beam trigger wires

- Find a suitable high beam trigger circuit to connect the trigger wires into. Commonly this is found at the back of the headlight or the fuse box in the engine bay.
- Connect the fused end of the Trigger Wires (Item 3) into the high beam circuit:

For positively switched vehicles

Connect the red trigger wire to the positive (+) side of the high beam circuit; commonly the positive (+) high beam switching wire at the headlight or the high beam fuse in the fuse box. Connect the black trigger wire to the negative (-) side of the high beam circuit; commonly an earth connection at the head lamp or on the body of the vehicle.

For negatively switched vehicles

Connect the red trigger wire to the positive (+) side of the high beam circuit; commonly a constant positive (+) wire at the headlight or positive (+) terminal of vehicles battery. Connect the black trigger wire to the negative (-) side of the high beam circuit; commonly the negative (-) high beam switching wire at the headlight.

Note 1: The system has automatic polarity detection and will still work correctly with

trigger wires reversed, however, the fused wire (red) should always be positioned on the positive (+) side of the high beam circuit for best circuit protection.

Note 2: Use vehicle specific headlight adaptors (sold separately) for a simple plug and play installation on many vehicles. Alternatively, use provided wire taps or cut and splice into the headlight wiring.

- Find a suitable grommet (Item 5) in the vehicles firewall to feed wires through. Make a new hole in the grommet if necessary.
- Route the trigger wires neatly through the engine bay, through the grommet and into the cabin.

3. Route the control leads

• Feed the 3m Control Lead (Item 6) from the engine bay through the firewall grommet and into the cabin.

Note: Ensure the correct end of the control lead is fed through to mate up with the control module plug in the cabin.

- Connect the 4-way Distribution Lead (Item 7) to the 3m control lead plug in the engine bay and position close to the front of the vehicle, within 1.5m lead length of the lights.
- Move to the inside of the vehicle. Pull through the trigger wires and control lead and connect to the control module plugs. Neatly wrap and store any excess leads/wire under the dash using the supplied cable ties.

4. Connect the lights

- Connect 2 x 1.5m Control Leads (Item 8) to two of the 4-way distribution lead mating plugs, then route both leads to the front of the vehicle for connection to the lights. Fit two of the supplied blanking plugs to the two unused control plugs on the 4-way distribution lead.
- Mount the Variable Series Lights (Item 10) securely, then connect one control plug to each light.
- Connect ring terminals on the 2.5m Light Power Cable (Item 9) (supplied with the lights) directly to the Vehicles Battery (Item 11), with the red wire connected to the positive (+) battery terminal, and the black wire connected to either the negative (-) battery terminal or a good earth point on the chassis of the vehicle.
- Neatly route the power wires from the battery through to the lights and connect one power plug into each light.

Note: The lights may briefly flash when first connected to the battery. This is normal operation and is not a fault.

5. Test the system

Recheck all connections and then reconnect the negative (-) cable of the battery. Start vehicle and turn on headlights. Move the control module dial to the 'MAX' brightness position and check that the Variable Series Lights turn on when the headlights high beam is activated and turn off when the high beam is deactivated.

Fitting Additional Lights

To fit additional Variable Series lights to the system, purchase 1 x control lead (1.5m or 3m) per light and connect into an unused plug on the 4-way distribution lead. Route the power cable (supplied with the light) from the light to the battery and connect the ring terminals to the battery.

Troubleshooting

SYMPTOM	POSSIBLE CAUSE	REMEDY
The Variable Light Intensity Lights are constantly on, even when controller is set to off position	Control Lead is not connected to the lights correctly	Check connections
	Control Leads are not connected to each other correctly	Check connections
	Control Leads are damaged	Check for damage and replace
	Control module is faulty	Replace control module
	Fault in the light/s	Replace light/s
The Variable Colour Temperature or the Variable Beam Pattern are constantly on, even when the controller is set to off position.	Faulty or damaged control lead	Check for fault and replace
	Faulty or damaged 4-way distribution lead	Check for fault and replace
	Faulty or damaged light	Check for fault and replace
	Faulty Control Module	Check for fault and replace

SYMPTOM	POSSIBLE CAUSE	REMEDY
The Variable Series lights are not turning on.	The control module is set to OFF position	Turn dial on control module to MAX position
	The lights are not connected to the battery	Check for any damage to the power cable or connectors
		Check connections at the battery terminals
	The fuse on the power cable for the light has blown	Check for any damage or shorting on the power cable, then replace fuse
	The fuse on the Trigger Wire has blown	Check for any damage or shorting on the trigger wires, then replace fuse
	The Trigger Wires are not connected into vehicles high beam circuit correctly	Check correct circuit / wires have been selected for acquiring high beam signal
		Check connections made at high beam circuit
	The Trigger Wires are not connected correctly	Check connections at both ends of trigger wires
		Check for any damage to the trigger wires and replace if necessary
		Check for secure connection of white 2-pin plug at control module end
	Faulty light/s	Unplug control lead and check if light turns on. If it turns on, check control module and trigger wires as outlined above
		Replace light/s

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@bushranger.com.au A: 6A Brooks Road, Ingleburn NSW 2565 P: 1800 654 767 W: www.bushranger.com.au
You	the purchaser of the Kingsley product from a Kingsley outlet

www.bushranger.com.au/nighthawk





Kingsley Enterprises PTY. LTD. Free Call | 1800 654 767 (Australia Only) International | +61 2 8700 0400 Email | sales@bushranger.com.au Address | 6A Brooks Road, Ingleburn NSW 2565