



CANsmart™ Controller

DNL.WHS.11700
 BMW K1600 Series
 BMW S1000XR
 BMW F850GS & GSA
 BMW F750GS



ONLINE
 USER GUIDE

DENALIElectronics.com/BMW-CANsmart-User-Guide

Thank you for choosing DENALI

We know you would rather be riding your bike than wrenching on it, so we go the extra mile to make sure our instructions are clear and as easy to understand as possible. If you have any questions, comments, or suggestions don't hesitate to give our experts a call at 401.360.2550 or visit WWW.DENALIELECTRONICS.COM

Please Read Before Installing

DENALI products should always be installed by a qualified motorcycle technician. If you are unsure of your ability to properly install a product, please have the product installed by your local motorcycle dealer. DENALI takes no responsibility for damages caused by improper installation. **Caution:** When installing electronics it is extremely important to pay close attention to how wires are routed, especially when mounting products to the front fender, front fork, or fairing of your motorcycle. Always be sure to turn the handlebars fully left, fully right, and fully compress the suspension to ensure the wires will not bind and have enough slack for your motorcycle to operate properly.

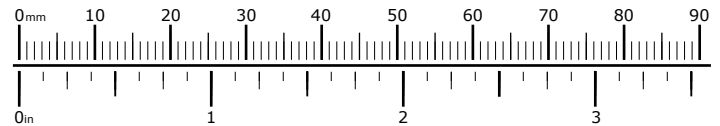
Installation Tips

We strongly recommend using medium strength liquid thread locker on all screws and bolts. It is also important to ensure that all hardware is tightened to the proper torque specifications as listed in your owner's manual. For included accessory hardware please refer to the default torque specifications provided below. Inspect all hardware after the first 30 miles to ensure that proper torque specifications are maintained.

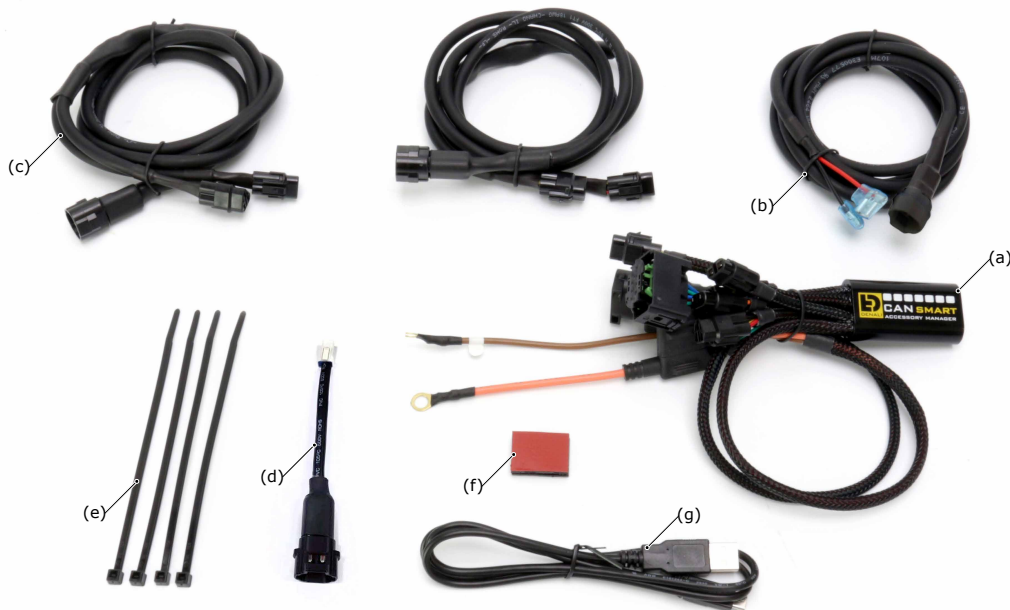
Bolt Size	in-lbs	ft-lbs	Nm
M3	10.0 in-lbs	-	1.0 Nm
M4	23.0 in-lbs	-	2.5 Nm
M5	44.5 in-lbs	3.5 ft-lbs	5.0 Nm
M6	78.0 in-lbs	6.5 ft-lbs	9.0 Nm
M8	-	13.5 ft-lbs	18.0 Nm
M10	-	30.0 ft-lbs	41.0 Nm
M12	-	52.0 ft-lbs	71.0 Nm

Hardware Sizing Guide

Not sure what size bolt you have? Use this ruler to measure screws, bolts, spacers, etc. Remember, the length of a screw or bolt is measured from the start of the "mounting surface" to the end of the screw, so only include the screw head when measuring countersunk screws.



What's In The Box?



Kit Contents

- (a) CANsmart™ Controller.....Qty 1
- (b) 5ft Horn Extension.....Qty 1
- (c) 5ft LED Light Extension.....Qty 2
- (d) Brake Light Pigtail.....Qty 1
- (e) Zip Tie.....Qty 4
- (f) Adhesive Dual Lock.....Qty 1
- (g) USB to Micro USB Programming Cable.....Qty 1

Release Notes - February 2019

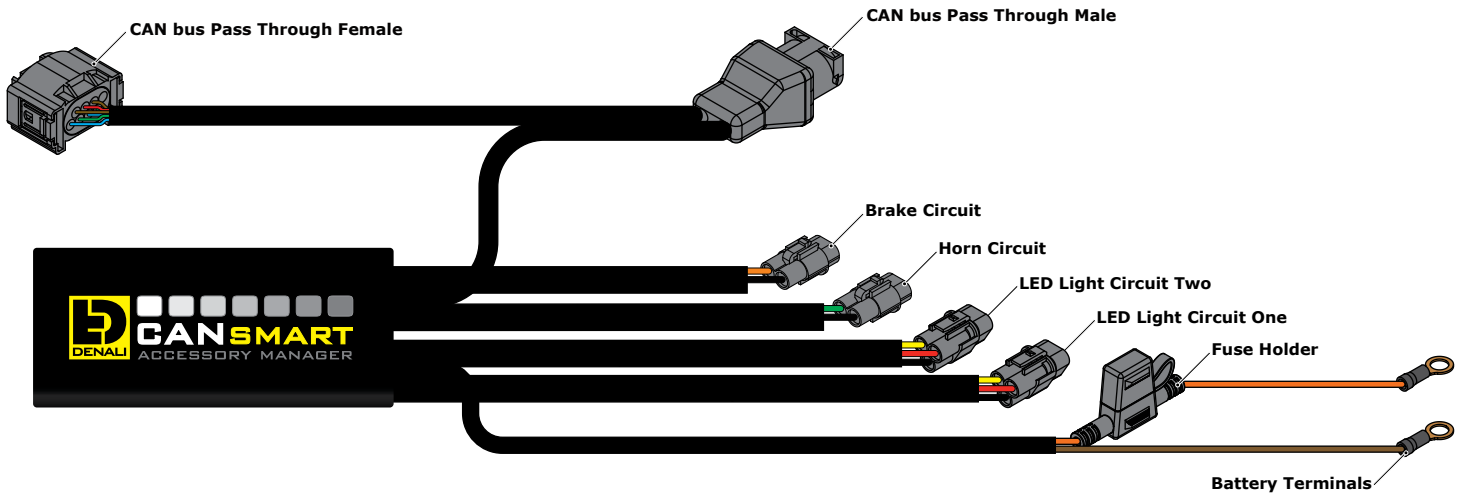
New Applications!

- BMW S1000XR 2015-2019
- BMW F850GS Adventure 2019-2019
- BMW F850GS 2019-2019
- BMW F750GS 2019-2019

To download the updated software visit:

WWW.DENALIELECTRONICS.COM/CANsmart

Note: Device MUST be updated to v1812.3 by connecting it to the new software before installing on the above listed vehicles.



1.1 - Overview of Device

The DENALI CANsmart™ Controller provides plug-n-play installation and integrated control of up to four accessories to enable dozens of customizable settings that can be controlled right from the BMW Multi Controller or the CANsmart™ Accessory Manager Software.

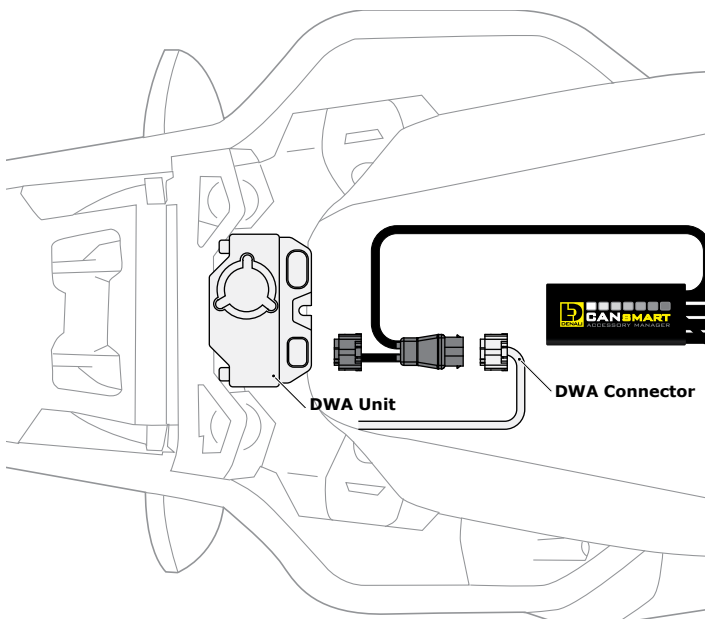
The four dedicated circuits are pre-programmed to connect and independently control two sets of DENALI 2.0 lights, a SoundBomb horn, and our B6 auxiliary brake light. However, our clever "simple circuit override" feature will let you run any accessory of your choice on any of the four circuits.

The two auxiliary light circuits enable independent adjustment of high and low beam brightness right from the vehicle's Multi Controller. It also features a "flash to pass" and "strobe when horn active" setting that will strobe the auxiliary lights when you pulse your high beam switch or sound your horn.

The feature-rich brake light circuit will transform a simple 2-wire brake light into a "smart brake light" complete with running light, multiple flash patterns, and deceleration activated braking functionality.

The horn circuit enables the addition of an auxiliary horn without having to add a relay and dedicated horn wiring harness.

2. Connecting To CAN bus



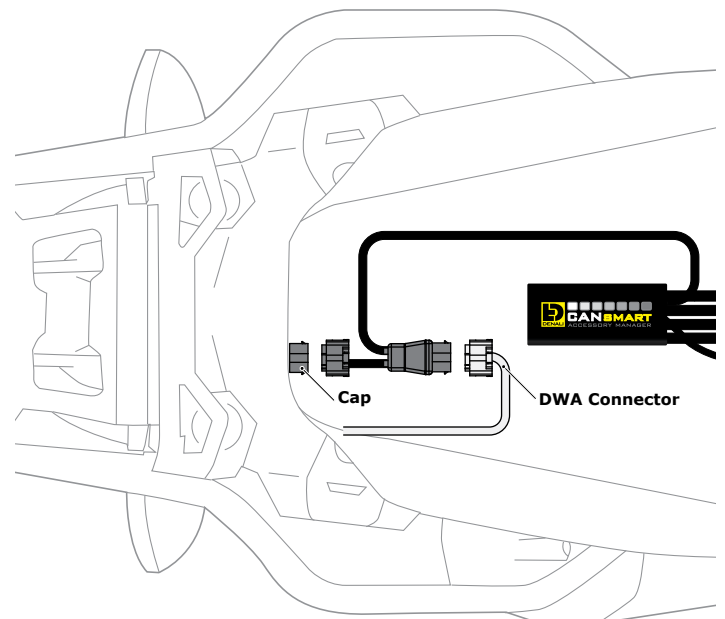
2.1 - Bikes With Anti-Theft Alarm System

Step One: The DWA unit is located at the rear of the motorcycle in the compartment behind the passenger seat. Remove the seat and body panels in this area to gain access to the unit.

Step Two: Unplug the connector from the DWA unit.

Step Three: The CANsmart™ Controller plugs in-line between the motorcycle's harness and the DWA unit. First plug the DWA connector into the male 8-pin connector on the CANsmart™ Controller.

Step Four: Plug the female 8-pin connector on the CANsmart™ Controller into the DWA unit.



2.2 - Bikes Without Anti-Theft Alarm System

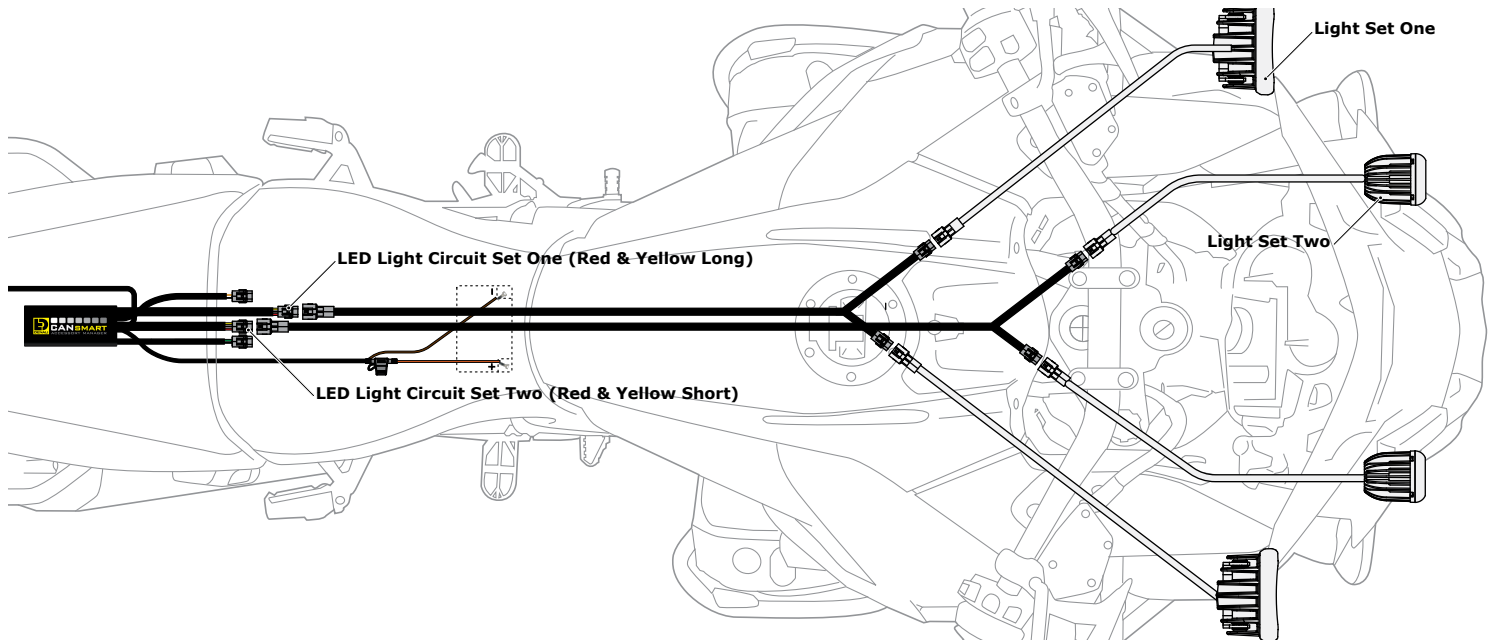
Step One: The DWA connector is located at the rear of the motorcycle in the compartment behind the passenger seat. Remove the seat and body panels in this area to gain access to the connector.

Step Two: Remove the cap from the DWA connector.

Step Three: Plug the DWA connector into the male 8-pin connector on the CANsmart™ Controller.

Step Four: Use the cap that was previously removed to cover the unused female 8-pin connector on the CANsmart™ Controller.

3. Connecting Accessories



3.1 - Light Set One & Two - 3 Wire (Red & Yellow)

The circuit for Light Set One is the longer 3-wire lead. It is designed to power larger more powerful lights and can handle up to 10 amps. The shorter 3-wire lead is for Light Set Two; it is designed for smaller, less powerful lights and can handle a maximum draw of 4 amps.

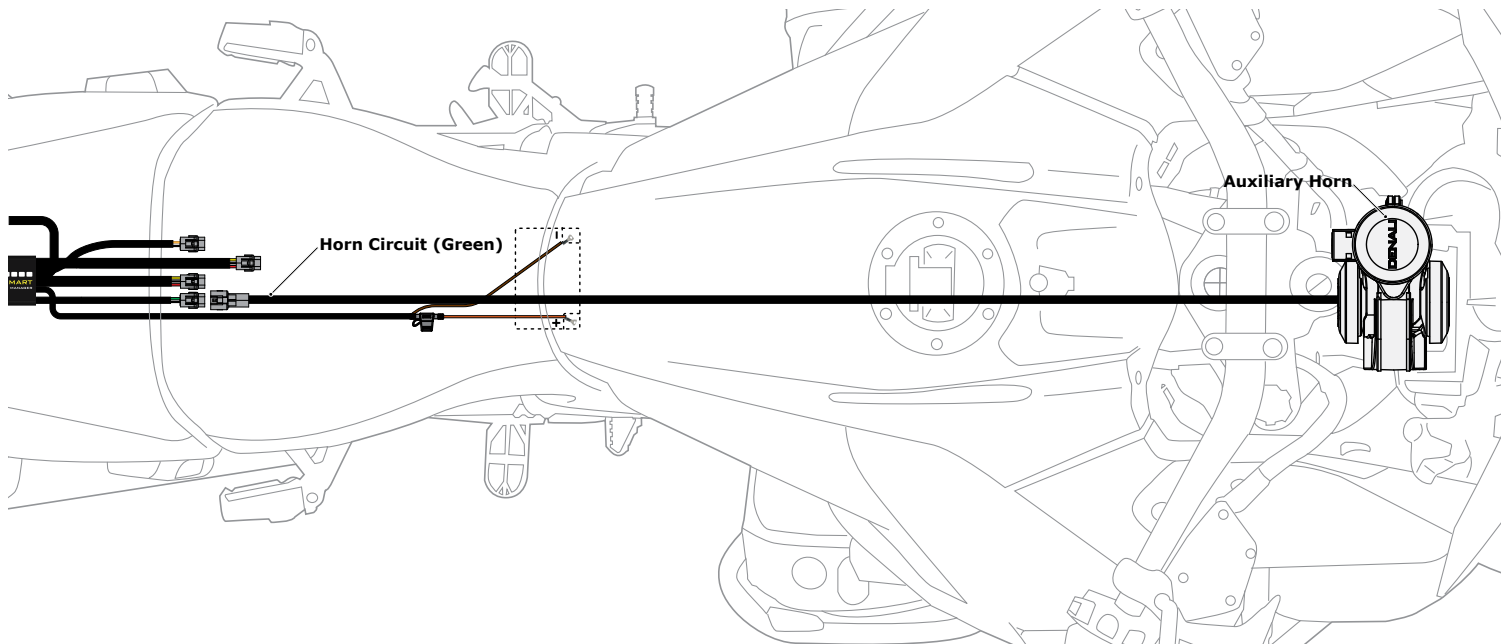
Step One: Plug the male 3-pin connector of the Light Extension-Splitter into one of the CANsmart™ Controller's light circuits.

Step Two: Begin routing the harness toward the front of the bike. Secure the harness to the vehicle's frame along the way with the included zip ties. Be sure to avoid any moving components such as radiator fan blades or suspension.

Step Three: Plug the DENALI Light Pods into the female 3-pin connectors of the Extension-Splitter.

Two-Wire Dimming: Use this mode for correct dimming operation of auxiliary LED lights that have only two wires. If enabled the 3rd yellow wire will be deactivated and PWM data will instead be transmitted through the red wire.

Wire two wire lights using the red wire for positive (+) and the black wire for negative (-).



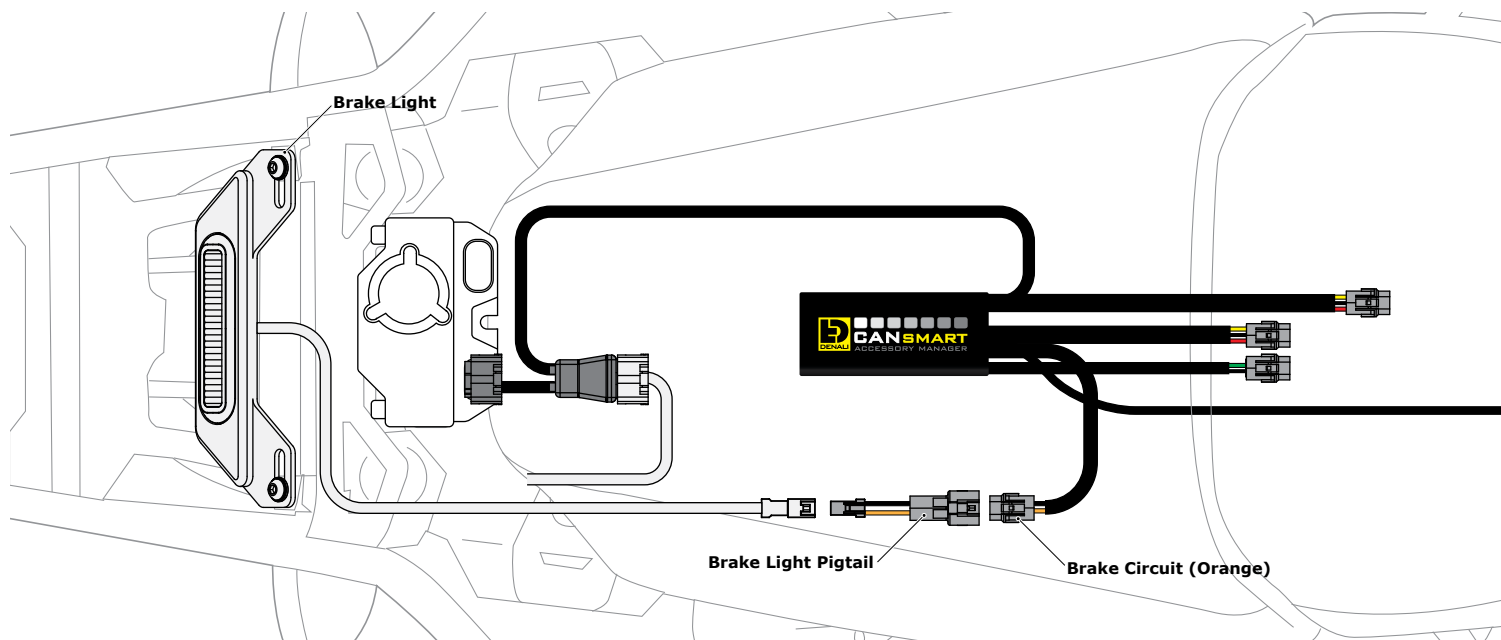
3.2 - Horn - 2 Wire (Green)

Step One: Plug the male 2-pin connector of the Horn Extension into green/black horn circuit on the CANsmart™ Controller.

Step Two: Begin routing the harness toward the front of the bike. Secure the harness to the vehicle's frame along the way with the included zip ties. Be sure to avoid any moving components such as radiator fan blades or suspension.

Step Three: Plug the spade connectors of the Horn Extension into the DENALI SoundBomb Horn. The Green wire connects to the positive (+) terminal on the horn, the Black wire goes to the negative (-) terminal.

3. Connecting Accessories (continued)



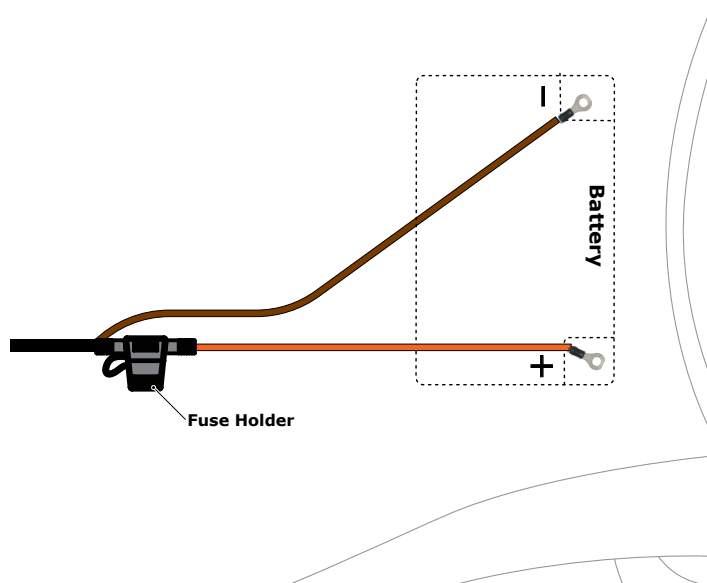
3.4 - Brake Light - 2 Wire (Orange)

Step One: Route the harness of the DENALI B6 Brake Light from the rear of your motorcycle toward the CANsmart™ Controller.

Step Two: Plug the Brake Light Pigtail into the connector on the DENALI B6 Brake Light.

Step Three: Plug the male 2-pin connector of the Brake Light Pigtail into the orange/black brake light circuit on the CANsmart™ Controller.

4. Connecting To The Battery



4.1 - Connect To The Battery

Step One: Remove the fuse from the fuse holder.

Step Two: Gain access to the vehicle's battery and disconnect the negative (-) and positive (+) terminals.

Step Three: Connect the CANsmart™ wiring harness to the battery via the ring terminals. Be sure the orange wire lead with the fuse holder goes to the positive (+) terminal of the battery.

Step Four: Re-install the fuse into the fuse holder.

Note: Place the fuse holder in an easily accessible location for convenient service in the event of a blown fuse.

5. Controlling Via The Motorcycle

Controlling Accessories From The Motorcycle

Auxiliary Light Set One (Red/Yellow Circuit)	
On/Off	Press and hold turn signal cancel button for 3 seconds.
Enter WonderWheel Dimming Mode	Hold "WonderWheel" left for 3 seconds.
Adjust Intensity	Scroll "WonderWheel" up/down to adjust between 0% to 100%.
Exit WonderWheel Dimming Mode	Hold "WonderWheel" left for 1 second or wait for 5 second time out.
Auxiliary Light Set Two (Red/Yellow Circuit)	
On/Off	Rapidly press turn signal cancel button 3 times.
Enter WonderWheel Dimming Mode	Hold "WonderWheel" right for 3 seconds.
Adjust Intensity	Scroll "WonderWheel" up/down to adjust between 0% to 100%.
Exit WonderWheel Dimming Mode	Hold "WonderWheel" right for 1 second or wait for 5 second time out.
Auxiliary Horn (Green Circuit)	
Sound Auxiliary Horn	Press vehicle's original horn button.
Auxiliary Brake Light (Orange Circuit)	
Activate Auxiliary Brake Light	Apply vehicle's front or rear brakes. (Can be set to flash upon deceleration.)

6. Custom Settings Available In CANsmart™ Software

Available Settings in the CANsmart™ Accessory Manager Software

Auxiliary Light Set One Settings (Red/Yellow Circuit)		Default
Fuse	Adjusts electronic fuse setting to desired value. Fuse auto resets with vehicle ignition cycle.	10 Amps
High Beam (Day Intensity)	High Beam Daytime Brightness Setting	100%
High Beam (Night Intensity)	High Beam Nighttime Brightness Setting	100%
Low Beam (Day Intensity)	Low Beam Daytime Brightness Setting	50%
Low Beam (Night Intensity)	Low Beam Nighttime Brightness Setting	50%
Strobe When Horn Active	This auxiliary light set will strobe when vehicle's horn button is pressed.	ON
Strobe On "Flash To Pass"	If enabled the LED lights will strobe 3 times when the high beam is toggled 3 times within 1 second.	ON
Inverse Flashing When Hazards Active	This auxiliary light set will flash alternatively with the vehicle's hazard lights.	ON
Off When Turn Signal Active	This auxiliary light set will shut off when the vehicle's turn signals are activated.	ON
Two-Wire Dimming Mode	Use this mode for two-wire auxiliary LED Lights	OFF
Simple Circuit Over-Ride	Disables all circuit features to supply switched 12v power to an accessory of your choice.	OFF
Auxiliary Light Set Two Settings (Red/Yellow Circuit)		Default
Fuse	Adjusts electronic fuse setting to desired value. Fuse auto resets with vehicle ignition cycle.	4 Amps
High Beam (Day Intensity)	High Beam Daytime Brightness Setting	100%
High Beam (Night Intensity)	High Beam Nighttime Brightness Setting	100%
Low Beam (Day Intensity)	Low Beam Daytime Brightness Setting	50%
Low Beam (Night Intensity)	Low Beam Nighttime Brightness Setting	50%
Strobe When Horn Active	This auxiliary light set will strobe when vehicle's horn button is pressed.	ON
Strobe On "Flash To Pass"	If enabled the LED lights will strobe 3 times when the high beam is toggled 3 times within 1 second.	ON
Inverse Flashing When Hazards Active	This auxiliary light set will flash alternatively with the vehicle's hazard lights.	ON
Off When Turn Signal Active	This auxiliary light set will shut off when the vehicle's turn signals are activated.	OFF
Two-Wire Dimming Mode	Use this mode for two-wire auxiliary LED Lights	OFF
Simple Circuit Over-Ride	Disables all circuit features to supply switched 12v power to an accessory of your choice.	OFF
Auxiliary Horn Settings (Green Circuit)		Default
Fuse	Adjusts electronic fuse setting to desired value. Fuse auto resets with vehicle ignition cycle.	25 Amps
Horn Enabled	If enabled the horn circuit will turn on whenever you press your motorcycles original horn button.	ON
Simple Circuit Over-Ride	Disables all circuit features to supply switched 12v power to an accessory of your choice.	OFF
Auxiliary Brake Light Setting (Orange Circuit)		Default
Fuse	Adjusts electronic fuse setting to desired value. Fuse auto resets with vehicle ignition cycle.	2 Amps
Running Light Intensity	Adjusts running light brightness setting	10%
Brake Light Intensity	Adjusts brake light brightness setting	100%
No Flashing	Brake light will turn on at the set brightness while braking.	OFF
Brake Applied Flashing (Continuous)	Brake light will flash at 4Hz at the set brightness for as long as the brake is engaged.	ON
Brake Applied Flashing (California Legal)	Brake light will flash 4 times when the brakes are engaged and then stay on at the set brightness while braking.	OFF
Auto-Flash (Deceleration Activated Flashing)	Reads the vehicle deceleration to flash the auxiliary brake light automatically. Sensitivity can be adjusted in extra settings.	OFF
California Legal & Auto Flash	Combines the behavior of California legal flashing with the deceleration activated flashing	OFF
Simple Circuit Over-Ride	Disables all circuit features to supply switched 12v power to an accessory of your choice.	OFF
Extra Settings		Default
Adjust Auxiliary Light Flashing Intensity	Adjusts strobe brightness of the auxiliary lights when "Strobe When Horn Active" or "Strobe On Flash To Pass" is turn on.	100%
Adjust Brake Flashing Travel Speed Threshold	The minimum speed at which the auxiliary brake light will flash. (Applies to all brake flash settings)	0km/h
Adjust Auto-Flash Deceleration Sensitivity	The rate of deceleration required to active auxiliary brake auto-flashing (Applies to Auto-Flash only)	Middle

6.1 - Where To Download The Software

The CANsmart™ Accessory Manager Software is available for both Windows and Mac operating systems. To download your copy please visit WWW.DENALIELECTRONICS.COM/CANsmart

6.2 - Connecting The Device To The Software

Step One: Remove the protective cap from micro USB port on the end of the CANsmart™ Controller.

Step Two: Plug the provided programming cable into the CANsmart™ Controller, and plug the other end into your computers USB port.

Step Three: Open the CANsmart Accessory Manger Software and turn the motorcycle's ignition to the "ON" position.

CANsmart™ Status Indicator Light Key

LED Color	Status	Solution
Solid Green	Normal operation, no errors present. (Vehicle Ignition ON)	N/A
Slow Flashing Green	Normal operation, no errors present. (Vehicle Ignition OFF)	N/A
Quick Flashing Green	Bootloader Mode (Should only be seen during firmware upgrade)	Connect to software, should reset into normal operation
Solid Red	Recovered from a unexpected failure	Connect to software, should attempt to reset to normal operation. Please report the exact circumstances to DENALI for analysis.
Flashing Red	At least one channels electronics fuse has been tripped.	Check/increase fuse settings, cycle ignition to reset electronic fuses
Solid Green & Flashing Red	Application Firmware Corrupt	Connect to software, should offer an upgrade/recovery
Solid Red & Solid Green	Device has been deactivated	Return to DENALI for analysis. Please send log files info@DENALIElectronic.com for analysis by DENALI.
Flashing Red & Flashing Green	Data/configuration fault. (missing CAN bus data)	Check that the correct CAN bus connector was used. If the problem persists please send log files to info@DENALIElectronics.com for analysis by DENALI

7.1 - Status Indicator Light

The CANsmart controller features a LED status indicator light, the light is located next to the micro USB programming port. The chart above defines each of the LED colors/flash patterns, and provides possible solutions to any faults that are present in the system.

The screenshot shows a 'Diagnostics' window with the following data:

Measurement Type	Sub-Type	Value
Current measurements	Red Circuit	Average: 0.00 A, Peak: 0.00 A
	Blue Circuit	Average: 0.00 A, Peak: 0.00 A
	Yellow Circuit	Average: 0.00 A, Peak: 0.00 A
	White Circuit	Average: 0.00 A, Peak: 0.00 A
Temperature measurement	Temperature:	27.50
	Voltage measurement	Battery Voltage: 0.00 V, CANBUS Voltage: 0.00 V

7.2 - Diagnostics Windows

The Diagnostics Window can be opened from the main menu. Use this window to get an overall view of the systems power consumption, as well as Battery/CAN bus voltage and device temperature.

7.3 - Online Trouble Shooting Guide

For the most up to date comprehensive trouble shooting guide, please visit DENALIElectronics.com/BMW-CANsmart-Troubling-Guide