



# Hex ezCAN

Accessory manager for CAN-bus-equipped motorcycles

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User manual

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Hex ezCAN Configuration Tool

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## 2 WHAT CAN THE EZCAN DO?

*Congratulations on your purchase of a Hex ezCAN! We wish you many years of trouble-free service and exciting riding. We aim to boost the rideability and usability of your motorcycle, and the safety, comfort and pleasure of your riding experience. The only practical limit to what ezCAN can do for you is your imagination!*

The ezCAN is an accessory manager for CAN-bus equipped motorcycles, ATVs and other vehicles. It connects directly to the battery, sidestepping the electrical power restriction issues of the latest motorcycles. It continuously monitors the data transmitted on the CAN-bus (a small selection of the monitored data includes engine speed, vehicle speed, status of brake lights and brake pedals/levers, horn status, gear position, throttle position, headlight and switch status, and turn signal status). The ezCAN uses these messages to control the individually configured accessories connected to its power outputs.

The ezCAN has four highly configurable multi-purpose power outputs. The four outputs have identical power-supply capability, and are colour-coded **Red, Blue, Yellow** and **White** (below).



The **White** output is also capable of functioning as a LIN (Local Interconnect Network) bus for future expandability.

The Hex ezCAN is capable of powering any 12-volt electrical accessory with a current draw of up to 25 Amps\*. In practice, ezCAN can power all electrical accessories used in modern motorcycling. This includes (but is not limited to):

- One or more sets of high-powered auxiliary front LED lights.
- Auxiliary rear running lights and brake lights.
- High-powered air horns.
- Auxiliary front daytime running lights/turn signals.
- Combined rear run/brake/turn signals.

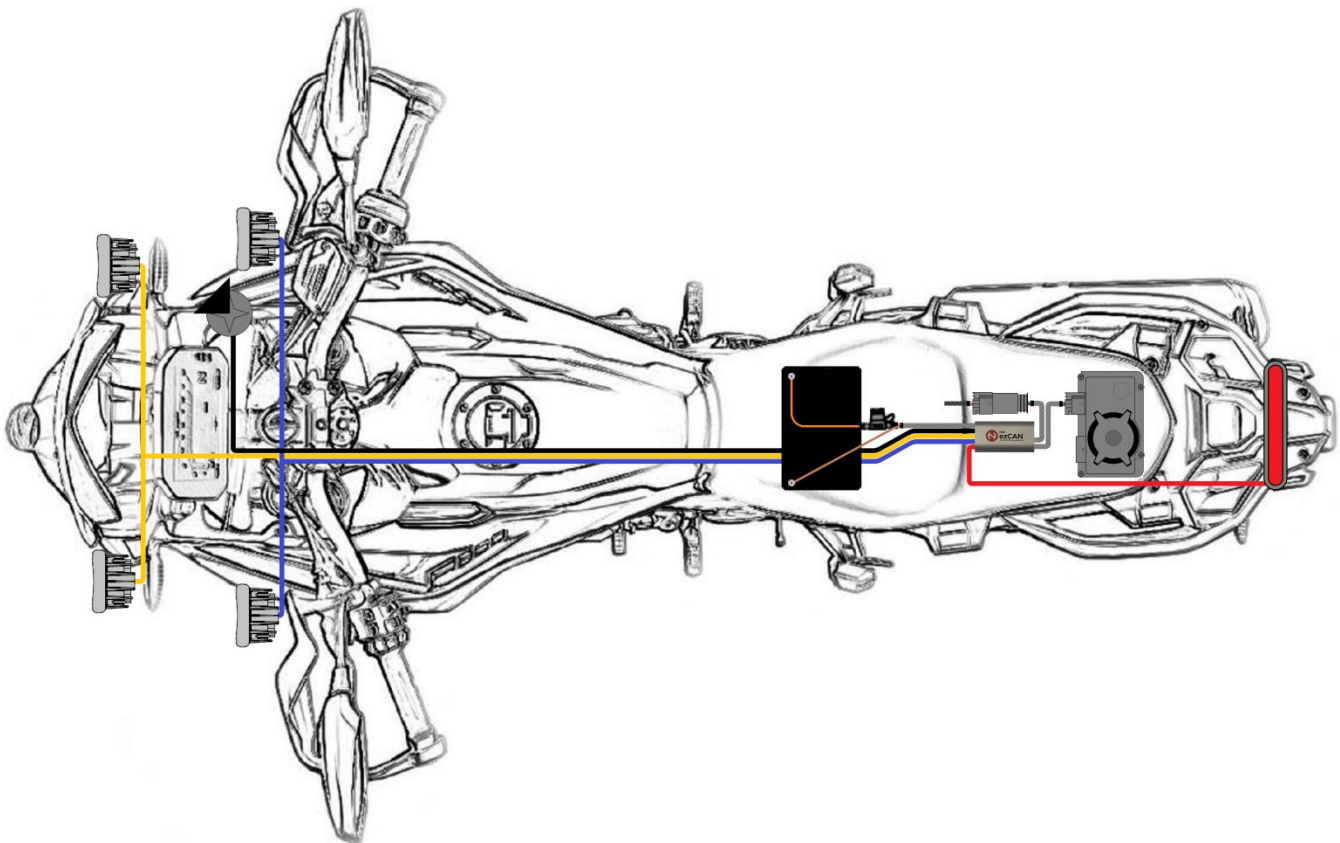
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\* For a full description of the ezCAN's functional specifications, see [SPECIFICATIONS](#).

- Marker lights.
- Heated gear.
- Action cameras.
- Switched 12V outlets supplying power to mobile phones, satellite-navigation devices, and so on.

You are not limited to a specific role per power circuit: any 12V accessory of any type can be assigned to any power circuit.

The possibilities are so broad that we recommend you devote some thought to function and configuration. One common installation scenario (below) includes a circuit powering two front spotlights (blue circuit), another circuit powering two more front spotlights (yellow circuit), a circuit powering an auxiliary rear light (red circuit), and a circuit powering a high-power accessory horn (white circuit, shown in black for clarity).



But you are not confined to this layout. Many ezCAN customers have created truly imaginative scenarios, all of which have enhanced their personal riding experience.

## 3 INSTALLING FOR LIFE

To install your ezCAN in a way that ensures optimum, trouble-free performance in all conditions, you must:

1. **Protect the main body from damage.** Where you install the silver body of the ezCAN depends on what space is available. Install the ezCAN's main body where it will be protected from crushing, impacts and vibration. Although the ezCAN is highly water resistant, try not to expose it to water spray from the wheels or from high-pressure cleaning equipment.
2. **Ensure easy diagnostics.** With the ezCAN installed and secured, make sure you have easy access to the Status LED, and the ezCAN's main fuse.
3. **Mount the main body securely.** If you use the Velcro strips supplied with the kit, first clean the silver body and your planned mounting point with methyl alcohol. Otherwise, secure the main body to a frame tube or other solid component using medium-sized zip ties.
4. **Protect the wiring.** When routing the ezCAN wiring to the battery, CAN-bus connector, accessory power points and other connections, run the wiring next to existing wiring, under body panels, and behind frame tubes. Make sure all wiring is kept well clear of moving components (such as fork stanchions, steering triple clamps and swingarms), and is not in danger of being cut, abraded or overheated.
5. **Secure the wiring.** Securely fasten all ezCAN and accessory wiring to frame tubes or non-moving components with zip ties. Do not over-tighten the zip ties.

For specific instructions on where and how to install ezCAN on BMW, Harley-Davidson and KTM motorcycles, [click here](#).

### 3.1 Calculating power consumption



#### **WARNING**

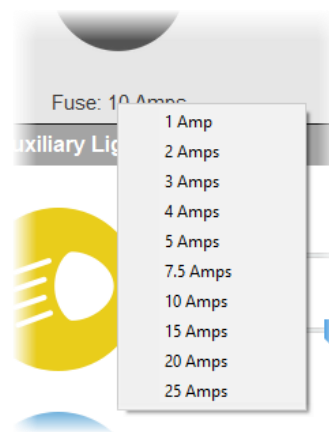
Make sure that all amperage cut-off limits are set correctly. If this is not done, current overload conditions could damage your accessories or cause electrical fires.

You must correctly set the cut-off amperage limit for each ezCAN power circuit you use. Setting these limits too high will make them ineffective, possibly causing dangerous over-current conditions. Setting the limits too low may trip power circuits for no good reason (this is known as *nuisance tripping*).

The ezCAN features software amperage limits that act in the same way as normal fuses. These 'software fuses' are based on the *accumulated energy* principle. This means they take the severity of an over-current condition into account and act accordingly. In practice, this means they will not trip in the first fraction of a second in which an amperage limit has been exceeded, but will act upon the continuing energy of the event. This means ezCAN can intelligently handle small current spikes without nuisance tripping.

If a circuit draws more than the amount of current you specify, the ezCAN will cut the power supply to that circuit. To reset a circuit that has 'tripped' in this way, cycle the ignition (switch the motorcycle's ignition switch OFF, then switch it back ON).

Any of the software fuses can be set to a trip point between 1 and 25 Amps (below).



Calculate the safe cut-off amperage limit for each power circuit by doing the steps that follow:

1. Find out how much *continuous current* (in Amps) your accessory uses at full power (value **X**).
2. Calculate the *total amperage limit* (value **I**) for the circuit by adding a 30% margin to value **X**, using this formula:

$$I = (X + 30\%)$$

**TIP**

For larger electrical loads, it may be advisable to use a lower margin.

If you are using a margin lower than 30%, and a power circuit 'trips' repeatedly, increase the margin.

3. Assign the closest software fuse setting *above* value **I** to the circuit, using the procedure [shown here](#).
  - As a typical example, you might want to connect a run/brake light with a maximum current draw of 1.8 Amps to a power circuit. Adding 30% to this yields 2.34 Amps.

This means the 3 Amp setting must be chosen to protect the circuit.

If you do not know the Amperage draw of the accessory:

1. Find out the maximum amount of power (in Watts) the accessory uses at full power (value **P**).
2. If a single output circuit must power two or more accessories (such as auxiliary lights), calculate the total value of **P** by adding the total wattage of the accessories together.
3. Calculate the *nominal amperage* (value **Y**) for the circuit. Do this by dividing value **P** by the twelve volts of the motorcycle's electrical system (value **V**), using this formula:

$$Y = \frac{P}{V}$$

4. Calculate the *total amperage limit* (value **I**) for the circuit. Do this by adding a 30% margin to value **Y**, using this formula:

$$I = (Y + 30\%)$$

- As a typical example, you might want to connect two auxiliary front lights consuming 40 Watts each to the power circuit, in parallel. The calculation for this scenario would be:

$$I = \left( \frac{(40 + 40)}{12} \right) + 30\% = 8.7 \text{ Amps}$$

Adding 30% to 6.67 Amps yields 8.67 Amps. This means the 10 Amp setting must be chosen to protect the circuit.



#### IMPORTANT

The ezCAN has a 30 Amp inline fuse.

The combined maximum current limit for all four power circuits must not exceed 30 Amps. The main fuse may blow if the ezCAN draws more than this amount of current.

It is recommended that you keep the combined maximum current limit under 25 Amps.

To learn how to set value **I** for each power circuit using the ezCAN configuration software, [click here](#).

## 3.2 Generic installation



#### CAUTION

Follow the installation sequence in this section carefully, and do not skip any steps.

Your ezCAN is a precision component and must be fitted with care and attention. The installation sequence in this section is designed to make

installation easy, and to prevent fault codes being logged by any of the motorcycle's control units.

1. Switch the motorcycle's ignition OFF.
2. Remove the negative terminal (–) from the motorcycle's battery.
3. Remove the positive terminal (+) from the motorcycle's battery.
4. Connect the ezCAN to the correct CAN-bus connections.



### IMPORTANT

If your BMW does not have an anti-theft alarm (DWA) module fitted, it will have a DWA blanking plug containing an important CAN-bus terminating resistor.

After disconnecting the blanking plug from the female DWA wiring harness connector, it is extremely important that you connect the blanking plug to the female ezCAN wiring harness connector. This ensures that the terminating resistor is connected to the CAN-bus.

- On 2013-onward liquid-cooled BMW R-series models, connect the male ezCAN CAN-bus connector to the tyre-pressure monitoring module or blanking plug, and the corresponding module connector.
  - On all other BMW models, connect the male ezCAN CAN-bus connector to the anti-theft alarm module or blanking plug, and the corresponding module connector.
  - On all Harley-Davidson and KTM models, connect the ezCAN CAN-bus connector to the motorcycle's diagnostic connector.
5. Connect the orange ezCAN power cable to the battery's positive terminal (+).
  6. Connect the brown ezCAN power cable to the battery's negative terminal (–). Always re-connect the negative terminal last.
  7. To learn how to configure your ezCAN, [click this link](#).
  8. Connect your accessories to the ezCAN power circuits as shown in the sub-sections below. Pay attention to the output circuit colours, making sure you configure each output circuit to power the correct accessory.
  9. Switch the motorcycle's ignition ON.
  10. Test that each accessory is working as expected, fine-tuning the cut-off amperage limit for each power circuit as needed.



### 3.3 Before you wire your accessories...



#### IMPORTANT

Not all accessories use red cables for 12V+ or brown cables for Ground. If you do not know what one or more wires on your accessory are for, ask the manufacturer for the accessory's *pinouts* (terminal assignments).

The ezCAN kit includes four 2-wire stub connectors, four PWM control wires with male terminal, four rubber stoppers, and two male blanking plugs. Use the blanking plugs to cover all power output plugs you will not be using.

The power output plug shown below is a typical female output plug found on the ezCAN. Each ezCAN power circuit has three wires:

- **A solid red, blue, yellow or white wire** (lower right terminal, below). This is the 12V+ wire.
- **A wire of the same colour as the solid-coloured wire, with white or black tracer** (lower left terminal, below). This is the pulse-width modulation (PWM/data) control wire. It is used for controlling light intensity if the accessory is a three-wire light.
- **A black wire** (upper terminal, below). This is the Ground or negative return wire.



Note the position of each terminal (the *pinouts*). The following sub-sections will use this information to show you how to connect specific accessories.



#### TIP

On the *White* power circuit, the PWM/data control wire also serves as a Local Interconnect Network (LIN-bus) channel.

In future, this channel will be used for expansion, and to accommodate intelligent accessories.

It is important that you pay close attention when connecting your accessories to the ezCAN's output circuits. Use the ezCAN power circuits and stub connectors as shown in the following sub-sections.

### 3.3.1 Connecting 2-wire accessories

If the accessory you are installing only has two wires, read this section. If you are installing accessory LED lights with three wires, refer to [Connecting 3-wire LED lights](#).

Most accessories have two wires: a 12V supply wire, and a second wire for Ground return. Some typical examples are:

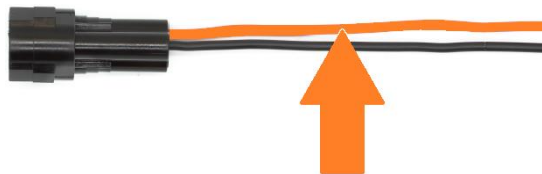
- 12-volt power for accessories (GPS, phones, action cameras, and so on)
- High-power LED lights with two-wire connections
- Run/Brake/Turn lights
- Auxiliary rear lights
- Daytime running rights (DRLs) and marker lights
- Air horns
- Heated riding gear

Join the wiring of a two-wire accessory to an ezCAN stub connector by doing the steps that follow:

1. Push one of the included rubber stoppers firmly into the rear of the stub connector's empty terminal cavity (below). Make sure the stopper is properly seated.



2. Connect the accessory's 12V+ cable to the **solid-coloured orange** wire on the stub connector (below).



3. Connect the accessory's Ground cable to the **black wire** on the stub connector (below).



4. If the accessory is a two-wire LED light, switch OFF **Three-Wire Dimming Mode** in the correct **Auxiliary Lights** section of the ezCAN configuration software (below).



#### IMPORTANT

If **Three-Wire Dimming Mode** is not switched OFF for two-wire lights, the lights will remain at full brightness regardless of their brightness setting.

### 3.3.2 Connecting 3-wire LED lights

If you are installing accessory LED lights that have three wires, read this section. If the accessory you are installing has two wires, refer to [Connecting 2-wire accessories](#).

In addition to Power and Ground, some LED lights have a third wire that is used to control the light's brightness. This is done using a low-power pulse width modulation (PWM) control signal.

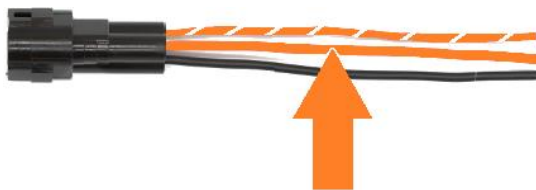
Join the wiring of a three-wire LED light to an ezCAN stub connector by doing the steps that follow:

1. Note the position of the empty terminal cavity on the stub connector, and the orientation of the male terminal of the PWM control wire that will be inserted into the stub connector (below).



2. Push the male terminal of a PWM control wire firmly into the rear of the stub connector's empty terminal cavity, making sure the terminal is oriented as seen above.
  - The terminal should 'Click' into the stub connector.

3. Connect the auxiliary light's 12V+ wire to the **solid-coloured orange** wire on the stub connector (below).



4. Connect the auxiliary light's Ground wire to the **black wire** on the stub connector (below).



5. Connect the auxiliary light's PWM/data brightness-control wire to the **orange-and-white wire** on the ezCAN stub connector (below).



6. Switch ON **Three-Wire Dimming Mode** in the correct **Auxiliary Lights** section of the ezCAN configuration software (below).



#### IMPORTANT

If **Three-Wire Dimming Mode** is not switched ON for three-wire lights, the lights may flicker or 'stutter' when their brightness is adjusted, or their brightness adjustment may 'jump' between the low and high settings.

### 3.4 Connecting power wiring

When connecting accessories to the ezCAN stub connectors, we suggest you use one of the following methods:

- It is strongly recommended that you use *solder seal wire connectors*. This is a special configuration of heat-shrink tubing with a watertight seal on both ends, and a low-temperature solder in the middle. A typical example is shown below.



- If you cannot obtain solder seal wire connectors, use traditional soldered joints (below).



Cover each soldered joint with a generous section of heat-shrink tubing (below). Insulation tape is not recommended.

**TIP**

Some types of heat-shrink tubing have an interior coating of adhesive. This type of tubing is preferred, as it improves water resistance.

When connecting the power wiring of an accessory to an ezCAN stub connector, do the steps that follow:

1. Install the ezCAN and all accessories on the motorcycle.
2. Measure the length of each planned power circuit wiring run.
3. If needed, extend the stub connectors by adding more wiring between each terminal of the accessory. Alternatively, consider using the ezCAN extension kit (unassembled view below left, assembled view below right).



To purchase an ezCAN extension kit from the Hex Innovate online store, [click here](#).



### WARNING

If an accessory connects to a power outlet (for example, a Hella plug), make sure the accessory's power cord cannot interfere with control of the motorcycle, and cannot entangle you when you get onto and off of the motorcycle.

## 3.5 ezCAN registration



### IMPORTANT

Registration brings these essential benefits:

- Support and warranty cover will be enabled for your ezCAN.
- You will have access to the latest device firmware updates.
- You can also choose to stay informed of the latest software functionality. ezCAN functionality is continually upgraded, and the ability to control intelligent accessories is planned for ezCAN in future.

Note that ezCAN product support is only available to users who have registered. The registration procedure allows ezCAN owners to access the full benefits of ezCAN ownership.

### 3.5.1 Registering the ezCAN

To register your ezCAN, do the steps that follow:

1. Connect your computer to the internet.
2. Remove the rubber plug covering the ezCAN's Micro-USB port.
3. Connect the ezCAN to your computer.
4. Launch the ezCAN Configuration Tool from your computer.

- If this is not the first time your ezCAN is connected to the internet, the ezCAN configuration software will be shown.
  - If this is the first time your ezCAN is connected to the internet, the **ezCAN Registration** dialogue will be shown.
5. If the **ezCAN Registration** dialogue is shown, follow the prompts.
    - Your browser will show the **Hex ezCAN Registration** form.
  6. Enter all needed information, including a valid E-mail address.
  7. Click the **Submit** button.
    - A verification E-mail will be sent to your E-mail address.



### IMPORTANT

It may take several minutes to receive the verification E-mail. If you do not receive the verification E-mail after this time, check your E-mail account's anti-spam settings and Spam folder. The verification E-mail has the following delivery address and subject line:

*From: noreply-signup@hexcode.co.za*


*Subject: ezCAN Registration*

If you have not received the verification E-mail after one hour, contact [support@hexezcan.com](mailto:support@hexezcan.com) for help.

8. Click the verification link in the body of the E-mail.
  - Registration is now complete, and support and warranty cover are active for your ezCAN.

### 3.5.2 Re-registering the ezCAN

If you need to change your ezCAN registration details, or if you have purchased a used ezCAN and want to register it in your name, do the steps that follow:

1. Click the Extra Settings button in the upper right corner of the ezCAN configuration software (below).  

2. Click the **About** option in the drop-down menu.
  - The ezCAN *Version details* dialogue will be shown.
3. Click the **Update Registration Details** button.
  - The **ezCAN Registration** dialogue will be shown.
4. Complete the **ezCAN Registration** dialogue as shown in [Registering the ezCAN](#).

### 3.5.3 Registering manually

If for any reason you cannot register using the **ezCAN Registration** dialogue, register manually by going to [this page](#) and filling in your details.



## 4 EZCAN VIDEO TUTORIALS

A number of video tutorials are available for every ezCAN-related topic. To see relevant video tutorials, click the links below.

Videos are added on a regular basis. Please visit [www.hexezcan.com](http://www.hexezcan.com) to see the latest additions.

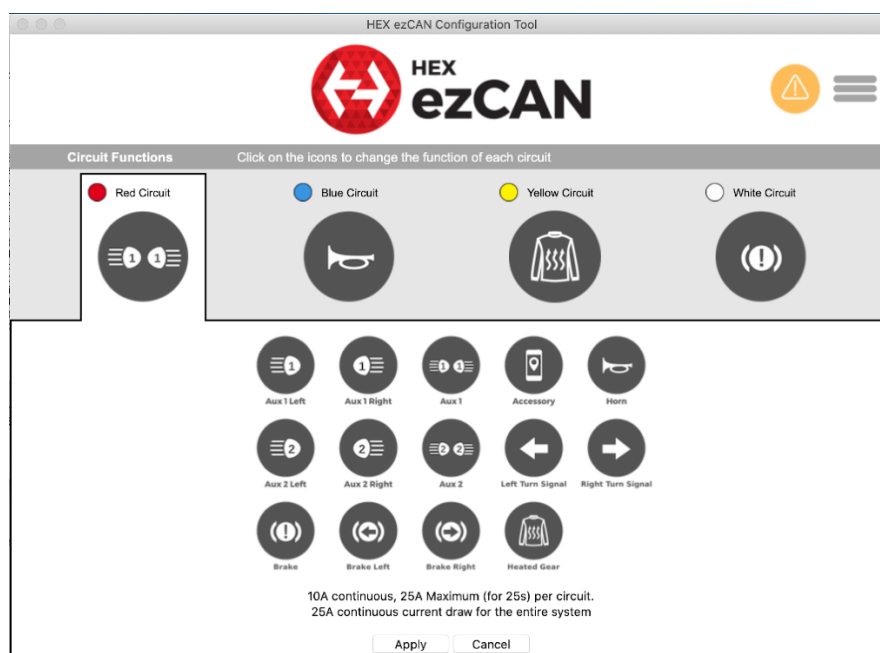
### 4.1 ezCAN installation instructions

The ezCAN installation video tutorials give specific, easy-to-follow instructions for the relevant motorcycle.

- For installation on compatible BMW motorcycles, [click here](#).
- For installation on compatible Harley-Davidson motorcycles, [click here](#).
- For installation on compatible KTM motorcycles, [click here](#).

### 4.2 ezCAN configuration instructions

You will see the view below when you click the configuration icon for any power output circuit.



You can assign any of the configuration options above to each of the power output circuits.

Some software configuration instructions may differ, depending on whether you are setting up an ezCAN for a BMW, Harley-Davidson or KTM. Configuration instructions are available for all compatible motorcycles. To learn how to configure your ezCAN, [click here](#).

## 5 HOW TO CONTROL YOUR EZCAN

Some aspects of ezCAN operation differ, depending on whether the ezCAN is installed on a BMW, Harley-Davidson or KTM. This section contains all rider actions needed to switch on, adjust, and switch off all functions on all compatible motorcycles.



### IMPORTANT

The ezCAN will need to be configured before it works in exactly the way you want it to.

For detailed instructions on how to configure the ezCAN using the ezCAN configuration software, [click here](#).

Some rider actions may give different results, depending on how the ezCAN is configured. To learn how to configure your ezCAN using the configuration software, see [ezCAN configuration instructions](#).

In all cases, the motorcycle's ignition switch must be ON.



### WARNING

For safety reasons, it is strongly recommended that you stop the motorcycle and select *Neutral* gear before switching on, adjusting or switching off auxiliary front lights.

On KTMs without optional Hex light switches, it is not technically possible to adjust auxiliary front lights, or switch them ON or OFF, while the motorcycle is moving.

### 5.1 BMW motorcycles with Multi-Controller

Switching on and adjusting Aux 1 lights only	<ol style="list-style-type: none"> <li>1. Hold the Multi-Controller LEFT until the Aux 1 lights flash twice. <ul style="list-style-type: none"> <li>• The Aux 1 lights are now in brightness-adjustment mode.</li> </ul> </li> <li>2. Rotate the Multi-Controller UP to increase light brightness by 10% per click (to a maximum of 100%), or DOWN to decrease brightness by 10% per click (to a minimum of 0%).</li> <li>3. Exit brightness-adjustment mode by not operating the Multi-Controller for more than 5 seconds.</li> </ol>
Switching on and adjusting Aux 2 lights only	<ol style="list-style-type: none"> <li>1. Hold the Multi-Controller RIGHT until the Aux 2 lights flash twice. <ul style="list-style-type: none"> <li>• The Aux 2 lights are now in brightness-adjustment mode.</li> </ul> </li> <li>2. Rotate the Multi-Controller UP to increase light brightness by 10% per click (to a maximum of 100%), or DOWN to decrease brightness by 10% per click (to a minimum of 0%).</li> <li>3. Exit brightness-adjustment mode by not operating the Multi-Controller for more than 5 seconds.</li> </ol>

Switching off Aux 1 lights only	Press and hold the turn-signal cancel button for more than 3 seconds.
Switching off Aux 2 lights only	Press and release the turn-signal cancel button rapidly three times.
Switching off all front and rear auxiliary lights	Press and hold the turn-signal cancel button for more than 5 seconds.

## 5.2 BMW motorcycles without Multi-Controller

Switching on and adjusting Aux 1 lights only	<ol style="list-style-type: none"> <li>1. Press and hold the left switchgear <b>INFO</b> button until all auxiliary front lights flash twice. <ul style="list-style-type: none"> <li>• The auxiliary front lights are now in brightness-adjustment mode.</li> </ul> </li> <li>2. Release the <b>INFO</b> button.</li> <li>3. Briefly press and release the <b>INFO</b> button to adjust light brightness. <ul style="list-style-type: none"> <li>• Each press will brighten the Aux 1 lights by 10% to a maximum of 100%, then roll brightness through to 0% (OFF).</li> <li>• You can repeat this cycle as many times as you need.</li> </ul> </li> <li>4. Exit brightness-adjustment mode by not operating the <b>INFO</b> button for more than 5 seconds.</li> </ol>
Switching on and adjusting Aux 2 lights only	<ol style="list-style-type: none"> <li>1. Press and hold the left switchgear <b>INFO</b> button until all auxiliary front lights flash twice. <ul style="list-style-type: none"> <li>• The auxiliary front lights are now in brightness-adjustment mode.</li> </ul> </li> <li>2. Release the <b>INFO</b> button.</li> <li>3. Pull in and hold the clutch lever.</li> <li>4. Briefly press and release the <b>INFO</b> button to adjust light brightness. <ul style="list-style-type: none"> <li>• Each press will brighten the Aux 2 lights by 10% to a maximum of 100%, then roll brightness through to 0% (OFF).</li> <li>• You can repeat this cycle as many times as you need.</li> </ul> </li> <li>5. Release the clutch lever.</li> <li>6. Exit brightness-adjustment mode by not operating the <b>INFO</b> button for more than 5 seconds.</li> </ol>
Switching off Aux 1 lights only	Press and hold the left switchgear <b>INFO</b> button for more than 7 seconds.
Switching off Aux 2 lights only	<ol style="list-style-type: none"> <li>1. Pull in and hold the clutch lever.</li> <li>2. Press and hold the left switchgear <b>INFO</b> button for more than 7 seconds.</li> </ol>
Switching off all front and rear auxiliary lights	Press and hold the left switchgear <b>INFO</b> button for more than 10 seconds.

## 5.3 Harley-Davidson

Switching on and adjusting Aux 1 lights only	<ol style="list-style-type: none"> <li>1. Press and hold the left switchgear <b>TRIP</b> or <b>trigger</b> button until all auxiliary front lights flash twice. <ul style="list-style-type: none"> <li>• The auxiliary front lights are now in brightness-adjustment mode.</li> </ul> </li> <li>2. Release the <b>TRIP</b> or <b>trigger</b> button.</li> <li>3. Briefly press and release the <b>TRIP</b> or <b>trigger</b> button to adjust light brightness. <ul style="list-style-type: none"> <li>• Each press will brighten the Aux 1 lights by 10% to a maximum of 100%, then roll brightness through to 0% (OFF).</li> <li>• You can repeat this cycle as many times as you need.</li> </ul> </li> <li>4. Exit brightness-adjustment mode by not operating the <b>TRIP</b> or <b>trigger</b> button for more than 5 seconds.</li> </ol>
Switching on and adjusting Aux 2 lights only	<ol style="list-style-type: none"> <li>1. Press and hold the left switchgear <b>TRIP</b> or <b>trigger</b> button until all auxiliary front lights flash twice. <ul style="list-style-type: none"> <li>• The auxiliary front lights are now in brightness-adjustment mode.</li> </ul> </li> <li>2. Release the <b>TRIP</b> or <b>trigger</b> button.</li> <li>3. Pull in and hold the clutch lever.</li> <li>4. Briefly press and release the <b>TRIP</b> or <b>trigger</b> button to adjust light brightness. <ul style="list-style-type: none"> <li>• Each press will brighten the Aux 2 lights by 10% to a maximum of 100%, then roll brightness through to 0% (OFF).</li> <li>• You can repeat this cycle as many times as you need.</li> </ul> </li> <li>5. Release the clutch lever.</li> <li>6. Exit brightness-adjustment mode by not operating the <b>TRIP</b> or <b>trigger</b> button for more than 5 seconds.</li> </ol>
Switching off Aux 1 lights only	Press and hold the left switchgear <b>TRIP</b> or <b>trigger</b> button for more than 7 seconds.
Switching off Aux 2 lights only	<ol style="list-style-type: none"> <li>1. Pull in and hold the clutch lever.</li> <li>2. Press and hold the left switchgear <b>TRIP</b> or <b>trigger</b> button for more than 7 seconds.</li> </ol>
Switching off all front and rear auxiliary lights	Press and hold the left switchgear <b>TRIP</b> or <b>trigger</b> button for more than 10 seconds.

## 5.4 KTM

Operation of the ezCAN for KTM varies slightly, depending on whether or not an auxiliary light control switch is installed. If an auxiliary light control switch is installed, operation also varies depending on switch type.

- To operate front auxiliary lights if no accessory switch is installed, see [If no light switch is installed](#).
- To operate front auxiliary lights if a Hex UP-DOWN switch is installed, see [If the Hex UP-DOWN switch is installed](#).
- To operate front auxiliary lights if a single-button switch is installed, see [If a single-button switch is installed](#).

### 5.4.1 Switching Aux 1 and Aux 2 lights independently

If a Hex UP-DOWN switch is not installed (in other words, a single-button switch is installed, or no switch is installed), only the Aux 1 circuit can be switched on and off. The ezCAN Configuration Tool contains a KTM-specific feature that allows you to switch the Aux 2 circuit simultaneously with the Aux 1 circuit. (In other words, the on/off condition of the Aux 2 circuit *mimics* the Aux 1 circuit).

This feature is used if:

- A single-button auxiliary light switch is installed (in other words, the on/off condition and brightness can only be controlled for the Aux 1 circuit), or
- No accessory light switch is installed (in other words, the on/off condition and brightness can only be controlled for the Aux 1 circuit, and then only using the motorcycle's DRL menu).

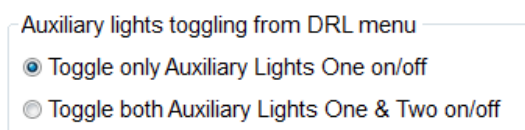
If the Hex UP-DOWN switch is installed, this feature is not used. The Hex UP-DOWN switch is used to independently switch Aux 1 *and* Aux 2 light circuits on and off, and individually control the brightness for each circuit.

To choose whether the Aux 2 lights switch on or off based on how the Aux 1 lights are commanded, do the steps that follow:

1. Click the drop-down menu button in the upper right corner of the **Auxiliary Lights One** or **Auxiliary Lights Two** sections (below).



2. Click the **Extra Settings** option.
  - The auxiliary lights Extra Settings menu will be shown. Look for the following section:



3. To control the on/off function of the Aux 1 lights *only*, click the **Toggle only Auxiliary Lights One on/off** radio button.
4. To control the on/off function of the Aux 1 lights *and* Aux 2 lights (in other words, to make the Aux 2 lights mirror the on/off condition of the Aux 1 lights), click the **Toggle both Auxiliary Lights One & Two on/off** radio button.
5. Click **OK**.

### 5.4.2 If no light switch is installed

If no auxiliary light switch is installed, use the motorcycle's DRL function to switch the auxiliary lights ON or OFF by doing the steps that follow:

1. Navigate to the **DRL** option in your KTM's instrument display **Settings** menu.
2. Toggle the DRL function twice. You can use either of the following sequences:
  - ON → OFF → ON → OFF → ON
  - OFF → ON → OFF → ON → OFF

Switching the auxiliary lights on or off	<ol style="list-style-type: none"> <li>1. Stop the motorcycle.</li> <li>2. Navigate to the <b>DRL</b> option in the KTM instrument display's <b>Settings</b> menu.</li> <li>3. Toggle the <b>DRL</b> function twice.</li> </ol>
Adjusting Aux 1 or Aux 2 light brightness	This can only be done using the <b>Auxiliary Lights</b> sections of the ezCAN configuration software.

### 5.4.3 If the Hex UP-DOWN switch is installed

The Hex UP-DOWN switch is available as an accessory from Hex Innovate. To purchase a Hex UP-DOWN switch, [click here](#).

The Hex UP-DOWN switch option can be enabled using the Aux Lights Extra Settings menu. To configure the ezCAN to accept control input from a Hex UP-DOWN switch, do the steps that follow:

1. Click the drop-down menu button in the upper right corner of the **Auxiliary Lights One** or **Auxiliary Lights Two** sections (below).



2. Click the **Extra Settings** option.
  - The auxiliary lights Extra Settings menu will be shown.
3. Configure the ezCAN to accept control input from the Hex UP-DOWN switch by selecting the **Dual button switch** option (below).

Select auxiliary switch type if installed:

Single button switch

Dual button switch

4. Click **OK**.

Switching the Aux 1 lights on and off	Briefly press and release the UP button.
---------------------------------------	--

Adjusting Aux 1 lights only	<ol style="list-style-type: none"> <li>Press and hold the UP button until the Aux 1 lights flash twice. <ul style="list-style-type: none"> <li>The Aux 1 lights are now in brightness-adjustment mode.</li> </ul> </li> <li>Briefly press and release the UP button to increase Aux 1 light brightness by 10% per press (to a maximum of 100%), or the DOWN button to decrease brightness by 10% per press (to a minimum of 0%).</li> <li>Exit brightness-adjustment mode by not operating the switch for more than 5 seconds.</li> </ol>
Switching the Aux 2 lights on and off	Briefly press and release the DOWN button.
Adjusting Aux 2 lights only	<ol style="list-style-type: none"> <li>Press and hold the DOWN button until the Aux 2 lights flash twice. <ul style="list-style-type: none"> <li>The Aux 2 lights are now in brightness-adjustment mode.</li> </ul> </li> <li>Briefly press and release the UP button to increase Aux 2 light brightness by 10% per press (to a maximum of 100%), or the DOWN button to decrease brightness by 10% per press (to a minimum of 0%).</li> <li>Exit brightness-adjustment mode by not operating the switch for more than 5 seconds.</li> </ol>

#### 5.4.4 If a single-button switch is installed

In context of ezCAN for KTM, a *single-button switch* is any off-the-shelf normally open (push-to-make) switch.

To configure the ezCAN to accept control input from a single-button switch, do the steps that follow:

- Click the drop-down menu button in the upper right corner of the **Auxiliary Lights One** or **Auxiliary Lights Two** sections (below).




- Click the **Extra Settings** option.
  - The auxiliary lights Extra Settings menu will be shown.
- Configure the ezCAN to accept control input from the single-button switch by selecting the **Single button switch** option (below).

Select auxiliary switch type if installed:

- Single button switch  
 Dual button switch

- Click **OK**.

The single-button option controls the on/off function and brightness of the Aux 1 circuit only. To choose whether the Aux 2 lights switch on or off based on how the Aux 1 lights are commanded, see [Switching Aux 1 and Aux 2 lights independently](#).

Switching all Aux 1 (and optionally also all Aux 2) lights on or off	<p>Briefly press and release the single-button switch.</p> <ul style="list-style-type: none"> <li>The Aux 1 (and optionally also Aux 2) lights will be switched on or off according to the settings in the auxiliary lights <i>Extra Settings</i> menu.</li> </ul>
Adjusting the Aux 1 lights	<ol style="list-style-type: none"> <li>Press and hold the single-button switch until the Aux 1 lights flash twice. <ul style="list-style-type: none"> <li>The Aux 1 lights are now in brightness-adjustment mode.</li> </ul> </li> <li>Release the single-button switch.</li> <li>Briefly press and release the single-button switch to adjust light brightness. <ul style="list-style-type: none"> <li>Each press will brighten the Aux 1 lights by 10% to a maximum of 100%, then roll brightness through to 0% (OFF).</li> <li>You can repeat this cycle as many times as you need.</li> </ul> </li> <li>Exit brightness-adjustment mode by not operating the single-button switch for more than 5 seconds.</li> </ol> <div data-bbox="676 801 1297 1034" style="background-color: #f0f0f0; padding: 10px; margin-top: 10px;">  <p><b>NOTE</b></p> <p>The brightness of Aux 2 lights cannot be adjusted using a single-button switch.</p> <p>If you want to adjust the brightness of Aux 1 and Aux 2 lights, we recommend using a Hex UP-DOWN switch instead.</p> </div>

## 5.5 Adding and adjusting an auxiliary-light strobe delay on horn activation

If the *Strobe when Horn active* feature is enabled, and you want to use the factory horn for very short 'bursts' without strobing the front auxiliary lights, you can add a time delay of 0.25 seconds or 0.5 seconds between the time the horn button is pressed, and the time the front auxiliary lights begin to strobe.

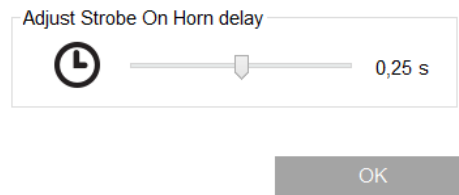
To use this feature, do the steps that follow:

- Click the drop-down menu button in the upper right corner of the **Auxiliary Lights One** or **Auxiliary Lights Two** sections (below).



- Click the **Extra Settings** option.
  - The auxiliary lights Extra Settings menu will be shown.
- Click-and-drag the *Adjust Strobe on Horn delay* slider to the **0.25 s** or **0.5 s** delay mark, as needed (below). Alternatively, set the slider fully to the left to disable the strobe-on-horn delay.





- Click the **OK** button.

## 5.6 All other ezCAN functions



### IMPORTANT

Note that the ezCAN will need to be configured before it works exactly the way you want it to.

For detailed instructions on how to configure the ezCAN by using the ezCAN configuration software, [click here](#).

No 'special' actions are needed to operate all other ezCAN functions.

- Depending on configuration, an **auxiliary rear/brake light** will be active as a rear running light whenever the ignition switch is ON, and be active as a brake light whenever the brakes are used. To use this feature, set one or more power circuits to power auxiliary rear/brake lights. The **Auxiliary Brake Light** section of the ezCAN configuration software (below) will be shown.

Auxiliary Brake Light



- Depending on configuration, a **run/brake/turn light** will be active as a running light (in other words, at a lower brightness than brake light brightness) whenever the ignition switch is ON, active as a brake light whenever the brakes are used, and be active as a turn signal whenever the turn signal for the relevant side is switched on. To use this feature, set one or more power circuits to power left or right run/brake/turn lights. The **Run/Brake/Turn Light** section of the ezCAN configuration software will be shown (below, left). This section of the software is associated with the **Brake Left** and **Brake Right** circuit configuration options (below, right).

Run/Brake/Turn Light



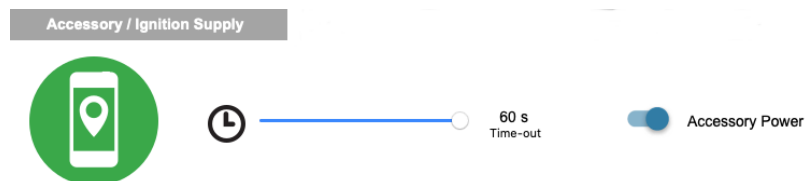
Brake Left



Brake Right

- If a power circuit is set as a 12-volt accessory circuit, it will supply full battery voltage whenever the ignition switch is ON. To use this feature, set one or more power circuits to power an accessory circuit. The **Accessory / Ignition Supply** section of the ezCAN configuration software (below) will be shown.

This function has a configurable delay time-out (to a maximum of 60 seconds) that will keep the output ON for the configured time after the motorcycle's ignition has been switched OFF.



On software version 2009 and onward, the PWM/data pins of the Red, Blue and Yellow circuits (below) mimic the on/off state of the motorcycle's ignition switch if any of these circuits are configured as accessory circuits.



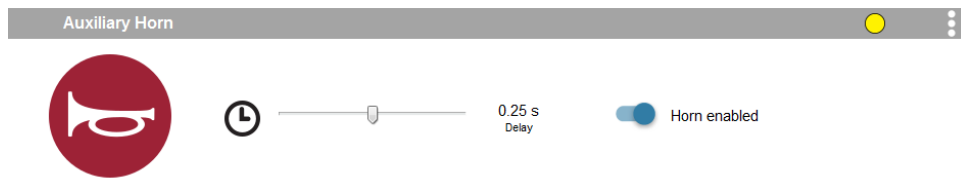
A typical use case would be if an accessory circuit is being used to power a dash cam. Dash cams are generally activated when the ignition is switched on, and save their video content when the ignition is switched off. Setting the accessory circuit's time delay to 60 seconds generally gives a dash cam sufficient time to complete its video saving and housekeeping routines before it shuts down.

In a case like this, the relevant ezCAN power circuit would be connected to the dash cam as follows:

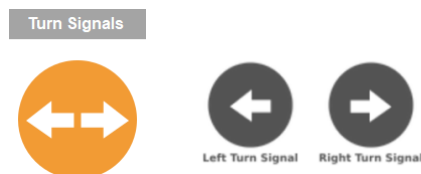
- ezCAN PWM/data pin → Dash cam ignition trigger input
  - ezCAN 12V+ power pin → Dash cam 12V input
  - ezCAN ground pin → Dash cam Ground input
- A horn circuit will supply full battery voltage to all accessory horns whenever the ignition switch is ON, and the motorcycle's Horn button is pressed. To use this feature:
    1. Set a power circuit to power an accessory horn.
      - The **Auxiliary Horn** section of the ezCAN configuration software will be shown (below).
    2. If you often use the factory horn for very short 'bursts' and want to avoid activating the accessory horn during a short burst, you can add a time delay of 0.25 seconds or 0.5

seconds between the time the horn button is pressed, and the time the horn activates, by clicking-and-dragging the *Delay* slider (below).

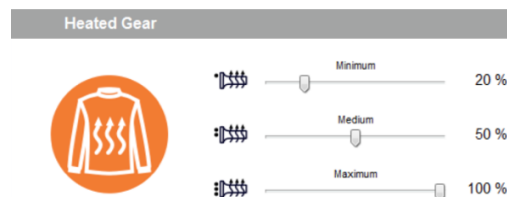
Alternatively, set the slider fully to the left to disable the horn delay.



- Depending on its configuration, an **auxiliary turn signal** will be active as a running light or marker light whenever the ignition switch is ON, active as a turn signal whenever the turn signal for that side is switched on, and active as an auxiliary hazard light whenever the hazard lights are switched on. To use this feature, set one or more power circuits to power auxiliary left or right turn signals. The **Turn Signals** section of the ezCAN configuration software will be shown (below, left). This section of the software is associated with the **Left Turn Signal** and **Right Turn Signal** circuit configuration options (below, right).



- Heated gear is supported if the motorcycle has *factory-installed* heated grips, and the ezCAN has software version 2009 or newer. If a power circuit is configured as a **Heated Gear** power supply, the circuit's power is regulated using the motorcycle's factory heated grip controls. Depending on make and model, the motorcycle's heated grip control may have two, three or five heat level settings. Output power for heated gear can be selected individually for each of the heat levels. To set the **Heated Gear** power level for each of the heated grip settings, click-and-drag the slider between 0% (off) and 100% (maximum power) (below).



## 5.7 Brand-specific functions

This section contains ezCAN functions that are unique to specific motorcycle makes and/or models.

### 5.7.1 KTM ABS/bad fuel modes functionality

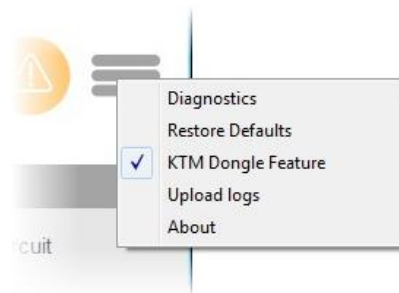
On KTM 1090, 1190 and 1290 models, the ezCAN will allow you to activate all extra ABS modes and 'bad fuel' mode without needing the physical 'KTM ABS/Bad Fuel dongle'.

To access the extra modes, do the steps that follow:

1. Click the Extra Settings button in the upper right corner of the ezCAN configuration software (below).



2. Click the **KTM Dongle Feature** option in the drop-down menu (below).



#### IMPORTANT

Whenever the KTM Dongle Feature is active, a warning icon will appear on the motorcycle's instrument cluster. This is normal.

- The KTM Dongle Feature will be activated.
- You can now use the motorcycle's instrument cluster menus to activate the *ABS Mode 1*, *ABS Off* and *Bad Fuel* modes.
- The motorcycle will remember your chosen ABS mode and fuel mode even if the ignition is switched off.

For detailed instructions on how to operate the KTM Dongle functions using the motorcycle's instrument cluster, refer to the relevant KTM documentation.

## 5.8 Importing and exporting your ezCAN setup configuration

You can save the configuration setup of your ezCAN for backup purposes, or to share with friends who would like to use your custom configuration setup. You can also upload saved configuration setup files to your ezCAN.

Your computer must be connected to the ezCAN using the supplied MicroUSB cable during this procedure.

If you want to save the configuration setup of your ezCAN for backup, or to share with another ezCAN user, do the steps that follow:

1. Click the Extra Settings button in the upper right corner of the ezCAN configuration software (below).



2. Click the **Export** option in the drop-down menu.
  - The ezCAN *Export Configuration* dialogue will be shown.
3. Save the ezCAN configuration (\*.ezcan) file to a safe place on your computer.

You can copy and forward ezCAN configuration files to whoever you want.

If you want to upload a custom configuration setup file to your ezCAN, do the steps that follow:

1. Click the Extra Settings button in the upper right corner of the ezCAN configuration software (below).



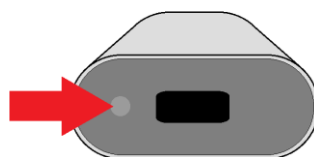
2. Click the **Import** option in the drop-down menu.
  - The ezCAN *Import Configuration* dialogue will be shown.
3. Search for and select the needed ezCAN configuration (\*.ezcan) file on your computer.
4. Click the **Open** button.
  - The chosen configuration file will be uploaded to your ezCAN.

## 6 IF SOMETHING GOES WRONG


In the unlikely event that something goes wrong with your ezCAN or your accessory installation, follow the guidelines in this section to get things working again.

### 6.1 What do the Status LED colours mean?

Switch the motorcycle's ignition switch ON. Check the Status LED on the end of the ezCAN (below).



The Status LED light codes have the following meanings:

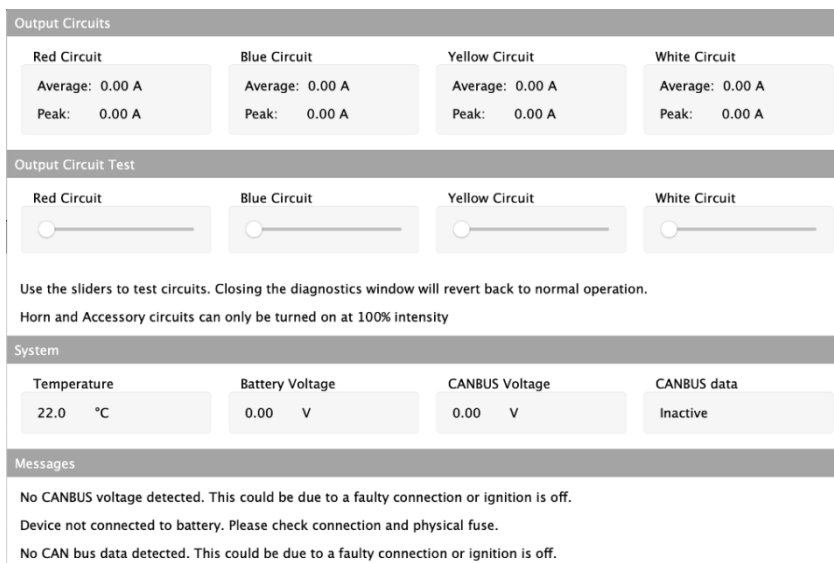
Status LED codes	
LED code	Meaning
Constant green	The motorcycle's ignition is switched on, and the ezCAN is operating normally.
Green 'blip' every two seconds	The ezCAN is in Sleep Mode. It will switch on the next time the motorcycle's ignition is switched on.
Quick flashing green while connected to computer by USB	The ezCAN is downloading and installing a firmware update. <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;">  <p><b>CAUTION</b></p> <p>Do not disconnect the ezCAN from your computer until the firmware installation is complete.</p> </div>
Quick flashing orange	CAN-bus data needed by the ezCAN is missing or incorrect, or there is a configuration error. <ol style="list-style-type: none"> <li>1. Reset the ezCAN by switching the ignition OFF, then ON.</li> <li>2. If the LED does not show constant green, connect the ezCAN to your computer and run the configuration software.</li> <li>3. Navigate to the ezCAN <b>Diagnostics</b> window.</li> <li>4. Note the <b>CAN-bus data</b> value in the <b>System</b> section. This value should be <i>Active</i>. If the value is <i>Inactive</i>, make sure the ezCAN is securely connected to the correct CAN-bus connector on the motorcycle.</li> <li>5. If the problem persists, contact Hex support by sending an E-mail to <a href="mailto:support@hexezCAN.com">support@hexezCAN.com</a>.</li> </ol>
Quick flashing red	One or more of the electronic circuit fuses have 'tripped'. This may be due to a current overload, or to incorrectly configured current limits. <p>Refer to the <i>One or more power output circuits have stopped working</i> section of the <b>ezCAN fault diagnosis</b> table in this section.</p>

Constant red	<p>The ezCAN reset unexpectedly.</p> <ol style="list-style-type: none"> <li>1. Connect the ezCAN to your computer and run the configuration software. <ul style="list-style-type: none"> <li>• The ezCAN will attempt a self-recovery.</li> </ul> </li> <li>2. If self-recovery is unsuccessful, contact Hex support by sending an E-mail to <a href="mailto:support@hexezCAN.com">support@hexezCAN.com</a>.</li> </ol>
Solid green with quick flashing orange	<p>The ezCAN's application firmware is corrupt.</p> <ol style="list-style-type: none"> <li>1. Connect the ezCAN to your computer and run the configuration software.</li> <li>2. You should see a firmware update or firmware recovery dialogue. Follow the prompts to completion.</li> <li>3. If a firmware dialogue is not shown, contact Hex support by sending an E-mail to <a href="mailto:support@hexezCAN.com">support@hexezCAN.com</a>.</li> </ol>
Solid orange, or no LED visible	<p>The ezCAN has an internal error.</p> <ol style="list-style-type: none"> <li>1. Connect the ezCAN to your computer and run the configuration software. <ul style="list-style-type: none"> <li>• The ezCAN will attempt a self-recovery.</li> </ul> </li> <li>2. If self-recovery is unsuccessful, contact Hex support by sending an E-mail to <a href="mailto:support@hexezCAN.com">support@hexezCAN.com</a>.</li> </ol>

## 6.2 Using the ezCAN *Diagnostics* window

If you cannot solve the problem using the table above, do the steps that follow:

1. Connect the ezCAN to your computer.
2. Launch the ezCAN configuration software.
3. Switch the motorcycle's ignition ON.
4. Navigate to the *Diagnostics* window (below) by clicking on the warning triangle in the upper right corner of the ezCAN Configuration Tool, or by clicking the *Diagnostics* option in the Configuration Tool's main menu.



The screenshot shows the 'Diagnostics' window with the following sections:

- Output Circuits:** Four columns for Red, Blue, Yellow, and White circuits. Each shows Average: 0.00 A and Peak: 0.00 A.
- Output Circuit Test:** Four sliders for Red, Blue, Yellow, and White circuits, all currently at 0%.
- System:**
  - Temperature: 22.0 °C
  - Battery Voltage: 0.00 V
  - CANBUS Voltage: 0.00 V
  - CANBUS data: Inactive
- Messages:**
  - No CANBUS voltage detected. This could be due to a faulty connection or ignition is off.
  - Device not connected to battery. Please check connection and physical fuse.
  - No CAN bus data detected. This could be due to a faulty connection or ignition is off.

5. The *Diagnostics* window is partitioned into four sections:

- **Output Circuits:** This section shows the real-time Average current and Peak current for each power circuit since the ignition was last switched ON.
- **Output Circuit Test:** This section overrides the standard ezCAN control inputs, and allows you to control the Pulse Width Modulation for each circuit by clicking-and-dragging the sliders. This section is used to test the functional state of the ezCAN, its software configuration, the state of the power circuit wiring, and the accessories connected to the power output circuits.



### NOTES

Horn and Accessory/Ignition outputs can only be switched ON and OFF.

If an auxiliary light circuit is set to *2-wire mode*, current to the 12V+ power terminal (solid coloured wire) will be modulated.




If an auxiliary light circuit is set to *3-wire mode*, current to the PWM/data brightness terminal (coloured wire with white or black tracer) will be modulated.



- **System:** This section shows various real-time data parameters relevant to the ezCAN.
- **Messages:** This section shows messages, hints and recommendations given the current status of the ezCAN.

6. Refer to the **ezCAN fault diagnosis** table below.

ezCAN fault diagnosis	
Symptom	Solution
One or more power output circuits have stopped working.	<ol style="list-style-type: none"> <li>1. Reset the ezCAN's software fuses by switching the ignition OFF, then ON.</li> <li>2. If a power circuit disables repeatedly: <ol style="list-style-type: none"> <li>i. Check whether the ezCAN Status LED is flashing red, or if an <b>OVERLOAD!</b> warning is given for the relevant power circuit in the ezCAN <b>Diagnostics</b> window. If this happens, the circuit has deactivated ('tripped'). This may be due to a current overload, or to incorrectly-set current limits.</li> <li>ii. Make sure the cut-off amperage limit for the circuit has not been set too low. If needed, re-calculate the accessory's power consumption as shown in <a href="#">Calculating power consumption</a>, and select the correct power cut-off value for the circuit.</li> <li>iii. Check the ezCAN and the accessory wiring for physical damage that might be causing a short circuit. Properly repair and insulate all breaks in the wiring. Reposition and re-secure affected wiring so it cannot be damaged again.</li> </ol> </li> </ol>



<p>An accessory isn't working, but the <b>Diagnostics</b> window isn't showing an overload for that circuit.</p>	<ol style="list-style-type: none"> <li>1. Make sure all power circuit plugs are securely connected.</li> <li>2. Open the ezCAN <b>Diagnostics</b> window.</li> <li>3. Under <b>Output Circuit Test</b>, click-and-drag the slider for the affected circuit. <ul style="list-style-type: none"> <li>• The accessory connected to the circuit should respond accordingly.</li> </ul> </li> <li>4. If the accessory does not respond, check that the software configuration for the circuit is correct.</li> <li>5. If the accessory still does not respond, connect it to another ezCAN power circuit, and repeat steps 3 and 4 above.</li> </ol>
<p>The ezCAN software interface is showing a green message notification (below).</p> 	<p>The combined maximum current limit for the four power circuits has been set at more than 30 Amps.</p> <div style="background-color: #f0f0f0; padding: 10px; border: 1px solid #ccc;">  <p><b>IMPORTANT</b></p> <p>If all power outputs are not operated simultaneously, this may be an acceptable condition.</p> <p>However, note that the main fuse may blow if the ezCAN draws more than 30 Amps.</p> </div> <p>View the average and peak current draw for each power circuit since the ignition switch was last turned on in the <b>Output Circuits</b> section of the ezCAN <b>Diagnostics</b> window. This may help if you need to fine-tune the fuse trip limits.</p> <p>Re-calculate the maximum current draw for all circuits as shown in <a href="#">Calculating power consumption</a>. If needed, reduce the fuse trip limit on one or more circuits.</p>
<p>The ezCAN software interface is showing an orange message notification (below).</p> 	<ul style="list-style-type: none"> <li>• The ezCAN may not be connected to battery power.</li> <li>• The motorcycle's battery voltage may be too low.</li> <li>• The motorcycle's CAN bus voltage may be too low.</li> <li>• CAN data may be missing, or is not being detected.</li> </ul> <p>Check the following items:</p> <ul style="list-style-type: none"> <li>• Make sure the motorcycle's ignition is switched ON.</li> <li>• Check the <b>Messages</b> section of the ezCAN <b>Diagnostics</b> window. If you see a message that data is not being received, make sure the motorcycle's kill switch is in the RUN position.</li> <li>• Make sure the ezCAN is receiving acceptable battery voltage. If your motorcycle does not have a voltmeter, check the <b>Battery Voltage</b> value in the <b>System</b> section of the ezCAN <b>Diagnostics</b> window. This value should be more than 11 volts with the ignition switch ON and engine OFF, and approximately 14 volts if the engine is running.</li> <li>• Check the <b>CAN-bus data</b> value in the <b>System</b> section of the ezCAN <b>Diagnostics</b> window. The value should be <i>Active</i>. If the value is <i>Inactive</i>, make sure the ezCAN is securely connected to the correct CAN-bus connector on the motorcycle.</li> <li>• Make sure the ezCAN's battery connections are secure.</li> <li>• Make sure the ezCAN main fuse is not blown.</li> <li>• If the ezCAN main fuse is blown, check for short circuits along the ezCAN wiring and accessory wiring. Replace the main fuse only with one of the same type and 30 Amp rating.</li> </ul>

<p>The ezCAN software interface is showing a red message notification (below).</p> 	<p>The USB connection between the ezCAN and computer has been interrupted.</p> <p>If you are doing configuration or diagnostics, make sure the USB cable is securely connected to the computer and to the ezCAN.</p>
<p>The standard horn works, but the accessory horn does not (BMW models with green horn input harness, and all KTM models).</p>	<ol style="list-style-type: none"> <li>1. Check the <b>Horn Input Voltage</b> value in the <b>System</b> section of the ezCAN <b>Diagnostics</b> window. If the motorcycle's <b>Horn</b> button is not being pressed, the value should be 0.00V.</li> <li>2. Press the motorcycle's <b>Horn</b> button. <ul style="list-style-type: none"> <li>• The value should now be approximately the same as the <b>Battery Voltage</b> value.</li> <li>• If the <b>Horn Input Voltage</b> value remains 0.00V when the horn button is pressed, check that the ezCAN's green horn input harness is not disconnected, and that there are no breaks in the horn harness wiring.</li> <li>• If the <b>Horn Input Voltage</b> value is approximately the same as the <b>Battery Voltage</b> value when the <b>Horn</b> button is pressed, but the accessory horn still does not work, check the ezCAN's accessory horn power output circuit wiring for breaks or short circuits.</li> </ul> </li> </ol>
<p>Front auxiliary lights flicker or 'stutter' when their brightness is adjusted, or their brightness adjustment seems to 'jump' between low and high.</p>	<ol style="list-style-type: none"> <li>1. Connect the ezCAN to your computer and run the configuration software.</li> <li>2. In the relevant <b>Auxiliary Lights One/Two</b> section, check that the correct <b>Three-Wire Dimming Mode</b> setting is being used: <ul style="list-style-type: none"> <li>• This setting must be ON for three-wire auxiliary lights.</li> <li>• This setting must be OFF for two-wire auxiliary lights.</li> </ul> </li> </ol> <div data-bbox="644 1279 1299 1536" style="background-color: #f0f0f0; padding: 10px;">  <p><b>NOTE</b></p> <p>Some lower-quality 2-wire LED lights perform poorly when their supply voltage is pulse-width modulated.</p> <p>It is recommended that you use only high-quality LED lights, or LED lights that are known to perform well.</p> </div>

## 7 SPECIFICATIONS

Generation II hardware specifications	
Physical size	76mm x 30mm x 16mm
Voltage supply	6V to 18V
System fuse rating	30A, automotive mini blade fuse
Maximum continuous current	30A (25A recommended)
Current consumption (operating)	25mA (typical)
Current consumption (sleep)	750µA (typical) 1mA (max)
Number of output circuits	Four, each with switched 12V power, Ground and PWM/data brightness control wire
Output circuit current	10A per circuit (continuous) 25A (max) for 25 seconds
Output circuit fusing	Electronic fuses, configurable from 1A to 25A
Output circuit 3rd wire (PWM/data control)	40mA (short circuit current)
<i>Measurement ranges:</i>	
Output current	0 to 72A
CAN-bus voltage	0 to 22V
Horn input	0 to 22V
Switch input	0 to 3.3V
Internal thermal protection	90°C maximum internal temperature
Transient protection	As per UN ECE Regulation 10 (Revision 5)
CAN connectivity	1x CAN 2.0B
USB connectivity	USB V2.0 full speed, micro B-type connector
LIN connectivity	Configurable LIN master (White power circuit)
Water and dust protection	Sealed unit. Waterproof USB connector with dust cover and sealed connectors

Product	Type approval number
Generation I 2-wire devices	No approval
Generation I 3-wire devices	No approval
Generation I 3-wire devices*	E11*10R05/01*10262*00
Generation II devices*	E11*10R05/00*10443*00
Generation II devices*	E11*10R05/00*10443*01



\* The E type approval number is shown on the bar-coded label affixed to the ezCAN main body (above).

## 8 NOTICES AND COPYRIGHT

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