SINCE 1954

FUEL LEVEL OHMS CONVERTOR

Installation Instructions

v20241201

Part No: SG31653

Important notes before installing:
- All installation work should be done by a qualified professional to avoid damage to this product.
- SAAS **RECOMMENDS** all products be tested prior to installation. This will save time and speed up the troubleshooting process if you encounter any issues.

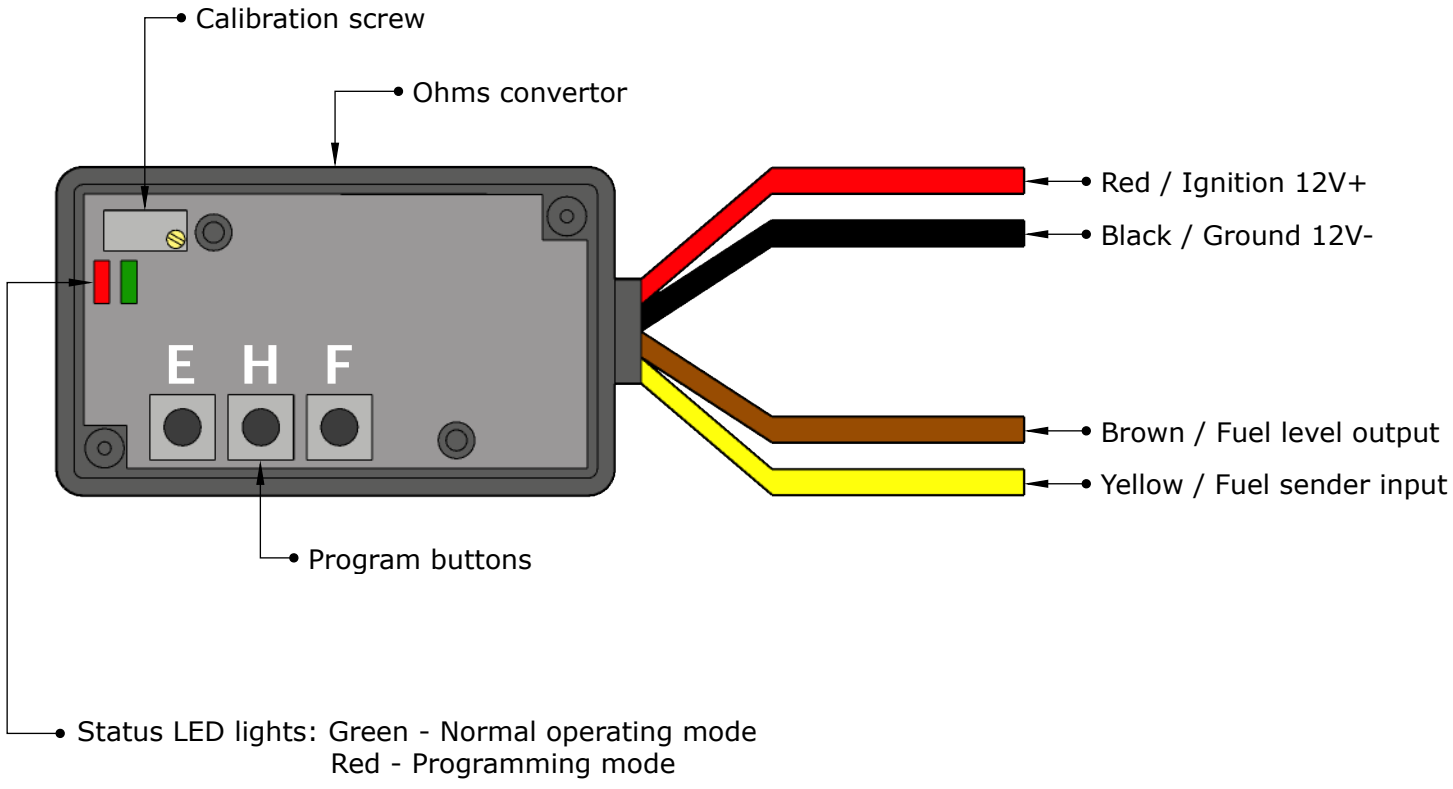
- **BEFORE** installing, please check our website (**shopsaas.com**) for the latest fitting instructions. If the top left corner (**v**) number is different to website, please use instructions from website.

Wiring Guide:

Wire Colour	Wire Function	Recommended Wiring Locations
Red	Ignition 12V+	Ignition harness / Fuse box
Black	Ground 12V-	Vehicle body (see install notes)
Yellow	Fuel sender input	Connect to fuel sender signal output @ sender
Brown	Fuel level output	Connect to fuel level input on gauge

Wiring Diagram

Typical Layout



Product Info:

- The SAAS SG31653 converts an input signal to a target resistance signal so a fuel gauge with a specific range can work with different range fuel level senders. This convertor will allow users to program Full, Half and Empty positions for accurate readings.

- **Note:** The output of this convertor is an NPN pulse width modulated signal that may cause buzzing in un-dampened gauges or erratic needle movement in stepper motor gauges.

Mounting Location:

- Install the convertor inside the vehicle's cabin in a clean, **dry** location. Do **not** install the convertor in the engine bay!
- Position the convertor in a location that's easy to get to for programming. To access the internal program buttons and calibration screw, remove the two screws on the underside of the convertor and remove the bottom cover.

Wiring:

- **Red** > Connect to 12V+ ignition so convertor has power only when the vehicle is on.
- **Yellow** > Connect to fuel level sender output at fuel tank.
- **Brown** > Connect to fuel gauge signal input at fuel gauge.

- **Black** > Connect to a clean grounding point. To minimise electrical interference, we highly recommend connecting the fuel gauge, fuel sender and convertor ground wires at the same location! This will improve gauge performance in older vehicles or vehicles with poor wiring.
- To avoid signal interference, keep signal wires (Yellow / Brown) **away** from ignition components, leads, coils and thick power cables.

Programming:

- **Programming notes:**

The internal calibration screw will need to be adjusted clockwise or anticlockwise with a small flat head screwdriver. Clockwise to increase the ohms signal, anticlockwise to decrease the ohms signal. It may take up to 10 turns in either direction before the fuel gauge begins to read.

- **IMPORTANT:** For correct operation, program the **Full** position first, **Half** position next, followed by the **Empty** position last. There is also a delayed start setting that must be programmed at the same time if you wish to use this feature. See below for details.

- **Startup modes:** The convertor has two startup modes to choose from.

1. Instant start: Fuel gauge will read instantly when the vehicles ignition is turned on.

2. Delayed start: Fuel gauge will read a programmed value for 5 seconds before reading fuel level.
Example: This feature can be used on factory gauges that drop below empty when the vehicle is off. If the delayed value is programmed to Empty, the factory needle will move up to Empty for 5 seconds before reading the fuel level, giving the gauge a modern look.

For further assistance email: tech@saasautomotive.com.au

Programming Steps:

- Convertor programming:

1. The vehicle's ignition must be off for at least 5 seconds before programming the convertor.

2. Press and hold **F** button > turn ignition on > release **F** button > red status LED will light up.

3. Move fuel sender to **Full** position > turn calibration screw slowly until fuel gauge reads **Full** > then press and release **F** button once.

4. Move fuel sender to **Half** position > turn calibration screw slowly until fuel gauge reads **Half** > then press and release **H** button once.

5. Move fuel sender to **Empty** position > turn calibration screw slowly until fuel gauge reads **Empty** > then press and release **E** button once.

- Optional: (If you do not wish to use delayed start, skip steps **6** and **7**.)

6. Turn calibration screw slowly until fuel gauge reads a value of your choice if using the **Delayed Start**. (This value is usually set to Empty)

7. Press and release **E** and **F** buttons together once to set delayed start value.

8. Turn ignition off for 5 seconds > turn ignition on > green status LED will light up to indicate normal operating mode > programming complete.

Troubleshooting:

Please note: If you are having problems with the installation of this product, please do not contact your retailer or SAAS until you have read **ALL** the troubleshooting notes below.

Problem	**Possible Cause**	**Solution**
-no power -status LED off	-wiring issue	-test convertor directly on a battery. Status LED should light up green
-gauge not reading	-convertor not programmed correctly -convertor programming order	-repeat programming procedure in the specified order: full > half > empty
	-fuel sender signal wire thickness	-sender signal wire thickness should be around 22 AWG to ensure resistance flows to gauge
-gauge reading is out	-fuel sender position incorrect	-check fuel sender position is correct against position being programmed

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PRODUCT INFORMATION

Specifications

Operating voltage range	DC 9V+ > 36V+
Output type	NPN PWM signal
Mounting location	Vehicle cabin
Compatibility	All resistance-based fuel gauges / senders
Convertor cable length	150mm
Convertor dimensions	75mm x 35mm x 20mm
Power consumption	25mA Max

Contents:

In The Box	**Qty**	**Notes**
Ohms convertor	1	
Fitting instructions	1	

Warranty Terms & Conditions:

SAAS Automotive Pty Ltd warrants this product against defects in factory workmanship and materials for a period of twelve (**12**) months from the date of original purchase. This warranty applies to the first retail purchaser, is non-transferable and covers only where the product has been subjected to normal use or service. Provision of this warranty shall not apply to any SAAS Automotive product that has been used for a purpose for which it is not designed, or which has been altered in any way that would be detrimental to the performance or life of the product, or misapplication, misuse, negligence or accident. Warranty claims to the manufacturer must be transportation prepaid and accompanied with dated proof of purchase. On any part or product found to be defective after examination by SAAS Automotive Pty Ltd, SAAS Automotive Pty Ltd will only repair or replace the merchandise through the original selling dealer or on a direct basis. SAAS Automotive Pty Ltd assumes no responsibility for diagnosis, removal and/or installation labour, loss of vehicle use, loss of time, inconvenience or any other consequential expenses. The warranties herein are in lieu of any other expressed or implied warranties, including any implied warranty of suitability, and any other obligation on the part of SAAS Automotive Pty Ltd, or the selling dealer.

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