

# GARW IC7

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USER MANUAL



# Contents

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|  |        |
|--|--------|
| Overview.....  | 3      |
| Pinouts .....  | 4      |
| Smart App.....   | 5      |
| Screen settings.....   | 6      |
| System settings.....   | 7      |
| Page 1.....  | 8      |
| Page 3.....  | 9      |
| Page 4.....  | 10     |
| Advanced settings.....   | 11     |
| Page 4.....  | 12     |
| Page 5.....  | 13     |
| Page 6.....  | 14     |
| Page 7.....  | 15     |
| Page 8.....  | 16     |
| Page 9.....  | 17     |
| <br>Configuring oil temperature and oil pressure<br>sensors..... | <br>18 |

## Overview

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The Garw IC7 instrument cluster is a 7inch diagonal display unit designed to display vehicle information real-time

The IC7 provides all the standard driver information expected along with tell-tale lamps and warning symbols

All the data is collected via a wide range of inputs, configurable to your vehicles requirements

## Features

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Up to 6 screens possible at one time all configured in vehicle with individual settings for high/low warnings, units(KM/MPH, Celsius/Fahrenheit etc.) ,colour scheme, rpm limit warning, shift indicator

Uploading of new graphics via USB

Wi-Fi connectivity for smartphone interface to change parameters read battery and fuel level (additional features planned)

Customisable boot logo

### Interfaces

7 x active low (warning lamps, trip reset)

6 x active high (tell-tale lamps for lights, turn signals)

4 x Analogue resistive inputs (for ntc temp sensors, fuel sensors)

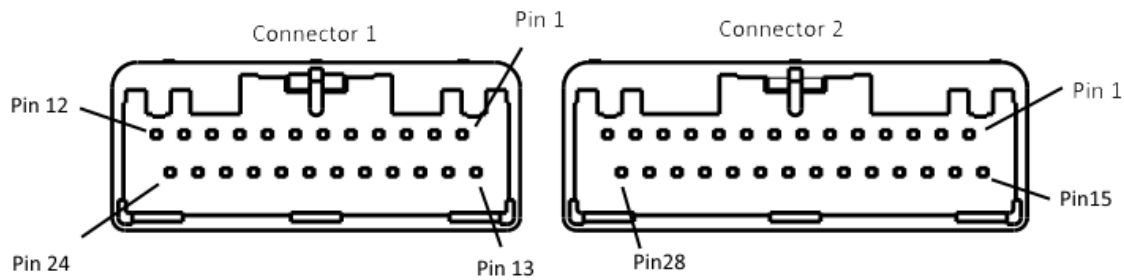
1x Can bus

2 x Frequency inputs (1 hall, 1 hall or VR)

1 x Door switch input for booting IC7 when opening the door

2 x USB expansion for Wi-Fi, Camera, USB Drive

## Pinouts



### Connector 1

- |                            |                         |
|----------------------------|-------------------------|
| 1. Analogue 4              | 13. Active low input 2  |
| 2. Battery Ground          | 14. Frequency 1 Hall    |
| 3. Battery 12V             | 15. Active low input 3  |
| 4. Active low input 1      | 16. Active low input 4  |
| 5. Ignition                | 17. Frequency 2 Hall    |
| 6. Pass through connection | 18. Active high input 5 |
| 7. CAN1 high               | 19. CAN1 low            |
| 8. Active high input 1     | 20. Analog 6            |
| 9. Active high input 2     | 21. Active low input 5  |
| 10. Frequency 2 VR         | 22. Active high input 6 |
| 11. Active high input 3    | 23. Door switch         |
| 12. Active high input 4    | 24. Active low input 7  |

### Connector2

- |                               |                                   |
|-------------------------------|-----------------------------------|
| 1. Active low input Down      | 15. USB 5V                        |
| 2. Active low input Up        | 16. USB Ground                    |
| 3. Active low input Right     | 17. USB2 -                        |
| 4. Active low input Left      | 18. USB2 +                        |
| 5. Active low input Lap timer | 19. USB Ground                    |
| 6. Open Drain Output 1        | 20. USB1 -                        |
| 7. Open Drain Output 2        | 21. USB1 +                        |
| 8. Open Drain Output 3        | 22. USB 5V                        |
| 9. Open Drain Output 4        | 23. USB Ground                    |
| 10. Ground                    | 24. NC                            |
| 11. CAN2 high                 | 25. NC                            |
| 12. CAN2 low                  | 26. Analogue 8                    |
| 13. RS232 TX                  | 27. Analogue 7                    |
| 14. RS232 RX                  | 28. Pass through from Connector 1 |

## Smart App

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The GarwIC7 instrument cluster is configured via a smart device app  
Available for Android and iOS

Search app stores for GARWICX

First step is to connect to the IC7 Wi-Fi network

1. Insert the Wi-Fi adapter into any USB socket and then ensure the IC7 is off by turning off ignition, close the door and wait 1 minute.

The next time the dash is powered the Wi-Fi adapter will be initialised

2. Once initialised the Wi-Fi adapter should blink steadily and a new network called “Garw” should be available

3. Connect to this network with your smart device using the password garwicxX

4. Launch the app , when successfully connected the app will display the battery level and fuel level of your vehicle

The settings of the IC7 are accessed and modified using the directional arrows on the app.

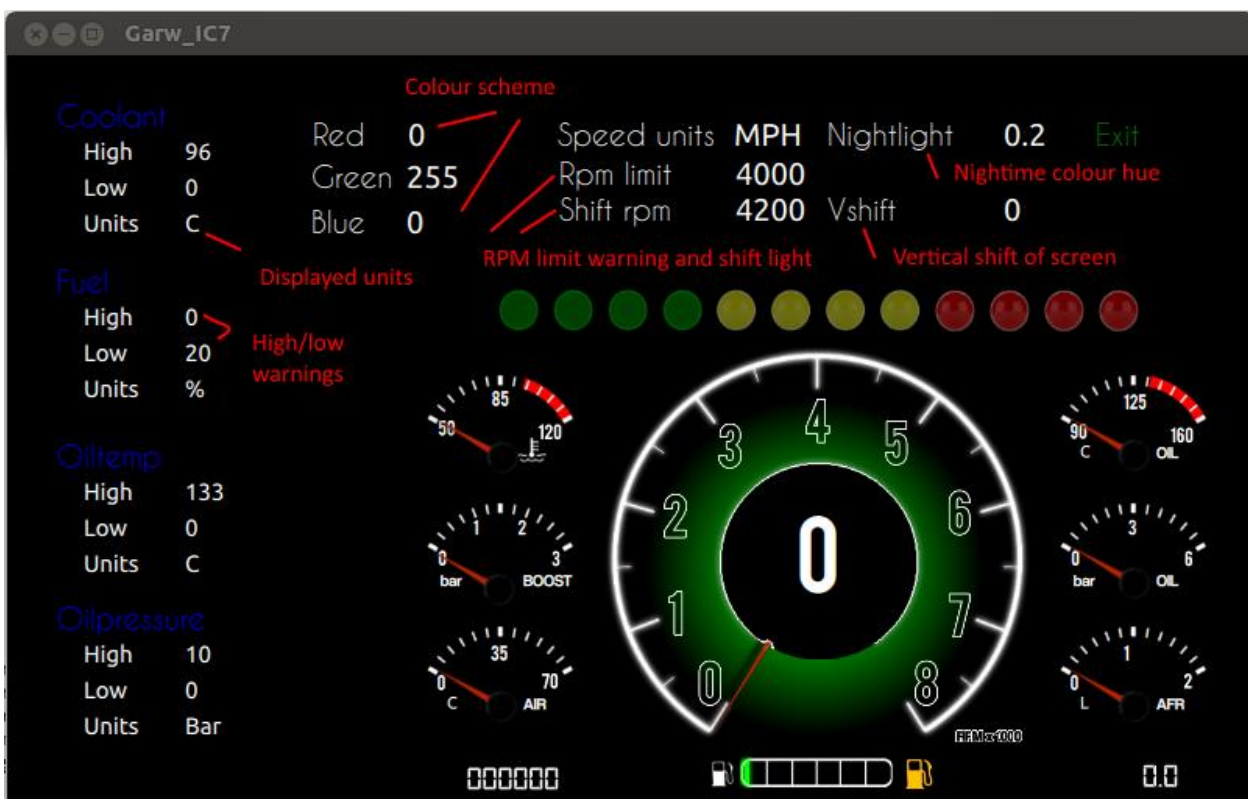
## Screen settings

Each driving screen has its own settings which are access by pressing the up arrow on the app

These settings allow changes to be made for low and high warnings, local units for temperature and speed, colour scheme.

Left and right arrow to move between parameters

Up and down arrows to change or increment/decrement the parameter



\*Not all parameters are active on all screens

**Nightlight:** - When set this applies a colour overlay for night time driving.  
Active when vehicle light are on

**VShift:-** Moves the screen position up/down to help visibility

**Colour scheme:** - depending on screen the colours of various elements can be set with RGB values

## System settings

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Configuration of the IC7 is done through the system settings

Press and hold left or right arrow until the system settings appear

Left and right arrow to move between parameters

Up and down arrows to change or increment/decrement the parameter

Move between screens by highlighting “NEXT” in the top right of the screen and pressing up/down for next/previous screen

Each page covers various aspects of the IC7 and allows global parameters to be configured

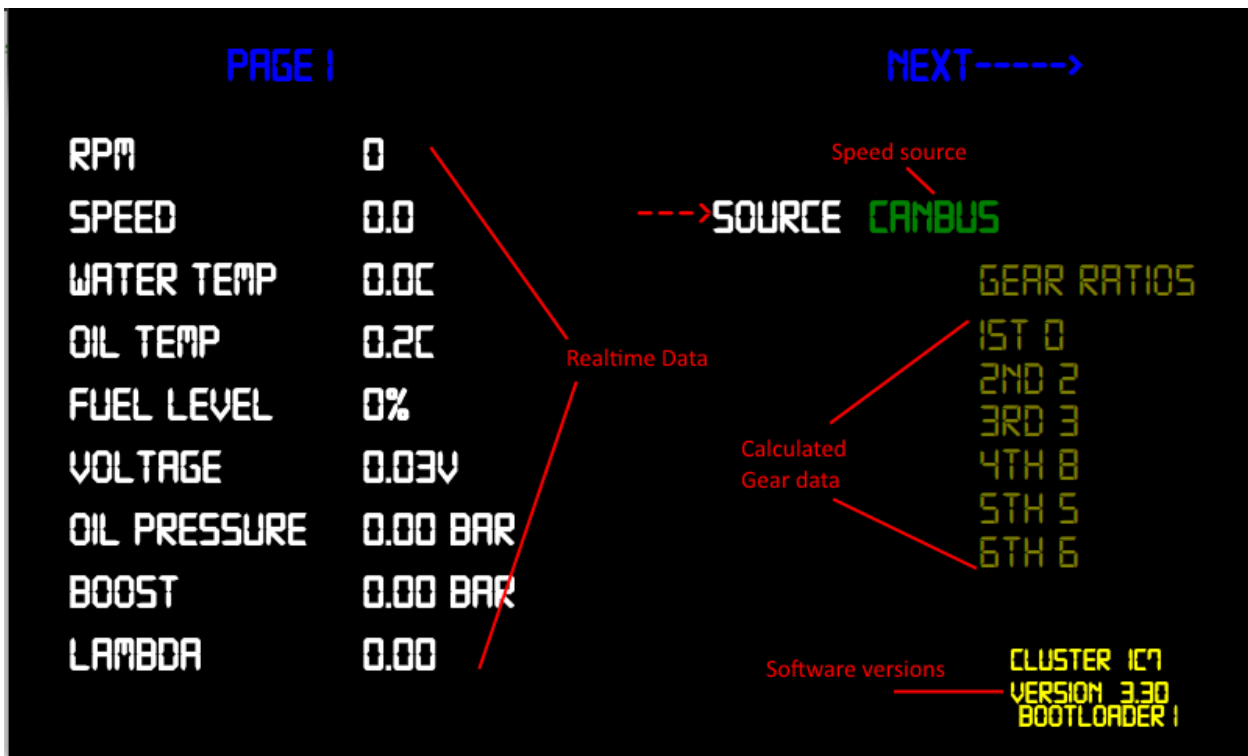
There are 4 pages available in Basic view

Page 1: Real time data, Calculated gear, Software updating

Page 2: Reserved

Page 3: Driving screens configuration

Page 4: Vehicle configuration



Description

**Realtime Data:** - displays current values

**Speed Source:** - switch between can or gps speed

**Calculated gear data:-**

Calibration values for the current gear indicator displayed on some driving screens, when 1<sup>st</sup> gear is set to 0 calculated gear function is disabled

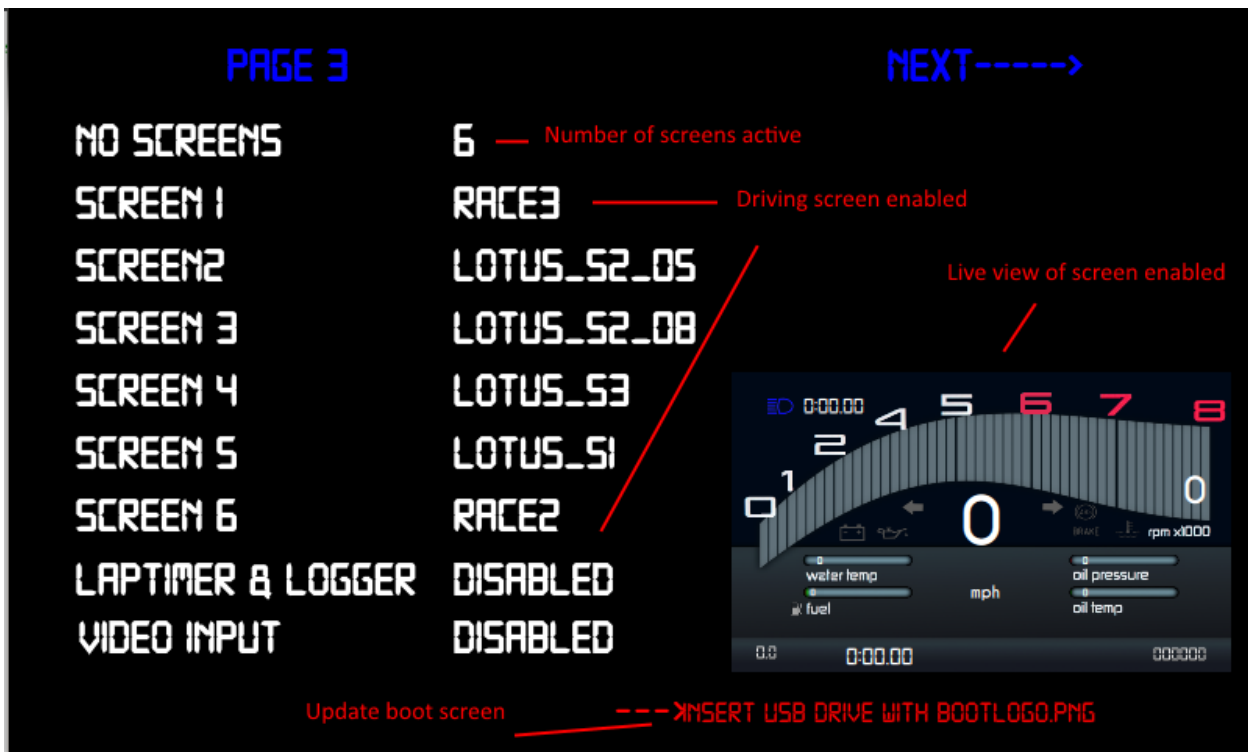
The value represents rpm/speed (kmh)

**Software versions:** - displays product name and current software versions installed

Page 2

Reserved





Description

**Number of screens active:** - Total number of screens enabled for switching during driving

**Driving screen enabled:** - Displays each name allocated to that position

**Laptimer & logger:** - enable/disable (in future release)

**Video input:** - enable/disable video input

**Live view:** - displays live the screen selected during configuration of screens 1-6

**Update boot screen:-** insert USB drive with .png image file named “bootlogo.png” and trigger update by pressing “UP”



Description

**Change configuration:** - loads one of the pre-configured configurations

**Save configuration:** - Saves changes to the configuration

**Basic/Advanced view:** - Switches between basic view (shown above) and advanced view

## Advanced menus

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In advanced view custom configurations are possible for all data channels

Additional pages are accessible once in advanced view for the following functions

1. Manual configuration of data channels by mapping input feeds to data channels with custom scaling and offset
2. Mapping of inputs to tell tales and warning lamps
3. Odometer correction
4. Custom sensor calibration

Page 4 Advanced view

| Data channel | PAGE 4 |         | Source of data | Canbus ID | Scaling | Offset |
|--------------|--------|---------|----------------|-----------|---------|--------|
| DATA         | SOURCE | SOURCE  | CANID          | SCALE     | OFFSET  |        |
| RPM          | CANI_2 | CANI_3  | 400            | 1.00      | 0.00    |        |
| SPEED        | CANI_0 | CANI_1  | 400            | 256.00    | 0.00    |        |
| WATER        | CANI_5 | 0       | 400            | 1.62      | -40.00  |        |
| OILT         | NTC7   | SENSOR1 | 0              | 1.00      | 0.00    |        |
| OILP         | NTC8   | SENSOR2 | 0              | 1.00      | 0.00    |        |
| FUEL         | CANI_4 | 0       | 400            | 2.55      | 0.00    |        |

INC AMOUNT 10 --> MAINBEAM Increment value

CONFIGURE CANBUS CANI\_SPEED 1000 Canbus extended ID

CANID EID 0 Can bus speed

LOTUS ELISE S2 '05 ADVANCED VIEW

SAVE

NEXT----->

Description





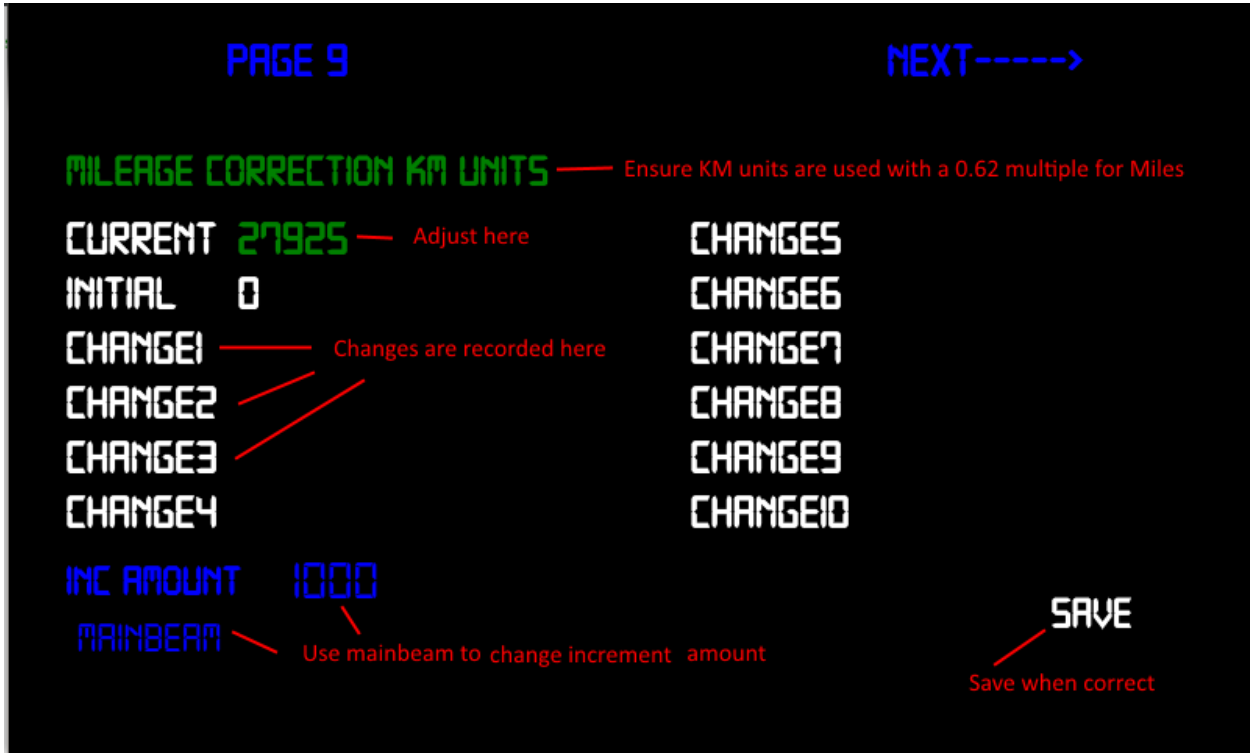






Page 9 Advanced view

Odometer correction



Adjust the current value and when sure save your changes

Ensure the value is entered in Kilometres (mileage x 0.62)

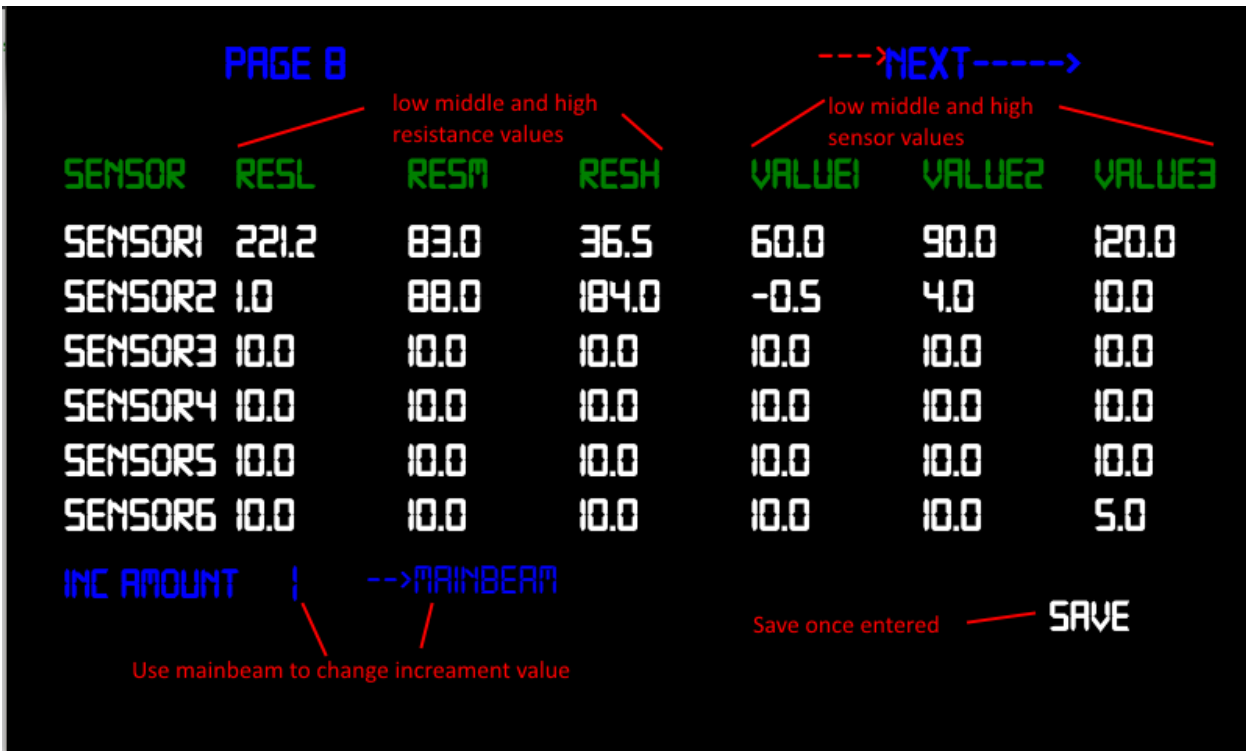
All changes are recorded for future reference

To speed up the kilometres input use your vehicles mainbeam flash to change the increment amount 1,10,100,1000 steps at a time

## Configuring oil temperature and pressure sensors

To add additional sensors for oil temperature and pressure custom calibration data is entered into the system settings

The technical data for the sensors is needed to enter the correct temp/pressure vs resistance



Enter the calibration data for your oil temp and pressure sensors

Use Celsius for temp and Bar for pressure

| C   | OHMS  |
|-----|-------|
| 50  | 322.8 |
| 66  | 179.5 |
| 80  | 112.5 |
| 100 | 62.2  |
| 110 | 48.1  |
| 120 | 36.5  |
| 130 | 28.9  |
| 140 | 23.1  |
| 150 | 18.6  |

| bar | ohm |
|-----|-----|
| 0   | 10  |
| 2   | 51  |
| 4   | 86  |
| 6   | 122 |
| 8   | 152 |
| 10  | 180 |

Once this data is entered highlight "SAVE" in the bottom right and push up,

Then go to the page below and set the oil temperature and pressure to the sensor calibrated above, ensure the correct NTC is chosen

NTC7 for Analogue 7 input, NTC8 for Analogue 8 input, remember to "SAVE" before exiting,

The screenshot shows a menu titled 'PAGE 4' with a 'NEXT----->' option. The menu lists various sensors with columns for DATA, SOURCE, SOURCE, CANID, SCALE, and OFFSET. The 'OILT' and 'OILP' rows are highlighted with a red box. At the bottom, there are options for 'INC AMOUNT', 'MAINBEAM', 'CONFIGURE CANBUS', 'CURRENT', 'ADVANCED VIEW', and 'SAVE'.

| DATA  | SOURCE | SOURCE  | CANID | SCALE | OFFSET |
|-------|--------|---------|-------|-------|--------|
| RPM   | CAN1_1 | CAN1_0  | 114   | 4.00  | 0.00   |
| SPEED | CAN1_4 | 0       | A2    | 1.00  | 0.00   |
| WATER | CAN1_5 | 0       | 400   | 1.62  | -40.00 |
| OILT  | NTC7   | SENSOR1 | 0     | 1.00  | 0.00   |
| OILP  | NTC8   | SENSOR2 | 0     | 1.00  | 0.00   |
| FUEL  | CAN1_4 | 0       | 400   | 2.55  | 0.00   |

INC AMOUNT | -->MAINBEAM

CONFIGURE CANBUS CAN1\_SPEED 500 CURRENT  
 CANID EID A CAN1\_SPEED 1000 ADVANCED VIEW

SAVE

Your screen may look a little different but the same would apply,

If your oil pressure reading is erratic when ignition is off, set the bottom value for 1 Ohm resistance

\*\*It's important to use gauge type sensors and not engine management type

Gauge type will have a resistance range 0-300

Engine management type which exceeds 1000 Ohms will not function correctly\*\*