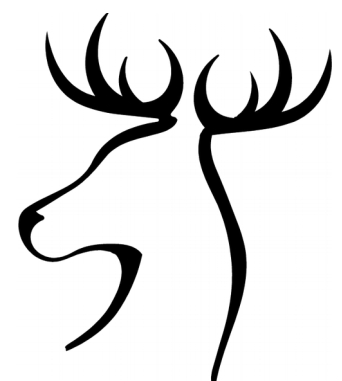


GARW IC7



USER MANUAL



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Overview

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

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)

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

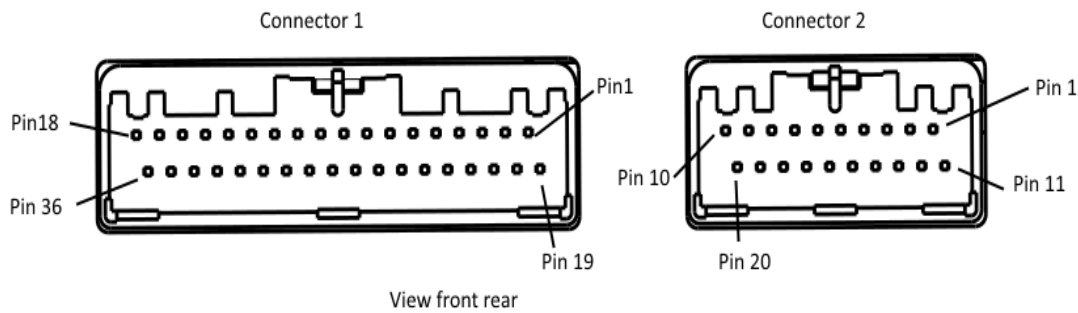
1x Can bus

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

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

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

Pinouts



Connector 1

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Analogue 4 (resistance) 2. Battery Ground 3. Battery 12V 4. IN1 (Active low) 5. Ignition (IN2) 6. Alarm LED (Active low) 7. CAN1 high 8. IN3 (Active high) 9. IN4 (Active high) 10. Frequency 2 VR 11. IN5 (Active high) 12. IN6 (Active high) 13. CAN 2 high 14. Open Drain Output 1 15. Open Drain Output 2 16. Open Drain Output 3 17. Open Drain Output 4 18. Sensor 5V | <ol style="list-style-type: none"> 19. IN7 (Active low) 20. Frequency 1 Hall 21. IN8 (Active low) 22. IN9 (Active low) 23. Frequency 2 Hall 24. IN10 (Active high) 25. CAN1 low 26. Analog 6 (resistance) 27. IN11 (Active low) 28. IN12 (Active low) 29. Door switch (IN13) 30. IN14 (Active low) 31. CAN2 low 32. Analogue 8 (resistance) 33. Analogue 7 (resistance) 34. Analogue 3 (0-5V) 35. Analogue 2 (0-5V) 36. Analogue 1 (0-5V) |
|---|---|

Connector2

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Active low input Down 2. Active low input Up 3. Active low input Right 4. Active low input Left 5. Active low input Lap timer 6. RS232 TX 7. RS232 RX 8. Ground 9. USB 5V 10. USB Ground | <ol style="list-style-type: none"> 11. USB 5V 12. USB Ground 13. USB3 + 14. USB3 - 15. USB Ground 16. USB1 + 17. USB1 - 18. USB 5V 19. USB2 + 20. USB2 - |
|--|--|

Smart App

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.

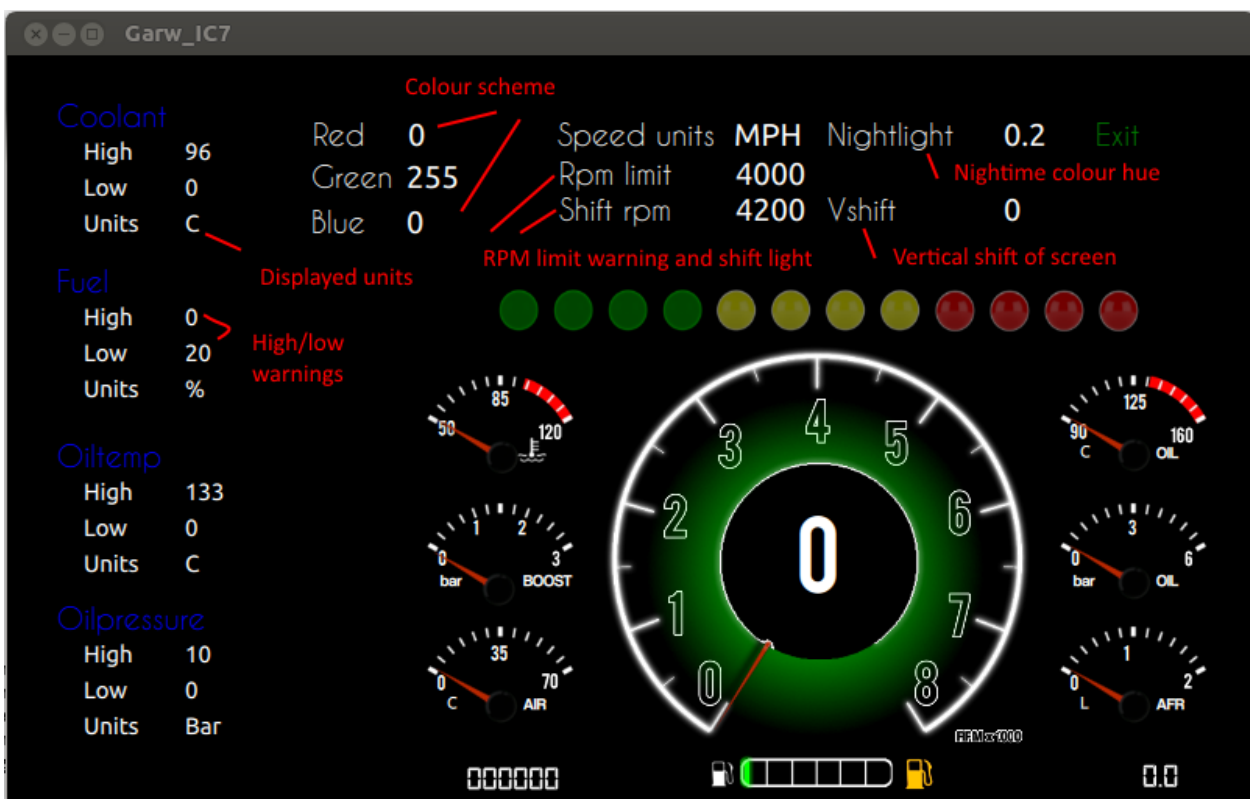
Screen settings

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

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

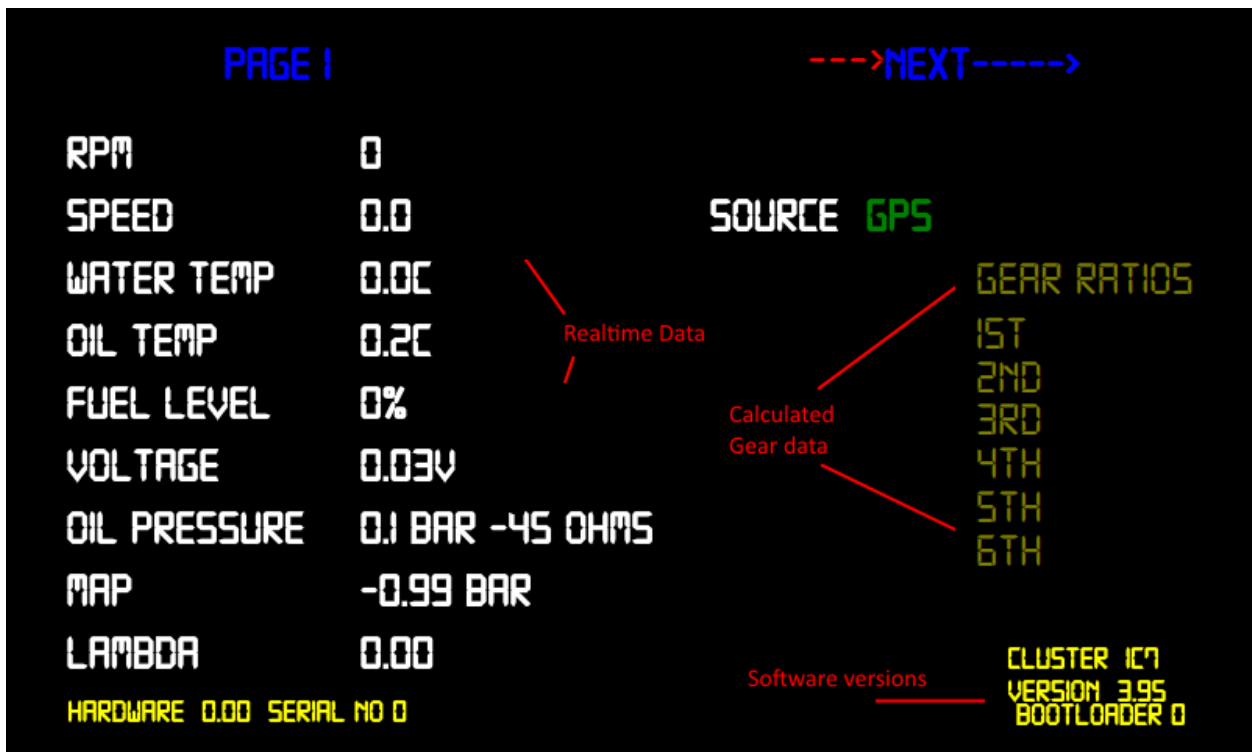
There are 4 pages available in Basic view

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

Page 2: Video input configuration

Page 3: Driving screens configuration

Page 4: Vehicle configuration



Description

Realtime Data: - displays current values

Speed Source: - switch between can or gps speed

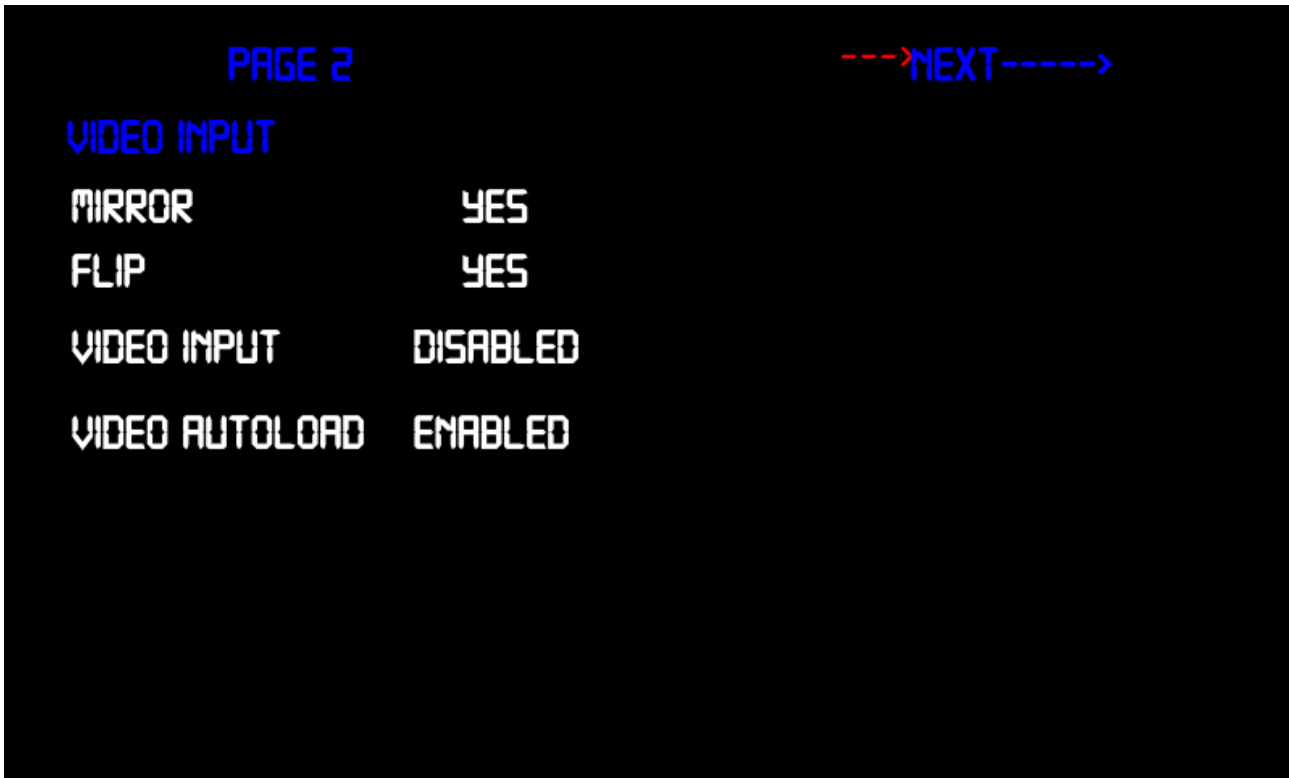
Calculated gear data:-

Calibration values for the current gear indicator displayed on some driving screens, when 1st 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



The video input function is configured here

a live view is shown on the background to enable easy setup of the image orientation

MIRROR – changes the left/right mirroring of the image

FLIP – changes the top/bottom flipping of the image

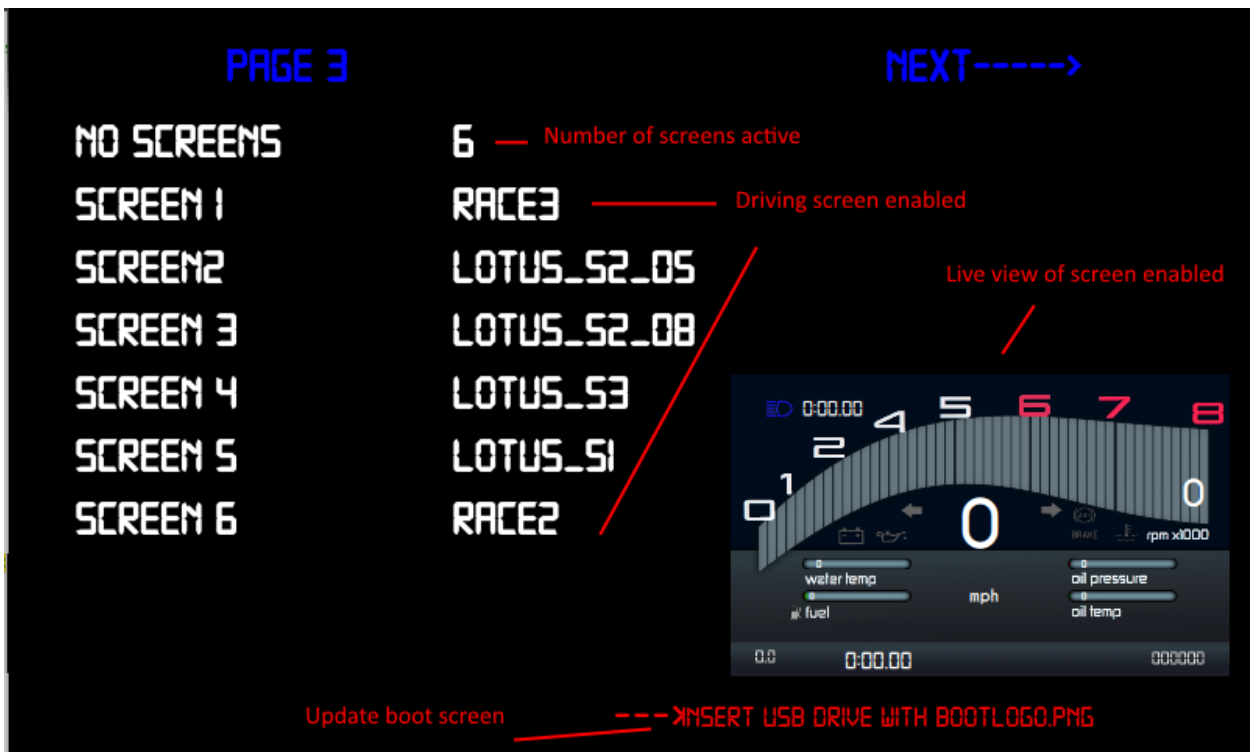
VIDEO INPUT – Enables or disables the video input function

VIDEO AUTOLOAD – Enables or disables the autoloading of the video input function during device boot .

Disabled-- There is a delay when the first time the video is shown while the video input function is loading

Enabled-- The video input function is loaded in the background at device boot adding the delay to the boot time

The video input screen can be triggered via the “REV” channel this channel can be mapped to any input on page 7 of the system setting (see page 16)



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

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	AMAB	0	0	17.00	-0.58	
FUEL	CANI_4	0	400	2.55	0.00	

NEXT----->
 INC AMOUNT 10 --> MAINBEAM Increment value
 CONFIGURE CANBUS CANI_SPEED 1000 Can bus speed
 CANI_SPEED 500
 LOTUS ELISE S2 '05
 ADVANCED VIEW
 SAVE

Description

PAGE 5		--->NEXT----->					
DATA	SOURCE	SOURCE	CANID	SCALE	OFFSET	VALUE	UNITS
AIRTEMP	CAN2_6	0	0	1.00	0.00	0	AIRTEMP
MAP	CAN2_6	0	0	1.00	0.00	0.0	KMH
BATT	ANAS	0	0	12.60	1.00	1.0	DEGC
O2	CAN2_6	0	0	1.00	0.00	0.0	LAMBDA
TPS	CAN2_6	0	0	1.00	0.00	0.0	BAR
FUEL	CHANNEL	ID	A	1.00	0.00		%

INC AMOUNT | -->MAINBEAM

CURRENT
ADVANCED VIEW

SAVE

Page 6 Advanced view

PAGE 6 --->NEXT----->

DATA	SOURCE	BIT	CANID	DATA	SOURCE	BIT	CANID
MBEAM	PI_9	-	0	SIDEL	PI_18	-	0
LIND	PI_11	-	0	LAP	P2_17	-	0
RIND	PI_12	-	0	DOOR	PI_23	-	0
BATT	PI_4	-	0	ABAG	PI_16	-	0
RFOG	PI_20	-	0	TC	PI_9	-	0
BRAKE	PI_13	-	0	ABS	PI_24	-	0
OIL	PI_15	-	0	MIL	PI_22	-	0

INC AMOUNT | -->MAINBEAM CURRENT SAVE
0

Page 7 Advanced view

PAGE 7				--->NEXT----->			
DATA	SOURCE	BIT	CANID	DATA	SOURCE	BIT	CANID
SHIFT1	P2_17	-	0	REV	P2_9	-	0
SHIFT2	P2_9	1	0	HBRAKE	P2_17	-	0
SHIFT3	P2_10	-	0	TC_OFF	CAN2_7	-	0
SERVICE	P2_9	-	0	LEFT	P2_19	-	0
RACE	P2_17	-	0	RIGHT	P2_20	-	0
SPORT	P2_9	-	0	UP	P2_9	-	0
CRUISE	P2_17	-	0	DOWN	P2_10	-	0

INC AMOUNT | -->MAINBEAM | CURRENT | SAVE

0

Page 8 Advanced view

PAGE 8 --->NEXT----->

low middle and high resistance values

SENSOR	RESL	RESM	RESH	VALUE1	VALUE2	VALUE3
SENSOR1	221.2	83.0	36.5	60.0	90.0	120.0
SENSOR2	1.0	88.0	184.0	-0.5	4.0	10.0
SENSOR3	10.0	10.0	10.0	10.0	10.0	10.0
SENSOR4	10.0	10.0	10.0	10.0	10.0	10.0
SENSORS	10.0	10.0	10.0	10.0	10.0	10.0
SENSOR6	10.0	10.0	10.0	10.0	10.0	5.0

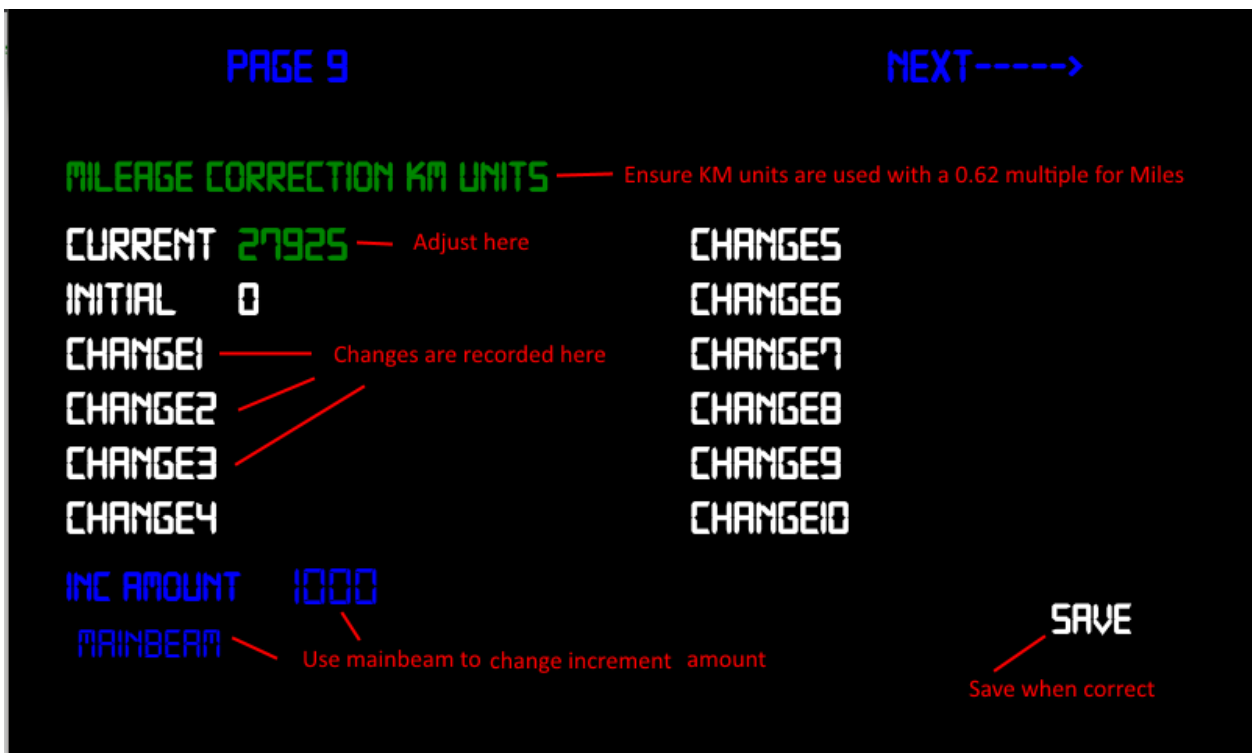
low middle and high sensor values

INC AMOUNT | --->MAINBEAM

Save once entered **SAVE**

Use mainbeam to change increment value

Odometer correction



Adjust the current value and when sure save your changes

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

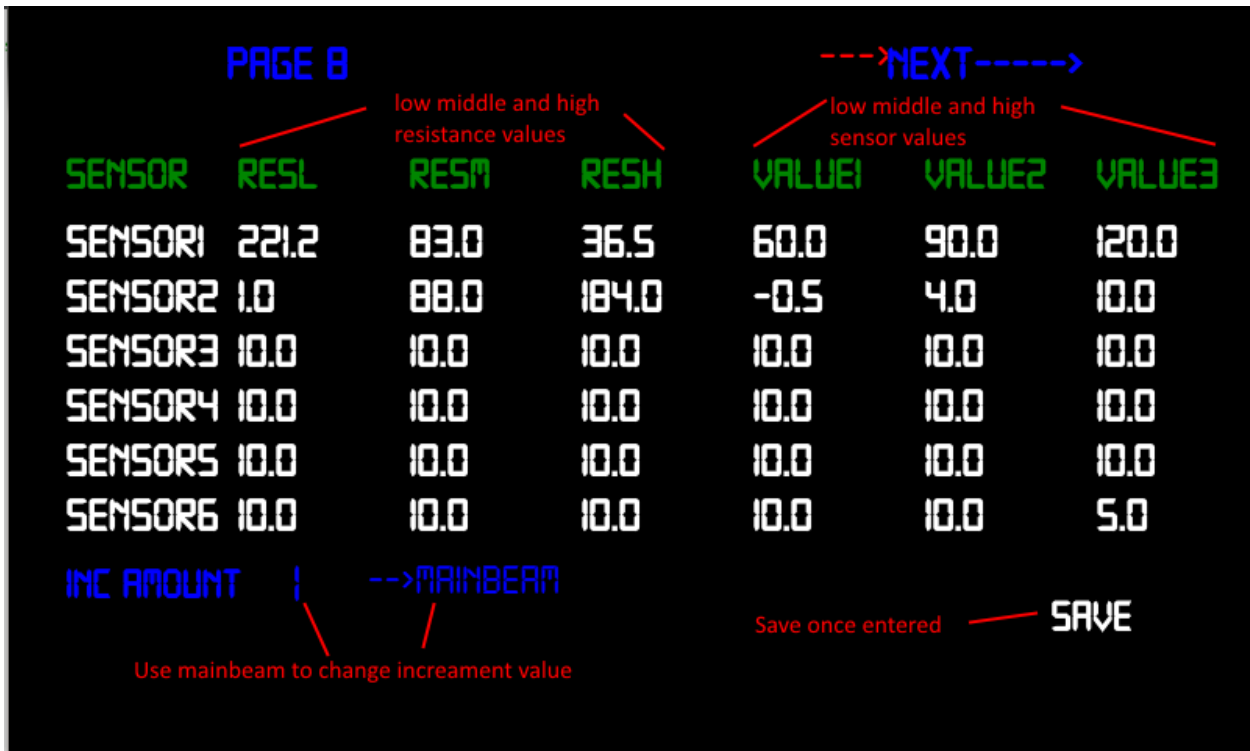
All changes are recorded for future reference

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 sensor only here on page 8 of system settings use Celsius for Temp

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

typical VDO gauge sensors data above

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 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 configuration menu with the following data:

DATA	SOURCE	SOURCE	CANID	SCALE	OFFSET
RPM	FREQ1	0	0	2.04	0.00
SPEED	FREQ2	0	0	38.40	0.00
WATER	ANA6	0	0	3.21	48.00
OILT	NTC7	SENSOR1	0	1.00	0.00
OILP	ANA8	0	0	17.00	-0.58
FUEL	ANA4	0	0	0.62	-164.00

Additional menu items and status at the bottom:

- PAGE 4 (top left)
- NEXT-----> (top right)
- INC AMOUNT 0.01 --> MAINBEAM (bottom left)
- CONFIGURE CANBUS CAN1_SPEED 500 CURRENT (bottom left)
- CAN1_SPEED 1000 ADVANCED VIEW (bottom left)
- SAVE (bottom right)

For oil pressure the data is entered directly (not with NTC data)

ANA7 = Analog input 7 , ANA8 = Analog input 8

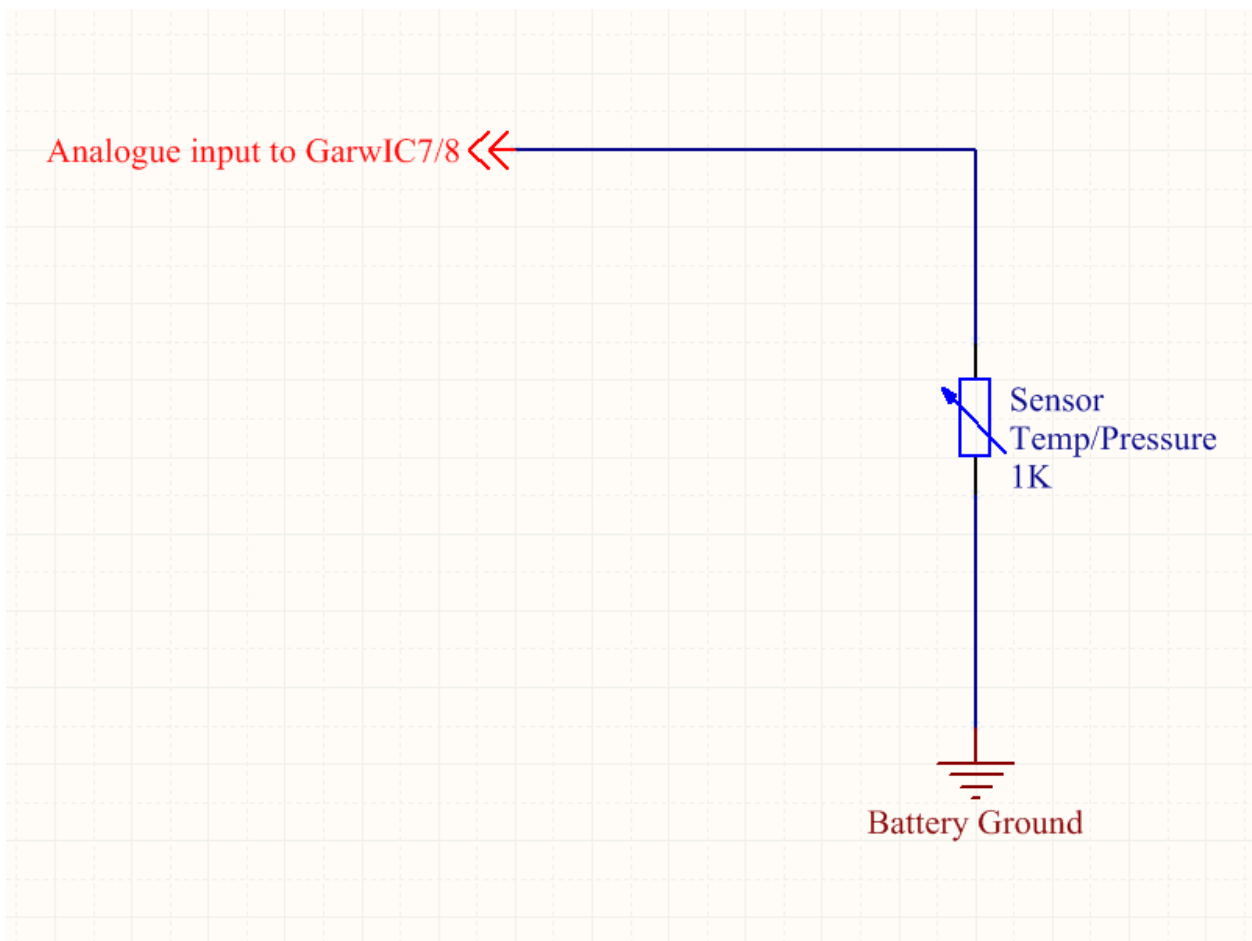
For a 0-10 Bar , 10-180 Ohm VDO pressure sensor the data is entered as above

****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**

Connection diagram for Analogue inputs



Analogue pin details on page 4