HGT Ref: 63800-M-PGPD-006

HGT PROGRAMMABLE GEAR POSITION DISPLAY

SET UP INSTRUCTIONS

The unit is supplied with a wiring harness and connectors pre-wired for direct plug into HGT gearbox sensors.

A pre-plugged, at the display side, connection loom is supplied with colored unterminated wires for user installation into their vehicle – refer to diagram.

The unit is supplied with programmed default settings, however some minor configuration changes will likely be required for gear position read out, this is done with the sofware via the USB/Micro Data cable supplied. Refer to the settings guidelines below.

Additional customisable settings are also possible via the software configuator. A cyan background with black letters is set as default, this can be changed as desired.
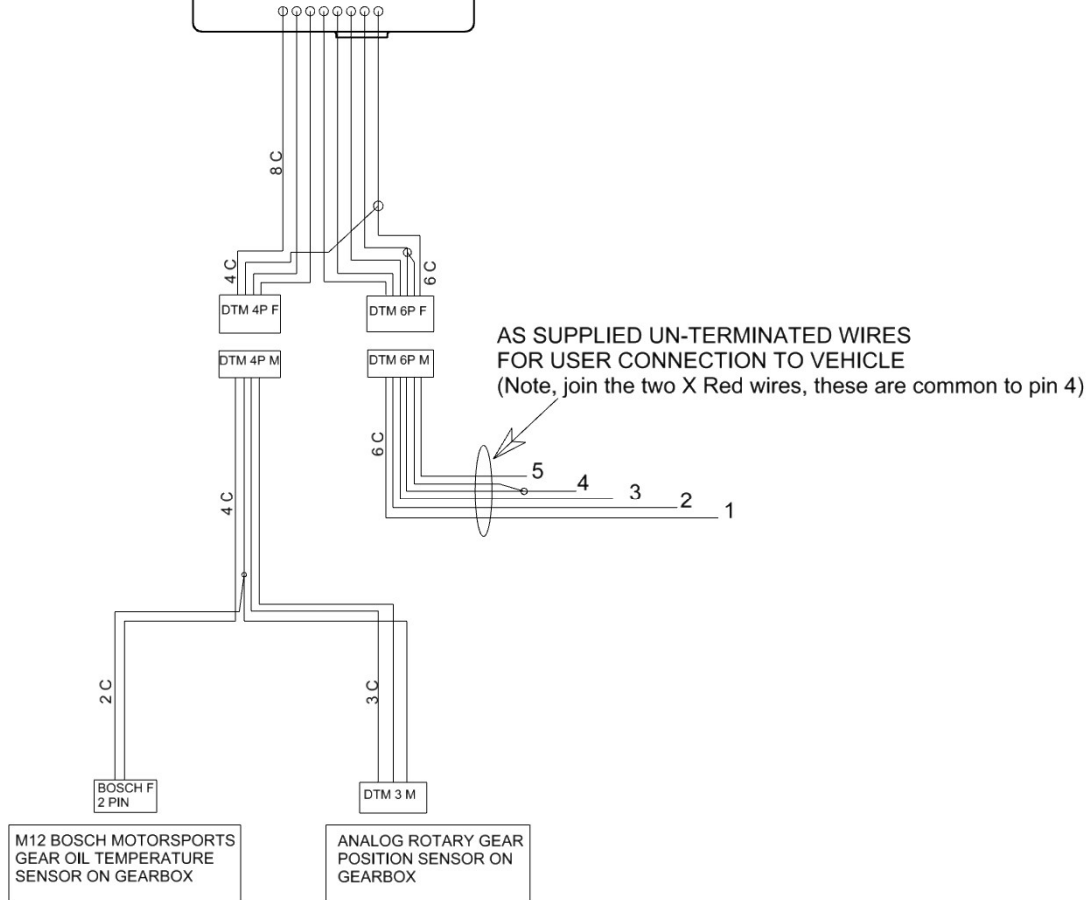
The sofware supplied is compatable with PC/Notebook Windows 7, 8, 10. 11.

Due to ongoing development this document will be updated from time to time, please ensure you have the latest update.

CONNECT
MICRO USB
DATA CABLE
TO PC DURING
SET UP ONLY

6

96 C
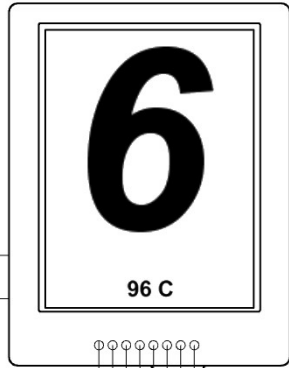
HGT PROGRAMMABLE GPD 2021			
PIN	FUNCTION	COLOR	INPORTANCE
1	Dimmer input	PUR	OPTION
2	RPM Signal input	GRN	OPTION
3	Reverse signal input	WHT	OPTION
4	Display +12 V fused power input w ign on	RED	REQUIRED
5	Ground to vehicle battery -ve	BLK	REQUIRED
6	+5V out, for sensor supply	BLU	REQUIRED
7	Analog gear postion signal voltage input	YEL	REQUIRED
8	Temperature signal input	BRN	OPTION

8 C

4 C

6 C

DTM 4P F

DTM 6P F

DTM 4P M

DTM 6P M

AS SUPPLIED UN-TERMINATED WIRES
FOR USER CONNECTION TO VEHICLE
(Note, join the two X Red wires, these are common to pin 4)

6 C

5

4

3

2

1

4 C

2 C

3 C

BOSCH F
2 PIN

DTM 3 M

M12 BOSCH MOTORSPORTS
GEAR OIL TEMPERATURE
SENSOR ON GEARBOX

ANALOG ROTARY GEAR
POSITION SENSOR ON
GEARBOX

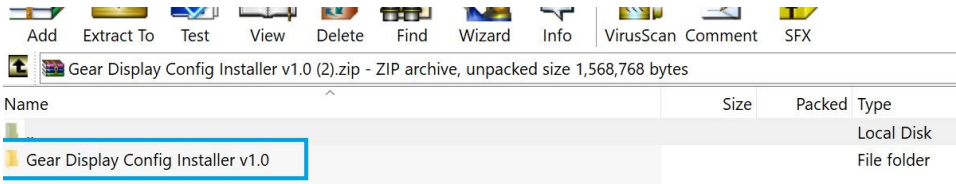# Configuration and Setup

Software

Download and install the "Gear Display Config Installer v1.0" from the link supplied by HGT

Click on "Gear Display Config Installer v1.0" Zip archive:
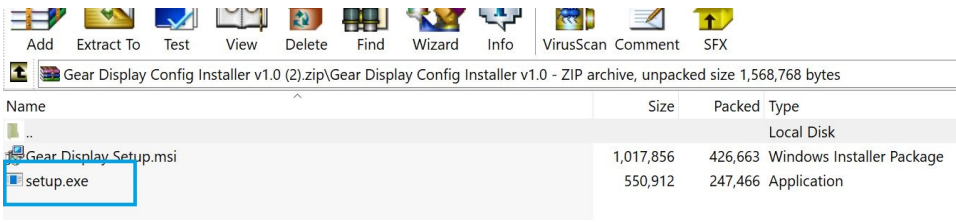
Then click on "Gear Display Config Installer v1.0" File folder:

Then Click on "setup" .exe file and follow the process through. This will automatically install the driver required for the device.

Once done you will see a "HGT" logo short cut inserted on your desktop screen as:


With the HGT, display installed into the vehicle and powered on **, connect the supplied USB data cable between the device and your PC. In this way, the display will be receiving the live gear position voltage and temperature sensor signal.

Open the Gear Display Config, if the device is connected properly then you will see the initial screen as follows:
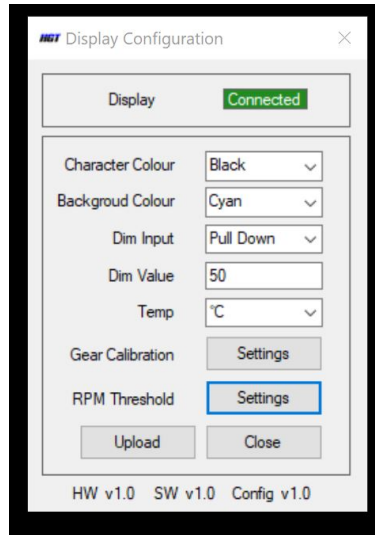
The green "Connected" box top right indicates that you are connected on line to the GPD, the display must be connected "on line" before any changes can be made to settings within the software.

If the device is not connected properly via the USB cable, or if the driver did not properly install, then you will see the following message:
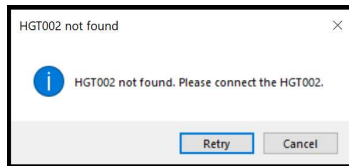
Once properly connected to the device, you can scroll though the menus and carry out changes to the parameters as required. Once changes have been made, they can then be saved and uploaded by clicking on the upload box:
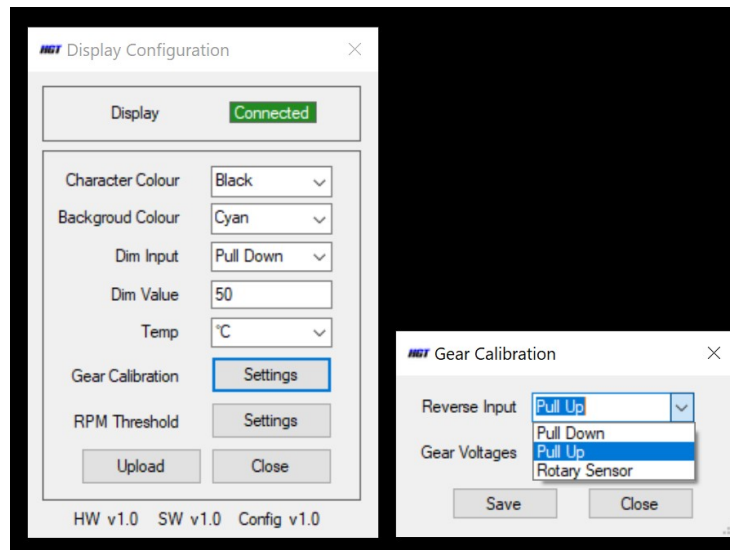
Display Screen Colours

For example, screen colours of the characters and background can be changed in the dropdown menus:
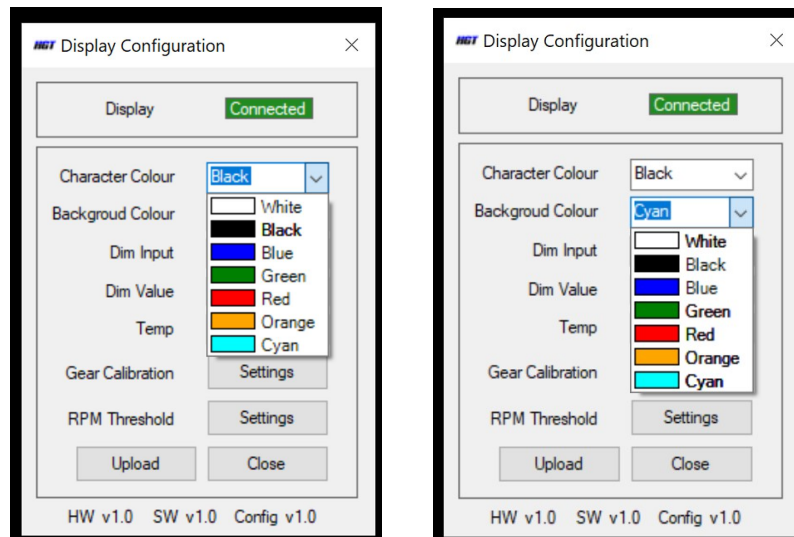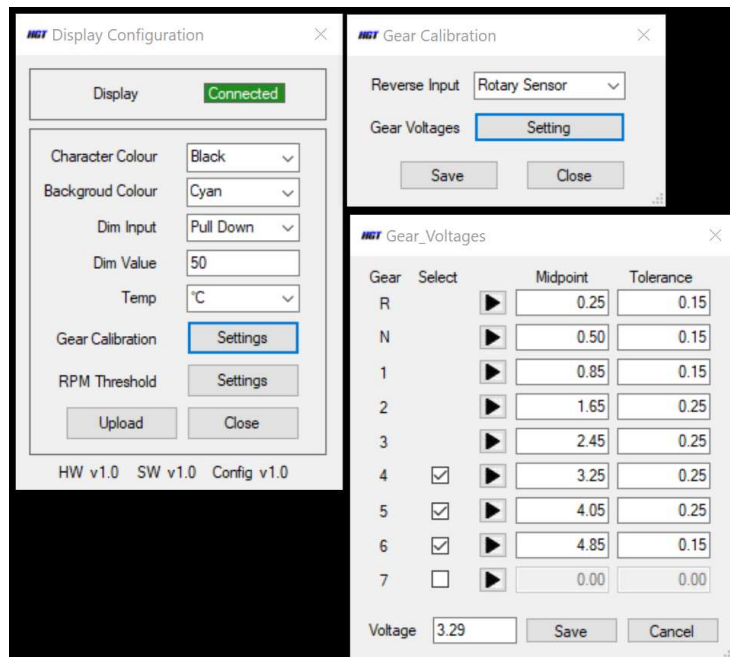
Reverse Gear Indication Input setup

Click on "Settings" to bring up additional menus:

The type of reverse signal input can be selected depending on what gearbox is being used. HGT rear wheel drive gearboxes used with a HGT shifter use the "pull up" or "pull down" setting via pin 6. (Connect to Omron proximity sensor on the shifter)

Alternatively, some non-HGT brand gearboxes use the rotary position sensor voltage for reverse display indication. The setting for this would be as per the example shown here, select "Rotary Sensor" in the Reverse Input box, and enter the midpoint voltage that corresponds to reverse gear engaged position:

Once a change is made to the reverse input method, click the save box to save the setting.

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Forward Gear Position Indication

- The Gear Position display is supplied with pre-set default settings for forward gear position read out. Depending on the gearbox model, speed and date of production, these settings will need to be adjusted during the final stages of installation for the display to read the correct gear position.
- HGT Gearboxes supplied after January 2022 will usually require the Gear Voltages adjusting due to an updated gear position sensor angular offset.

Within the settings menu, the "Gear Voltages" midpoint and tolerance should be adjusted as required, the typical midpoint voltage values are shown below for HGT Six, Five and Four speed rear wheel drive gearboxes:

HGT 6 Speed

Note: the lower left "Voltage" box highlighted in green above indicates the current gear position-sensor voltage being received by the display, this helps during calibration and setup.

Five and four speed HGT gearboxes should be set up by the user, this can either be achieved by going through each gear with the vehicle on a hoist with the driven wheels off the ground, OR using the suggested settings below:

HGT 5 Speed

HGT 4 Speed

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Once changes are made to gear midpoint voltages and/or tolerances, click the save box to save the settings entered, click save again, then after an information pop up dialog says "save complete" then click "Upload" to program the display. There will then be a dialog saying "Upload Complete"

Note: If you forget to click upload at this stage the settings will not be programmed into the display and the settings will need to be re- entered.
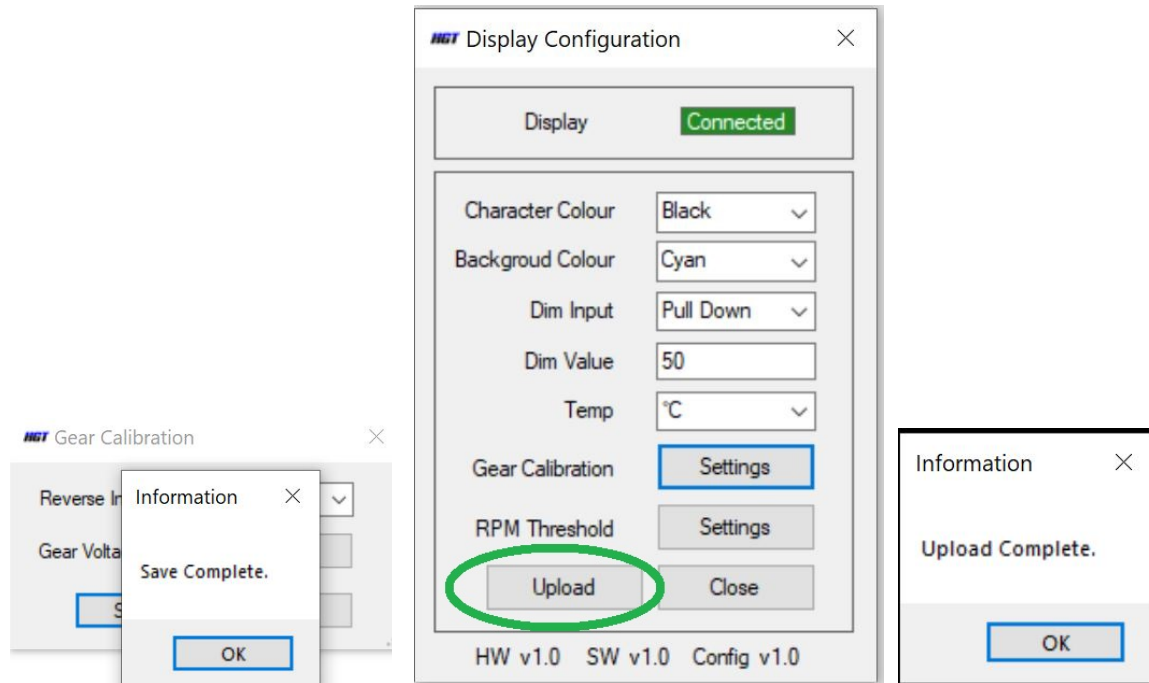
Note that gearboxes supplied prior to February 2022 due to a different sensor offset, will typically require these following Gear voltage settings:

HGT 6 Speed

Five and four speed HGT gearboxes should be set up by the user, this can either be achieved by going through each gear with the vehicle on a hoist with the driven wheels off the ground, OR using the suggested settings below:

HGT 5 Speed

HGT 4 Speed

If a non-HGT sequential gearbox is being used, the voltage outputs "if known" for each gear can be inserted into the table "Midpoint" boxes. If the voltages are not known then simply set them, gear by gear, by selecting each gear in turn, reading the voltage form the lower left "Voltage" box and inserting the value into the table "Midpoint" values. A tolerance of between .20v and .25v will generally work. If there happens to be a relatively small step between gear sensor output voltages of adjacent gears, then smaller tolerance values might need to be used.

Shift Light Function

There is a built in shift light function whereby the unit flashes red as the set RPM is reached. The shift rpm threshold can be adjusted in the "RPM Thresholds" menu. Once set press save to save your values.

Dimmer Function

With the dimmer option signal input wire connected, set the "Pull Up" or "Pull Down" Dim Input according to the polarity of the input signal. i.e. if a +12v input is connected from the vehicles lights-on circuit then "Pull Down" should be selected. If a ground signal to the vehicle lights on relay is used, then select "Pull Up"

For night time driving simply adjust the desired dimmed level in the box, the values represents the approximate percentage of full brightness, the unit is set to 50% as default.
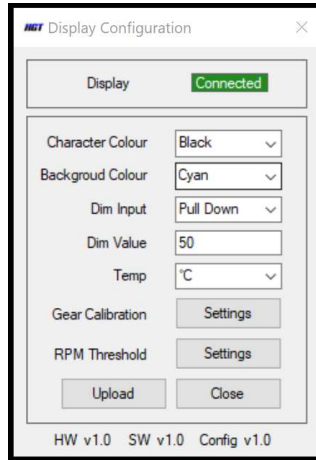
Gearbox Temperature display Function

Connect the supplied wiring loom Bosch 2 pin connector to the Bosch M12 motorsports temperature sensor on the gearbox for the display - gear oil temperature indication. Select your preferred units ^{o}C or ^{o}F in the dropdown box. Note: the display is configured for Bosch M12 Motorsports sensors linearity curves only.

Notes **:

- It is possible to connect the display via the USB data cable to a PC only on the bench and configure it whilst not installed in the Vehicle. However, there will be no live gear position voltage reading or temperature signal and the gear reading on the display will not be stable.

- The "Pull up" or "Pull down" setting used for reverse gear indication via the HGT shifter mounted Omron sensor is dependent on the polarity of the sensor output when reverse gear is engaged. There are two types of sensor outputs, which will give active high or active low signals. The majority are active high, so in this case the "pull up" setting would be used.

- When using the display on RS4/5/6 series, HGT rear wheel drive gearboxes, be sure not to set the Reverse input setting to "Rotary Sensor" as it may affect the forward gear readout.

- If you lose the USB/Micro data cable and need to find a replacement, be sure to use a "Data" compatible type cable.

- Increasing the values in the Tolerance column for gear Voltages too high will cause overlapping and the display will not work properly, its recommended not to exceed the default settings