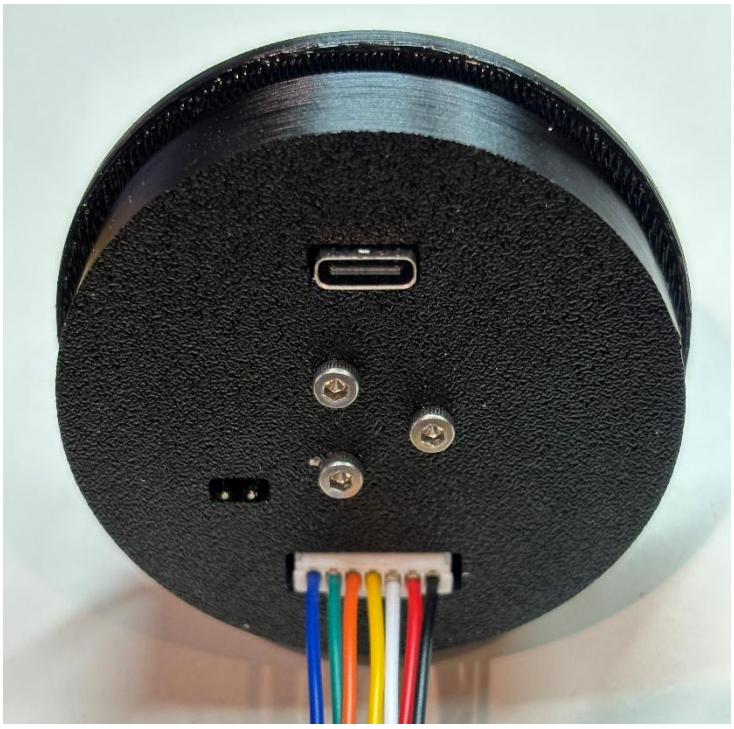
Colour Rotary Touch Screen Gear Indicator

Document Released 17/11/25 with Version 3.11

ControlStrategy

Initial Setup and Cabling



On the rear of the display is a **USB-C connector** at the top which can be used to power the display outside of a car. In typical applications it is not needed once the display is fitted.

There is a **2 pin jumper** connector bottom left which are normally left unconnected. This jumper is to enable the 120ohm termination resistor on the CAN bus. If this display is at the end of the CAN bus you may need to fit a jumper across these pins. Ensure your CAN bus is properly cabled and terminated for proper operation of your vehicle.

The **7 pin JST** connector at the bottom connects the display to your vehicle. The cable connections are as follows:

Pin 1: Black – Chassis Ground (which you can connect to a suitable ground connector on your gearbox controller).

Pin 2: Red – Ignition Switched 12V. Do not connect this to constant battery 12V as this will cause un-needed current drain on your battery. You can connect this to one of the 12V ignition switched pins on the gearbox controller

Pin 3: White – CAN Hi, connect to CAN Hi on your gearbox controller – see Pin 4: Can Lo for more information

Pin 4: Yellow – CAN Lo. Together with CAN Hi, this is the main data connection to your gearbox controller. These CAN cables should always be twisted together, kept away from sources of electrical noise such as ignition and motors, and kept as short as is practically possible. Different gearbox controllers use different CAN connections (see later on the document for your gearbox controller)

Pin 5: Orange – Analogue Output 1. This pin sends analogue data from the display to the gearbox controller where the controller will not accept a CAN signal. An example of this is the rotary program mode connector on the TurboLamik, where the display will send the program mode over analogue to pin AN10 on the TurboLamik. For the CANTCU this can be used to send the DriveLogic mode to the CANTCU. Future firmware releases will extend this functionality. If you do not use this output please ensure you insulate the end of the cable so it cannot short to anything.

Pin 6: Green - Analogue Output 2. This pin sends analogue data from the display to the gearbox controller where the controller will not accept a CAN signal. An example of this is the PRND selector connector on the TurboLamik, where the display will send the PRND information over analogue to an analogue input pin on the TurboLamik. Future firmware releases will extend this functionality. If you do not use this output please ensure you insulate the end of the cable so it cannot short to anything.

Pin 7: Blue – Digital Output 1. This is for future expansion and is currently not used. Please ensure you insulate the end of the cable so it cannot short to anything.

Installation

For the 52mm and 60mm mounting options, the 3D printed bezel on the display should be simply affixed to the gauge pod or mounting hole with adhesive or silicone sealer. The display is very light so it does not require significant strength to stay in place. The thru-hole mount needs assembly, and this is detailed at the end of this document below

CAN Bus Connection To The Gearbox Controller

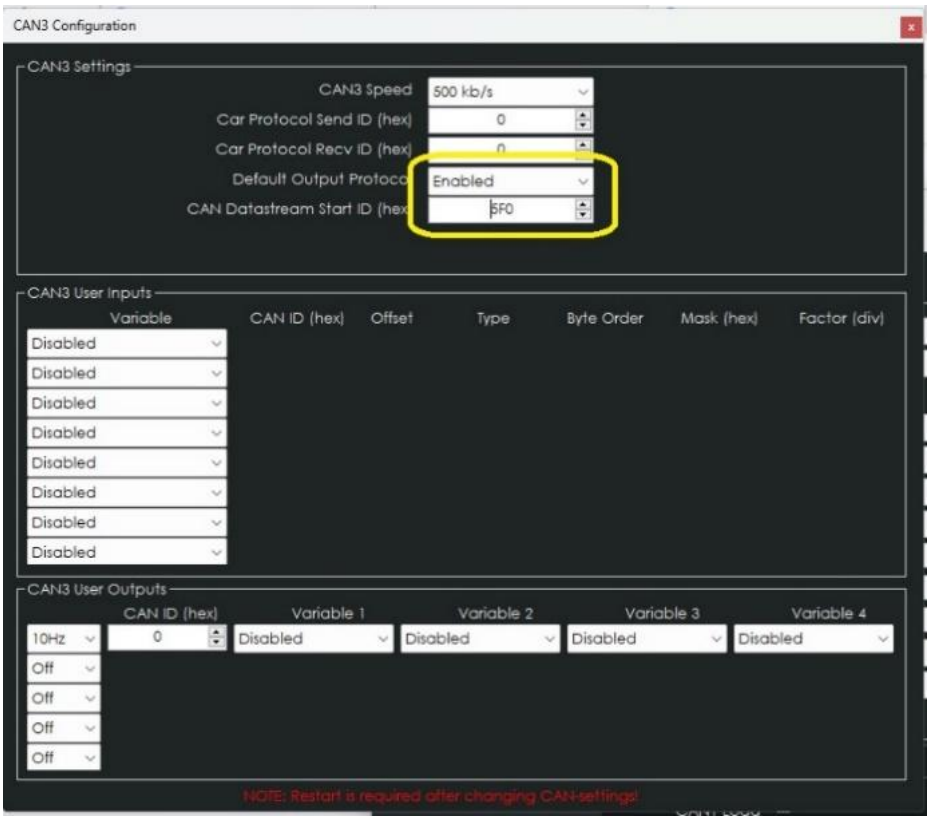
TurboLamik

Connect the display onto the TurboLamik CAN2 bus. Usually no additional configuration is needed in TunerPro, the display uses the standard outputs from the TCU**.** If your display does not show any data it may be that your ECU setting in TunerPro switches off the default output stream. If this is the case set CAN2B Sport ECU type to 7. This will re-enable the stream. Also make sure the Custom Can TX Send ID = 1600

To use the Program Selector, connect Analog Output 1 on the display to Analogue input 10 on the TurboLamik and enable the rotary control in TunerPro

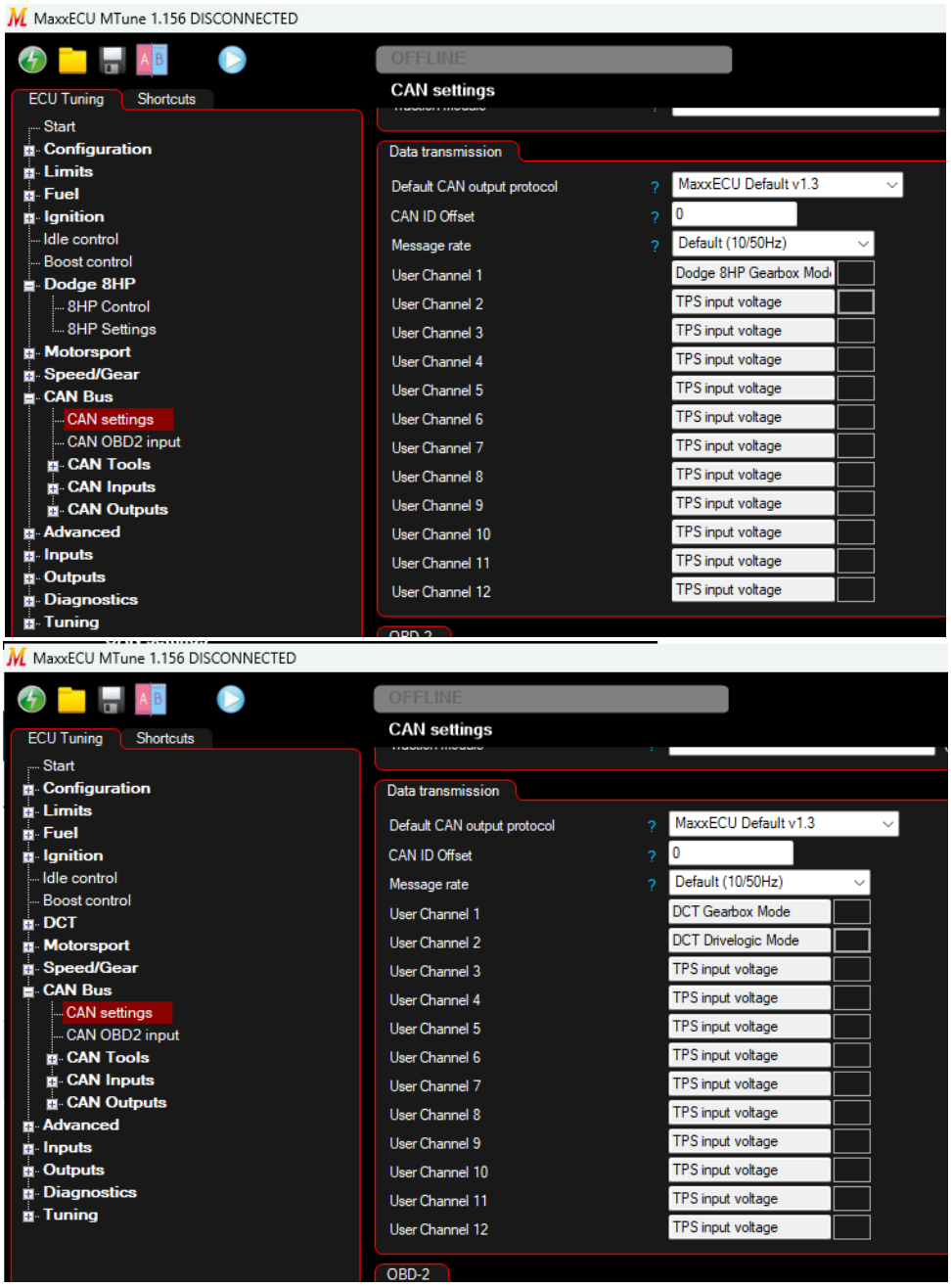
CANTCU

Ensure the display is connected to the CANTCU CAN3. In the CANTCU config program ensure the Default Output protocol is enabled and the Can Datastream Start is set to 5F0 as shown here:



MaxxECU

Connect the display to the same CAN bus as your ECU connection. In MTune make sure you have selected the correct Transmission Protocol. Then in Can BUS / Can Settings select “MaxxECU Default v1.3” for the default CAN output protocol. This will enable the Gear, Gearbox Temperature and Error channels. The Gearbox Mode and DriveLogic mode (DCT only) information should be set up on User Channel 1 and User Channel 2 as shown below for 8HP and DCT respectively.



HTG

The display is directly supported in the HTG Suite. Simply add in the ControlStrategy Display into the General Settings window. Make sure you select the correct CANbus on the GCU. Always remember to Save the config to the GCU and then Reset the GCU whenever you change any inputs or outputs

Display Configuration

For initial setup of the display, you can power the display through the USB-C connector or through the vehicle wiring connector. By default, the displays are shipped configured for a TurboLamik TCU and a CAN bus speed of 500kbits/sec.

As the display boots up, the current firmware level is displayed as shown in the picture on the right. In this instance this display is running firmware version 3.10 and the “C” shows it is set to the CANTCU controller. If set to TurboLamik it would show a V3.10T and V3.10M for MaxxECU. Once the display has booted it will go into the main gauge screen

Home Screen This screen shows the current gear and mode information (depending on which gearbox controller you have this information will change. In the picture on the right the display is using a CANTCU and so is showing the COMFORT drive mode for example). The current gearbox temperature is shown in the gauge at the bottom of the display which can be shown in degrees Celcius or Fahrenheit. The sweep at the bottom of this gauge shows blue when the gearbox is cold, orange for normal working and red for excess temperature. If this display is blank, first check the TCU and CanSpeed settings match your vehicle. If there is still no data check the info screen (see below) then check the CAN wiring. In order to change the settings, press the cog (setup) icon in the lower left of the display.

Settings Screen. To see this screen press the cog (setup) icon on the home screen shown above. You can scroll up and down this display using touch. The menu and options are dynamically created depending on what settings are in use, so your menu options may be different. After making a change, the settings go live immediately. The two icons at the bottom of the screen allow you to go home (which only changes the setting whilst the display is powered up – useful for testing), or the Save (disk drive icon) commits the settings into the device memory so it uses them every time the device is powered on. If you want to test a setting change it and press home, when you are happy, go to this screen and press save.

Configuration Options

Speed Unit

Set to mph or km/h for any speed related channels. The default is mph

Temp Unit

Set to Celcuis or Fahrenheit (default is C) – used for the gearbox temperature display

TCU

Select which Transmission Control Unit is in use. Supported units are currently CANTCU, TurboLamik, MaxxECU (controls both engine and gearbox) and HTG (this controller is no longer produced but is still being supported). More controllers will be added if/when they come to market

Selecting this TCU option set the display to the default addresses and data structure to show the correct information. You should not need to make any changes to these settings, but for completeness, here are the defaults for the supported controllers:

CANTCU:	Gear 0x5f2/2, Gearbox Temp 0x5f5/3, Mode 0x5f5/3, DLMode 0x5f5/4, Launch Flag 0x5f5/1
TurboLamik:	Gear 0x642/0, Gearbox Temp 0x642/1, Mode 0x642/2, Error 0x642/3, Flags 0x642/4&5
MaxxECU:	Gear 0x536/0, Gearbox Temp 0x540/4 16bit, Gearbox Mode 0x538/0 16 bit (MTune User channel1)
	Gearbox DL Mode 0x538/2 16 bit (MTune User channel2), Error/Limp 0x542/4 16 bit
HTG:	Gearbox Temp 0x641/0, Gearbox Mode 0x641/2, Gear 0x641/3

CanSpeed

Sets the display to the speed of the CANBus. Assuming you are adding the display to an already complete car, this should be set to match the CAN speed you are already using with your ECU/TCU. The default speed is 500kbits/sec which is correct in the majority of cases. Some ECUs such as Holley and Syvecs use a CAN speed of 1Mbit. If this setting is incorrect, the display will show no data, and also the car CAN communications may be interrupted.

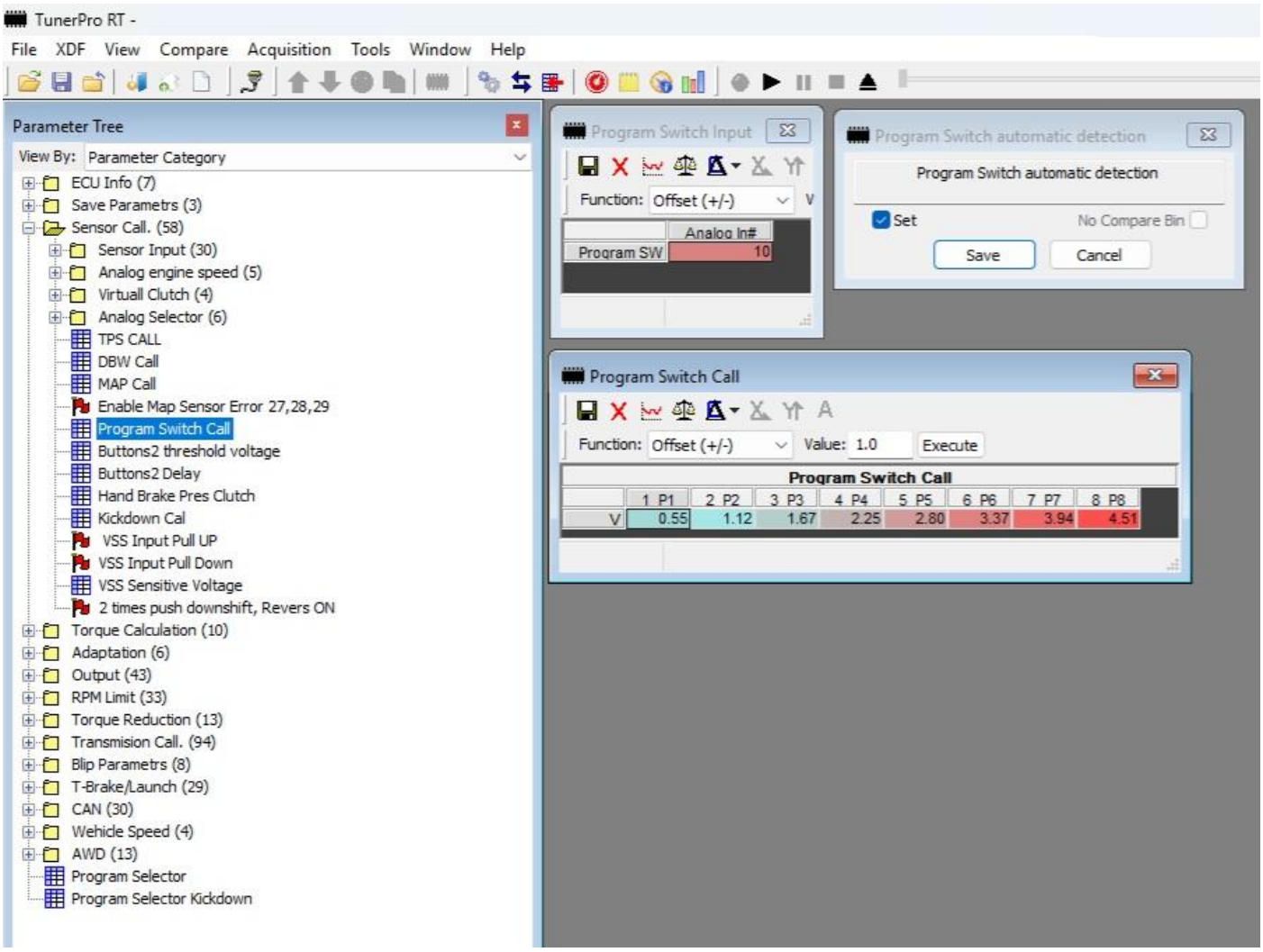
Selector – TurboLamik only as of firmware 3.11

This sets the display to emulate an analogue PRND selector on the TurboLamik. If enabled, this can be set to “PRND” which will select only the drive modes, or “PRND+Prog” which will allow you to select PRND and also programme modes 1-3. Please note that if this is set to “PRND+Prog” you must have “Program” set to off as the TurboLamik cannot support an analoge selector and a rotary program mode control at the same time. When the Selector function is enabled it uses Analoque Output 2 on the 7 pin connector. This should be connected to an unused analogue input on the TurboLamik and TunerPro should be used to setup the input as an analogue selector

Program - TurboLamik only as of firmware 3.11

This sets the display to emulate an analogue rotary program selector on the TurboLamik. If enabled this allows you to use the rotary control round the edge of the display to select the program modes, which are Auto, Sport, Manual, Manual Sport, Manual Sport, Drag and Drift. You can either select a certain mode (which the vehicle will default to) or use the Previous mode where the last selected mode will be used at vehicle start up. Note: If a standard gear selector is used such as the BMW F type, the TurboLamik will allow the program mode to be selected in Neutral or

Park, but when Drive is selected the TurboLamik will default to Auto (P1). Only when the selector is moved left into Sport will the TurboLamik use the program mode function. This is a feature of the TurboLamik and also happens with their own analogue rotary control. When this function is enabled it uses Analoque Output 1 on the 7 pin connector. This should be connected to an unused analogue input on the TurboLamik (the default for this function on the TurboLamik is Analoge Input 10 which is usually brought out to a connector on the loom) and TunerPro should be used to setup the input as an analogue program switch. Set up the following in TunerProRT:



DLMODE - CANTCU only as of firmware 3.11

This sets the display to emulate an analogue drivelogic mode selector on the CANTCU. If enabled this allows you to use the rotary control round the edge of the display to select the drivelogic modes, which are Eco Pro, Comfort, Sport, Sport+, and for the DCT box DCT4. You can either select a certain mode (which the vehicle will default to) or use the Previous mode where the last selected mode will be used at vehicle start up. When this function is enabled it uses Analoque Output 1 on the 7 pin connector. This should be connected to an unused analogue input on the CANTCU.

Brightness

Four Levels of brightness can be selected ranging from Dim (0) to Extra Bright (4). The default brightness is 2. Since the display uses OLED technology with high contrast and a low reflective surface you should find that the display is easy to see in bright conditions whilst still being unobtrusive at night. Please note that you should only use brightness 3 in exceptional circumstances as over a long period this can cause slight “burn in” of the image onto the display.

TextColour

This sets the text colour on the main gauge screen. Options exist to match the colour of other displays in the vehicle. The graduated scale on the dial remains white so that the displays and alarms can be seen clearly.

Shading

This sets the colour shading in the bottom half of the display to match the colour of other displays in the car. This can also be switched off entirely if required.

WiFi

The display has its own WiFi Access Point and Webserver built in to allow for firmware upgades to be easily loaded in future. Just like the black and white displays before it, the colour displays can always have the latest firmware upgrades for free for the lifetime of the product from controlstrategy.co.uk. See the firmware update section below for more details

General Usage and Screens

At start up, the main home screen is shown, where you can see the main data channels. Pressing the settings (cog) icon will take you to the settings page described in the previous section. Several other screens are available:

Info Screen

The rotary control around the display supports click (pressing the entire display in, not just touching the display screen). A single long press brings up the info screen. This is a scrollable list of all the data channels set up along with a love view of what data is being seen on the CAN bus. This is very useful for troubleshooting if there is no/incorrect data being displayed.

Error/Trip Screen

If a serious error or limp mode is sent from the TCU the display will immediately switch to the Error Screen. This is designed to catch your attention and act accordingly. The error screen will show the error data available which in the case of a TurboLamik error will also show the error cause instead of just an error code.

Touching the display will change back to the home screen. If an error is active, the home screen will have the “check light” icon in red – this is a triangle with an exclamation symbol in it as shown below. Touching this will take you back to the error screen. If and when the error is cleared the “check light” icon will no longer be shown on the home screen.

Also note that there is a feature where less critical errors can be flagged, in which case a blue or amber check light icon will appear on the home page, but the display will not automatically change to the error screen.

Wifi Screen / Firmware Upgrade

New displays ship with the latest firmware loaded. As new features or bug fixes are released, new firmware will be made available on controlstrategy.co.uk. This will be in the form of a downloadable file which you should save onto your phone or laptop. You then connect this device to the display and then upload the new firmware.

The WiFi screen shows the information required to connect to the display over WiFi in order to upgrade the firmware. Since vehicles are often away from a WiFi signal the display acts as an Access Point and runs an in-built web server for you to connect a laptop or phone to.

To get to this screen, go to settings, scroll down and then click on the WiFi “Settings” button.

This will then display the WiFi name of the Access point which is being broadcast, and the WiFi password. When no clients are connected to the display the background of this screen is orange. When a client (your phone or laptop etc) connects the background changes to green.

You can then use a browser to connect to either of the addresses shown on the WiFi screen, and you will be presented with a firmware update screen on your device

Select the new firmware file and then select Update. The display will show progress, followed by the success message and the display will reboot. If the file is incorrect the update will quit.

Selector Screen

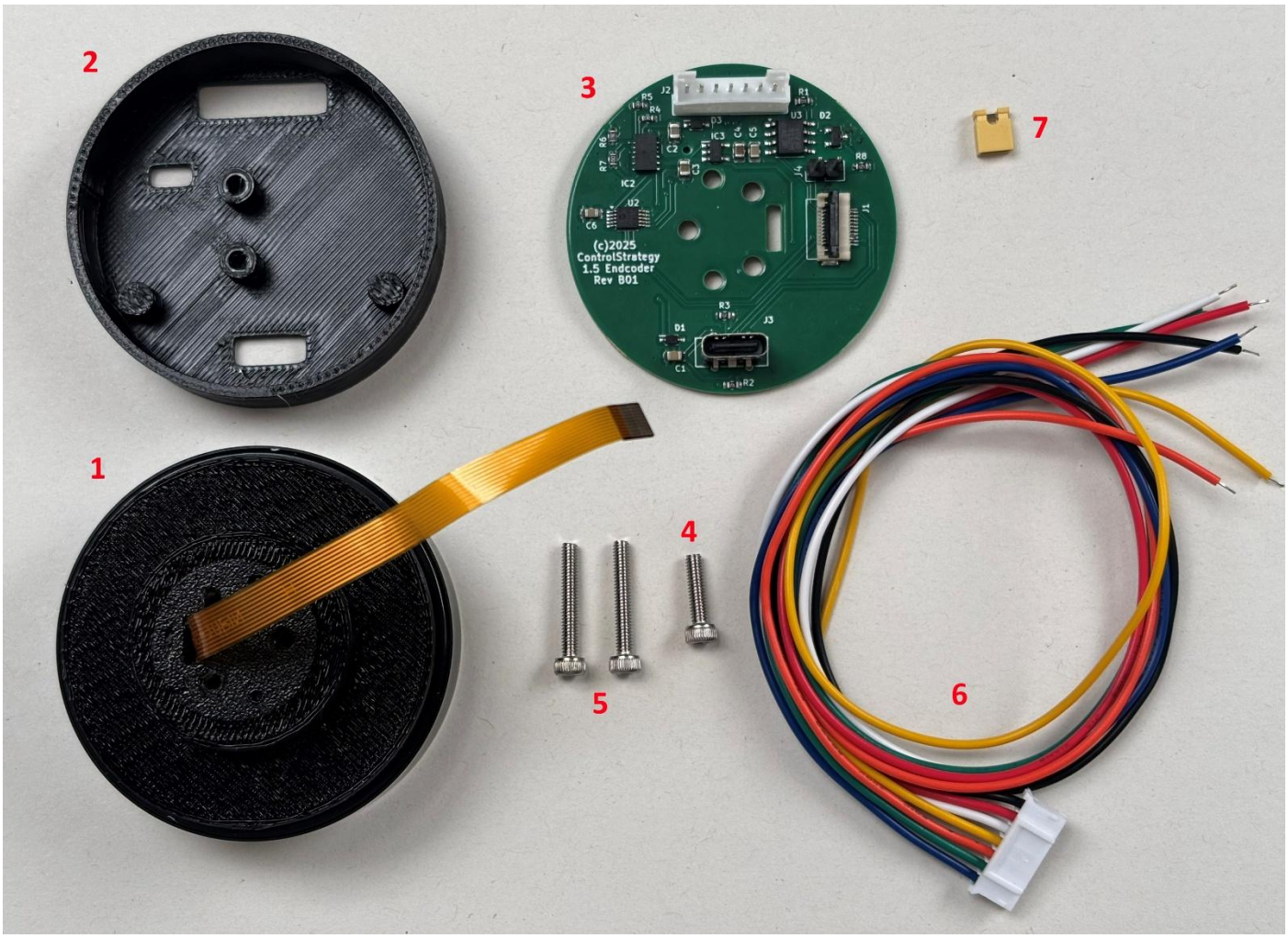
The rotary control around the display supports click (pressing the entire display in, not just touching the display screen). A single short press brings up the selector screen when it is enabled.

The outside of the display shows the possible selector options, and the centre shows the currently selected Gear. A single short press on the display returns to the home screen.

Display Mounting – Through Hole

Assembly

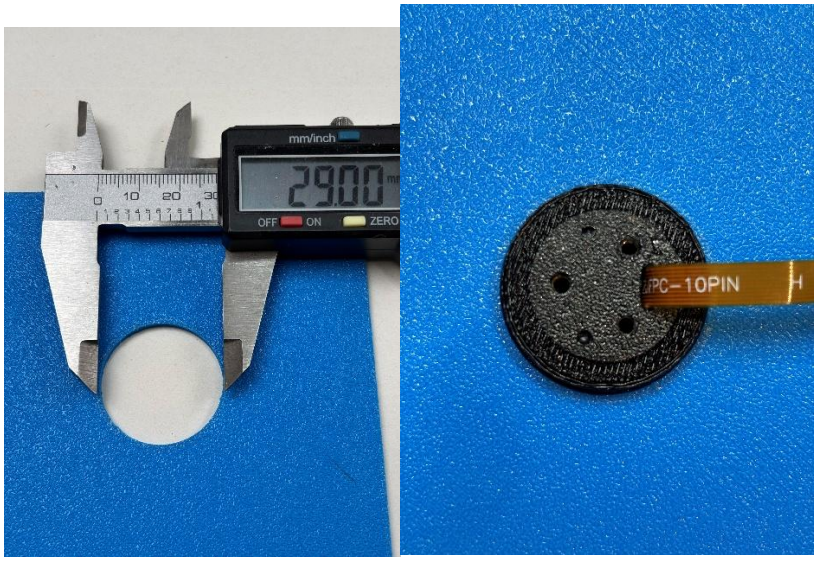
The through hole mount option needs assembling into the hole in your dash panel. You will need a 2.5mm hex tool for the three stainless steel screws included. You will need a 29mm hole in the panel to mount the display. Also if mounting to a metal (or conductive) panel you should insulate around the back of the dash panel to a diameter of 50mm.



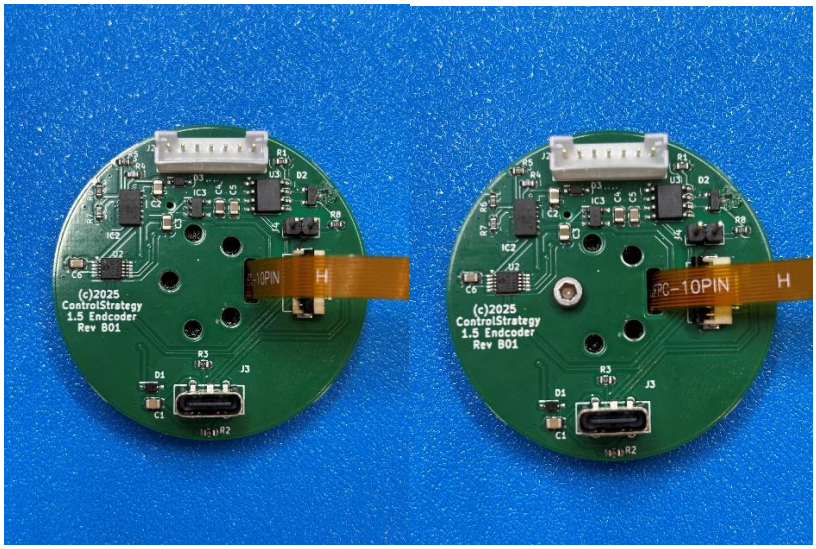
The kit contents are as follows:

1. Main display
2. Cover Panel for driver PCB
3. Driver PCB
4. M2.5x10 screw
5. M2.5x16 screw (2 of)
6. JST Main Body Connector
7. CAN Termination Jumper (if required, see top of document regarding CAN bus)

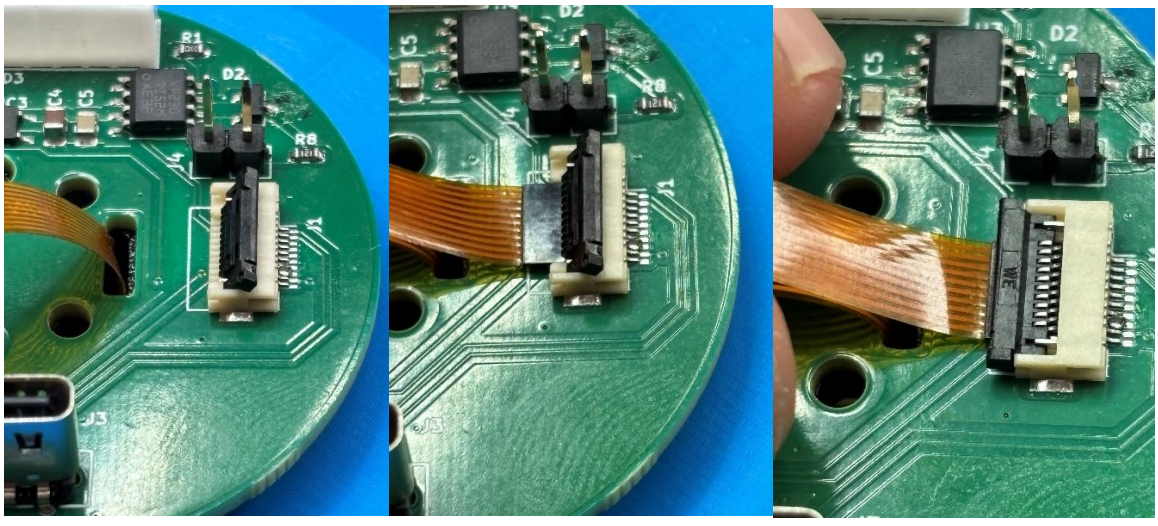
The rear printed face of the main display (1) should be fixed to the front of the 29mm hole in your dash panel. This should be with epoxy or silicon. The printed face has an indent at the bottom of the display so you can get the correct orientation before needing to power up the display.



Once attached to the dash panel, the Driver PCB (3) can be mounted onto the rear face of the display, and the M2.5x10mm screw (4) should be located in the left hand hole as you look at the unit from the back.



Once the first screw in installed, you should (very carefully) flip up the black cable retainer on the J1 connector on the circuit board. Then carefully align the brown ribbon cable into the connector, and then close the cable retainer back down onto the ribbon cable. Ensure that the ribbon cable is pushed fully in, and is lined up with the connector properly. If the cable is not pushed in correctly or at an angle the display will not work correctly and could be electrically damaged.



Next, to ensure all the holes on the PCB are perfectly aligned into the display, using your fingers put the two 16mm screws (5) into the display a few turns/millimeters. If they easily insert, everything is lined up correctly. If they are not easy to insert, slacken the 10mm screw off and try again. Once you have checked everything is lined up re-tighten the 10mm bolt. Do not overtighten any screws on the display.

Then put the Cover Panel (2) in place ensuring the ribbon cable is not caught or twisted. Insert and tighten the two 16mm screws.



Your mount is now complete!