

Emtron 8 Button CAN Keypad

USER
MANUAL
Rev 1.0



EMTRON

Contents

1.0 Description	2
2.0 Specifications	3
2.1 Software Installation procedure:	4
2.2 Hardware Installation procedure:.....	5
2.3 Hardware wiring:	7
2.4 CAN Bus wiring:.....	7
3.0 Configuration	9
3.1 Input Switches.....	10

1.0 Description

The Emtron 8 Button CAN Keypad provides a programmable switching solution which is available for all Emtron ECUs. The use of the CAN Keypad allows unique application specific user controls to be included in the ECU control strategy. The buttons can be used for a variety of inputs from simple switching to binary selectable runtimes. Three LED lights are located above each button which are used to indicate the current state of the unit.



Figure 1.0 Example of an Emtron 8 Button CAN Keypad Fitment to a Nissan GT-R R35

The keypad is supplied blank and stickers (Supplied with kit) are applied to indicate to the driver the purpose of the button once configured.

2.0 Specifications

All configuration is performed via the Emtune software.

- Keypad programming
- Device Backlight
- LED Indicator Brightness
- Individual button modes
- Individual button memories
- CAN broadcast of status

Communications:

- Single CAN Bus
- Baud Rate 1 Mbps

LED Indicator Wavelength

- RED = 640nm
- AMBER = 601nm
- GREEN = 525nm

Power:

- 8 to 22Volts
- Current limit 0.2A
- Reverse Battery Protection
- Short Circuit Protection

Operating temperature:

- -40deg C to 85deg C

Connection

- 1 x Deutsch DT4 Connector

2.1 Software Installation procedure:

1. Connect Emtune to the ECU.
2. Firmware Version **2.15.0** or later must be used.
3. Select the CAN Bus the device is to be wired to Config-> Communications -> CAN Bus X -> CAN Bus X Channel X
4. Enable the channel
5. Select Data set 40. Emtron 8-way Keypad

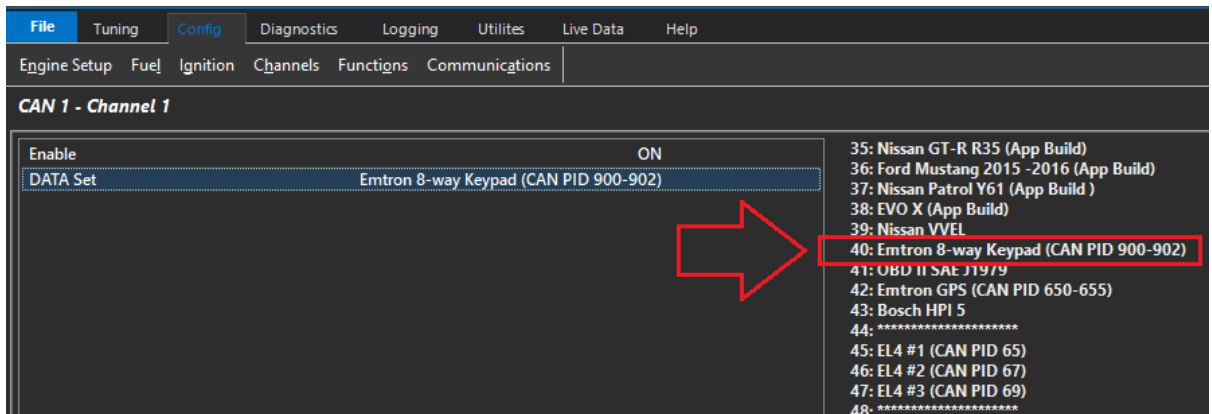


Figure 1.1 Enable Emtron 8-way Keypad on the CAN bus

2.2 Hardware Installation procedure:

The keypad should be mounted securely such that it is convenient for use by the driver.

- Mounting studs are M6 x 1.0mm (2 places shown)

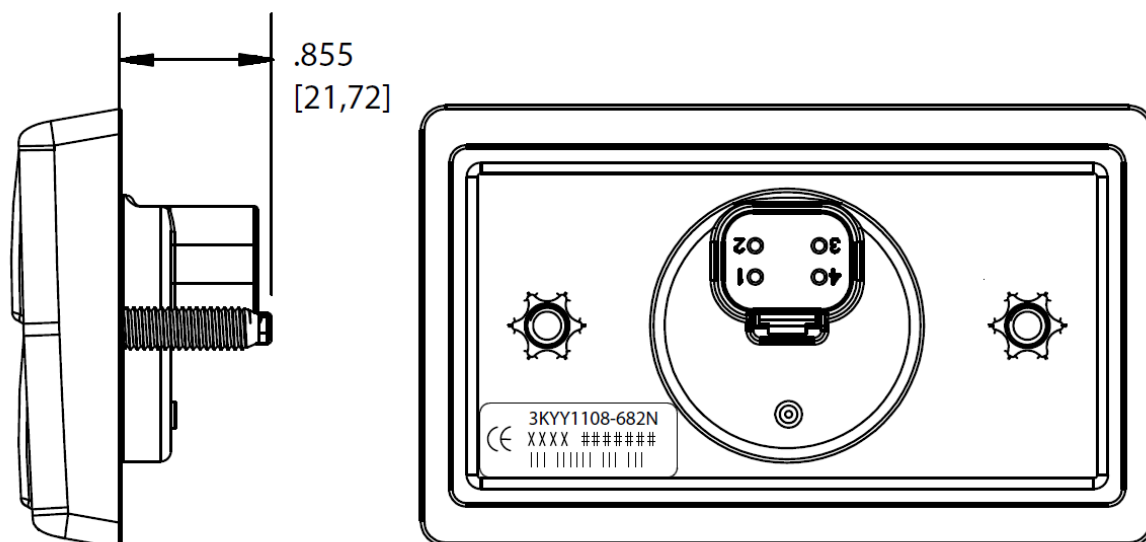


Figure 1.2 – Rear & Side View of keypad indicating mounting stud positions
NB: Image shown is not to scale

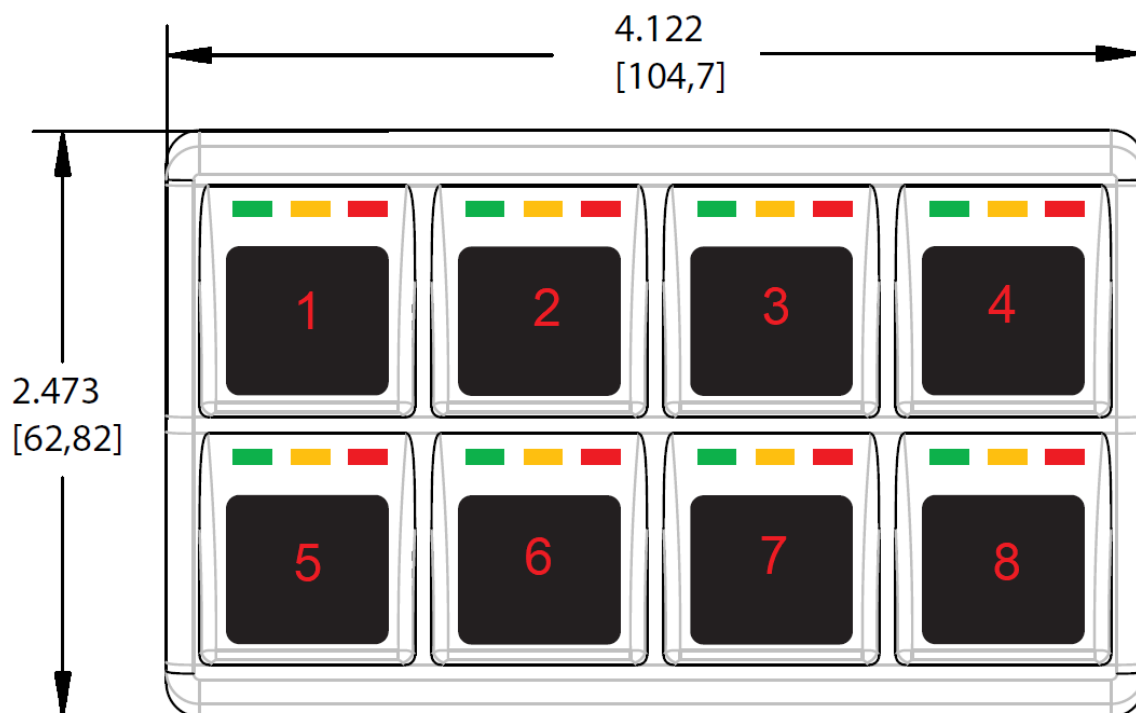
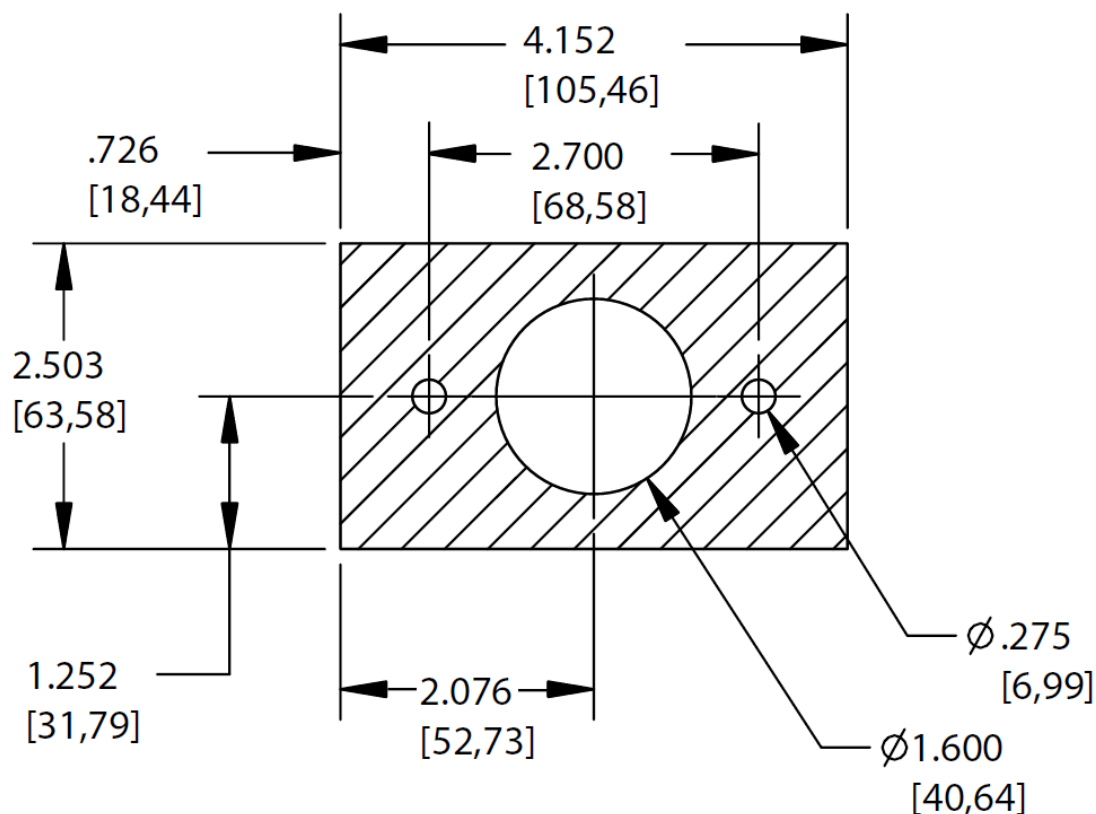


Figure 1.3 – Orientation of installed keypad shown with buttons numbers indicated.

Note: Figure 1.3 Artwork shown in negative image. The Emtron 8 Button CAN Keypad is Black with white buttons. (See Figure 1.0)



PANEL CUTOUT AND MOUNTING INFORMATION

Figure 1.4 – Panel Cut-out & mounting information to physically mount the keypad.
NB: Image shown is not shown to Scale

2.3 Hardware wiring:

Power and CAN flying loom connection to supplied DT4 connector.

Wire colours are recommended only

Pin	Function	Wire Colour
1	12V Supply	Red
2	Ground	Black
3	CAN Hi	Yellow
4	CAN Lo	Green

Table 1.0. CAN Keypad Power and CAN Deutsch Connector Pinout

2.4 CAN Bus wiring:

The 8 Button CAN Keypad device does not include an on-board CAN terminating resistor, allowing the device to be wired at any position on the Bus.

CAN termination must be done correctly by using a 120 ohm (0.25W) resistor at each end of the Bus system.

CAN bus wiring precautions

- CAN Bus High and Low are differential signals, so twisted pair **MUST** be used. Failing to do so will compromise the entire CAN Bus System.
- In some extreme environments, shielded twisted pair may be required to help with reliability and data integrity
- The less connectors in any transmission system the better. Unnecessary connectors are almost guaranteed to present an impedance discontinuity and hence may cause reflections and data loss.
- CAN Bus termination must be done correctly using 120ohm 0.25W resistor at each END of the bus system.
- Maximum Stub length to a device from the main Bus is recommended at 0.3m, in accordance with High-Speed ISO 11898 Standard specifications. See Figure 1.6

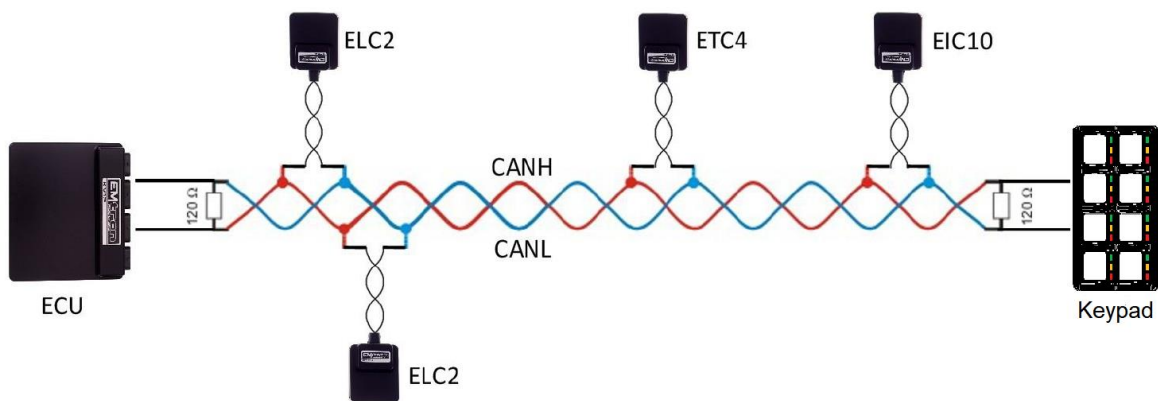


Figure 1.5: CAN Bus wiring example ECU and CAN Key Pad at each end

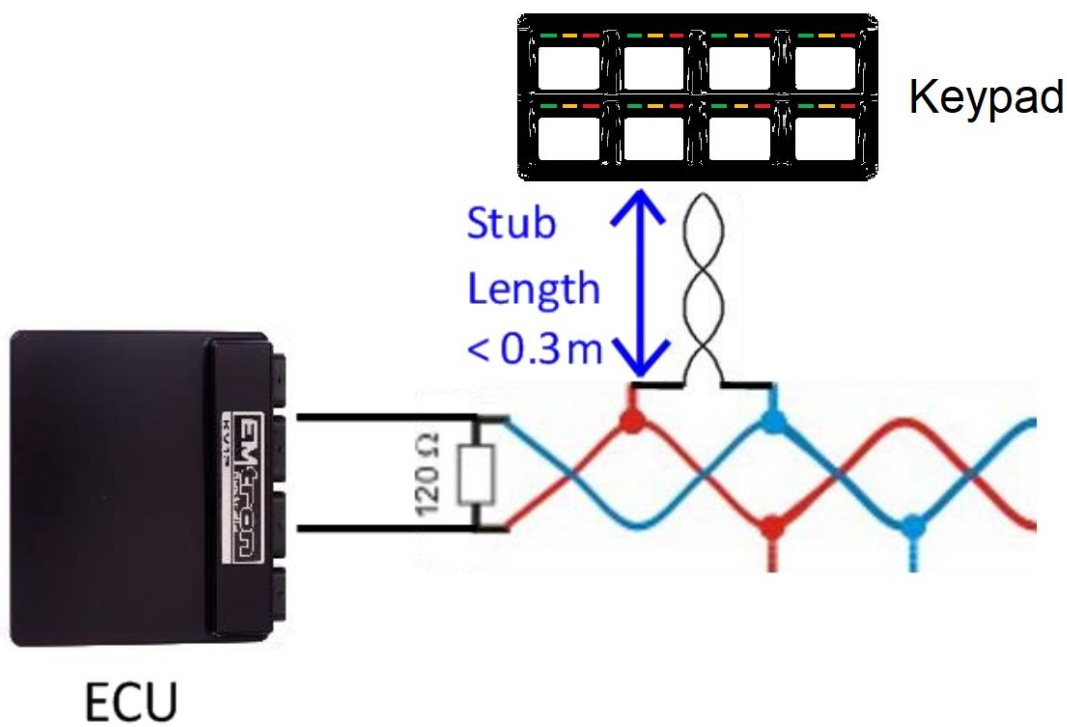


Figure 1.6: CAN Bus wiring example – Stub length less than 0.3m

3.0 Configuration

The Keypad programming is accessed via:

Config > Communications > Emtron CAN Devices > Emtron Keypad

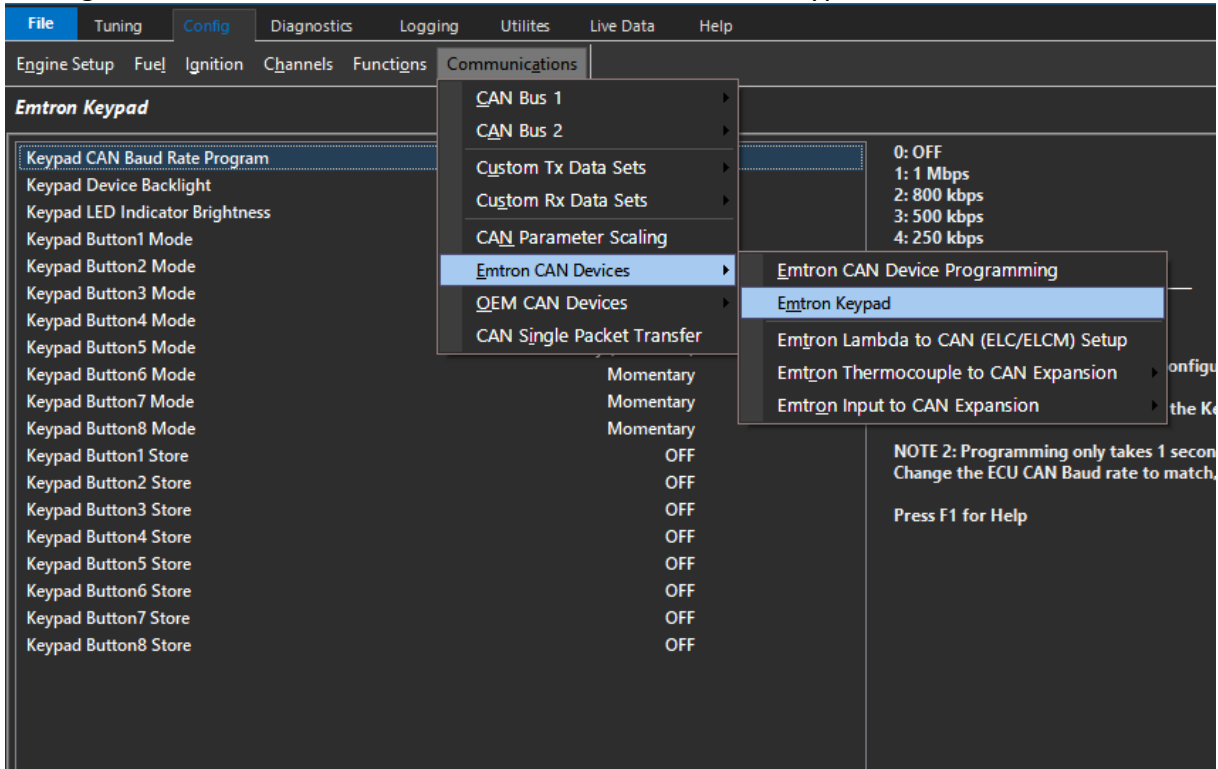


Figure 1.7 – File path to access the Keypad programming

Each switch button is individually defined, the Backlight & LED Brightness set.

The memory function for each button can also be enable is desired.

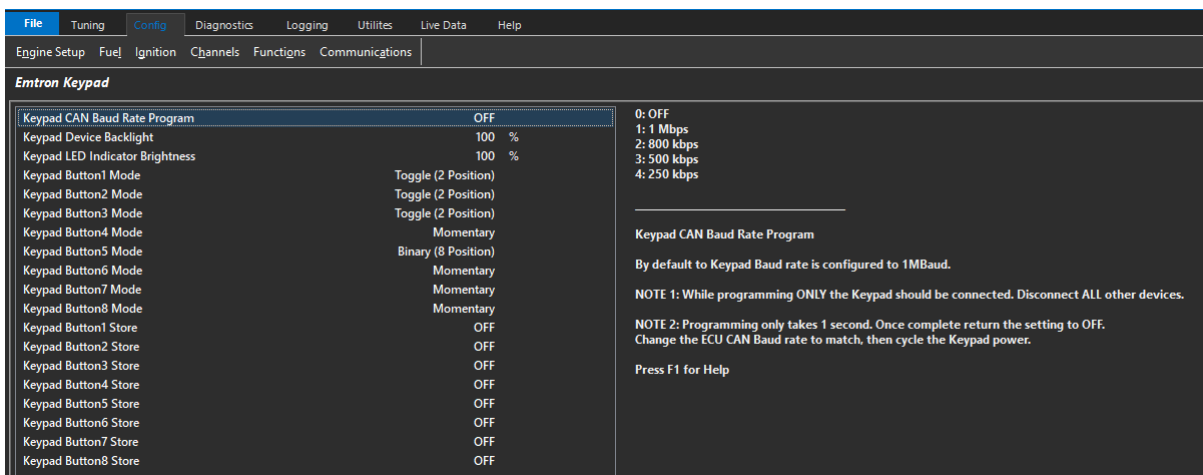


Figure 1.8 – Emtron Keypad programming page

3.1 Input Switches

Various driver demand switches can be assigned to the CAN keypad. The switch can be assigned as a pre-defined input channel or used as a user controlled runtime is a control strategy.

Channel Name	Abrv	Input	Calibration	Units	Fault Lo	Fault	Filter	Fault Low	Fault High	Fault Valu
Gearshift Force	qsF	OFF								
Gear Upshift Switch	UpShSw	OFF								
Gear Downshift Switch	DnShSw	OFF								
Reverse Lockout Switch	RevLockSw	OFF								
Gearshift Compressor Pressure	GSCompP	OFF								
Gear Cut Switch	GCEnSw	OFF								
Anti-Lag Arming Switch	ALEnSw	OFF								
Launch Enable Switch	LchENSw	Emtron Keypad Button 2	2 Point		OFF	OFF	0			
Rolling Launch Enable Switch	RoLchENS	Emtron Keypad Button 6	2 Point		OFF	OFF	0			
Traction Enable Switch	TCEnSw	Emtron Keypad Button 1	2 Point		OFF	OFF	0			
Active Centre Diff Pressure	ACDP	OFF								
Trans Brake Switch	TransBkSw	OFF								
Trans Brake Bump Switch	TransBkSw	OFF								
Nitrous Enable Switch	NosEnSw	OFF								
Nitrous Bottle Pressure	NosPres	OFF								

Figure 1.9 – Examples of switched inputs set to CAN keypad buttons

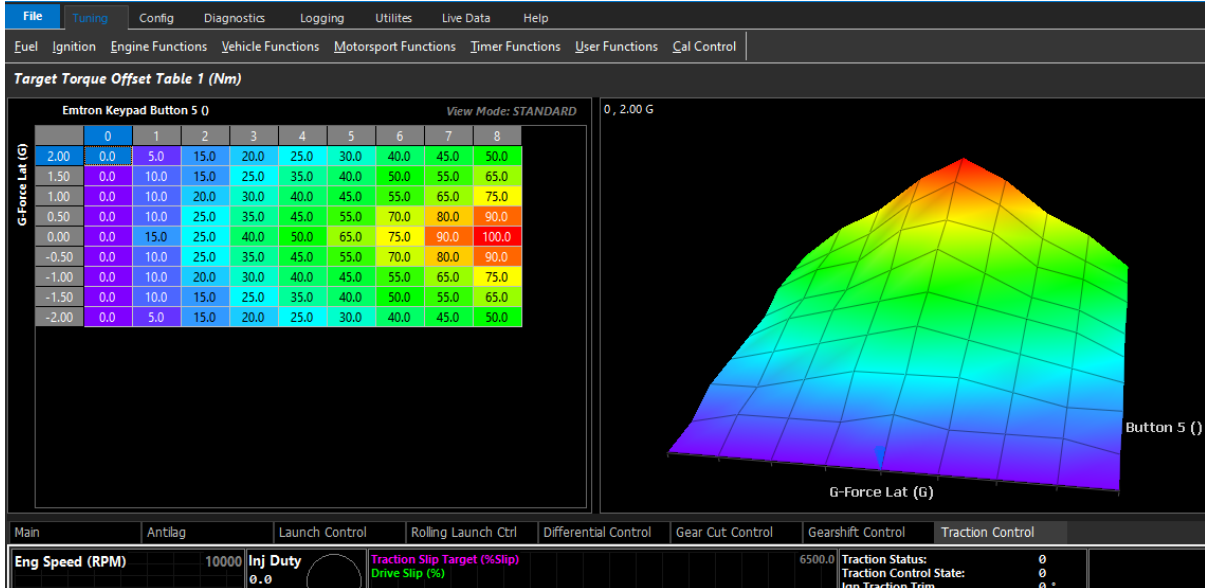


Figure 2.0 – Example of table runtime use of CAN button

The use of the keypad is only limited by the imagination of the user.

