Emtron Thermocouple to CAN

USER MANUAL

Rev 1.0

ETC4/ ETC8M

EMtron Australia

Kit Contents

When purchasing an ETC4 the following items are included:

- ETC4 Device with Flying Harness
- Deustch DTM 4-way connector and female pins (DTM06-4S)
- Deustch DTM 12-way connector and male pins (DTM04-12PA)

ETC 4 kit pictured.

When purchasing an ELC2M the loom side mating Autosport connector is not included but can be purchased separately.

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1.0 Description

The Emtron Thermocouple (EGT) to CAN devices are available in both Standard and Mil Spec versions.

ETC8M

The ETC8M is a Mil Spec 8 Channel Thermocouple to CAN device using the Motorsport proven Deutsch Autosport connector(Red).

The enclosure is made from billet 6061 aluminium and is water proof to allow for implementation in extreme environments.

ETC4

The ETC4 us a 4 channel Thermocouple to CAN device with a concentric twisted flying loom system, terminated with the reliable and environmentally sealed Deutsch DTM connector. The water proof enclosure is extremely compact and made from billet 6061 aluminium.

Both devices accurately measure the exhaust gas temperature or cylinder head temperature using K-type thermocouples with a range of - 50 to 1350 Degrees Celsius. The device is connected to the ECU via CAN bus and will be automatically detected, significantly minimising configuration time.

2.0 Specification

Power Supply

- Operating Voltage: 7.0 to 22.0 Volts DC
- Operating Current: 25mA (ETC4) and 30mA (ETC8M) at 14.0V
- Reverse Battery Protection: 0mA current draw
- Battery Transient/Over Current Protection

Internal

- 64MHz 16-bit Automotive Processor
- Instrumentation Amplifier for K-Type voltage measurement with precise gain control and protected inputs.
- Built-in cold junction compensation
- Thermocouple open circuit fault detection

Inputs - General

- K-Type Thermocouple Inputs.
  - Range: - 50 to 1350 Degrees Celsius (DegC)
  - Resolution 1 DegC
- Sampling rate 500 Hz
  - Resolution: 1.22mV (12 Bit)
- Internal or External Cold Junction Correction
  - Range: - 50 to 150Degrees Celsius (DegC)
  - Resolution 1 DegC

ETC8M

- 8x K-Type Thermocouple Inputs
- 1x External Cold Junction Input

ETC4

- 4x K-Type Thermocouple Inputs.
- 1x External Cold Junction Input

Communications

- CAN 2.0B Baud Rate: 250kBaud, 500kBaud or 1Mbaud Auto Detect
- CAN Transmit Rate Adjustable: 50Hz/100Hz/200Hz/500 Hz

Operating Temperature

- Operating Temperature Range: -30 to 100°C (-22 to 212°F)

Physical

ETC8M

- Enclosure Size 52 mm x 74 mm x 18 mm
- 125g

ETC4

- Enclosure Size 63mm x 54 mm x 20mm
- 160g

3.0 Installation

Each device has a M4 x 1.5 thread tapped into the base of the enclosure and can be used for mounting. In high vibration applications rubber mounting is recommended.

CAUTION: When mounting the device inside the engine compartment, it should be positioned in cooler areas and away from heat sources such as exhaust manifolds. Any unnecessary radiated heat may affect device performance.

3.1 ETC4 Pinout

The pinouts are shown below in Table 3.0 and Table 3.1.

Power and CAN Flying Loom Connector: DTM 4 pin (M).

Pin	Function	Wire Colour
1	Ground	BLACK
2	CAN Lo	GREEN
3	CAN Hi	YELLOW
4	12V Supply	RED

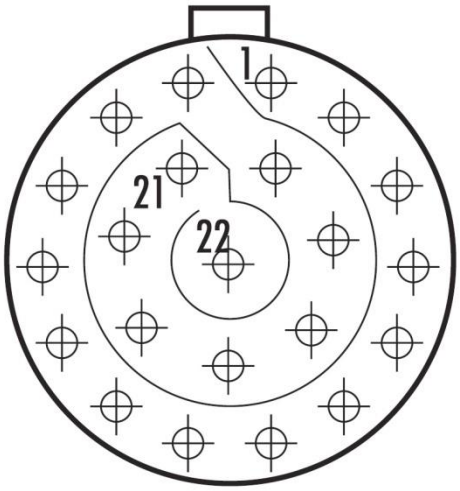
Table 3.0. ETC4 Power and CAN Deustch Connector Pinout

Thermocouple Flying Loom Connector: DTM 12 pin (F).

Pin	Function	Wire Colour
1	EGT 1+	BRN
2	EGT 2+	BLUE
3	EGT 3+	GREY
4	EGT 4+	W/GREY
5	NC	W/BLUE
6	External Cold Junction	W/BRN
7	Analog Sensor 0V Reference	W/RED
8	NC	W/BLACK
9	EGT 4-	W/OR
10	EGT 3-	OR
11	EGT 2-	WHITE
12	EGT 1-	PUR

Table 3.1. ETC4 Deustch Connector Pinout (DTM06-12SA)

3.2 ETC8M Pinout



Mating Connector Loom Side (Deutsch Autosport AS Series)
AS612-35SN(Red)

Pin	Function	
1	14 V Supply	
2	Ground	
3	CAN Hi	
4	CAN Lo	
5	EGT 1-	
6	EGT 1+	
7	EGT 2-	
8	EGT 2+	
9	EGT 3-	
10	EGT 3+	
11	EGT 4-	
12	EGT 4+	
13	EGT 5-	
14	EGT 5+	
15	EGT 6-	
16	EGT 6+	
17	EGT 7-	
18	EGT 7+	
19	EGT 8-	
20	EGT 8+	
21	Cold Junction Input (External)	
22	0V Analog Sensor Reference	

Table3.2. ETC8M Pinout

3.3 CAN Bus

The ETC4 or ETC8M can be connected to the ECUs CAN Bus 1 or 2.

All devices on the CAN Bus must be configured to use the same baud rate. For this reason, all Emtron CAN devices will Auto-scan the CAN bus until a successful baud rate has been detected. Once detected this rate will be stored and used at the next power up.

The device will scan 3 different Baud rates at 500ms intervals moving from 1Mbaud -> 500kBaud -> 250k Baud -> 1Mbaud and so on.

NOTE: For this process to function effectively, when **new** devices are introduced to the CAN bus, they should initially be connected **one at a time.** This allows each device to sync up to the CAN Bus baud rate and store that setting. This typically takes 3-5 seconds.

The ETC4 and ETC8M leave the factory programmed with individual serial numbers, but all have the same Base CAN Address ID used to transmit data over the Bus. The CAN Base address can be adjusted from the factory setting using the ID Reprogramming Tool. This is required when 2 or more of the same devices are connected to the CAN Bus (See section 4.2)

ETC4.

- Factory CAN Base Address of 691 only. Total CAN ID Range is therefore 691.
- Up to 3x ETC4 devices can be used on the CAN Bus giving a total of 12 available EGT Input Channels.

ETC8M.

- Factory CAN Base Address of 700. Transmits data sequentially on the next ID. Total CAN ID Range is therefore 700 – 701.
- Up to 2x ETC8M devices can be used on the CAN Bus giving a total of 16 available EGT Input Channels.

3.4 Thermocouple Polarity

The polarity of the thermocouple is critical and must be connected to the correct input. In most applications the red cable is the negative (–) and the yellow is the positive (+). Some sensors may also have a blue or black as the positive which is counter intuitive to conventional wiring methods.

3.5 Cold Junction Compensation

Both the ETC8M and ETC4 offer 2 options for Cold Junction compensation:

- Built-in
- External Input

Built-in Compensation(Default)

The device has an internal temperature sensor that measures the temperature of the connector so cold junction temperature compensation can be applied. This is the default mode used when the external input is not connected.

With this setup, the thermocouple wire should be connected directly to the device. If the wires must be extended, then matching thermocouple wire should be used.

External Input

The Input is pre-calibrated to use a standard Bosch NTC 2k5 Ohm at 20°C calibration with a 1K Ohm pullup resistor and temperature range of -30°C to 150°C. When the external input is connected to a sensor, the measured temperature is used for Cold Junction correction. For the ETC8M, connect the sensor to pins 21 and 22. For the ETC4, connect the sensor to pins 11 and 12 of the 12-way DTM connector.

3.6 Noise Immunity

To minimise signal contamination and maximise noise immunity, the wire pairs shown in Table 3.2 must be twisted. It is recommended to twist the wire pairs at a minimum one twist per 40mm of cable. This is very important and should always be implemented.

Pair 1		Pair 2
CAN High	<------->	CAN Low

Table 3.3. CAN Hi and Lo wire pairing for twisting

3.7 CAN Bus Wiring

- 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 by using a 120 ohm 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 specification. See Figure 3.3.

The ETC8M or ETC4 devices do **not** include an on-board CAN termination resistor, allowing the device to be wired at any position on the Bus. CAN Bus termination must be done correctly by using a 120 ohm 0.25W resistor at each end of the bus system as mentioned above. Figures 3.1 and 3.2 show possible CAN Bus Implementation examples.

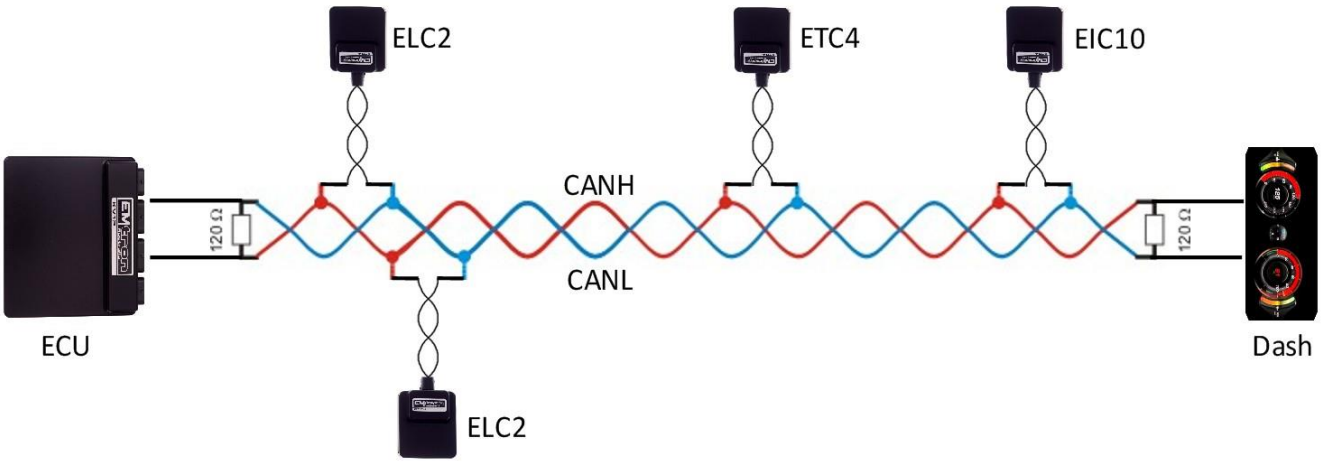


Figure 3.1. CAN Bus Wiring Example. ECU and Dash at each end with 120 Ohm Termination

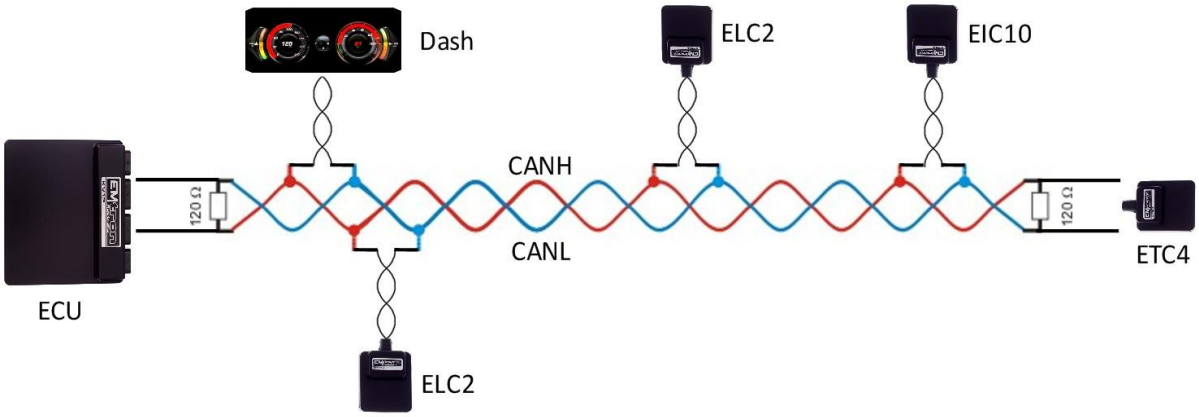


Figure 3.2. CAN Bus Wiring Example. ECU and ETC4 at each end with 120 Ohm Termination

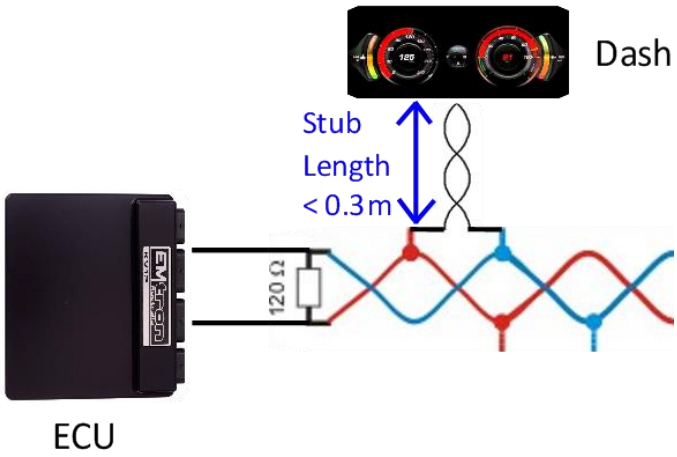


Figure 3.3. CAN Bus Wiring Example. Stub Length less than 0.3m

4.0 ETC Device Configuration

Once the ETC4 or ETC8M is powered and connected to the ECU's CAN bus, the following steps should be taken to complete the setup. All setup and device monitoring is done using Emtune so this software needs to be installed and connected to the ECU.

NOTE: When a Thermocouple Input has been detected as Open Circuit, the Fault Value of -50.0 DegC will be transmitted over the CAN Bus.

4.1 ETC Single Device Setup

This section outlines the setup procedure for a single device and involves 3 steps:

1. Device Detection by the ECU
2. ECU CAN Bus configuration
3. ETC Live Data Monitoring

4.11 ETC Device Detection

To confirm the ETC device has been detected, connect to the ECU using Emtune. Open the ECU Runtime menu (F3) and select the Communications Tab. Within this tab there will be a list of Emtron CAN devices that the ECU has detected. It will list:

1. CAN Device Model
2. Device Serial Number
3. Device Firmware Version
4. Device Hardware Version
5. CAN Base Address ID

With a single ETC4 device connected, the data should look as shown in Figure 4.0. With a single ETC8M device connected, the data should look as shown in Figure 4.1.

Important:

- At this stage the ECU has only detected the device. It has not been configured to an ECU CAN Channel so the ETC data is not yet available.
- Note the CAN Base Address ID. This is required in the ECU CAN setup. The factory setting is ID 691 for the ETC4, and ID 700 for the ETC8M.

CAN Device List		Device SN		Device FW Ver		Device HW Ver		CAN Base Addr	
CAN Slot 1:	ETC4	SN:	722	Ver:	24	Ver:	16	CAN ID:	691
CAN Slot 2:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0
CAN Slot 3:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0
CAN Slot 4:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0
CAN Slot 5:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0
CAN Slot 6:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0

Figure 4.0. ETC4 connected to the CAN Bus

CAN Device List		Device SN		Device FW Ver		Device HW Ver		CAN Base Addr	
CAN Slot 1:	ETC8M	SN:	1210	Ver:	24	Ver:	16	CAN ID:	700
CAN Slot 2:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0
CAN Slot 3:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0
CAN Slot 4:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0
CAN Slot 5:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0
CAN Slot 6:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0

Figure 4.1. ETC8M connected to the CAN Bus

4.12 ECU CAN Configuration for Single Device

Next step is to configure an ECU CAN channel allowing the ECU to decode the ETC CAN packets.

For this example, CAN 1- Channel 3 has been selected.

1. Set “Enable" to 1(ON)”
2. Set "CAN Base Address" to the Base Address shown in Figure 4.0 / 4.1. In this example select 691 for ETC4 or 700 for ETC8M.
3. **ETC4**. Set "DATA Set" to 60 (ETC4 1x Device). See Figure 4.2
   ETC8M. Set "DATA Set" to 65 (ETC8M 1x Device). See Figure 4.3

CAN 1 - Channel 3	
Enable	ON
CAN Base Address	691
DATA Set	Emtron ETC4 1x Device (CAN PID 691)
Addressing	Sequential (11-BIT)
Direction	Transmitt
Transmitt Rate	100 Hz

Figure 4.2. ETC4 CAN Configuration

CAN 1 - Channel 3	
Enable	ON
CAN Base Address	700
DATA Set	Emtron ETC8M 1x Device (CAN PID 700-...
Addressing	Single (11-BIT)
Direction	Transmitt
Transmitt Rate	100 Hz

Figure 4.3. ETC8M CAN Configuration

4.13 ETC Data Monitoring for Single Device

To confirm the ETC data is being decoded by the ECU, open the runtime menu (F3) -> Emtron CAN Device Tab. The ETC4/ETC8M EGT and Cold Junction Temperatures live data can be viewed. See Figure 4.4 and 4.5.

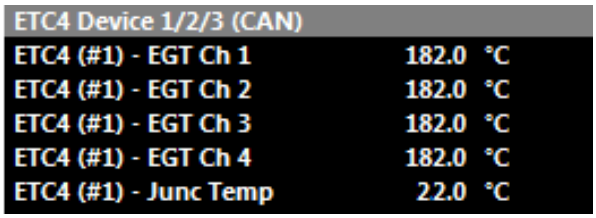


Figure 4.4. ETC4 Live Data – x1 Device

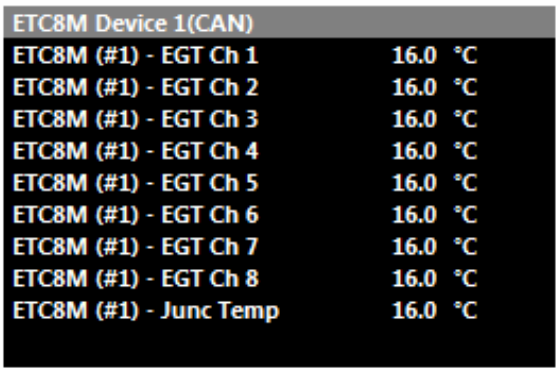


Figure 4.5. ETC8M Lice Data – 1x Device

4.2 ETC Multiple Device Setup

As mentioned in section 3.4, the Base CAN Address ID used to transmit Data over the Bus by default is the same for each device type. The ETC4 has a factory CAN Base Address of 691 and ETC8M has a CAN Base Address of 700. When multiple ETC4/ETC8M devices are installed on the same CAN Bus, each device **MUST** have a unique CAN Base Address to avoid Bus conflicts. This means the CAN Base Address ID will need to be reprogrammed which is a simple task using the ID Reprogramming Tool as outlined in section 4.22.

REMEMBER: For this process to function effectively, when multiple **new** devices are introduced to the CAN bus, they should be initially connected **one at a time.** This allows each device to sync up to the CAN Bus baud rate and store that setting. This usually takes 3-5 seconds.

4.21 ETC Multiple Device Detection

The following example uses the ETC4, but the outlined setup procedure still applies to the ETC8M. Connect to the ECU using Emtune. Open the ECU Runtime menu (F3) and select the Communications Tab. Within this tab will be a list of Emtron CAN devices that the ECU has detected. It will list:

1. CAN Device Model
2. Device Serial Number
3. Device Firmware Version
4. Device Hardware Version
5. CAN Base Address

With 3x ETC4 devices connected to the CAN bus, the CAN Summary List should look similar to that shown in Figure 4.6. In this example the following devices have been detected:

- Device 1 - SN 1226
- Device 2 - SN 1222
- Device 3 - SN 1229.

CAN Device List		Device SN		Device FW Ver		Device HW Ver		CAN Base Addr	
CAN Slot 1:	ETC4	SN:	1226	Ver:	24	Ver:	16	CAN ID:	691
CAN Slot 2:	ETC4	SN:	1222	Ver:	24	Ver:	16	CAN ID:	691
CAN Slot 3:	ETC4	SN:	1229	Ver:	24	Ver:	16	CAN ID:	691
CAN Slot 4:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0
CAN Slot 5:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0
CAN Slot 6:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0

Figure 4.6 Example showing three ETC4 devices detected by the ECU

Note: ALL devices have the same Base Address of ID 691, which is the factory setting for a single device. To avoid Bus conflicts, the factory base address needs to be changed when multiple devices are used, to ensure each device has its own unique ID. When re-programming the Base Address for each device the IDs MUST be:

1) Sequential in order.
2) Have a gap of 1 number between each ETC4 device.
3) Have a gap of 2 numbers between each ECT8M device.

The Base Address ID can be any number but Emtron recommends the following:

- ETC4 Device 1: ID Base Address 691 (CAN ID Range = 691)
- ETC4 Device 2: ID Base Address 692 (CAN ID Range = 692)
- ETC4 Device 3: ID Base Address 693 (CAN ID Range = 693)

The following addresses are recommended for the ETC8M devices:

- ETC8M Device 1: ID Base Address 700 (CAN ID Range = 700 -701)
- ETC8M Device 2: ID Base Address 702 (CAN ID Range = 702 -703)

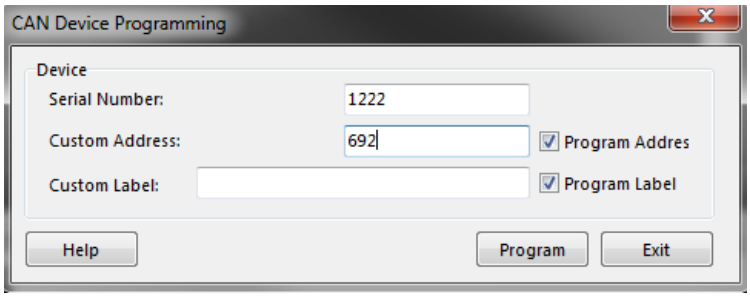
4.22 ETC CAN Base Address ID Reprogramming

To ensure each ETC device has a unique ID from the example in Figure 4.6, ETC4 Device 2 needs a new Base Address of 692 and ETC4 Device 3 needs a new Base Address of 693.

This is easily done using Emtune from the Config view -> Communications Menu -> Emtron CAN Devices -> Emtron CAN Device Programming menu.

Device 2 ID Reprogramming
Enter in Serial Number = 1222
Enter in Custom Address = 692

Make sure the “Program Address” checkbox is ticked.



Select the “Program” button and the new Custom Address ID will be programmed into the device.

Device 3 ID Reprogramming

Repeat the process for ETC4 SN 1229 and program with Custom Address 693.

To check the device(s) have been programmed correctly with the new Base Address IDs, open the F3 menu -> Communications Tab. Each device now has a unique Base Address ID. See Figure 4.8.

CAN Device List		Device SN		Device FW Ver		Device HW Ver		CAN Base Addr	
CAN Slot 1:	ETC4	SN:	1226	Ver:	24	Ver:	16	CAN ID:	691
CAN Slot 2:	ETC4	SN:	1222	Ver:	24	Ver:	16	CAN ID:	692
CAN Slot 3:	ETC4	SN:	1229	Ver:	24	Ver:	16	CAN ID:	693
CAN Slot 4:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0
CAN Slot 5:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0
CAN Slot 6:	Offline	SN:	0	Ver:	0	Ver:	0	CAN ID:	0

Figure 4.8. 3x ETC4 Devices detected by the ECU with reprogrammed IDs

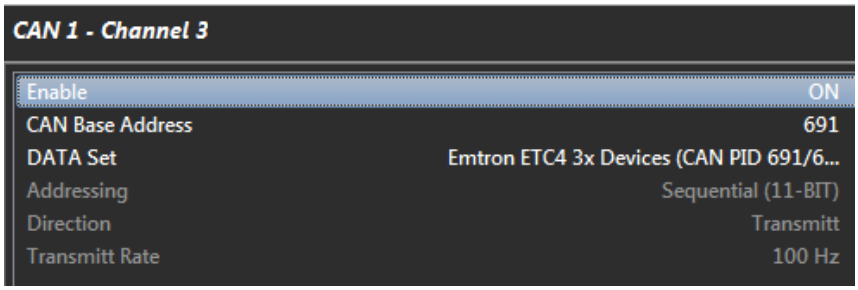
Each device now as a unique CAN Base Address ID and will be transmitting valid data on the Bus.

4.23 ECU CAN Configuration for Multiple Devices

Next step is to configure an ECU CAN channel, allowing the ECU to decode the ECT4 CAN packets.

Only 1 CAN Channel is required for multiple devices. CAN 1 - Channel 3 has been selected. Config as follows:

1. Set “Enable" to 1(ON)”
2. Set "CAN Base Address" to the **Lowest** Base Address ID shown in Figure 4.8. In this example its 691
3. Set "DATA Set" to 62 - Emtron ETC4 3x Devices (CAN PID 691/692/693). (Select Option 61 for 2x ETC4 devices)



The ECU is now configured and will receive data from all 3 devices on IDs 691, 692, 693. **NOTE**. You only need to program in the lowest Base Address. The ECU automatically configures the remaining IDs based on the assumption the IDs are sequential in order.

4.24 ETC Data Monitoring for Multiple Devices

To confirm the ETC data is being decoded by the ECU, open the runtime menu (F3) -> Emtron CAN Device Tab to view the live data. See Figure 4.10. ETC8M Live data is also available.

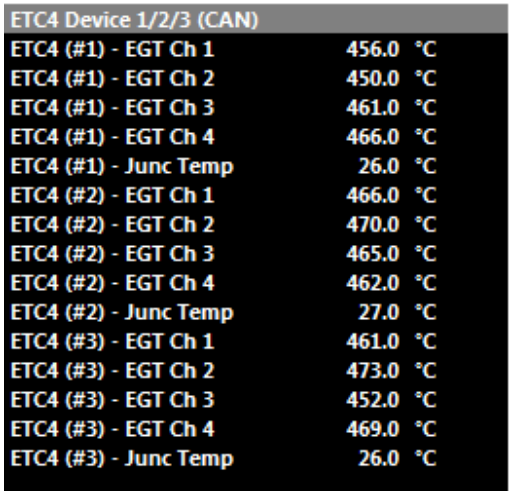


Figure 4.10. CAN Data from 3x ETC Devices

5.0 ECU Channel Configuration

Once the ECU has been configured to receive the EIC4/ECIC16M data, the next step is assigning the data to an ECU channel(s).

The following example shows ECU Channels “Exhaust Gas Temp Cyl1 -4” being assigned to ETC4 Device 1, “Exhaust Gas Temp Cyl 5 -8” being assigned to ETC4 Device 2 and “Exhaust Gas Temp Cyl9 -12” being assigned to ETC4 Device 3.

Select Config View-> Channels -> Inputs Setup -> EGT Tab. Select “Exhaust Gas temp Cyl 1” and open the Input Setup menu as shown below in Figure 5.0.

- Set Input Source = CAN ETC4 #1 Ch-1
- Filter = 0 (normally not required as filtering is done by the ETC4 device)
- Calibration Type = Predefined
- Predefined Calibration = CAN – EGT 1:1 Scaling or ETC8M/ETC4 1:1 Scaling
  NOTE: the CAN values can be scaled using the 2D calibration if required by selecting the Calibration Type to “Custom”
- Repeat the process for the remaining 11 channels. The Inputs EGT Tab should look at shown in Figure 5.1.

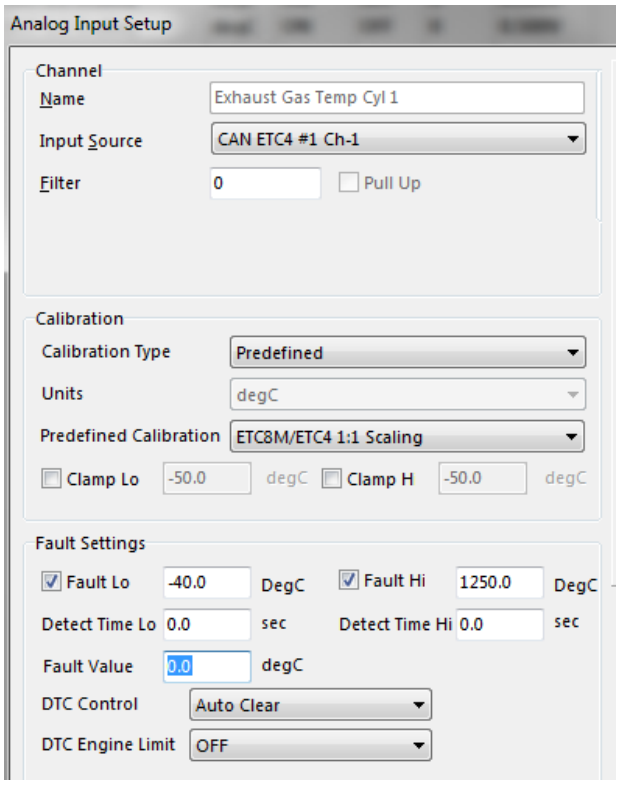


Figure 5.0.

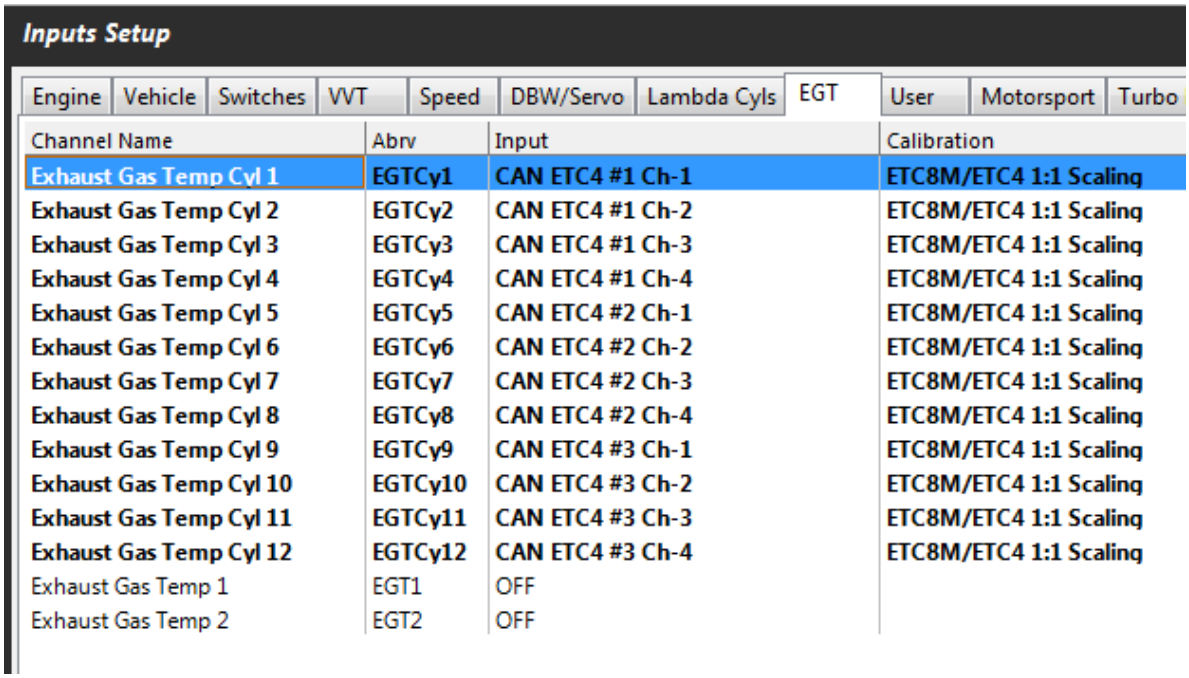


Figure 5.1. ECU EGT Input channels assigned to ETC4 CAN data

6.0 ETC Custom Device Setting

The EGT data Transmit rate is adjustable on the ECT4 and ETC8M, with the following options:

- 200Hz (Default)
- 50Hz
- 100Hz
- 500Hz

This setting can be configured using Emtune from the Config View -> Communications Tab -> CAN Device ->Emtron Thermocouple to CAN Setup menu. The Default value is 200Hz. It can be adjusted to suit the application and available CAN Bandwidth. See Figure 6.0/6.1

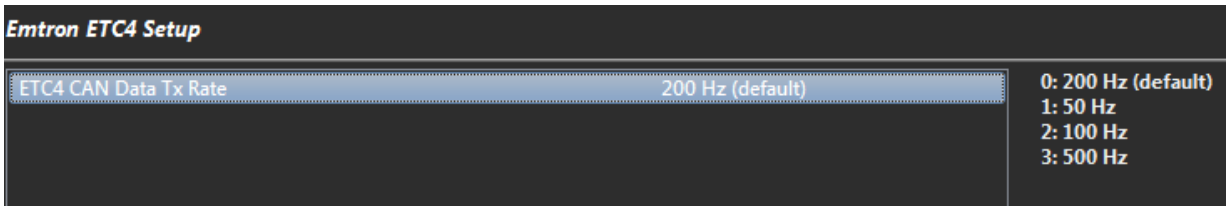


Figure 6.0. ETC4 Transmit Rate setup

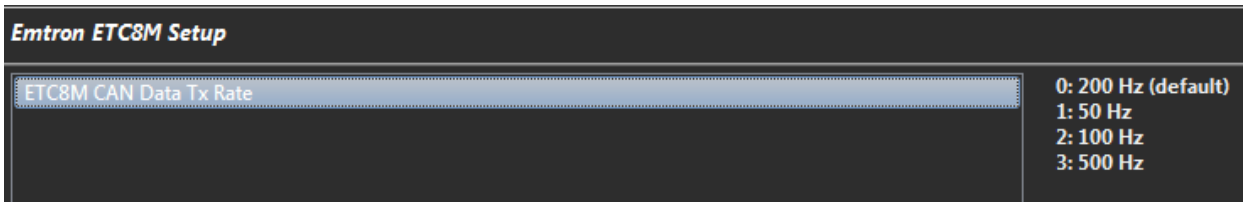


Figure 6.1. ETC8M Transmit Rate setup

NOTE: Once changed, the setting is automatically stored by the ETC device and therefore used on the next power cycle.

7.0 Ordering Information

Product	Part Number
Emtron ETC4	5203-4
Emtron ETC8M	5203-813

Appendices

Appendix 1. CAN Bus Data Packaging

This section outlines the CAN Protocol used to communicate with the EIC device(s). If the device is connected to an Emtron ECU, the CAN Bus packet is automatically decoded when correct CAN Dataset is selected and no additional setup is required. For more information refer to Section 4.0.

This section provides more detailed information on the CAN ID data structure and requires an understanding of both CAN protocols and data packaging.

Baud Rate

The ETC will Auto-scan the CAN bus until a successful baud rate has been detected. Once detected this rate will be stored by the device and used at the next power up.

The device will scan 3 different Baud rates at 500ms intervals moving from 1Mbaud -> 500kBaud -> 250k Baud -> 1Mbaud and so on.

ETC4 CAN Data Format

ID	691 /0x2B3 (Default)
Data	Temperature
ID Type	Standard 11-bit identifier
Direction	Transmit from Device
Length	7 bytes
Tx Rate	Adjustable (50/100/200/500 Hz)

CAN ID	Name	Start bit	Length (bits)	Byte Order	Data Type
691/0x2BC	EGT Channel 1	0	12	Little Endian	Unsigned
	EGT Channel 2	12	12	Little Endian	Unsigned
	EGT Channel 3	24	12	Little Endian	Unsigned
	EGT Channel 4	36	12	Little Endian	Unsigned
	Cold Junc. Temp	48	8	Little Endian	Unsigned

Continuation:

CAN ID	Name	Multiplier	Offset	Units	Example
691/0x2BC	EGT Channel 1	1	-50	DegC	CAN 900 = 850 DegC
	EGT Channel 2	1	-50	DegC	
	EGT Channel 3	1	-50	DegC	
	EGT Channel 4	1	-50	DegC	
	Cold Junc. Temp	1	-50	DegC	CAN 68 = 18 DegC

ETC8M CAN Data Format

ID	700 /0x2BC (Default)
Data	Temperature
ID Type	Standard 11-bit identifier
Direction	Transmit from Device
Length	7 bytes
Tx Rate	Adjustable (50/100/200/500 Hz)

CAN ID	Name	Start bit	Length (bits)	Byte Order	Data Type
700/0x2BC	EGT Channel 1	0	12	Little Endian	Unsigned
	EGT Channel 2	12	12	Little Endian	Unsigned
	EGT Channel 3	24	12	Little Endian	Unsigned
	EGT Channel 4	36	12	Little Endian	Unsigned
	Cold Junc. Temp	48	8	Little Endian	Unsigned

Continuation:

CAN ID	Name	Multiplier	Offset	Units	Example
700/0x2BC	EGT Channel 1	1	-50	DegC	CAN 900 = 850 DegC
	EGT Channel 2	1	-50	DegC	
	EGT Channel 3	1	-50	DegC	
	EGT Channel 4	1	-50	DegC	
	Cold Junc. Temp	1	-50	DegC	CAN 68 = 18 DegC

ID	701 /0x2BD (Default)
Data	Temperature
ID Type	Standard 11-bit identifier
Direction	Transmit from Device
Length	6 bytes
Tx Rate	Adjustable (50/100/200/500 Hz)

CAN ID	Name	Start bit	Length (bits)	Byte Order	Data Type
701/0x2BD	EGT Channel 5	0	12	Little Endian	Unsigned
	EGT Channel 6	12	12	Little Endian	Unsigned
	EGT Channel 7	24	12	Little Endian	Unsigned
	EGT Channel 8	36	12	Little Endian	Unsigned

Continuation:

CAN ID	Name	Multiplier	Offset	Units	Example
701/0x2BD	EGT Channel 5	1	-50	DegC	CAN 900 = 850 DegC
	EGT Channel 6	1	-50	DegC	
	EGT Channel 7	1	-50	DegC	
	EGT Channel 8	1	-50	DegC	

Emtron Australia Pty Ltd
Unit 8, 36 Lidco Street
Arndell Park NSW 2148
Australia

(See the www for contact information)

www.emtron.world
www.emtronaustralia.com.au