

Document Number		DTN0005	
Title		ADL data to M800 via CAN comms	
Approved By			
Revision	Date	Prepared By	Change History
Draft	13/01/2005	SF	

Introduction

This document outlines the procedure for transmission of data from an ADL to an M800 ECU via CAN comms. Note that this also applies to the M400, M600 and M880 ECUs. Up to 12 channels can be transmitted to the ECU.

Requirements

Dash Manager 3.1 or later

ECU Manager 3.10G2 (alpha) and ECU firmware 3.10L or later

ADL Configuration

In Dash Manager, select '*Inputs – Communications*' from the menu. Go to the first unused CAN tab and click on '*Advanced*'. Then change the following parameters:

Device: Transmit Message

Message Type: Compound

Transmit Rate: 50Hz – note that this can be less depending on the update rate required

Base Address: 123 – note that the Base Address chosen here is arbitrary. In the ADL this value is in hexadecimal. This value will be used in the ECU – as a decimal value. So 0x123 = 291 dec.

CAN2 Comms Setup -

Parameters | Transmitted Channels

Parameters:

Device: **Transmit Message**

Format: **Fixed Binary**

Alignment: **Normal**

Address Format: ☒ Standard ☐ Extended

Base Address: **123**

Transmit Rate: **50 Hz**

Receive Timeout: **2200** (milliseconds)

Template:

Load... Save As...

Diagnostic Channel:

Comms CAN 2 Diagnostic

Select Clear

Message Type:

☐ Single ☒ **Compound**

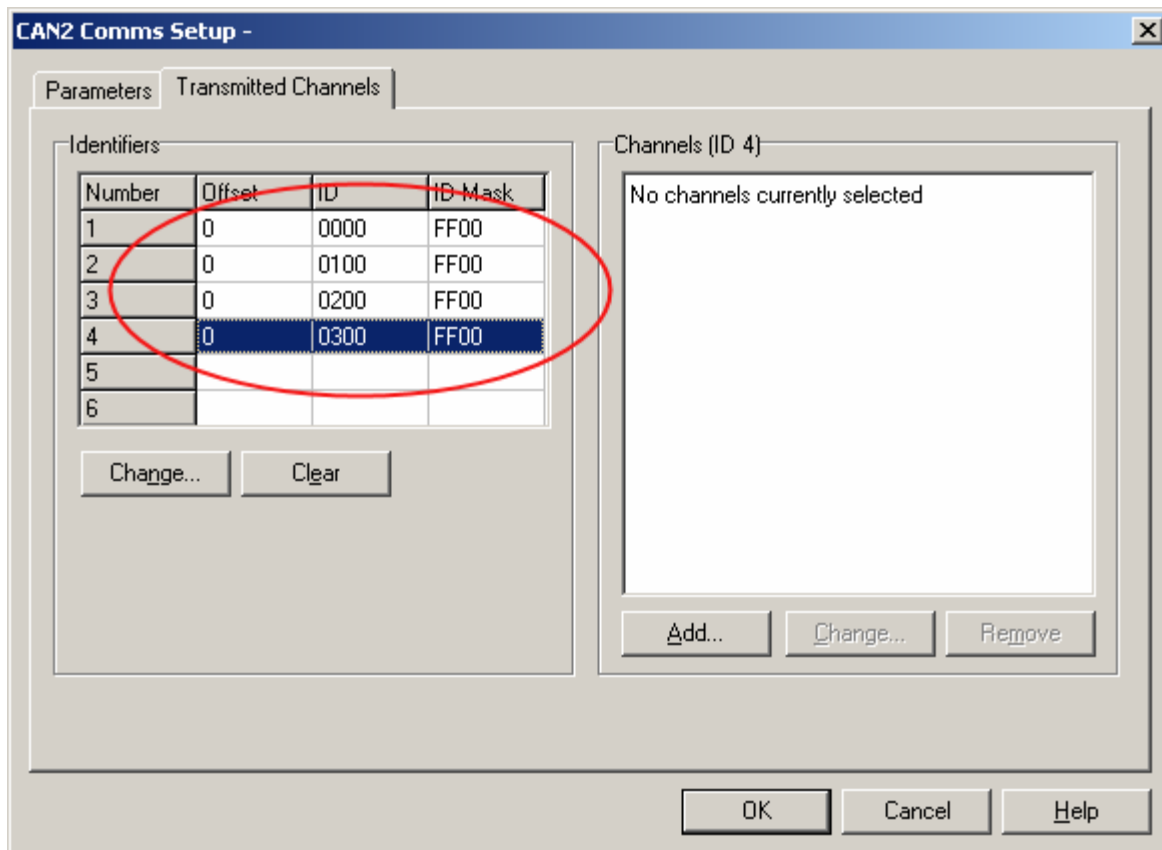
OK Cancel Help

Next click on the '*Transmitted Channels*' tab. This is where we select the channels that are going to be transmitted. First we need to set the Compound Ids. Up to four compound identifiers can be used, each can contain up to 3 channels.

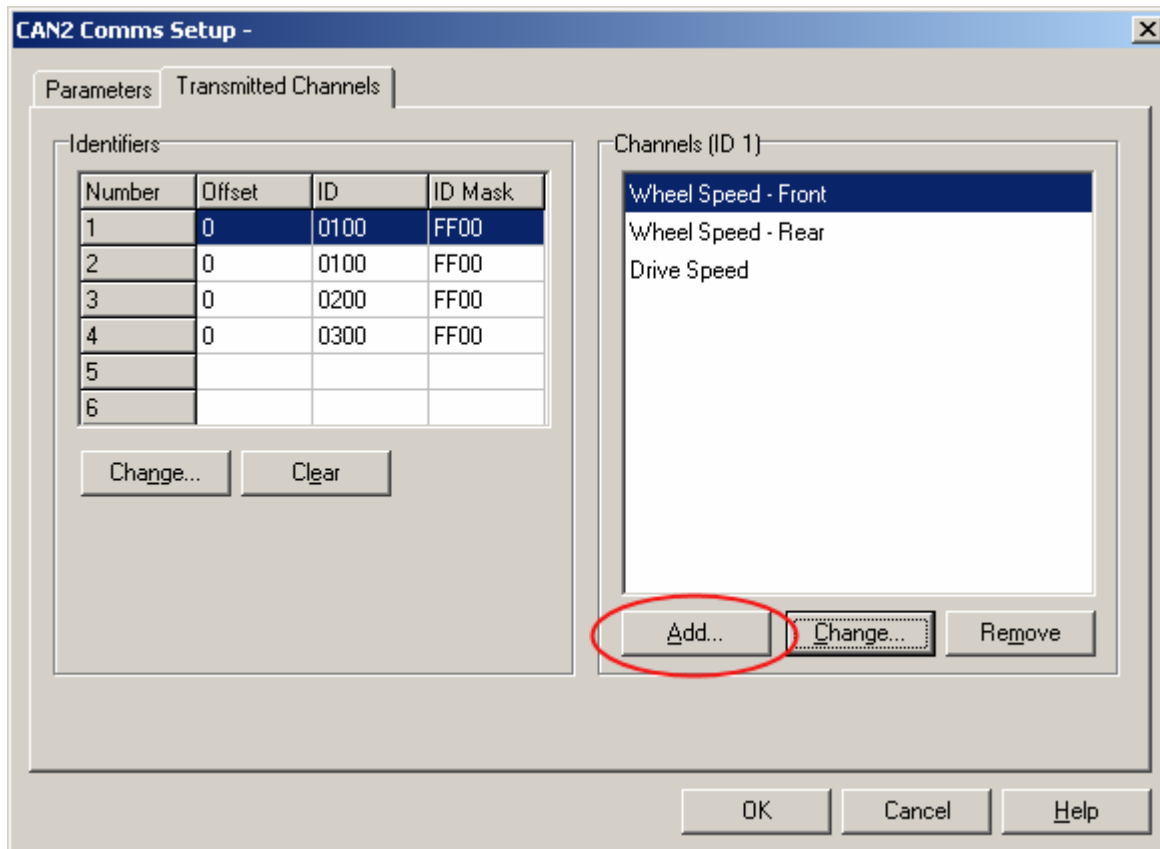
Offset: 0

ID Mask: FF00

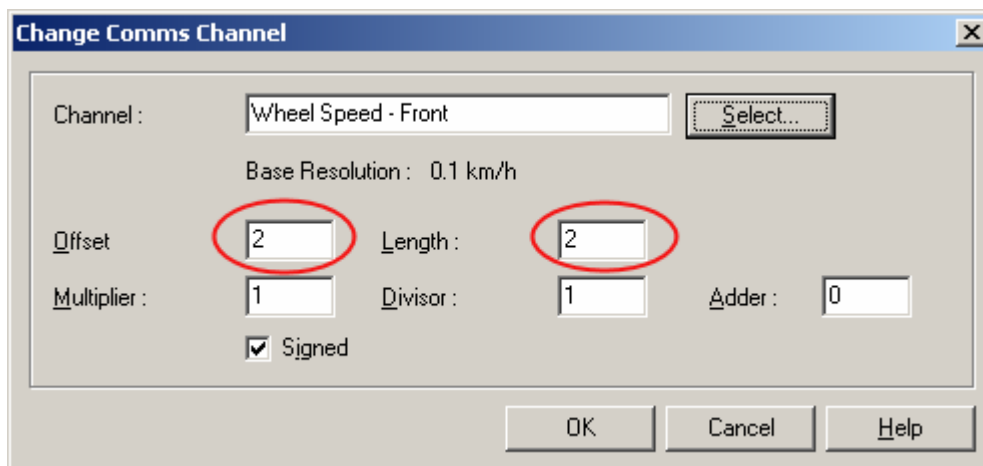
ID: must use 0000, 0100, 0200, 0300 as shown below:

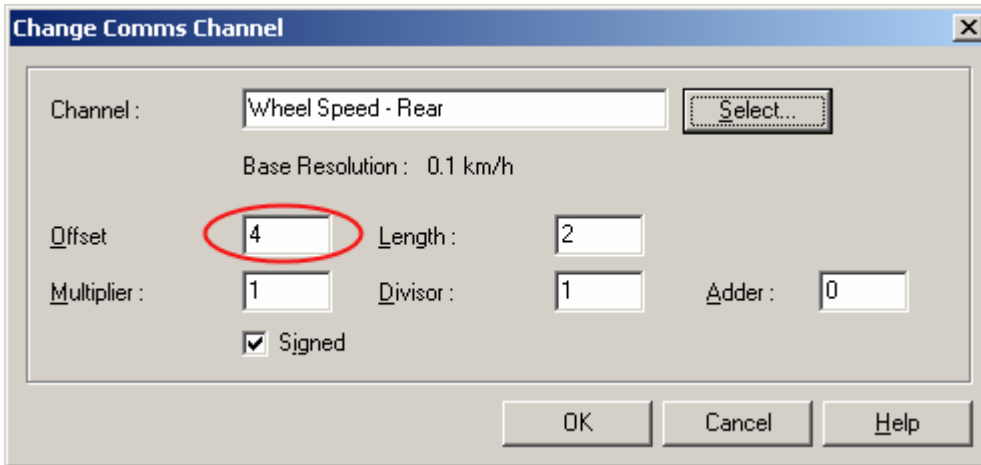


Click on an Identifier and '*Add*' up to 3 channels:



When adding a channel, ensure that the 'Length' field is 2 for all 3 channels. The 'Offset' must be 2 for the first channel, 4 for the second channel and 6 for the third channel. I.e:





Change Comms Channel

Channel:

Base Resolution: 0.1 km/h

Offset: Length:

Multiplier: Divisor: Adder:

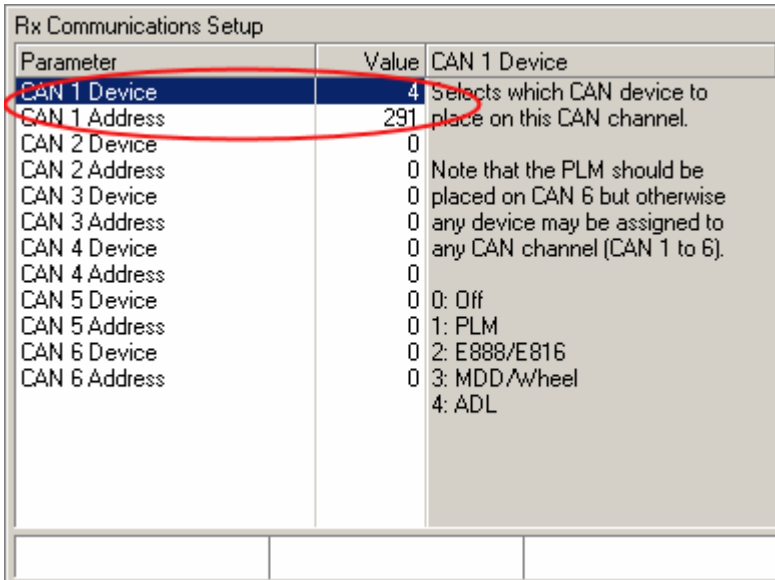
☒ Signed

You may wish to note the *Base Resolution* for each channel as this may assist with Calibration in ECU Manager.

Send the config to the ADL, then close Dash Manager and start ECU Manager.

ECU Configuration

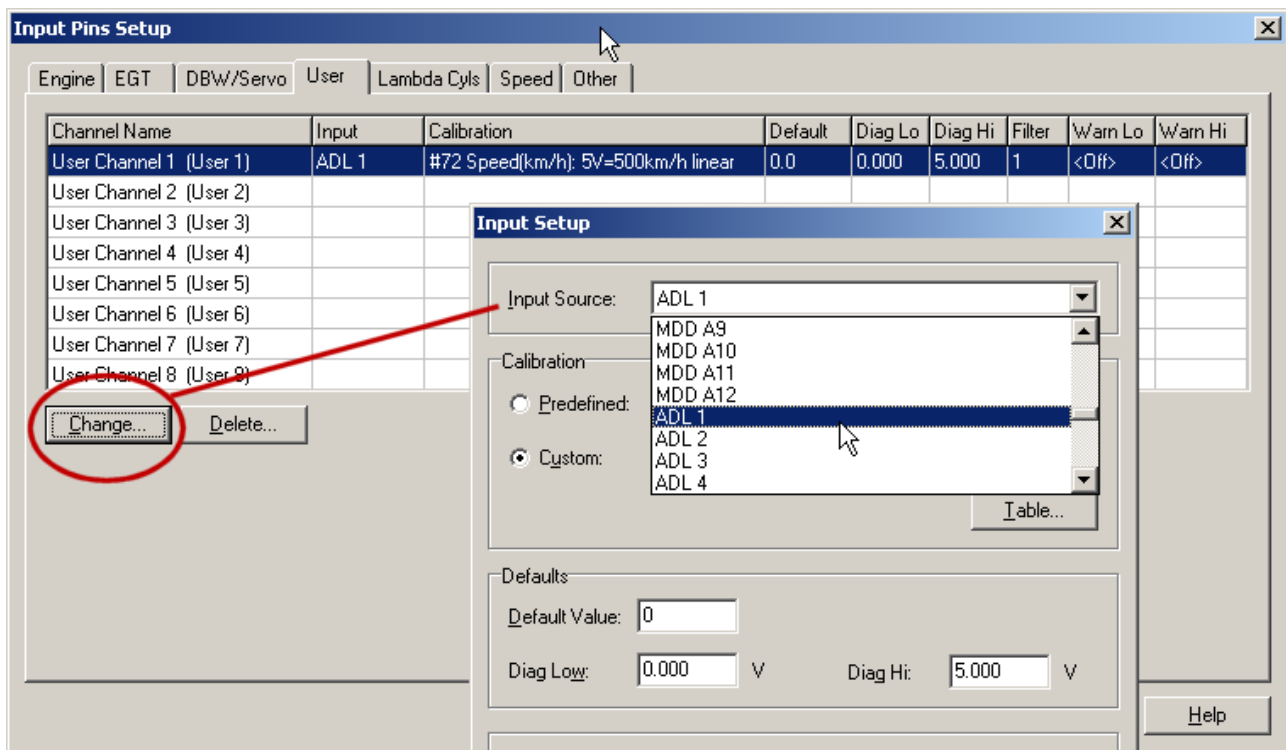
Go to 'Adjust -> General Setup -> Communications -> Receive Data Setup'



Parameter	Value	CAN 1 Device
CAN 1 Device	4	Selects which CAN device to place on this CAN channel.
CAN 1 Address	291	
CAN 2 Device	0	
CAN 2 Address	0	
CAN 3 Device	0	Note that the PLM should be placed on CAN 6 but otherwise any device may be assigned to any CAN channel (CAN 1 to 6).
CAN 3 Address	0	
CAN 4 Device	0	
CAN 4 Address	0	
CAN 5 Device	0	0: Off
CAN 5 Address	0	1: PLM
CAN 6 Device	0	2: E888/E816
CAN 6 Address	0	3: MDD/Wheel
		4: ADL

The CAN device is always 4 (ADL). The address will be the decimal value of the Base Address used in the Dash Manager setup. For this example, 291. (ie: 0x123 = 291 dec)

Select 'Adjust -> Sensor Setup -> Input Setup...' to assign each ADL input source to a channel and calibrate it. Pick the channel that you wish to bring over and then click on 'Change' to select the input source – the ADL in our case – then enter a calibration:



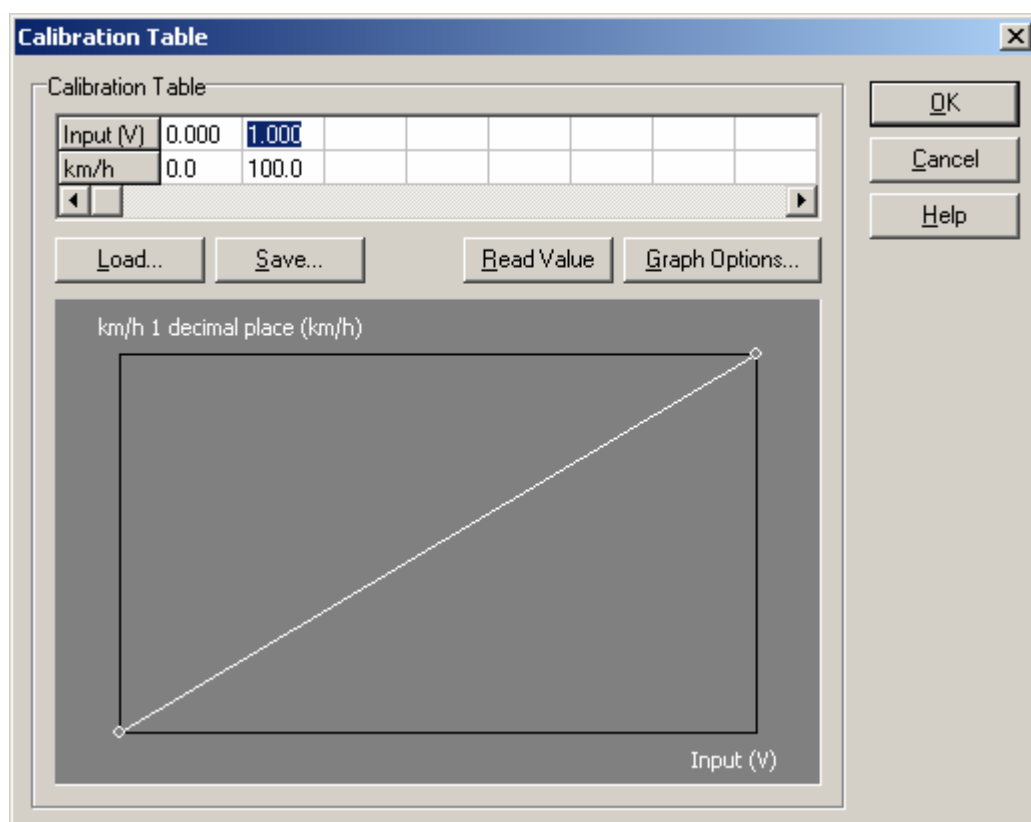
Here, User Channel 1 is setup to receive ADL 1, which is *Wheel Speed - Front* in our example.

Send the configuration to the ECU and/or reset the ECU. The *User 1* channel should now be displaying the value as received from the Dash.

Calibration

Choosing a calibration: most of the time you simply want a one-to-one linear calibration for channels received over CAN. In this example, the Base Resolution of ADL 1 (Wheel Speed - Front) was noted as being 0.1km/h in Dash Manager - in other words 1 decimal place. In practice this means a value, such as 100.0 km/h, is transmitted as 1000 (simply ignore the decimal point). We could then use a custom calibration to achieve the desired mapping (see table below).

An Input value of 1.000 (ECU Manager is incorrectly asking for a Voltage, just ignore the decimal point and treat 1.000 as 1000) corresponds to 100.0 km/h. Adding a second set of points gives us a straight-line that the ECU will interpolate/extrapolate along.



Mapping from ADL to ECU channels

As mentioned, the 4 Identifiers can each contain 3 channels allowing transmission of up to 12 channels. The following table gives us the mapping from transmitted ADL channels to ECU Manager Input Source:

ID	Channel Offset	M800 ECU Manager Input Source
0000	2	ADL 1
0000	4	ADL 2
0000	6	ADL 3
0100	2	ADL 4
0100	4	ADL 5
0100	6	ADL 6
0200	2	ADL 7
0200	4	ADL 8
0200	6	ADL 9
0300	2	ADL 10
0300	4	ADL 11
0300	6	ADL 12