AIM Infotech

AEM 2 series V 1.17 and V 1.17+Dynoshaft ECU

Release 1.02

AIM

This tutorial explains how to connect AEM 2 series V 1.17 and V.117 + Dynoshaft ECU to AiM devices through the CAN Bus. AEM Dyno is an on-vehicle dynamometer system that allows user to see some additional channels marked as "DY" in the channels list.
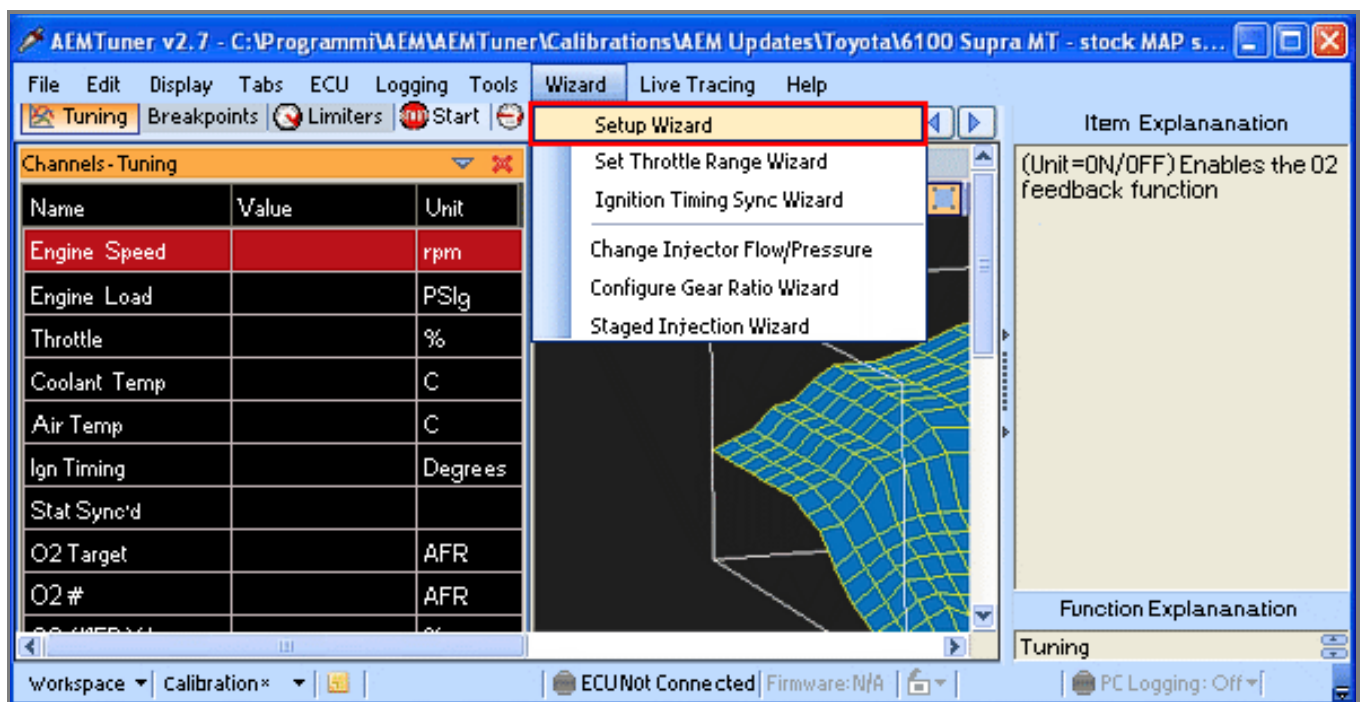
1

Prerequisites

AEM 2 series V 1.17 ECU (with or without dynoshaft) can communicate with AIM loggers if:

- ECU firmware version: 1.17 or higher
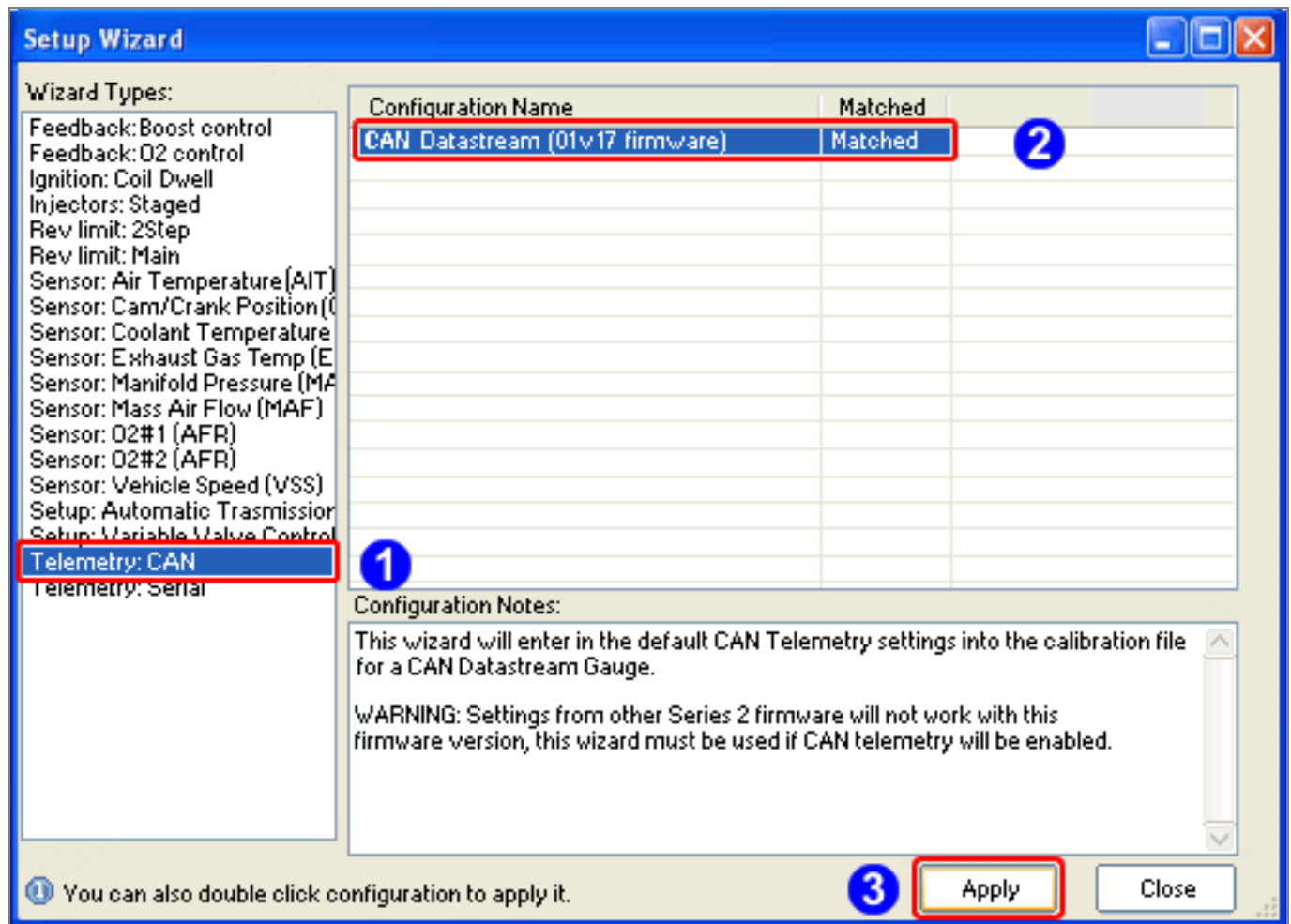- AEM Tuner software version 2.7 or higher

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ECU Software configuration

Using AEM Tuner software – provided by AEM – follow these steps:
- run the software
- follow this path: Wizard –> Setup Wizard

- "Setup Wizard" panel appears: select "Telemetry CAN" (**1**);
- "Configuration name" appears (**2**) notifying the user that firmware version matches system requirements;
- press "Apply" (**3**).

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Wiring Connection

AEM 2 Series V 1.17 ECU is equipped with 4 AMP male connectors. Starting from left: a 32 pins, a 25 pins, a 31 pins and a 16 pins connector.

32 pins connector   25 pins connector   31 pins connector   16 pins connector
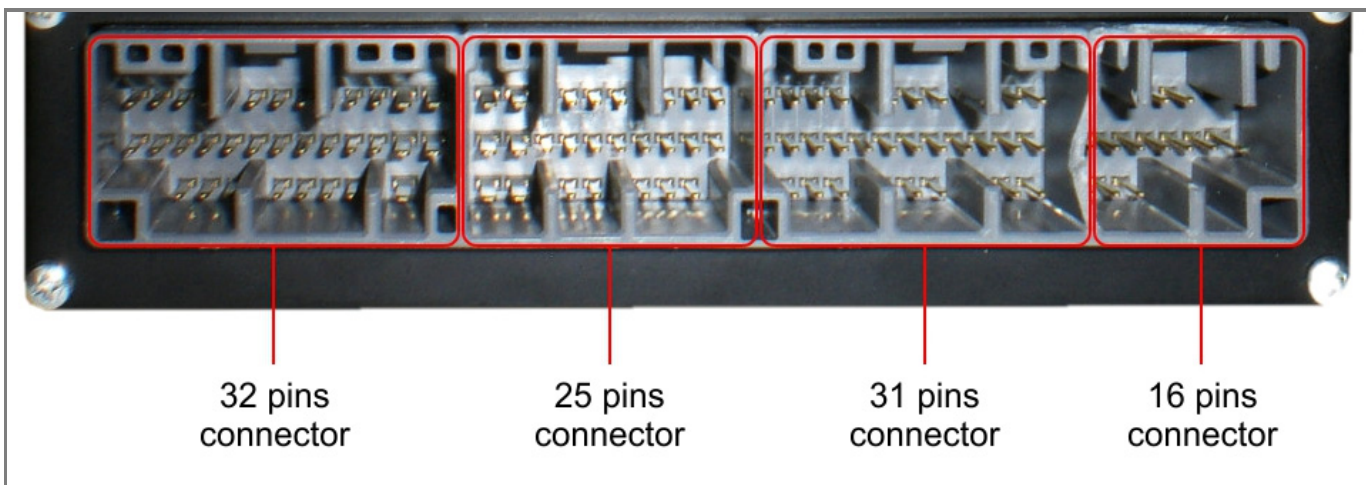
The connector to be used for CAN Connection is the 31 pins. It is shown here below: please note that pins are to be numbered from right to left in each row.

Pin 26 CAN Low   Pin 25 CAN High
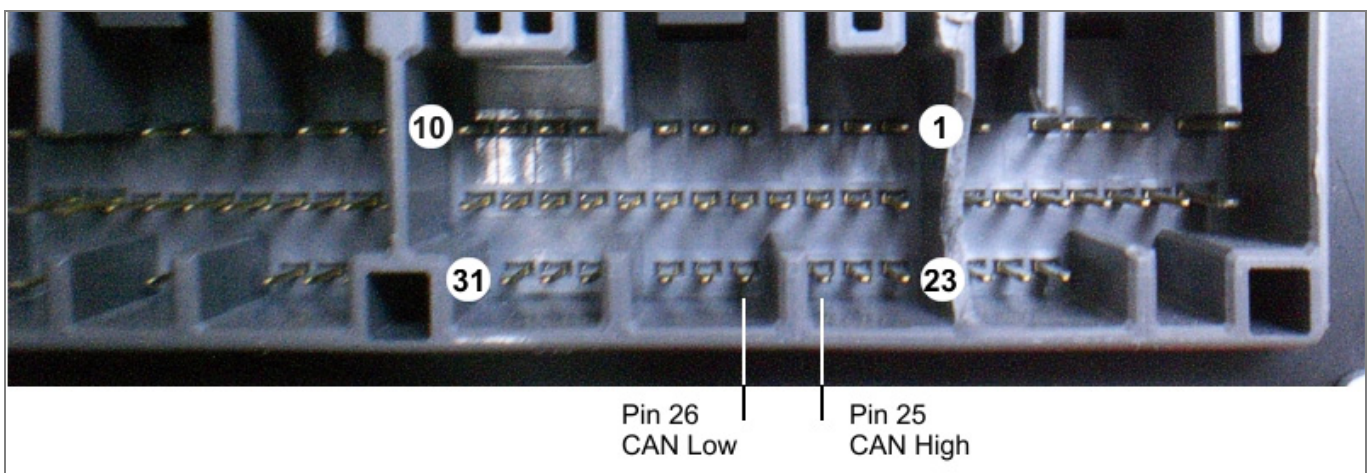
ECU Pin	Pin Function	AIM Cable
25	CAN+	CAN+
26	CAN-	CAN-

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AIM device configuration

Before connecting the ECU to AiM device, set this up using AiM Race Studio software. Parameters to select in the device configuration are:

- ECU manufacturer "AEM"
- ECU Model "EMS V1.17 CAN+Dynoshaft";

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Available channels

Channels received by AIM loggers connected to "AEM" "EMS V1.17 CAN+Dynoshaft" protocol are listed here below. Please note: channels from 20 to 26 marked as "DY" are only available if AEM Dynoshaft is connected. Otherwise these channels will be shown as in error.

ID	CHANNEL NAME	FUNCTION
ECU_1	EMS_RPM	RPM
ECU_2	EMS_ENG_LOAD	Engine Load
ECU_3	EMS_TPS	Throttle position sensor
ECU_4	EMS_AIR_TEMP	Air Temperature
ECU_5	EMS_COOL_TEMP	Engine Coolant Temperature
ECU_6	EMS_ADCR11	Analog Digital Converter 11; 0-5 Volts
ECU_7	EMS_ADCR13	Analog Digital Converter 13; 0-5 Volts
ECU_8	EMS_ADCR14	Analog Digital Converter 14; 0-5 Volts
ECU_9	EMS_ADCR17	Analog Digital Converter 17; 0-5 Volts
ECU_10	EMS_ADCR18	Analog Digital Converter 18; 0-5 Volts
ECU_11	EMS_ADCR15	Analog Digital Converter 15; 0-5 Volts
ECU_12	EMS_ADCR16	Analog Digital Converter 16; 0-5 Volts
ECU_13	EMS_ADCR08	Analog Digital Converter 08; 0-5 Volts
ECU_14	EMS_O2_#1	Lambda sensor

ECU_15	EMS_O2_#2	Lambda sensor
ECU_16	EMS_VEH_SPEED	Vehicle speed
ECU_17	EMS_GEAR	Engaged Gear
ECU_18	EMS_IGN_TIM	Ignition Time
ECU_19	EMS_BATT_VOLT	Battery Voltage
ECU_20	EMS_ENG_LOAD2	Engine Load 2
ECU_21	DY_DSH_RPM	Driveshaft RPM
ECU_22	DY_DSH_TQ_FTLB	Driveshaft Torque - ft-lb
ECU_23	DY_DSH_PW_HP	DriveShaft Power - HP
ECU_24	DY_TQ_FR_FTLB	Torque Fraction ft-lb
ECU_25	DY_PW_FR_HP	PowerFraction - HP
ECU_26	DY_DSH_RPM2	DriveShaft RPM
ECU_27	DY_DSH_TQ2FTLB	Driveshaft Torque (low range) - ft-lb
ECU_28	DY_DSH_PW2_HP	Driveshaft Power (low range) - HP
ECU_29	DY_SYS_VOLT	System Voltage
ECU_30	DY_TANK_VOLT	Tank Voltage
ECU_31	DY_SENS_VOLT	Sensor Voltage
ECU_32	DY_POW_LEV	Power level
ECU_33	DY_SENS_TEMP	Sensor Temp
ECU_34	DY_DRV_FREQ	Drive Frequency
ECU_35	DY_SYST_TEMP	System Temp
ECU_36	DY_ERROR	Mixed Errors and status:

bit = 0 – Sensor firmware error

bit = 1 – Controller firmware error

bit = 2 – Sensor comms active

bit = 3 – Got good zero offset

bit = 4 – Got good calibration

bit = 5 – Led aligned

bit = 6 – Auto zero active

bit = 7 – not used