AIM Infotech

AEM 2 series V 1.17 and V 1.17+Dynoshaft ECU

Release 1.01

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

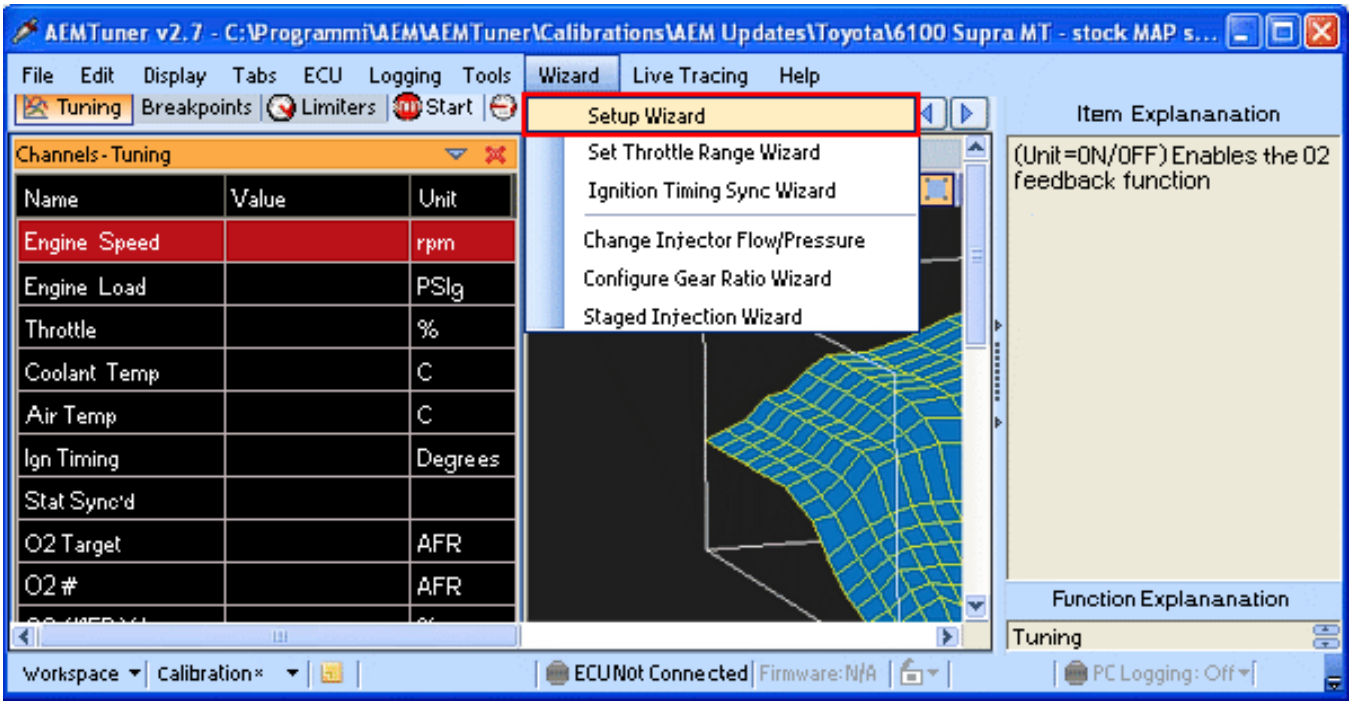
For AEM 2 series V 1.17 ECU (with or without dynoshaft) to communicate with AIM loggers two prerequisites are to be satisfied:

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

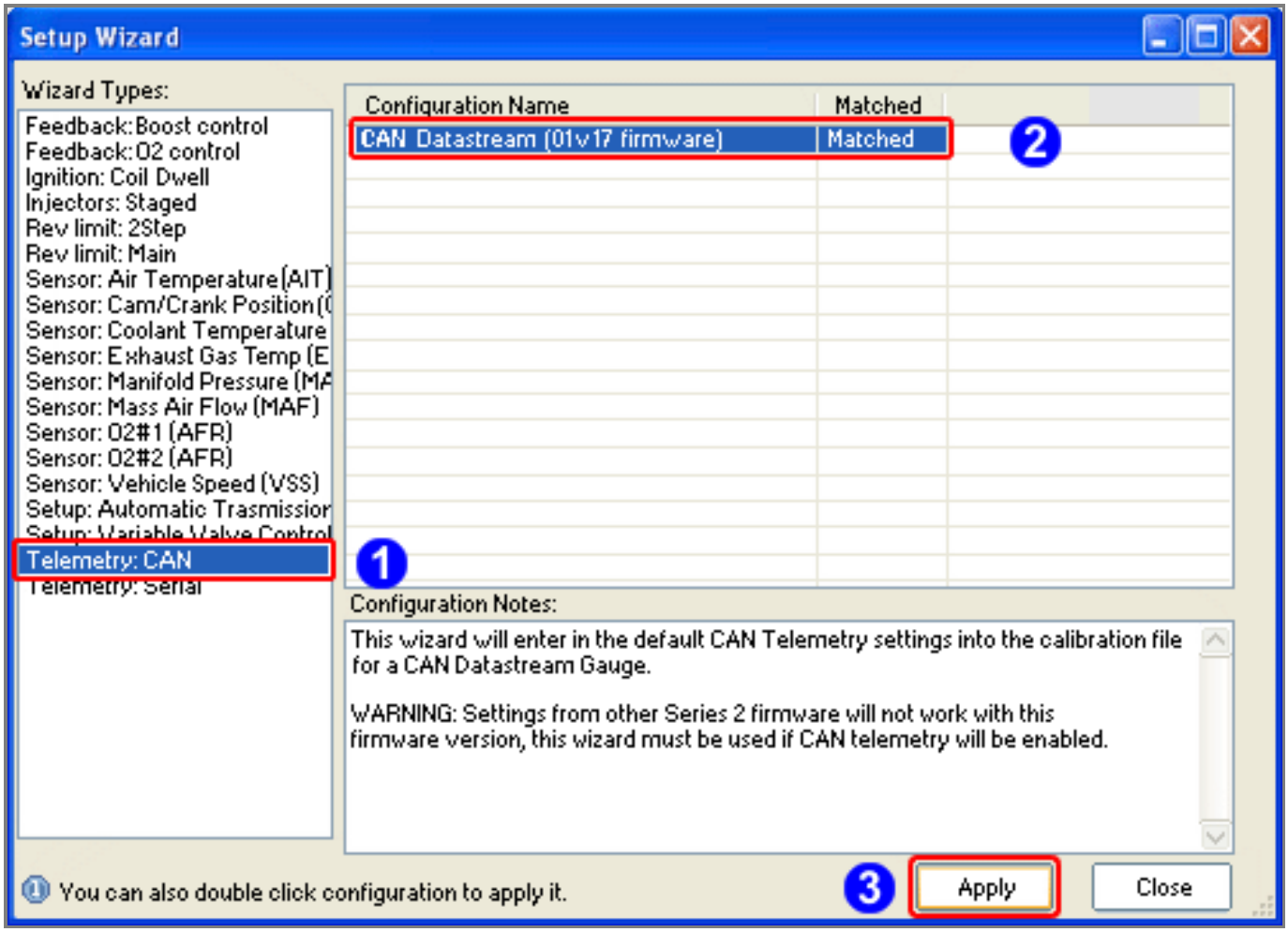
2 ECU Software configuration

Using AEM Tuner software – provided by AEM – follow these steps:

- run the software
- follow this path: Wizard –> Setup Wizard

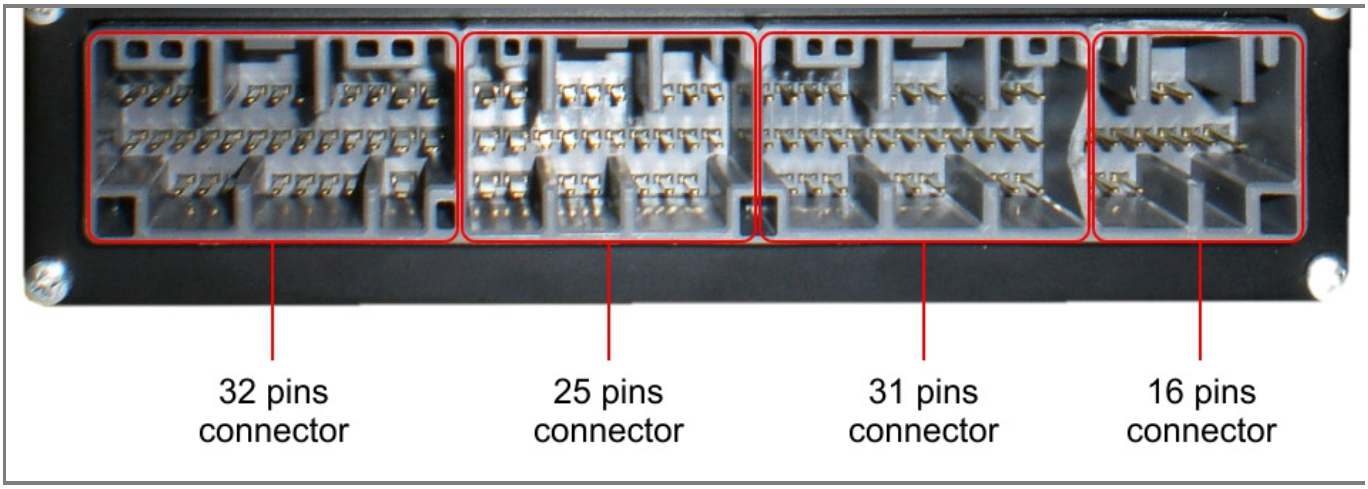


- "Setup Wizard" panel appears: select "Telemetry CAN" (**1**);
- "Configuration name" appears (**2**) notifying the user that firmware version matches system requirements;
- press "Apply" (**3**).

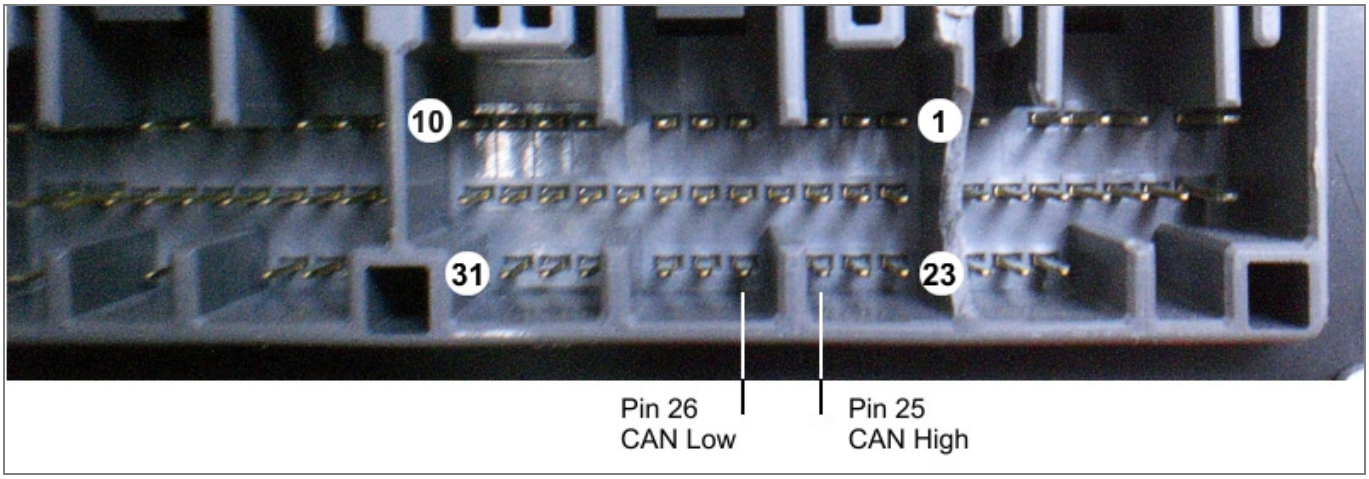


3
Wiring Connection

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.



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.



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

4 AIM Logger configuration

Before connecting the ECU to AiM logger, set it up as follows:

Run Race Studio 2 software and follow this path:

- Device Configuration –> Select the device you are using;
- select the configuration or press “New” to create a new one;
- select ECU manufacturer “AEM” and ECU Model “EMS V1.17 CAN+Dynoshaft”;
- transmit the configuration to the device pressing “Transmit”.

5 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