AiM Infotech

Hydra EMS 2.7 ECU

Release 1.00

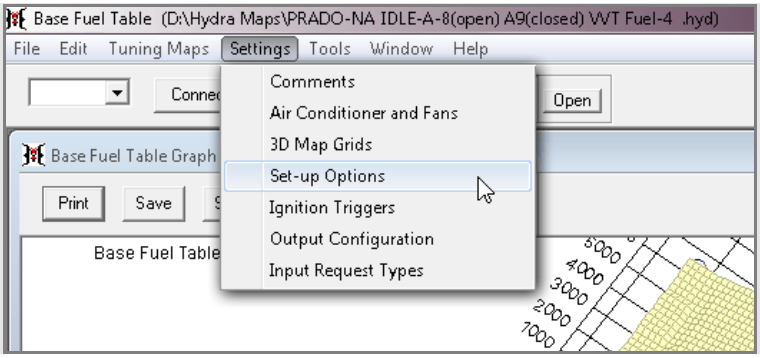
ECU

This tutorial explains how to connect Hydra EMS 2.7 ECU to AiM devices.

1 Software Setup

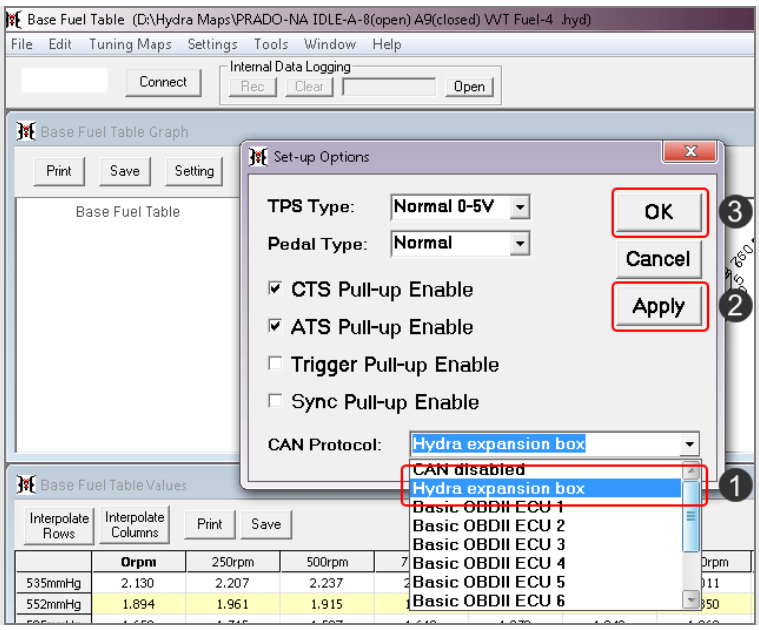
Hydra EMS 2.7 needs to be set up via Hydra "Base Fuel Table" software. Run it and follow this path.

- "Settings –> "Set-up Options" as shown below.



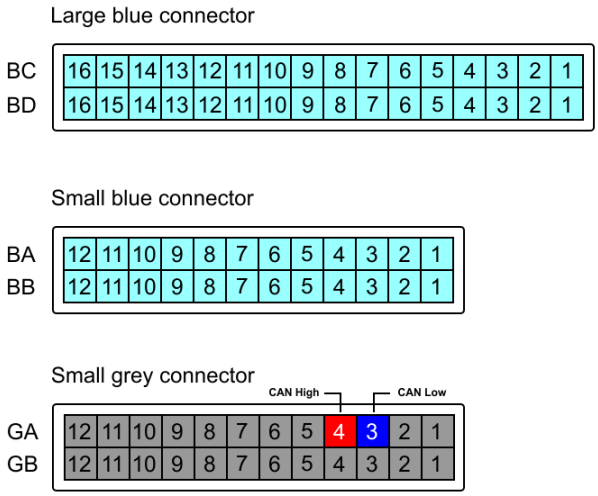
"Set-up options" panel shows up.

- Activate "CAN Protocol" pop up menu and select "Hydra expansion box" (**1**)
- press "Apply" (**2**)
- press "OK" (**3**), save the file and reboot the ECU



2
Wiring connection

Hydra EMS 2.7 ECU features a data transmission bus based on CAN on the front large blue connector. Here below you see the ECU on the left, connectors pinout on the right and connection table below.



Large blue connector pin	Pin function	AiM cable
GA4	CAN High	CAN+
GA3	CAN Low	CAN-

3
AiM device configuration

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

Run Race Studio 2 software and select:

- Device Configuration –> Select the device you are using;
- select the configuration or press “New” to create a new one;
- select ECU manufacturer “Hydra_EMS” and ECU Model “CAN_V2.7”
- transmit the configuration to the device pressing “Transmit”.

4
Available channels

Channels received by AiM devices connected to Hydra "CAN_V2.7 " protocol are:

ID	CHANNEL NAME	FUNCTION
ECU_1	HY_RPM	RPM
ECU_2	HY_TPS	Throttle position sensor
ECU_3	HY_PPS	Pedal open percentage
ECU_4	HY_VEH_SPEED	Vehicle speed
ECU_5	HY_WATER_TEMP	Engine coolant temperature
ECU_6	HY_INTK_AIR_T	Intake air temperature
ECU_7	HY_OIL_TEMP	Oil temperature
ECU_8	HY_FUEL_TEMP	Fuel temperature
ECU_9	HY_MANIF_PR	Intake manifold pressure
ECU_10	HY_OIL_PR	Oil pressure
ECU_11	HY_FUEL_PR	Fuel rail pressure
ECU_12	HY_EXHAUST_PR	Exhaust manifold pressure
ECU_13	HY_GEAR	Engaged gear
ECU_14	HY_TRASM_TEMP	Transmission oil temperature
ECU_15	HY_TRASM_PR	Transmission oil pressure
ECU_16	HY_AIR_TEMP	Intake air temperature
ECU_17	HY_EXH_TEMP1	Exhaust left gas temperature
ECU_18	HY_EXH_TEMP2	Exhaust right gas temperature
ECU_19	HY_PRE_COOLER	Pre-intercooler air temperature
ECU_20	HY_POST_COOLER	Post-intercooler air temperature
ECU_21	HY_INJ_DUTY	Injector duty cycles
ECU_22	HY_INJ_PULSE	injection pulse width
ECU_23	HY_INJ_PHASE	Injection pulse phase
ECU_24	HY_ADVANCE	Base ignition advance
ECU_25	HY_PRI_LAMBDA	Primary wideband

ECU_26	HY_AIM_LAMBDA	Primary Lambda
ECU_27	HY_ENG_LOAD	Engine load
ECU_28	HY_BOOST	Engine load effective boost pressure
ECU_29	HY_PORT_TEMP	Port air temperature
ECU_30	HY_AMB_TEMP	Ambient air temperature
ECU_31	HY_KNOCK_RAMP	Knock ramp
ECU_32	HY_KNOCK_RET	Knock retard
ECU_33	HY_ETHANOLMIX	Ethanol mix