AiM Infotech

# Ford Mustang

## Release 1.02

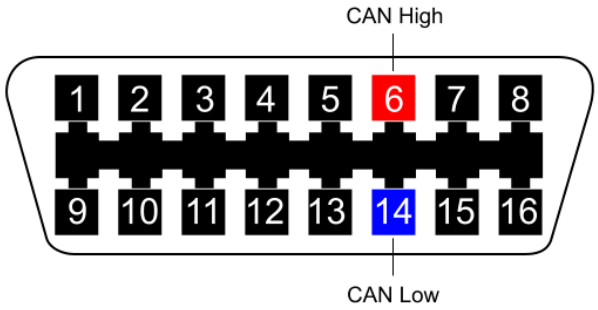
# 1
# Car models and years

This tutorial explains how to connect Ford cars to AiM devices. Supported car models and years are:

- Ford Mustang 2005-2009 all models
- Ford Mustang 2010 all models
- Ford Mustang 2011-2014 all models

# 2
# CAN bus connection

Ford Mustang cars feature a data communication bus based on CAN on the OBDII plug normally visible left over the steering wheel as shown here below on the left. On the right you see the OBDII connector pinout while under connection table is shown.




| Pin number | Pin function | AiM cable label |
|---|---|---|
| 6 | CAN High | CAN+ |
| 14 | CAN Low | CAN- |

# 3
# AiM Logger configuration

Before connecting the ECU to AiM device 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 “Ford” and, according to your Mustang production year, ECU Model
    - “Mustang 2005/09”
    - "Mustang 2010"
    - "Mustang 2011" for cars produced between 2011 and 2014
- transmit the configuration to the device pressing “Transmit”.

# 4
# Available channels

Channels received by AiM devices connected to Ford Mustang depends on the selected protocol.

## 4.1
## Ford "Mustang 2005/09" protocol

Channels received by AiM devices connected to "Ford" "Mustang 2005/2009" protocol are:

| ID | CHANNEL NAME | FUNCTION |
|---|---|---|
| ECU_1 | M_RPM | RPM |
| ECU_2 | M_SPEED | Speed |
| ECU_3 | M_PEDAL_POS | Pedal position sensor |
| ECU_4 | M_WH_SPD_FL | Front left wheel speed |
| ECU_5 | M_WH_SPD_FR | Front right wheel speed |
| ECU_6 | M_WH_SPD_RL | Rear left wheel speed |

| | | |
|---|---|---|
| ECU_7 | M_WH_SPD_RR | Rear right wheel speed |
| ECU_8 | M_TENGINE | Engine temperature |
| ECU_9 | M_ETC_TELTAL | Engine Traction control tell tale |
| ECU_10 | M_TBO_BST | Turbo boost |
| ECU_11 | M_FUEL_LEV | Filtered fuel level |
| ECU_12 | M_FUEL_I_1 | Instant fuel level sensor 1 |
| ECU_13 | M_FUEL_I_2 | Instant fuel level sensor 2 |
| ECU_14 | M_FUEL_AVE | Fuel average level |
| ECU_15 | M_FFLUX | Fuel flux |
| ECU_16 | M_CLCH_SW | Clutch switch |
| ECU_17 | M_TCS_BRK | Traction control brake switch |
| ECU_18 | M_TCS_ENG | Traction control engine switch |
| ECU_19 | M_BRK_SW | Brake switch |
| ECU_20 | M_ABS_TELTAL | ABS tell tale |
| ECU_21 | M_AXLE_RATIO_R | Rear axle ratio |
| ECU_22 | M_MIL_TELTAL | Malfunction indicator lamp |
| ECU_23 | M_FAILSAFE_COOL | Failsafe coolant tell tale |
| ECU_24 | M_GEAR | Engaged gear |
| ECU_25 | M_TYRE | Tyre revs per km |
| ECU_26 | M_SMART_AL | Smart alarm |

**Technical note**: not all data channels outlined in the ECU template are validated for each manufacturer model or variant; some of the outlined channels are model and year specific, and therefore may not be applicable.

# 4.2
# Ford "Mustang 2010" protocol

Channels received by AiM devices connected to "Ford" "Mustang 2010" protocol are:

| ID | CHANNEL NAME | FUNCTION |
|---|---|---|
| ECU_1 | M_RPM | RPM |
| ECU_2 | M_SPEED | Speed |
| ECU_3 | M_PEDAL_POS | Pedal position sensor |
| ECU_4 | M_WH_SPD_FL | Front left wheel speed |
| ECU_5 | M_WH_SPD_FR | Front rear wheel speed |
| ECU_6 | M_WH_SPD_RL | Rear left wheel speed |
| ECU_7 | M_WH_SPD_RR | Rear right wheel speed |
| ECU_8 | M_ECT | Engine cooling temperature |
| ECU_9 | M_ETC_TELTAL | Engine traction control |
| ECU_10 | M_TURBO_BOOST | Turbo boost |
| ECU_11 | M_FUEL_LVLMEAN | Average fuel level |
| ECU_12 | M_FUEL_INST_1 | Instant fuel level sensor 1 |
| ECU_13 | M_FUEL_INST_2 | Instant fuel level sensor 2 |
| ECU_14 | M_FUEL_AVERAGE | Fuel average level |
| ECU_15 | M_FUEL_FLOW | Fuel flow |
| ECU_16 | M_CLUTCH_SW | Clutch switch on/off |
| ECU_17 | M_TCS_BRK_EVE | Traction control brake switch |
| ECU_18 | M_TCS_ENG_EVE | Traction control engine switch |
| ECU_19 | M_BRK_LAMP_SW | Brake lamp switch |
| ECU_20 | M_ABS_TELTAL | ABS tell tale |
| ECU_21 | M_AXLE_RATIO | Axle ratio |
| ECU_22 | M_MIL_TELTAL | Malfunctioning indicator lamp |
| ECU_23 | M_FAILSAFECOOL | Failsafe coolant tell tale |
| ECU_24 | M_GEAR | Engaged gear |
| ECU_25 | M_TYRE_SIZE | Tyre size |

| | | |
|---|---|---|
| ECU_26 | M_SMART_ALARM1 | Smart Alarm1 |
| ECU_27 | M_SB_CTRL_TEL | Stability control tell tale |
| ECU_28 | M_SB_CTRL_MTXT | Stability control message transmission |
| ECU_29 | M_ABS_EVENT | ABS Event in progress |
| ECU_30 | M_ESP_EVENT | ESP Event in progress |
| ECU_31 | M_TRQ_ACT (Nm) | Torque actuator |
| ECU_32 | M_BRK_WARN_TEL | Brake warning tell tale |
| ECU_33 | M_VEH_YAW_RATE | Vehicle yaw rate |
| ECU_34 | M_VEH_LAT_ACC | Vehicle lateral acceleration |
| ECU_35 | M_STEER_WH_ANG | Steering wheel angle |
| ECU_36 | M_TYRE_RV_MILE | Tyre revolution per mile |

**Technical note**: not all data channels outlined in the ECU template are validated for each manufacturer model or variant; some of the outlined channels are model and year specific, and therefore may not be applicable.

## 4.3
# Ford "Mustang 2011" protocol

Channels received by AiM devices connected to "Ford" "Mustang_2011" protocol are:

| ID | CHANNEL NAME | FUNCTION |
|---|---|---|
| ECU_1 | M_RPM | RPM |
| ECU_2 | M_SPEED | Vehicle speed |
| ECU_3 | M_WH_SPD_FL | Front left wheel speed |
| ECU_4 | M_WH_SPD_FR | Front right wheel speed |
| ECU_5 | M_WH_SPD_RL | Rear left wheel speed |
| ECU_6 | M_WH_SPD_RR | Rear right wheel speed |
| ECU_7 | M_TPS | Throttle position sensor |
| ECU_8 | M_PPS | Pedal position sensor |
| ECU_9 | M_VEH_YAW_RATE | Vehicle yaw rate |
| ECU_10 | M_VEH_LAT_ACC | Vehicle lateral acceleration |

| | | |
|---|---|---|
| ECU_11 | M_STEER_WH_ANG | Steering wheel angle |
| ECU_12 | M_TRQ_ACT_Nm | Torque actuator |
| ECU_13 | M_TRQ_SOURCE | Torque source |
| ECU_14 | M_BRK_LAMP_SW | Brake lamp switch |
| ECU_15 | M_IAT | Intake air temperature |
| ECU_16 | M_ABS_EVENT | ABS Event in progress |
| ECU_17 | M_ESP_EVENT | ESP Event in progress |
| ECU_18 | M_SPARK_ADV | Spark advance |
| ECU_19 | M_LOAD | Engine load |
| ECU_20 | M_ACC_FUEL_CONS | Acceleration fuel consumption |
| ECU_21 | M_DES_LAMBDA1 | Desired lambda 1 value |
| ECU_22 | M_DES_LAMBDA2 | Desired lambda 2 value |
| ECU_23 | M_LAMBDA1 | Lambda 1 value |
| ECU_24 | M_LAMBDA2 | Lambda 2 value |
| ECU_25 | M_VCT_ANG_INT1 | Variable camshaft timing angle intake bank 1 |
| ECU_26 | M_VCT_ANG_INT2 | Variable camshaft timing angle intake bank 2 |
| ECU_27 | M_VCT_ANG_EXH1 | Variable camshaft timing angle exhaust bank 1 |
| ECU_28 | M_VCT_ANG_EXH2 | Variable camshaft timing angle exhaust bank 2 |
| ECU_29 | M_VCT_COM_INT1 | Variable camshaft timing commanded angle intake bank 1 |
| ECU_30 | M_VCT_COM_INT2 | Variable camshaft timing commanded angle intake bank 2 |
| ECU_31 | M_VCT_COM_EXH1 | Variable camshaft timing commanded angle exhaust bank 1 |
| ECU_32 | M_VCT_COM_EXH2 | Variable camshaft timing commanded angle exhaust bank 2 |
| ECU_33 | M_ECT | Engine coolant temperature |
| ECU_34 | M_GEAR | Engaged gear |
| ECU_35 | M_TYRE_SIZE | Tyre size |
| ECU_36 | M_ABS_TELTAL | ABS |
| ECU_37 | M_BRK_WARN_TEL | Brake warning |
| ECU_38 | M_SMART_ALARM1 | Smart alarm 1 |
| ECU_39 | M_MIL_TELTAL | Malfunction indication lamp |
| ECU_40 | M_FAILSAFECOOL | Fail safe cooling mode |
| ECU_41 | M_ETC_TELTAL | Engine traction control |
| ECU_42 | M_FUEL_FLOW | Fuel flow |

| | | |
|---|---|---|
| ECU_43 | M_CHT | Cylinder head temperature |
| ECU_44 | M_CODES_COUNTER | Codes counter |
| ECU_45 | M_CPP_TOP_FLAG | Clutch pedal position top flag |
| ECU_46 | M_CPP_BOT_FLAG | Clutch pedal position bottom flag |
| ECU_47 | M_HSF_FLAG | Fan on/off flag |
| ECU_48 | M_PLSC_FLAG | PLSC on/off flag |
| ECU_49 | M_INJON | Injection on |
| ECU_50 | M_FUEL_SOURCE | Fuel source |
| ECU_51 | M_SPARK_SOURCE | Spark source |
| ECU_52 | M_VCT_SCH_MODE | Variable cam timing scheduled mode |
| ECU_53 | M_CMP_FAIL_FLAG | Camshaft position sensor failure flag |
| ECU_54 | M_EPOS_STATUS | Exhaust gas recirculation valve position sensor flag |
| ECU_55 | M_COIL_ERR_FLAG | Coil error flag |

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