AiM Infotech

# Lotus Elise, Exige, 2-Eleven from 2004 ECU

Release 1.02

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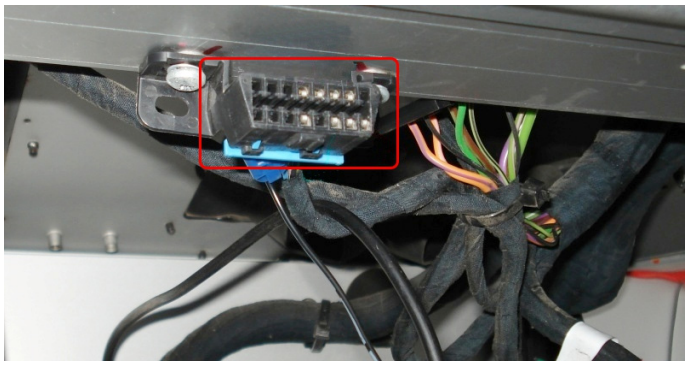
# 1 Supported years and models

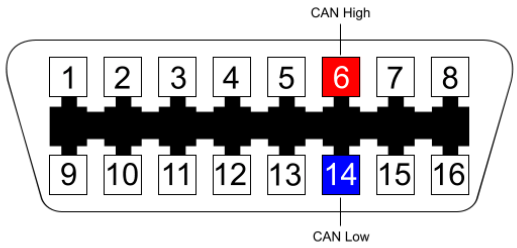
This tutorial explains how to connect Lotus cars to AiM devices. Supported years and models are:

| | | |
|---|---|---|
| • Elise S2 192 CV EFIB120E 29F | | 2004 |
| • Exige S2 240R | | 2005 |
| • Elise S2/Exige S2/2-Eleven (white dash) | all models | 2004-2007 |
| • EliseS2/Exige S2/2-Eleven (black dash) | all models | 2008-2011 |
| • Elise S3 | all models | from 2011 |

# 2 Wiring connection

Lotus cars feature a bus communication protocol based on CAN on the OBDII plug placed under the stock dash as shown here below on the left. On the right is OBDII connector pinout and bottom is connection table






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

# 3
# AiM device configuration

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

- ECU manufacturer “Lotus” and, according to your vehicle characteristics
- ECU Model
    - "Elise" for Lotus Elise S2 192 CV EFI B120E 29F and Exige S2 240R
    - "Clusters 04-07" for Lotus Elise S2/Exige S2/2-Eleven all models (white dash) 2004-2007
    - "Clusters 08-09" for Lotus Elise S2/Exige S2/2-Eleven all models (black dash) 2008-2011
    - "Clusters 11_Exige Cup R" for Lotus Elise S3 from 2011

# 4
# Available channels

Channels received by AiM devices connected to Lotus vehicles changes according to the selected protocol.

## 4.1
## "Lotus" "Elise"

Channels received by AiM devices connected to "Lotus" "Elise" protocol are:

| ID | CHANNEL NAME | FUNCTION |
|---|---|---|
| ECU_1 | LOTUS_RPM | RPM |
| ECU_2 | LOTUS_SPEED | Vehicle speed |
| ECU_3 | LOTUS_TPS | Throttle position sensor |
| ECU_4 | LOTUS_PPS | Pedal position sensor |
| ECU_5 | LOTUS_MAF | Manifold air flow |
| ECU_6 | LOTUS_ENG_TEMP | Engine temperature |
| ECU_7 | LOTUS_AIR_TEMP | Intake air temperature |

**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
# "Lotus" "Clusters 04-07"

Channels received by AiM devices connected to "Lotus" "Clusters 04-07" protocol are:

| ID | CHANNEL NAME | FUNCTION |
|---|---|---|
| ECU_1 | CU_SPEED | Vehicle speed |
| ECU_3 | CU_RPM | RPM |
| ECU_4 | CU_FUEL_IST | Instant fuel consumption |
| ECU_5 | CU_FUEL_AVE | Average fuel consumption |
| ECU_6 | CU_ENGT | Engine temperature |
| ECU_7 | CU_SF_LIGHT | Shift light |
| ECU_8 | CU_MIL_LIGHT | Malfunctioning indication light |
| ECU_9 | CU_OIL_LIGHT | Oil low pressure light |
| ECU_10 | CU_TC_LIGHT | Traction control light |

**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
# "Lotus" "Clusters 08-09"

Channels received by AiM devices connected to "Lotus" "Clusters 08-09" protocol are:

| ID | CHANNEL NAME | FUNCTION |
|---|---|---|
| ECU_1 | CU_SPEED | Vehicle speed |
| ECU_3 | CU_RPM | RPM |
| ECU_4 | CU_FUEL_IST | Instant fuel consumption |
| ECU_5 | CU_FUEL_AVE | Average fuel consumption |
| ECU_6 | CU_ENGT | Engine temperature |
| ECU_7 | CU_SF_LIGHT1 | Shift light 1 |
| ECU_8 | CU_SF_LIGHT2 | Shift light 2 |
| ECU_9 | CU_SF_LIGHT3 | Shift light 3 |
| ECU_10 | CU_MIL_LIGHT | Malfunctioning indication light |
| ECU_11 | CU_OIL_LIGHT | Oil low pressure light |
| ECU_12 | CU_TC_LIGHT | Traction control light |
| ECU_15 | CU_SERV_LIGHT | Service light |
| ECU_19 | CU_TH2O_LIGHT | Engine coolant temperature light |
| ECU_23 | CU_SEL_LTC | Ten steps Lotus traction control |
| ECU_24 | OBD2_PPS | Pedal position sensor via OBDII |
| ECU_25 | OBD2_TPS | Throttle position sensor via OBDII |
| ECU_26 | OBD2_IAT | Intake air temperature via OBDII |
| ECU_27 | OBD2_MAF | Manifold air flow via OBDII |

**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.

# 4.4
# "Lotus" "Clusters 11"

Channels received by AiM devices connected to "Lotus" "Clusters 11_Exige Cup R" protocol are:

| ID | CHANNEL NAME | FUNCTION |
|---|---|---|
| ECU_1 | ECU_RPM | RPM |
| ECU_2 | ECU_PPS | Pedal position sensor |
| ECU_3 | ECU_CLUTCH_SW | Clutch switch |
| ECU_4 | ECU_SPORT_SW | Sport switch |
| ECU_5 | ECU_BRK_SW | Brake switch |
| ECU_6 | ECU_STEER_ANG | Steering angle |
| ECU_7 | ECU_STEER_SPD | Steering speed |
| ECU_8 | ECU_VEH_SPEED | Vehicle speed |
| ECU_9 | ECU_WS_FL | Front left wheel speed |
| ECU_10 | ECU_WS_FR | Front right wheel speed |
| ECU_11 | ECU_WS_RL | Rear left wheel speed |
| ECU_12 | ECU_WS_RR | Rear right wheel speed |
| ECU_13 | ECU_YAW | Yaw rate |
| ECU_14 | ECU_ACC_Y | Vertical acceleration |
| ECU_15 | ECU_YAW_ACC | Yaw acceleration |
| ECU_16 | ECU_ACC_X | Horizontal acceleration |
| ECU_17 | ECU_ABS_INTV | ABS intervention |
| ECU_18 | ECU_ASR_INTV | Anti slip regulation intervention |
| ECU_19 | ECU_ESP_INTV | ESP Intervention |
| ECU_20 | ECU_TRQ_RED | Engine torque reduction |
| ECU_21 | ECU_TRQ_INCR | Engine torque increasing |
| ECU_22 | ECU_TRQ | Engine torque |
| ECU_23 | ECU_APPLY_TRQ | Engine applied torque |
| ECU_24 | ECU_FUEL_LAMP | Fuel lamp |
| ECU_25 | ECU_FUEL_LEV | Fuel level |

| | | |
|---|---|---|
| ECU_26 | ECU_MIL | Malfunctioning indication lamp |
| ECU_27 | ECU_P_BRAKE | Brake pressure |
| ECU_28 | ECU_INT_AIR_T | Intake air temperature |
| ECU_29 | ECU_ENG_TMP | Engine temeprature |
| ECU_30 | ECU_BARO_P | Barometric pressure |
| ECU_31 | ECU_OIL_T | Oil temperature |
| ECU_32 | ECU_CAM_I_B1 | Cam in bank 1 angle |
| ECU_33 | ECU_CAM_I_B2 | Cam in bank 2 angle |
| ECU_34 | ECU_CAM_O_B1 | Cam out bank 1 angle |
| ECU_35 | ECU_CAM_O_B2 | Cam out bank 2 angle |
| ECU_36 | ECU_TC_PERC | Traction control percentage |
| ECU_37 | ECU_TC_TARG | Traction control target |
| ECU_38 | ECU_MAFg/s | Mass air flow g/second |
| ECU_39 | ECU_TPS | Throttle position sensor |
| ECU_40 | ECU_OIL_P | Oil pressure |
| ECU_41 | ECU_CLC1 | Closing Loop circle 1 |
| ECU_42 | ECU_CLC2 | Closing Loop circle 2 |
| ECU_43 | ECU_LAMBDA1 | Lambda 1 |
| ECU_44 | ECU_LAMBDA2 | Lambda 2 |
| ECU_45 | ECU_BATTERY | Battery supply |
| ECU_46 | ECU_GEAR | Engaged gear |

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