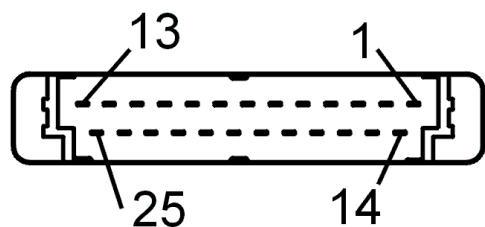


Control module



Note! All values given are between terminal in column 1 and terminal 20. It is therefore important that this ground terminal is correctly connected to the battery negative terminal before taking measurements.

- U_{bat} = Battery voltage
- f = Frequency in Hertz (Hz)
- U_{low} = Voltage close to 0 V
- % = duty cycle in %

| Terminal | Signal type Function | Ignition on | Idling | Engine speed (RPM) higher than idling |
|----------|---|---|-------------------------|---------------------------------------|
| 1 | Data link connector (DLC). Duplex communication between control module and data link connector (DLC) | $\approx 9\text{ V}$ | $\approx 11\text{ V}$ | |
| 2 | Engine coolant temperature (ECT) sensor. Used to adjust ignition advance when temperature deviates from normal | $U \approx 1.5\text{ V}$ warm engine. Signal drops as temperature rises. Signal increases as temperature drops. | | |
| 3 | Malfunction indicator lamp (MIL) | | | |
| 4 | Knock enrichment (not B204 FT/GT, B230 F). signal to fuel injection system (# 28) that control module has detected knock on all cylinders | 900 - 950 mV | $\approx 7.5\text{ V}$ | |
| 5 | Supply voltage 30+. Power supply for on-board diagnostic (OBD) system memory and the the adaptive function | $U = U_{bat}$ | $U = U_{bat}$ | |
| 6 | Supply voltage 15+. Power supply via ignition switch to control module | $U = U_{bat}$ | $U = U_{bat}$ | |
| 7 | Idling switch. Grounded if throttle in idling position. | $U = U_{low}$ | $U = U_{low}$ | $> 10\text{ V}$ |
| 8 | Load signal. Digital load signal from fuel injection system (# 25) for ignition advance adjustment depending on load | 250 - 300 mV | $\approx 370\text{ mV}$ | Increases with engine load |
| 9 | - | - | - | - |
| 10 | Engine speed (RPM) sensor ground. Engine speed (RPM) and position in relation to TDC | $U = U_{low}$ | $U = U_{low}$ | |
| 11 | Engine speed (RPM) sensor shield. Engine speed (RPM) and position in relation to TDC | $U = U_{low}$ | $U = U_{low}$ | |
| 12 | Knock sensor (KS) ground. Internal connection to # 20 in control module | $U = U_{low}$ | $U = U_{low}$ | |
| | | | | |

| | | | | |
|----|--|----------------------------|---|---|
| 13 | Knock sensor (KS) signal. Information on engine knock status | $U = U_{low}$ | $U = U_{low}$ | |
| 14 | EGR power ground (Only Calif). Ground terminal on intake manifold. A separate ground is required to avoid interference with other components in the system | $U = U_{low}$ | $U = U_{low}$ | |
| 15 | EGR control signal (Only Calif). Controls EGR valve to return exhaust to intake manifold during engine loading. Not during crawling road speed with even loading | $U = U_{bat}$ | $U = U_{bat}$ | Drops when EGR operating |
| 16 | Trig signal to ignition discharge module (IDM). Sends ignition timing signal to ignition discharge module (IDM) | $U \approx 100 \text{ mV}$ | $U \approx 850 \text{ mV}$ $f \approx 27 \text{ Hz}$ | Increases as engine speed (RPM) increases |
| 17 | Engine speed (RPM) signal. Engine speed (RPM) signal to Regina (# 1) | $> 500 \text{ mV}$ | $U = 7-8 \text{ V}$ $f \approx 27 \text{ Hz}$ | f increases with engine speed (RPM) |
| 18 | - | - | - | - |
| 19 | - | - | - | - |
| 20 | Signal ground. Signal ground terminal on intake manifold | $U = U_{low}$ | $U = U_{low}$ | |
| 21 | - | - | - | - |
| 22 | EGR temperature signal PTC | 1.5 - 2 V | 1.5 - 2 V | Increases when EGR operating |
| 22 | EGR temperature signal NTC | 1 - 4.7 V | 1 - 4.7 V | Drops when EGR operating |
| 23 | Engine speed (RPM) sensor, signal. Engine speed (RPM) and position in relation to TDC | $U = U_{low}$ | 1.6 - 2.3 V $V_{ac} \approx 770 \text{ Hz}$ | Increases as engine speed (RPM) increases |
| 24 | - | - | - | - |
| 25 | - | - | - | - |