

YS2R6X400E9183544 / EMS, Engine Management System / E 44, EMS control unit / S6 / V, Solenoid valves / V28, Solenoid valve for PDE unit injector

## E 44, EMS control unit

| Control unit pin | Task   | Signal type           | Source/destination   |
|------------------|--|-----------------------|--|
| A1/1             | Injector control.                            | Pulsed voltage signal | 9 litre: XPI injector, (V143).<br>13 litre: XPI injector, (V144).<br>16 litre: XPI injector, (V142). |
| A1/2             | Injector control.                            | Pulsed voltage signal | 9 litre: XPI injector, (V146).<br>13 litre: XPI injector, (V145).<br>16 litre: XPI injector, (V143). |
| A1/3             | Injector control.                            | Pulsed voltage signal | 13 litre: XPI injector, (V146).<br>16 litre: XPI injector, (V145).                                   |
| A1/4             | Injector control.                            | Pulsed voltage signal | 16 litre: XPI injector, (V148).  |
| A1/5             | Not used.                                    |                       |  |
| A1/6             | Grounding, injector.                         | Ground                | 9 litre: XPI injector, (V143).<br>13 litre: XPI injector, (V144).<br>16 litre: XPI injector, (V142). |
| A1/7             | Grounding, injector.                         | Ground                | 9 litre: XPI injector, (V146).<br>13 litre: XPI injector, (V145).<br>16 litre: XPI injector, (V143). |
| A1/8             | Grounding, injector.                         | Ground                | 13 litre: XPI injector, (V146).<br>16 litre: XPI injector, (V145).                                   |
| A1/9             | Grounding, injector.                         | Ground                | 16 litre: XPI injector, (V148).  |
| A1/10            | Not used.                                    |                       |  |
| A2/1             | Not used.                                    |                       |  |
| A2/2             | Ground, exhaust gas pressure sensor.         | Ground                | Exhaust gas pressure sensor, (T125).   |
| A2/3             | Voltage supply, exhaust gas pressure sensor. | +5V                   | Exhaust gas pressure sensor, (T125).   |
| A2/4             | Ground, fuel pressure sensor.                | Ground                | Fuel pressure sensor, (T111).  |

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| A2/5  | Voltage supply, fuel pressure sensor.                | +5V                    | Fuel pressure sensor, (T111).        |
| A2/6  | Not used.  |                        |                                      |
| A2/7  | Exhaust gas pressure sensor signal.                  | Analogue signal        | Exhaust gas pressure sensor, (T125). |
| A2/8  | Not used.  |                        |                                      |
| A2/9  | Not used.  |                        |                                      |
| A2/10 | Fuel pressure sensor signal.                         | Analogue signal        | Fuel pressure sensor, (T111).        |
| A3/1  | Control.   | Digital output signal  | Valve block, (V107).                 |
| A3/2  | Signal, camshaft position sensor.                    | Input signal frequency | Camshaft position sensor, (T135).    |
| A3/3  | Signal, camshaft position sensor.                    | Input signal frequency | Camshaft position sensor, (T135).    |
| A3/4  | Signal from engine speed sensor T75.                 | Input signal frequency | Engine speed sensor, (T75).          |
| A3/5  | Signal from engine speed sensor T75.                 | Input signal frequency | Engine speed sensor, (T75).          |
| A3/6  | Ground, bypass valve                                 | Ground                 | Valve block, (V107).                 |
| A3/7  | Ground, EGR damper.                                  | Ground                 | Valve block, (V107).                 |
| A3/8  | EGR damper control.                                  | PWM output signal      | Valve block, (V107).                 |
| A3/9  | Grounding exhaust brake damper.                      | Ground                 | Valve block, (V107).                 |
| A3/10 | Grounding exhaust brake damper.                      | PWM output signal      | Valve block, (V107).                 |
| A4/1  | Not used.  |                        |                                      |
| A4/2  | Grounding.   | Ground                 | 13 litre: Valve block, (V107).       |
| A4/3  | Throttle control.                                    | PWM output signal      | 13 litre: Valve block, (V107).       |
| A4/4  | Grounding the EGR valve position sensor.             | Ground                 | EGR valve position sensor, (T124).   |
| A4/5  | Voltage supply, position sensor for EGR valve.       | +5V                    | EGR valve position sensor, (T124).   |
| A4/6  | CAN bus to variable geometry turbocharger, M30, M42. | CAN High               | CAN communication to E44.            |

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|-------|---|------------------------|---|
| A4/7  | CAN bus to variable geometry turbocharger, M30.           | CAN Low                | CAN communication to E44.                       |
| A4/8  | Not used.   |                        |   |
| A4/9  | Not used.   |                        |   |
| A4/10 | Signal from EGR valve position sensor.                    | Analogue signal        | EGR valve position sensor, (T124).              |
| A5/1  | Wastegate valve control                                   | PWM output signal      | Valve block, (V107).                            |
| A5/2  | Not used.   |                        |   |
| A5/3  | Not used.   |                        |   |
| A5/4  | Signal from engine speed sensor T74.                      | Input signal frequency | Engine speed sensor, (T74).                     |
| A5/5  | Signal from engine speed sensor T74.                      | Input signal frequency | Engine speed sensor, (T74).                     |
| A5/6  | Ground to wastegate valve control.                        | Ground                 | Valve block, (V107).                            |
| A5/7  | Not used.   |                        |   |
| A5/8  | Not used.   |                        |   |
| A5/9  | Not used.   |                        |   |
| A5/10 | Not used.   |                        |   |
| A6/1  | Grounding, coolant pump rotational speed sensor.          | Ground                 | Coolant pump rotational speed sensor, (V124).   |
| A6/2  | Voltage supply, coolant pump rotational speed sensor.     | +12V                   | Coolant pump rotational speed sensor, (V124).   |
| A6/3  | Voltage supply of intake air temperature and flow sensor. | +24V                   | Intake air temperature and flow sensor, (T126). |
| A6/4  | Grounding, pneumatic throttle position sensor.            | Ground                 | Pneumatic throttle position sensor, (T162).     |
| A6/5  | Voltage supply, pneumatic throttle position sensor.       | +5V                    | Pneumatic throttle position sensor, (T162).     |
| A6/6  | Signal, coolant pump rotational speed sensor.             | PWM input signal       | Coolant pump rotational speed sensor, (V124).   |
| A6/7  | Not used.   |                        |   |
| A6/8  | Grounding of intake air                                   | Ground                 | Intake air temperature and                      |

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|       | temperature and flow sensor:   |                       | flow sensor, (T126).   |
| A6/9  | Signal from intake air temperature and flow sensor:                        | Analogue signal       | Intake air temperature and flow sensor, (T126).  |
| A6/10 | Signal, pneumatic throttle position sensor.                                | Analogue signal       | Pneumatic throttle position sensor, (T162).  |
| A7/1  | Not used.  |                       |  |
| A7/2  | Grounding, oil pressure sensor.  | Ground                | Oil pressure sensor, (T5).   |
| A7/3  | Voltage supply, oil pressure sensor.                                       | +5V                   | Oil pressure sensor, (T5).   |
| A7/4  | Grounding, coolant pump solenoid valve.                                    | Ground                | Coolant pump solenoid valve, (V124).   |
| A7/5  | Control, coolant pump solenoid valve.                                      | PWM output signal     | Coolant pump solenoid valve, (V124).   |
| A7/6  | Grounding of intake air temperature and flow sensor:                       | Ground                | Intake air temperature and flow sensor, (T126).  |
| A7/7  | Supply voltage to and signal from, intake air temperature and flow sensor. | +5V/Analogue signal   | Intake air temperature and flow sensor, (T126).  |
| A7/8  | Signal, oil pressure sensor.   | Analogue signal       | Oil pressure sensor, (T5).   |
| A7/9  | Voltage supply to and signal from, coolant temperature sensor.             | +5V/Analogue signal   | Coolant temperature sensor, (T33).   |
| A7/10 | Grounding, coolant temperature sensor.                                     | Ground                | Coolant temperature sensor, (T33).   |
| B1/1  | Injector control.  | Pulsed voltage signal | 9 litre: XPI injector, (V142).<br>13 litre: XPI injector, (V141).<br>16 litre: XPI injector, (V141). |
| B1/2  | Injector control.  | Pulsed voltage signal | 9 litre: XPI injector, (V144).<br>13 litre: XPI injector, (V142).<br>16 litre: XPI injector, (V144). |
| B1/3  | Injector control.  | Pulsed voltage signal | 9 litre: XPI injector, (V145).<br>13 litre: XPI injector, (V143).<br>16 litre: XPI injector, (V146). |
| B1/4  | Injector control.  | Pulsed voltage signal | 16 litre: XPI injector, (V147).  |
| B1/5  | Not used   |                       |  |

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| B1/6  | Grounding of injector.  | Ground              | 9 litre: XPI injector, (V142).<br>13 litre: XPI injector, (V141).<br>16 litre: XPI injector, (V141). |
| B1/7  | Grounding of injector.  | Ground              | 9 litre: XPI injector, (V144).<br>13 litre: XPI injector, (V142).<br>16 litre: XPI injector, (V144). |
| B1/8  | Grounding of injector.  | Ground              | 9 litre: XPI injector, (V145).<br>13 litre: XPI injector, (V143).<br>16 litre: XPI injector, (V146). |
| B1/9  | Grounding of injector.  | Ground              | 16 litre: XPI injector, (V147).  |
| B1/10 | Not used.   |                     |  |
| B2/1  | Not used.   |                     |  |
| B2/2  | Not used.   |                     |  |
| B2/3  | Not used.   |                     |  |
| B2/4  | Grounding of charge air pressure sensor.                            | Ground              | Charge air pressure sensor, (T122).  |
| B2/5  | Voltage supply, charge air pressure sensor.                         | +5V                 | Charge air pressure sensor, (T122).  |
| B2/6  | Not used.   |                     |  |
| B2/7  | Not used.   |                     |  |
| B2/8  | Grounding, charge air temperature sensor.                           | Ground              | Charge air temperature sensor, (T121).   |
| B2/9  | Voltage supply to and signal from, charge air temperature sensor.   | +5V/Analogue signal | Charge air temperature sensor, (T121).   |
| B2/10 | Signal, charge air pressure sensor.                                 | Analogue signal     | Charge air pressure sensor, (T122).  |
| B3/1  | Voltage supply 2, control unit.                                     | +24V                | P2.  |
| B3/2  | Grounding 2, control unit.  | Ground              | G15.   |
| B3/3  | Signal via starter lock.  | +24V                | 15 voltage.  |
| B3/4  | Grounding, electric motor for variable geometry turbo-charger, M30. | Ground              | G15.   |

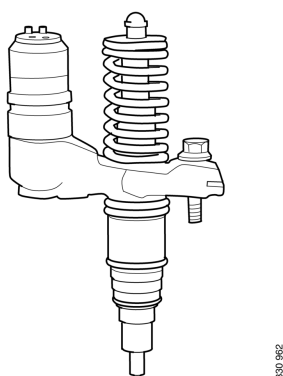
|       |   |                       |                                      |
|-------|---|-----------------------|--------------------------------------|
| B3/5  | Not used.   |                       |                                      |
| B3/6  | Voltage supply 1, control unit.                                     | +24V                  | P2.                                  |
| B3/7  | Grounding 1, control unit.  | Ground                | G15.                                 |
| B3/8  | Voltage supply, electric motor for variable geometry turbo-charger. | +24V                  | P2.                                  |
| B3/9  | CAN Red bus.  | CAN High              | Red CAN.                             |
| B3/10 | CAN Red bus.  | CAN Low               | Red CAN.                             |
| B4/1  | Switching off the alternator.<br>ADR only.                          | PWM output signal     | ADR only.                            |
| B4/2  | Not used.   |                       |                                      |
| B4/3  | Not used.   |                       |                                      |
| B4/4  | Not used.   |                       |                                      |
| B4/5  | Not used.   |                       |                                      |
| B4/6  | Not used.   |                       |                                      |
| B4/7  | Internal CAN communication.   | CAN High              | EEC3, (E67).<br>GCS, (E88).          |
| B4/8  | Internal CAN communication.   | CAN Low               | EEC3, (E67).<br>GCS, (E88).          |
| B4/9  | Not used.   |                       |                                      |
| B4/10 | Not used.   |                       |                                      |
| B5/1  | Control of starter motor.   | Digital output signal | Starter motor (Relay) M1.            |
| B5/2  | Not used.   |                       |                                      |
| B5/3  | Signal from alternator.   | Digital input signal  | Alternator, (P3).                    |
| B5/4  | Signal from alternator.   | Digital input signal  | Bus: Alternator, (P500).             |
| B5/5  | Signal, fan rotational speed sensor.                                | PWM input signal      | Fan rotational speed sensor, (T123). |
| B5/6  | Not used.   |                       |                                      |
| B5/7  | Grounding, fuel inlet metering valve.                               | Ground                | Fuel inlet metering valve, (V120).   |

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| B5/8  | Control of fuel inlet metering valve.  | PWM output signal       | Fuel inlet metering valve, (V120).  |
| B5/9  | Control of alternator 1.   | PWM output signal       | Alternator, (P3).   |
| B5/10 | Control of alternator 2.   | PWM output signal       | Bus: Alternator, (P500).  |
| B6/1  | Control of fan solenoid valve.   | PWM output signal       | Fan solenoid valve, (T123).<br>Bus: Hydraulic pump (V119).  |
| B6/2  | Voltage supply, oil level sensor.  | +5V                     | Oil level sensor (T110).  |
| B6/3  | Control of coupling coil for A/C compressor.   | Digital output signal   | Coupling coil for A/C compressor, (V2).   |
| B6/4  | Grounding of coupling coil for A/C compressor.   | Ground                  | Coupling coil for A/C compressor, (V2).   |
| B6/5  | Voltage supply of fan rotational speed sensor.   | +12V                    | Fan rotational speed sensor, (T123).  |
| B6/6  | Grounding of fan solenoid valve.   | Ground                  | Fan solenoid valve, (T123).<br>Bus: Hydraulic pump (V119).  |
| B6/7  | Grounding of oil level sensor.   | Ground                  | Oil level sensor, (T110).   |
| B6/8  | Signal, oil level sensor.  | Analogue signal         | Oil level sensor, (T110).   |
| B6/9  | Grounding of fan rotational speed sensor.  | Ground                  | Fan rotational speed sensor, (T123).  |
| B6/10 | Not used.  |                         |   |
| B7/1  | Signal, turbo speed sensor.  | Frequency, input signal | Turbo speed sensor, (T120).   |
| B7/2  | Voltage supply, electric motor for variable geometry turbocharger.   | +24V                    | Electric motor for variable geometry turbocharger, (M30).   |
| B7/3  | Not used.  |                         |   |
| B7/4  | Grounding, differential pressure sensor for particulate filter and pressure sensor for charge air cooler.      | Ground                  | EEV: Differential pressure sensor for particulate filter, (T141).<br>Euro 6: Charge air cooler pressure sensor, (T166). |
| B7/5  | Voltage supply, differential pressure sensor for particulate filter and pressure sensor for charge air cooler. | +5V                     | EEV: Differential pressure sensor for particulate filter, (T141).<br>Euro 6: Charge air cooler pressure sensor, (T166). |

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|-------|--|-------------------------|---|
| B7/6  | Signal, turbo speed sensor.  | Frequency, input signal | Turbo speed sensor, (T120).   |
| B7/7  | Grounding, electric motor for variable geometry turbo-charger.   | Ground                  | Electric motor for variable geometry turbocharger, (M30).   |
| B7/8  | Not used.  |                         |   |
| B7/9  | Not used.  |                         |   |
| B7/10 | Signal, charge air cooler pressure sensor.<br>Vehicles with EEV only: Signal, particulate filter differential pressure sensor. | Analogue signal         | Euro 6: Charge air cooler pressure sensor, (T166).<br>EEV: Differential pressure sensor for particulate filter, (T141). |

## V 28, Solenoid valve for PDE unit injector

Solenoid valve which is closed when not supplied with voltage.



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