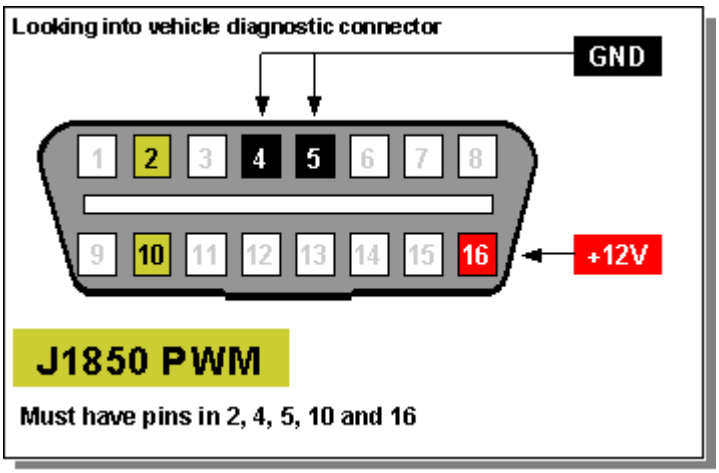
OBD-II NETWORK STANDARDS

Digi-K

All cars and light trucks built for sale in the United States after 1996 are required to be OBD-II compliant. There are five OBD-II protocol types in use: J1850 PWM, J1850 VPW, ISO 9141-2, ISO 14230 KWP2000, and ISO 15765 CAN. Each protocol differs electrically and by communication format. The Code Reader or Scan Tool must be compatible with the vehicles specific protocol in order to communicate.

To determine which protocol your vehicle is using, you need to locate the Data Link Connector. It's a 16-pin rectangular connector usually located below the steering column, behind the ash tray or within at least 3-feet from the drivers seat. It may also be located behind a snap off cover. The connector will not have all of the pins loaded. You can examine which pins are present to identify which protocol is being used. The diagrams below show all of the protocol pin positions.

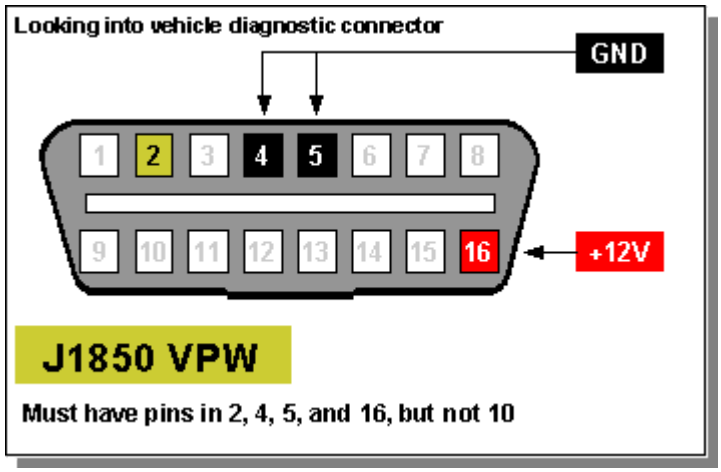
After you determine your vehicles protocol, check your scan tools support list or look into the scan tools connector to see if the mating pins are present.



SAE J1850 PWM (Pulse Width Modulation at 41.6 Kbps, two wire differential)

Pin 2: BUS+ signal
Pin 10: BUS- signal
Active bus state: BUS+ is pulled high while BUS- is pulled low
High signal voltage level: +5V (min/max 3.80 to 5.25)
Low signal voltage level: 0V (min/max 0.00 to 1.20)
Up to 12 message bytes, excluding frame delimiters
Bit Timing;

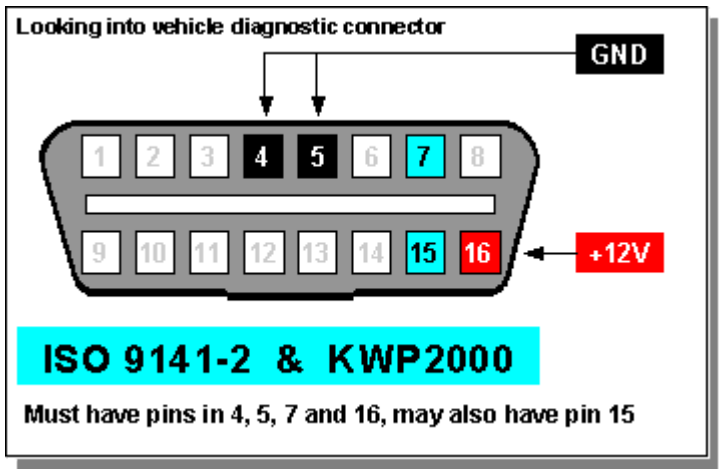
"1" Bit: Bus state active for 8uS (within 24uS bit period)
"0" Bit: Bus state active for 16uS (within 24uS bit period)
Start-Of-Frame: Bus state active for 48uS



SAE J1850 VPW (Variable Pulse Width at 10.4/41.6 Kpbs, single wire)

Pin 2: BUS+ signal
Idle bus level is low
High signal voltage level: +7V (min/max 6.25 to 8.00)
Low signal voltage level: 0V (min/max 0.00 to 1.50)
Up to 12 message bytes, excluding frame delimiters
Bit Timing;

"1" Bit: Signal low for 128uS or high for 64uS
"0" Bit: Signal low for 64uS or high for 128uS
Start-Of-Frame: Signal high for 200uS



ISO 9141-2 (Asynchronous serial communication at 10.4 Kbaud)

Pin 7: K-line bidirectional for communication
Pin 15: L-line (optional) unidirectional for waking up the ECU
Idle signal levels are high
Signals are active pull-down to 0V (0.00 to 2.40)
High signal voltage level: +12V (min/max 9.60 to 13.5)
Up to 12 message bytes, excluding frame delimiters
Bit Timing;

UART signaling at 10.4K baud, 8 data bits, no parity, 1 stop

ISO 14230 KWP2000 (Asynchronous serial communication up to 10.4 Kbaud)

Pin 7: K-line bidirectional for communication
Pin 15: L-line (optional) unidirectional for waking up the ECU
Idle signal levels are high
Signals are active pull-down to 0V (0.00 to 2.40)
High signal voltage level: +12V (min/max 9.60 to 13.5)
Message may contain up to 255 bytes in the data field
Bit Timing;

UART signaling up to 10.4K baud, 8 data bits, no parity, 1 stop

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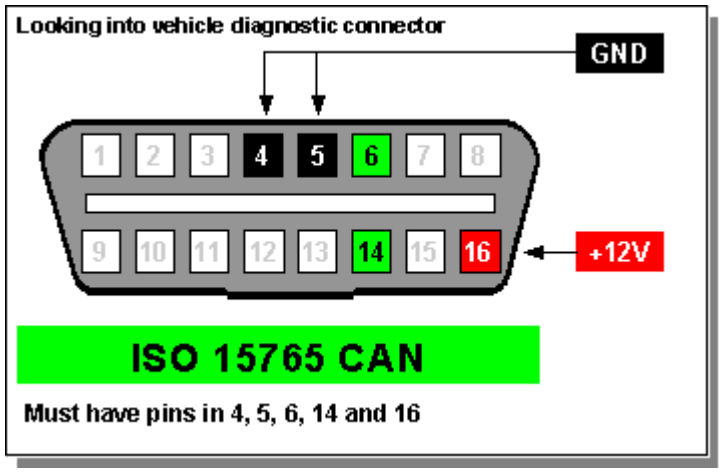

ISO 15765 CAN (250kbit/sec or 500kbit/sec)

Pin 6: CAN high (CANH)
Pin 14: CAN low (CANL)
Dominant or active bus state: CANH driven high while CANL driven low
Recessive or idle bus state: CANH and CANL signals are not driven
CANH signal voltage level: 3.5V (min/max 2.75 to 4.50)
CANL signal voltage level: 1.5V (min/max 0.5 to 2.25)

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