UNDERSTANDING OBD-II PROTOCOLS

An OBD2 compliant vehicle can use any of the five communication protocols: SAE J1850 PWM, SAE J1850 VPW, ISO9141-2, ISO14230-4 (KWP2000), and since 2003 also ISO 15765-4/SAE J2480.

Please note that some models are equipped with SAE J1962 connector, but these cars are NOT OBD2 compliant. Typical examples of such cars are some early VW/Skoda/Seat models (European versions only), Ford vehicles with EEC-IV using Ford DCL protocol (e.g. Ford Escort), Nissan EU/Asian models (using Nissan DDL protocol pre-2003 Nissan models are not OBD2 compliant), or some European Hyundai models.

ISO15765-4 (CAN-BUS)

The most modern protocol, mandatory for all 2008+ vehicles sold in the US. Uses pins 6 and 14, communication is differential.

Four variants of ISO15765 exist. They differ only in identifier length and bus speed:

- ISO 15765-4 CAN (11 bit ID, 500 Kbaud)
- ISO 15765-4 CAN (29 bit ID, 500 Kbaud)
- ISO 15765-4 CAN (11 bit ID, 250 Kbaud)
- ISO 15765-4 CAN (29 bit ID, 250 Kbaud)

ISO14230-4 (KWP2000)


Two variants of ISO14230-4 exist. They differ only in method of communication initialization. All use 10400 bits per second.

- ISO 14230-4 KWP (5 baud init, 10.4 Kbaud)
- ISO 14230-4 KWP (fast init, 10.4 Kbaud)

ISO9141-2


SAE J1850 VPW

Diagnostic bus used mostly on GM vehicles. Uses pin 1, communication speed is 10.4 kB/sec.
SAE J1850 PWM

Diagnostic bus/protocol used mostly on Ford. Uses pins 1 and 2, communication signal is differential and it's rate is 41.6kB/sec.

Determining protocol from OBD-2 pinout

As a general rule, you can determine which protocol your vehicle is using by looking at the pinout of the OBD-II connector:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Pin 2</th>
<th>Pin 6</th>
<th>Pin 7</th>
<th>Pin 10</th>
<th>Pin 14</th>
<th>Pin 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>J1850 PWM</td>
<td>must have</td>
<td>-</td>
<td>-</td>
<td>must have</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>J1850 VPW</td>
<td>must have</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ISO9141/14230</td>
<td>-</td>
<td>-</td>
<td>must have</td>
<td>-</td>
<td>-</td>
<td>optional</td>
</tr>
<tr>
<td>ISO15765 (CAN)</td>
<td>-</td>
<td>must have</td>
<td>-</td>
<td>-</td>
<td>must have</td>
<td>-</td>
</tr>
</tbody>
</table>

Please note that other pins may also be fitted. They usually connected to other (non-engine) ECUs or provide various signals. **PF-Diagnose** is not capable of "talking" to other ECUs than engine and in some cases Transmission. For diagnosis of other control units such as ABS, airbag, audio or body modules you need vendor-specific software or software licensed by the specific OEM often referred to as add-ons.

Other non-OBD2 protocols

Almost every vehicle also uses vendor-specific diagnostic protocols such as KWP2000, KW1281, VWTP, KW72, KW82, JED, which are used for "native" or OEM diagnostics. These are needed for parameter changes, ECU Reflashing and advanced diagnostics.