

# AVT-716 - Multiple Interface for Automotive Networks



## Vehicle Networks

As the use of electronics in automobiles increases, so do the requirements for communications among the various processors and modules as well as engineering test and diagnostic equipment. Many network protocols can now be found in wide spread use and others are gaining in popularity. Nearly all of these protocols are incompatible with the others.

## The AVT Solution

The AVT-716 Multiple Interface is a single unit solution for communicating with many of the network protocols found in-use today or destined to be found in tomorrow's vehicles. The AVT-716 hardware revision "E" supports the following automotive network protocols:

- J1850 VPW
- Keyword Protocol 2000 (ISO 14230)
- J1850 PWM
- GM's ALDL (8192 UART)
- ISO 9141-2
- Chrysler's CCD

## The AVT-716 Hardware

The AVT-716 Multiple Interface provides an isolated electrical interface between a host computer and the vehicle network. It performs the necessary protocol conversions and all required communication translations allowing a user with a PC (or similar) to communicate with a vehicle or module.

SAE standard J1850 specifies a Variable Pulse Width (VPW) version with a bit rate of 10.4 kbits/sec. and a Pulse Width Modulation (PWM) version with a bit rate of 41.6 kbits/sec. ISO standard 9141-2 specifies a bit rate of 10.4 kbits/sec. Keyword Protocol 2000 supports multiple data rates from 1.2 to 10.4 kbits/sec. The ALDL bit rate is 8192 bps and CCD runs at 7812.5 bps. All of these protocols are different and most are not compatible.

Switching the AVT-716 among any of these protocols is easily accomplished via a simple software command.

The AVT-716 supports transmit and receive operations in VPW mode at 4 times the normal rate. (4x operations may be required for some GM Class 2 modes.) The AVT-716 is also Ford SCP compliant.

The AVT-716 was designed to connect directly to the subject vehicle and host computer. Power for the AVT-716 is provided by the vehicle through the OBD-II connector. Communications between the AVT-716 and the host computer are via either an RS-232 or RS-422 serial interface. The desired interface and baud rate are selected by configuring four jumpers. Optical isolation is used on the AVT-716 to electrically isolate the host computer from the subject vehicle at the serial interface.

The AVT-716 Multiple Interface consists of two printed circuit boards (mated together, back to back). Board #1 consists of the microcontroller, ROM, RAM, serial controller, operation indicators, and real time clock. Board #2 functions include the optically isolated serial interface to the host computer, the network interfaces, and the DC/DC converter power supply.

The AVT-716 is available housed in a rugged polycarbonate enclosure or as an OEM module (circuit boards only). An OBD-II compatible cable (permitting direct vehicle connection) is also available. A hardware User's Manual containing technical information is included with the AVT-716.

All AVT equipment is warranted for one year from date of purchase. Free firmware upgrades are available for one year from date of purchase. Prompt technical support (telephone or e-mail) is always available.

## Specifications

Size: ..... 5.1 x 6.7 x 2.2 in. (Enclosure/Overall)  
4.0 x 5.6 x 1.3 in. (OEM module)

Weight: ..... 18 ounces (7 oz. OEM only)

Voltage: ..... +8 to +25 VDC (from vehicle)

Power: ..... 2 watts (nominal)

Host interface: ..... RS-232 or RS-422 (jumper selectable)

Host baud rate: ..... 9.6, 19.2, 38.4, 57.6 kbaud (jumper selectable)

Connectors: ..... DE-9S and DA-15P

Microcontroller: ..... MC68332 @ 16 MHz (Motorola)

## Information

Refer to our Web Site for the most up-to-date information including technical manuals, application notes, unit Commands and Responses, hardware and firmware revision status, and more.

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**AVT-716 Multiple Interface  
(RS-232 Stand Alone unit)****Ordering Information**

The AVT-716 interface board set housed in a rugged polycarbonate enclosure, serial cable, internal Jumper I board, and documentation.

**Order # 716-002**

The AVT-716 interface board set, Jumper I board, and documentation.

**Order # 716-003**

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**Accessories****Ordering Information**

9-pin serial cable.

**Order # 101-001**

OBD-II cable.

**Order # 101-002**

Ribbon cable, 15 conductor.

**Order # 101-003**

Ribbon cable, 9 conductor.

**Order # 101-004**

Toggle switch assembly.

**Order # 101-005**

Enclosure, polycarbonate. Complete unit.

**Order # 101-006**

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**Engineering Support Services**

We provide engineering support services and custom engineering. These services are also available at your site (travel and related expenses are billed at actual costs).

**Ordering Information**

Engineering Support

**Order # 101-007**