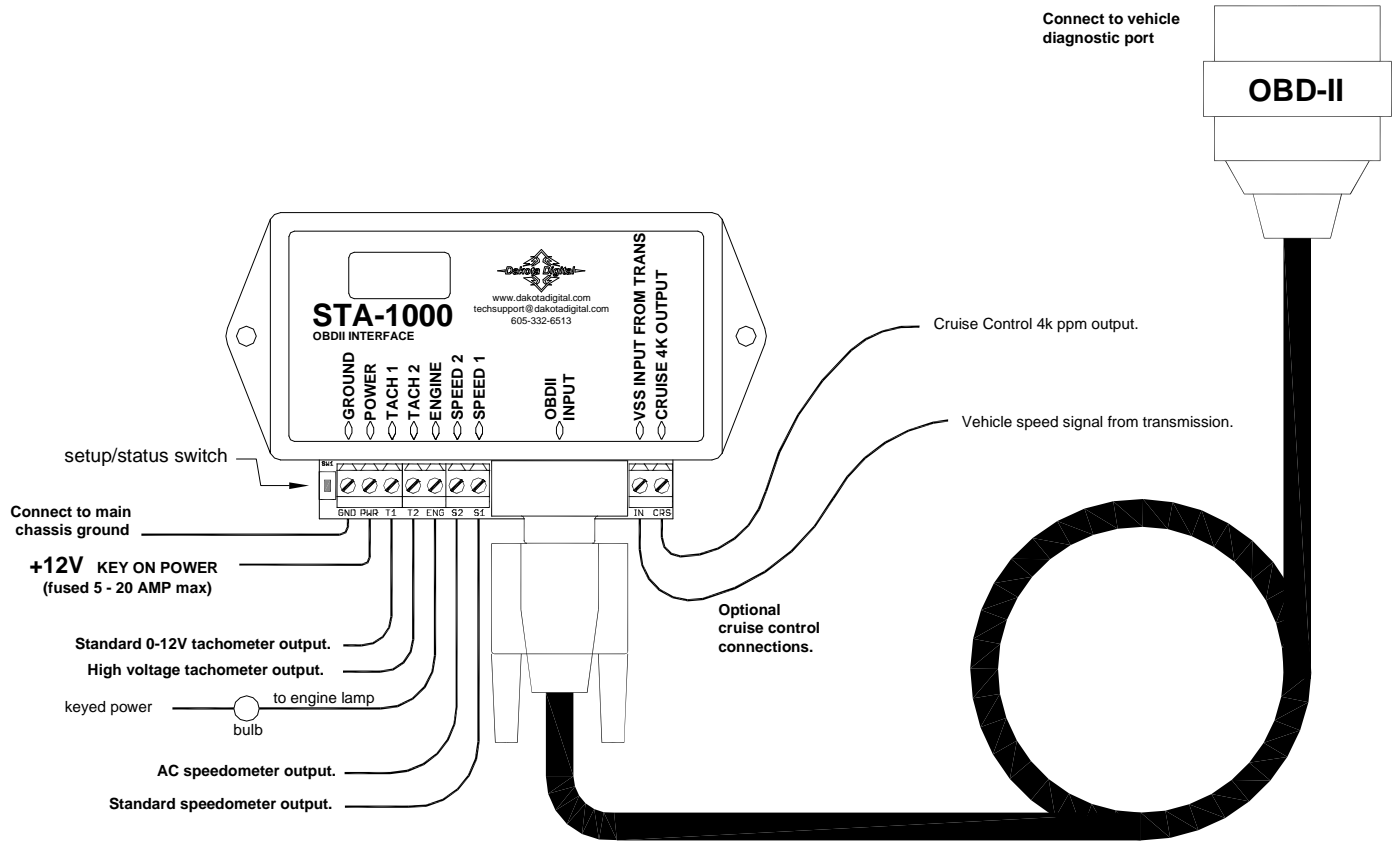




# STA-1000 Speed/Tach Interface Module for OBD-II vehicle interface



This unit has an input to read engine information from vehicles using the GM 1996-up OBD-II protocol, Ford 1996-up OBD-II protocol, some Chrysler 2000-up OBD-II protocol, or CAN OBD-II protocol. CAN OBD-II is used on all vehicles 2008 and newer and some vehicles from 2004 – 2008. It provides speedometer, tachometer, and engine indicator outputs. Do not mount this in the module in the engine compartment; it should be mounted in interior of the vehicle.

### Operation

The RPM and speed can be provided by this unit instead of trying to find a compatible connection somewhere in the vehicle wiring harness. These outputs can be calibrated to match the gauge being connected.

The malfunction indicator lamp (MIL) or service engine soon indicator will be activated from the data bus when there is an engine code set. This will not turn on the indicator for a lamp test function when the key is on, but the engine is not running.

Since a cruise control will typically not work well with the speed data from the diagnostic bus, a connection is provided to connect a VSS signal directly from the transmission and then provide a calibrated 4000 ppm output. The output is self calibrated by reading the incoming transmission VSS signal and comparing it with the speed data from the diagnostic bus.

## Setup Menu

- <i>Id</i>	5,1,52,F1,F2	set the J1850 device ID.
<i>CYL</i>	4,6,8	set the engine cylinder count
<i>CRL</i>	3.0 – 20.0	set the speedometer calibration
<i>Adj</i>		fine adjustment of the speedometer calibration
<i>cod</i>		display the revision code
<i>rst</i>	no,yes	reset all settings to factory default values.

## Tachometer Setup

- Hold the switch beside the STA-1000 terminal strip while turning the key on. The display will show “*BBB*” while this is held.
- Release the switch. The display will show “- *Id*”.
- Press and release the switch until “*CYL*” is shown.
- Press and hold the switch until “ - ” is shown.
- Release the switch. The current engine cylinder setting will be shown: 4, 6, or 8. The tachometer output will also be generating a 2000 rpm signal to verify the reading on your gauge.
- Press and release the switch to change the setting.
- Press and hold the switch until “ - ” is shown to save the setting.
- Release the switch.
- Turn the key off to exit.

## Speedometer Setup

There are two methods of setting or calibrating the speedometer. The first is “*CRL*” and this allows you to select a signal from 3,000 – 20,000 pulse per mile calibration in steps of 1,000. The second is “*Adj*” and this allows the signal to be finely adjusted up or down.

### “*CRL*” Setup

- Hold the switch beside the STA-1000 terminal strip while turning the key on. The display will show “*BBB*” while this is held.
- Release the switch. The display will show “- *Id*”.
- Press and release the switch until “*CRL*” is shown.
- Press and hold the switch until “ - ” is shown.
- Release the switch. The current speedometer calibration setting will be shown. The speedometer output will also be generating 60 mph (96 km/h) signal to verify the reading on your gauge.
- Press and release the switch to change the setting from 3.0 – 20.0 (3,000 – 20,000 ppm).
- Press and hold the switch until “ - ” is shown to save the setting.
- Release the switch.
- Turn the key off to exit.

### “*Adj*” Setup

- Hold the switch beside the STA-1000 terminal strip while turning the key on. The display will show “*BBB*” while this is held.
- Release the switch. The display will show “- *Id*”.
- Press and release the switch until “*Adj*” is shown.
- Press and hold the switch until “ - ” is shown.
- Release the switch. “*Adj*” will be shown and the speedometer output will also be generating 60 mph (96 km/h) signal to verify the reading on your gauge.
- Press and hold the switch to change the speedometer signal. It will alternate between increasing the signal and decreasing the signal each time you press the switch.
- After four seconds of not pressing the switch, it will save and exit the adjust setting.
- The display show “*cod*”.
- Turn the key off to exit.

## Id Setup

When using the pre-CAN bus GM J1850 or Ford J1850 protocols the unit must have a unique ID to identify itself on the bus. By default this is set to use a gauge display panel bus ID and should not normally need to be changed. If there is some other module already using this ID, then another can be selected. Some Chrysler vehicles may require F1 or F2 ID's to be selected for proper operation. 61 and 62 are gauge ID's and F1 and F2 are scan tool ID's.

### To set or change the diagnostic bus ID numbers:

- Hold the switch beside the STA-1000 terminal strip while turning the key on. The display will show “888” while this is held.
- Release the switch. The display will show “- id”.
- Press the switch. The BIM display will show the currently selected bus ID.
- Release the switch.
- Press and release the switch to change the setting from 61, 62, F1, or F2.
- Press and hold the switch until “ - ” is shown to save the setting.
- Release the switch.
- Turn the key off to exit.

### Troubleshooting quick tips:

While the BIM is operating, the dot in the upper left corner of the display will indicate the status. On steady indicates it is powered up and there is no signal on the VSS input. Flashing indicates it is receiving a signal on the VSS input. A dot in the upper center indicates that there is an engine code set (MIL active).

If the display is sequencing through “-J-”, “-F-”, and “-C-” then it is scanning to try and communicate with the vehicle bus but cannot get an answer.

To see the signal and channel status on the BIM display, press and hold the switch. If “BUS” is shown, the module cannot communicate with the vehicle. The display will cycle through several screens. The first will show the bus type (“J” for GM or Chrysler J1850, “F” for Ford J1850, “C” for CAN) and the number of control modules answering. The next screens will indicate speed and rpm. “r 1. 5” for 1,500 rpm and “ 95” for 96 km/h speed.

### Troubleshooting guide.

Problem	Possible cause	Solution
Outputs do not work and the display will not light up at all.	PWR terminal does not have power.	Connect to a location that has power.
	GND terminal does not have a good ground.	Connect to a different ground location.
	Module is damaged.	Return for service. (see instructions)
Outputs do not work and the display is scanning “J”, “F”, “C”	OBD-II Interface cable is not connected.	Connect the supplied OBD-II cable between the STA-1000 unit and the vehicle diagnostic plug.
	The vehicle bus is not compatible.	Vehicles using the ISO 9141-2 protocol are not compatible with the STA-1000. This includes some Chrysler and many import vehicles.
Gauge does not read. STA-1000 has a steady or flashing dot lit.	Broken or loose wire connection.	Inspect and reconnect wires.
	Wire connected to the wrong output.	Switch between the #1 and #2 output types and retest.
	Output calibration is incorrect.	See “Tachometer Setup” or “Speedometer Setup” in the manual.
Gauge operates, but does not read correctly.	Loose connection on sensor wires.	Inspect and reconnect wires.
	Output calibration is incorrect.	See “Tachometer Setup” or “Speedometer Setup” in the manual.
Cruise control will not engage. Display has steady dot.	VSS signal is not connected from the transmission.	Inspect and reconnect wires.
Cruise control will not engage. Display has a flashing dot.	The vehicle must be driven once to allow the output to be calibrated.	Drive the vehicle at 30 – 45 mph, stop and shut it down, retest the cruise control.
	Cruise control speed input is incorrect.	Set the cruise control for a 4000 (4k) ppm signal.

## **SERVICE AND REPAIR**

DAKOTA DIGITAL offers complete service and repair of its product line. In addition, technical consultation is available to help you work through any questions or problems you may be having installing one of our products. Please read through the Troubleshooting Guide. There, you will find the solution to most problems.

**Should you ever need to send the unit back for repairs, please call our technical support line, (605) 332-6513, to request a Return Merchandise Authorization number.** Package the product in a good quality box along with plenty of packing material. Ship the product by UPS or insured Parcel Post. Be sure to include the RMA number on the package, and include a complete description of the problem with RMA number, your full name and address (street address preferred), and a telephone number where you can be reached during the day. Any returns for warranty work must include a copy of the dated sales receipt from your place of purchase. Send no money. We will bill you after repair.

### **Dakota Digital Limited Lifetime Warranty**

DAKOTA DIGITAL warrants to the ORIGINAL PURCHASER of this product that should it, under normal use and condition, be proven defective in material or workmanship for the lifetime of the original vehicle it was installed in, such defect(s) will be repaired or replaced at Dakota Digital's option.

This warranty does not cover nor extend to damage to the vehicle's systems, and does not cover removal or reinstallation of the product. This Warranty does not apply to any product or part thereof which in the opinion of the Company has been damaged through alteration, improper installation, mishandling, misuse, neglect, or accident.

This Warranty is in lieu of all other expressed warranties or liabilities. Any implied warranties, including any implied warranty of merchantability, shall be limited to the duration of this written warranty. No person or representative is authorized to assume, for Dakota Digital, any liability other than expressed herein in connection with the sale of this product.



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