

# Advanced OBD Diagnostic Port Tester

## Operating manual

The easiest and quickest way for complete testing of all types 12V automotive diagnostic ports.



### In which applications it can be used?

- Protect all automotive diagnostic scanners from damages, provoked by wrong electrical connections in the diagnostic port or troubles on the electrical system of the tested vehicle.
- Check whether positive supply is available on pin 16 of OBD2 connector.

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- Check whether negative supply is available on pins 4 and 5 of OBD2 connector.
- By means of this diagnostic port tester can be detected easily if some of the power supplying wires to diagnostic connector is disconnected and which one – the wire to the chassis ground or to the car battery positive terminal.
- Continuously monitors the car battery status.

### How the complete test is done?

- Check if the OBD2 port has a +12V supply on pin 16
- Check if the OBD2 port has good ground connections on pins 4 and 5
- Check for car battery low voltage.
- Check for reverse power supply in the car diagnostic socket.

⇒ *Each separate pin on the diagnostic port is tested for\*:*

- Voltage over 16V
- Negative voltage under 0V
- Presence of 12V without any resistor (without pin 16)

\* Each separate pin of the diagnostic port is tested in the case of stable state event or in the case of single impulses.

### Technical specifications

Period of each test cycle:	Max. 15 sec.
Max voltage on each pin:	200V DC or AC
Power supply:	DC 12V from the diagnostic port;
External supply:	DC 12V through optional cable;
Supply voltage range:	7V DC ~ 35V DC;
Power consumption:	0.5W max;
Connector:	DB15 Connector, male
Dimensions:	130mm x 70mm x 30mm
Weight:	0.3kg

## LED Indicators and Device appearance



### 16 red LEDs

The appearance of these LED is like an OBD2 port of the vehicle. The red lightening of some of them shows incorrect signal of the correspondent socket pin.

### Mode

Show the chosen mode of testing, multiplex mode or mode of single measuring.

### Low Battery

Check the battery voltage of the vehicle and it is switched on when this voltage is lower than 11V.

### OK

Green LED. It is switched on when the results from the test do not show possible reasons that can damage the automotive diagnostic scanner.

### RESTART/Mode

Button with double function. A single push will start a new test cycle. If this button is pushed and held for approximately 2sec, the working mode of the tester will be changed.

### Working mode of OBD Diagnostic Port tester

In normal working mode the OBD Diagnostic Port tester is power supplied by the diagnostic socket of the vehicle. The other possible supplying mode is by the automotive battery through optional cable, which scheme is shown below.

It is recommended the following three tests to be conducted before connecting some diagnostic scanner to automotive diagnostic socket: the ignition to be switched off, the ignition to be switch on and when the engine is running. Depending on the results from these tests a decision for the next procedures will be taken.

As soon as the tester is connected to the diagnostic port and after having been supplied, a new test cycle starts. Each pushing of RESTART button will start a new test cycle. For example, when the ignition is switched on, for starting of a new test the button RESTART has to be pushed for short.













#### I. Multiplex mode - the LED Mode is not switched on.

This is the normal working mode of the device and it is defaults chosen at initial start of the tester.






The multiplex mode is applied for testing of automotive diagnostic port type OBD2 or if some adaptors cables are used for connection of old type car diagnostic sockets (used in vehicles produced till year 2000) to female OBD2 connector. At this mode OBD Diagnostic Port tester automatically checks all the pins of the diagnostic socket and shows the test results on the LED.

When the test is 100% successful NO one of the LED is switched on except the green LED OK. If some of the red LED is switched on, that means availability of not typical potential on the correspondent pin.

To understand well the results from the tests, please refer to the table below:

Result	OK	Description	Condition	Recommendations
		The red LED is switched off	No problem	No problem
 Low Battery		Low battery voltage	Attention	A charger to be connected
  Blinking period around 1s		Short to 12 V	Warning	See the remark below
		Voltage over 16V	<b>Danger!</b>	To eliminate the problem
  Quick blinking		Voltage under 0V	<b>Danger!</b>	To eliminate the problem

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 		Reverse supply polarity	<b>Danger!</b>	To eliminate the problem
		No LED switched on	No supply	To eliminate the problem

### What the term „Short to 12V” means?

This term supposes availability of a positive voltage from the battery on one or more pins of the automotive diagnostic port. This voltage is connected either in short or by resistance which value does not exceed 20 ohms. In other words that means if a voltage 0V is supplied from the other side of the diagnostic device to this pin, a current bigger than 0.6A will flow in case if in the diagnostic scanner a circuit for current's limitation is not built in.

In many cases the vehicles` manufacturers provide on some pin of automotive diagnostic socket a signal for the RPMs or signal coming from other sensors used for test and adjustment. These signals are usually on some pin of diagnostic socket, which is not specified by OBD2 standard as line for diagnostics, K1 line, K2 line, L-line, CAN-high, CAN-low and etc. Such a signal coming from the sensor for RPMs is detected as „Short to 12V”.

On the other side, almost all the scanners have protective current circuit.

Because of the above reasons such situation should not be accepted as signal for danger, but only as a warning.

It is important to take into consideration the fact that if „short to 12V” is available on some of the pins used for diagnostics in the concrete vehicle and the diagnostic scanner does not succeed to establish a connection with one or more ECU, one of the possible reasons for failed communication can be this short to +12V.

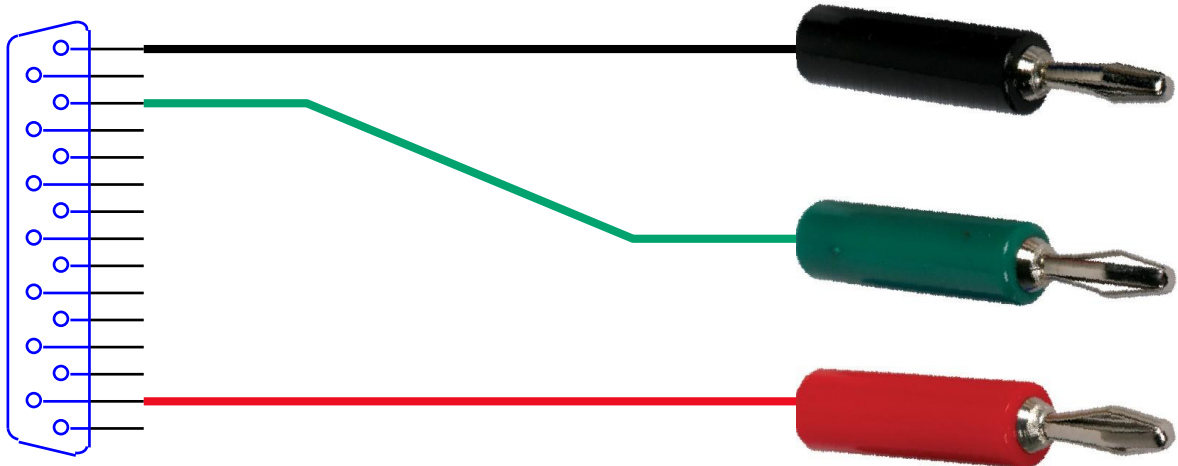
### II. Mode test on one pin - the LED Mode is switched on

This mode is used, when the condition of some automotive diagnostic connectors, before OBD2 standard for which an adaptor cable is not available, has to be checked. In such case the potentials of its pin can be tested, one by one.

To choose this mode push and hold button RESET for approximately 2-3 sec. till the orange LED Mode is switched on. To exit this mode holds the same button.

After the mode for testing only on one pin is switched on, the tester does not check anymore the all 16 pins of the diagnostic socket, but it tests only the 1<sup>st</sup> pin of OBD2 plug. Because of this reason for using of this mode it is necessary the optional cable which scheme is shown below to be bought and used:

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Black banana – Ground/ Negative battery terminal

Red banana – Positive battery terminal

Green banana – test line for making single test

The optional cable shown above can also be used for check which of the both supply wires to OBD2 car connector is disconnected if the voltage on the connector is missing.

### In the set

- OBD port tester – main device
- Cable OBD2 male to female DB15

