

**Common Rail Injector Checker**  
**"Jet4-E.1-4"**

*Passport.*  
*Technical Description.*  
*Instructions for use.*  
*Warranty card.*



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## **Introduction**

This passport is a document certifying basic parameters and technical characteristics of the "Jet4-E.1-4" controller for testing and checking performance of Common Rail system diesel injectors. This passport allows to get acquainted with the device, order and rules of its operation, observance of which will ensure correct operation of the controller.

## **1. General information**

The controller "Jet4-E.1-4" is an electronic unit that controls electrical elements of Common Rail fuel system. It is used as part of bench and manual equipment.

## **2. Destination**

Diesel tester OS. CRIP/V8" is designed for diagnosis of Common Rail system injectors manufactured by Bosch, Denso, Delphi, Siemens VDO on the test bench.

The device provides:

- simultaneous control of 1 nozzle;
- control of electromagnetic injectors of light series from 14V voltage;
- control of electromagnetic nozzles of the truck series;
- piezoelectric nozzle control;
- control of Common Rail fuel injection engines of CP1, CP3 systems;
- control of the measuring unit curtain;
- control of COMMON RAIL solenoid valves, manufactured by BOSCH, to measure the valve stroke when measuring the magnetic clearance.

## **3. Main technical data and characteristics**

- Supply voltage, V - ~100-240 V;
- Power consumption, W, not more than - 350 W.
- Curtain control relay load - 5A 250V AC, 5A 24V DC;
- Unit weight: 65 kg;
- Dimensions (width x height x depth) - 520x650x290 mm;

## 4. Device design

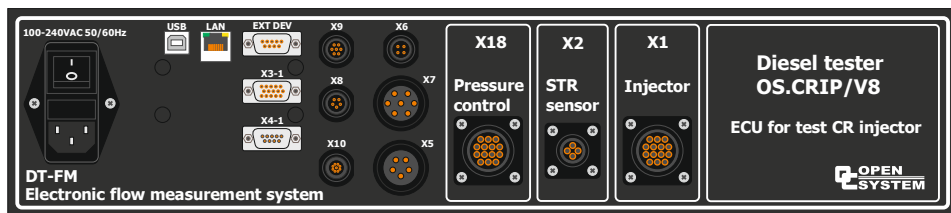


Рисунок 1.Faceplate

Diesel tester OS. CRIP/V8". - The device is structurally designed as a block. On the front panel of the device there are:

- USB, LAN - for connection to a personal computer;
- EXT DEV - for connecting an external device;
- X3-1 - for connecting an angle encoder;
- X4-1 - for connection of the rotation sensor;
- X9 - for connecting the frequency converter;
- X8 - for connecting the temperature sensor;
- X10 - for connection of actuator sensors;
- X6 - for connecting the pressure sensor;
- X7 heating/cooling control;
- X5 - pump control;
- X1 - nozzle control;
- X2 - for connection of the injection sensor;
- X18 - for connection of regulator and pressure sensor;
- "NETWORK" for connection of mains supply ~220 V.

The "NETWORK" connector is structurally designed in the same housing as the fuse.

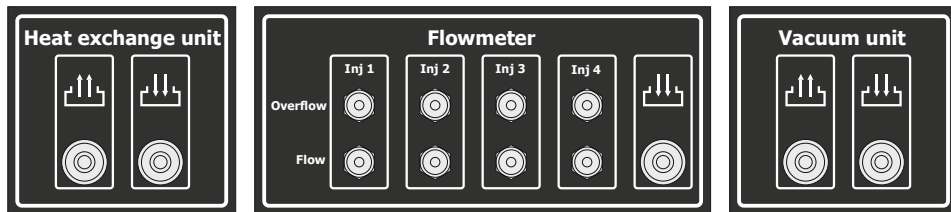


Рисунок 2.Bottom panel

On the bottom panel of the unit are connectors for the Flow performance measurement channels and the nozzle return line measurement channels, the test fluid in/out for the Vacuum unit and for the Heat exchange unit.

Depending on the modification, different variants of the bottom panel are possible.

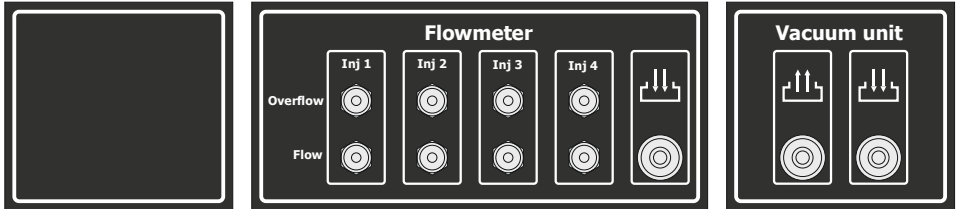


Рисунок 3. Bottom panel option 2

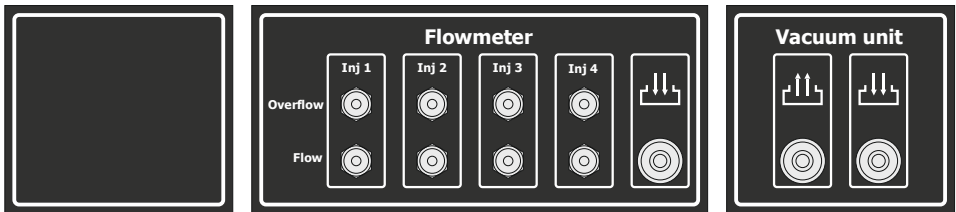


Рисунок 4. Bottom panel option 3

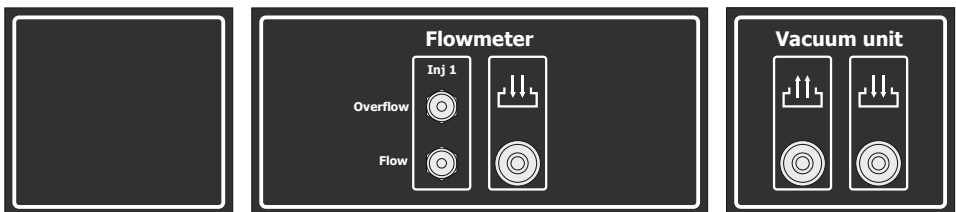


Рисунок 5. Bottom panel option 4

Other variants of the bottom panel are possible, but they do not affect the main functions and characteristics of the device

## **5. Operating instructions**

Requirements for environmental conditions:

- Operating temperature: +5°C to +40°C
- Transport temperature: -20 °C to +60 °C
- Relative humidity (non-condensing): Operational 8% - 80%, Storage 5% - 95%.

- Air dust content: not more than  $75 \mu\text{g}/\text{m}^3$

Before switching on the device it is necessary to check visually or by means of devices, serviceability of connectors-adapters, 220 volt power cable.

If the appliance has been moved from a cold to a warm environment, **it is strictly forbidden to operate for 1-1.5 hours.**

After switching on, allow the unit to run for 2-4 minutes and then start working.

#### **Categorically forbidden:**

- switch on the device if the power supply cables are defective;
- connect and disconnect adapter connectors from injector, sensor or pressure regulator while the unit is on;
- plug the device into a network that does not have an earthing circuit;
- plug the device into the mains using a cable without an earthing contact;
- to use the "Diesel tester OS. CRIP/V8" in conjunction with electrical equipment that is not connected to an earthing circuit.

**Failure to observe the last three points may result in electric shock.**

**In addition to health hazards, the lack of grounding, in most cases, leads to failure of the pressure sensor, since the device uses a switching power supply, according to the circuitry features of which, in the absence of grounding on the device body will be voltage equal to half of the device supply voltage and becomes 110V.**

## **6. Limitation of liability**

The manufacturer shall not be liable to the purchaser of this product or a third party for damages or losses incurred by purchasers or a third party due to improper use of the product, including inexpert or faulty operation of personnel, or for losses caused by the action or inaction of this device.

Under no circumstances will the manufacturer be liable for any lost profits, lost savings, losses due to accidents or other consequential economic losses, even if the company has been informed of the possibility of such losses. The manufacturer shall not be held liable for damages claimed by you based on third-party claims or caused by the failure to perform your obligations.

The manufacturer shall not be liable for any malfunctions and damages resulting from the use of additional devices recommended for use with this device, as well as its modification, repair or conversion beyond the scope of the operating instructions, including the use of a self-made adapter plug.

## **7. Preparing for work**

Before you start your work with the "Diesel tester OS. CRIP/V8" please read the operating instructions carefully.

When preparing the unit for operation, carry out the following steps:

Perform an external inspection of the device and connecting cables. External inspection of the device and connecting cables is carried out with power supply disconnected and consists in detection of mechanical damage of the device and connecting cables.

### **8. Working with the device**

Diesel tester OS. CRIP/V8" enables testing of electrically controlled common rail diesel injectors by means of user defined injector control signals and fuel pressure by controlling the control valve.

The device is controlled by means of software (hereinafter referred to as software) on a personal computer (hereinafter referred to as PC).

In automatic mode, additional control of the pressure regulator is available to maintain the set pressure in the system, control of various actuators (e.g. switching on/off the booster pump, control of the measuring unit curtain), measurement of Response time (response time) for checking and coding of injectors from Delphi.

- 1.Connect the nozzle using a suitable adapter cable to the connection cable and to the connector X1.
- 2.Connect the power cord to the power connector and to 220V/50Hz AC power.
- 3.Turn on the unit with the power switch (see point 4).



## 9. Updating the device software

To update the device software, follow the steps below:

- 1.Connect the USB communication cable to the unit's connector and connect it to the USB port of the PC.
- 2.Connect the power cord to the power connector and to 220V/50Hz AC power.
- 3.Turn on the unit with the power switch (see point 4).
- 4.Start the PC and software to update the device. You will be taken to the updater window:

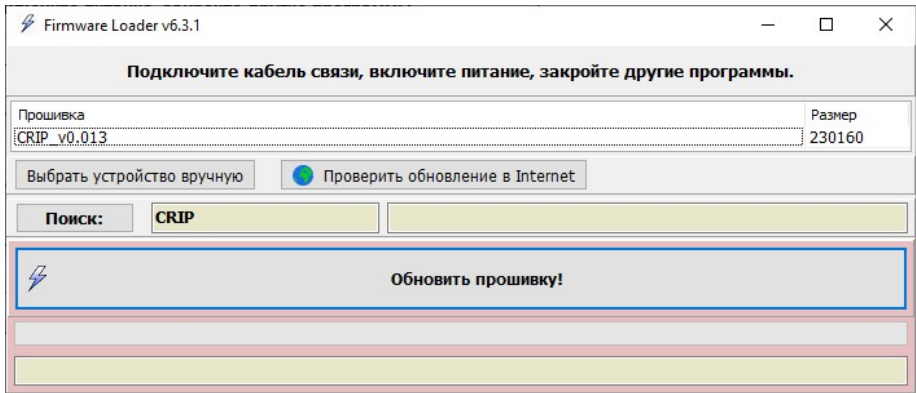


Рисунок 6.Updating the device software

- 5.Press the "**Upgrade firmware!**" ».
- 6.Wait for the update process to complete.
- 7.Close the updater window.

## **10. Scope of delivery**

Data sheet (Technical description, instructions)	
operation).....	1 pc.
Diesel tester OS. CRIP/V8" .....	1 pc.
Connection cable for nozzles1 .....	pc.
Adaptor cable for nozzles.....	4 pcs.
Cable for regulators and pressure sensor .....	1 pc.
Power supply cable .....	220V1pc.
Fuse 5A1 .....	pcs.
RIP PC communication cable .....	2 pcs.

## **11. Warranty obligations**

The manufacturer guarantees stable operation of the device "Diesel tester OS. CRIP/V8", if the owner observes the rules of storage and operation, stated in the present certificate.

The warranty period is set by the manufacturer - 18 months from the date of receipt of the product, with the exception of cases specifically agreed by the manufacturer and the buyer in the additional contract.

The manufacturer marks in the warranty card the year, month, day of sale, legal address, phone number of the warranty repair company (the warranty card is enclosed to the passport of the device "Diesel tester OS. CRIP/V8").

During the warranty period the owner is entitled to a free repair on presentation of this passport and the warranty card. After the repair, the list of troubleshooting works shall be recorded in the warranty card.

The following is not a reason for complaint: breach of integrity of connecting wires (cables-adapters).

The manufacturer is entitled to refuse the warranty repair of the device "Diesel tester OS. CRIP/V8" in the following cases

- The device has been tampered with and there are traces of tampering;
- There are traces of mechanical damage on the casing or the electronic board of the device;
- There are foreign objects or liquids in the case or on the electronic board of the device;
- if the device is not stored and operated properly.

Without the warranty card and in case of violation of the seals on the product, no claims to the quality of work and warranty repair will be made.

During the warranty period set for the product, repairs will be made at the owner's expense if the product is not operated in accordance with these operating instructions.

The manufacturer provides further repairs of the "Diesel tester OS. CRIP/V8" after the end of the warranty period under a separate contract.

## Appendix 1 X1 connector pinout



Рисунок 7.Nozzle connector (modification for 4 injectors)

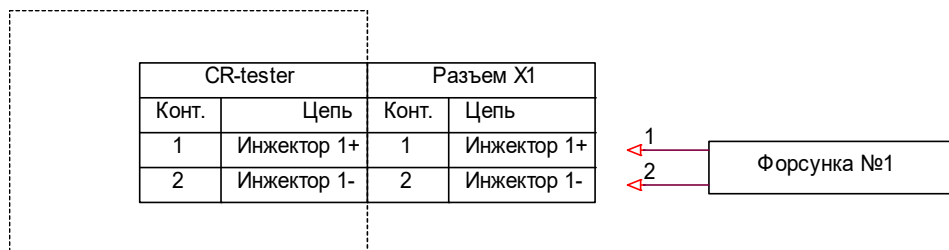


Рисунок 8.Injector connection connector (modification for 1 injector)

## Appendix No. 2 X2 connector pinout

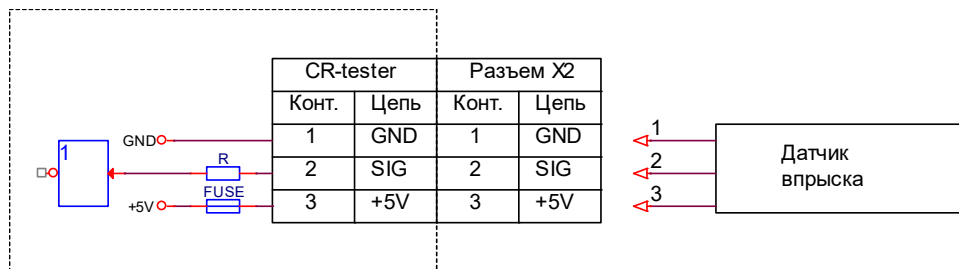


Рисунок 9.Injection sensor connection socket

### Appendix No. 3 X1 connector pinout

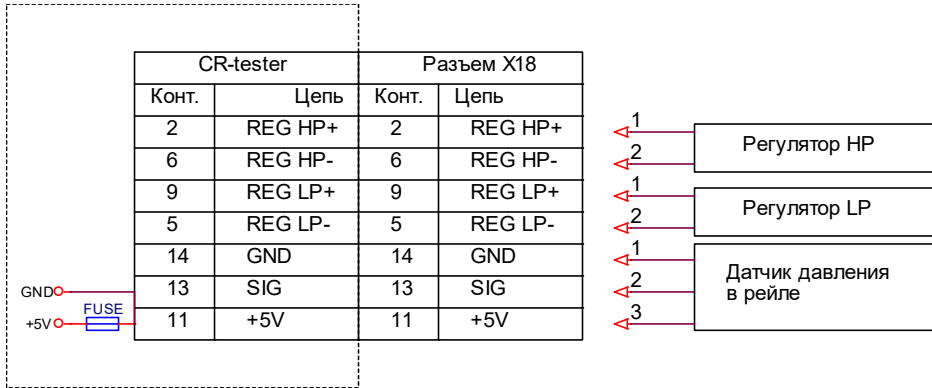


Рисунок 10. Connection of rail pressure sensor and pressure regulators

### Appendix No. 4 X6 connector pinout

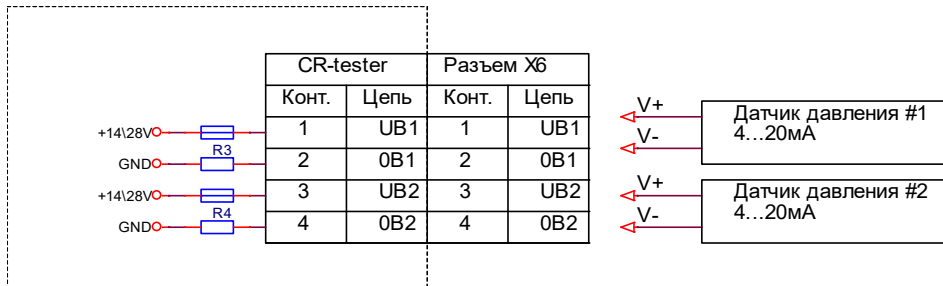


Рисунок 11. Sensor connection connector with 4-20mA output

In the case of an integrated vacuum system, sensor No. 1 is not connected to an external connector, but is used to monitor the vacuum level.

## Appendix No. 5 X5 connector pinout



Рисунок 12. Connection to curtain or pump control relay

In series with the common contact of the relay, a 5A fuse is installed in the device. If the current consumption is higher, an intermediate relay must be installed.

## Appendix No. 6 Connector pinout X3-1

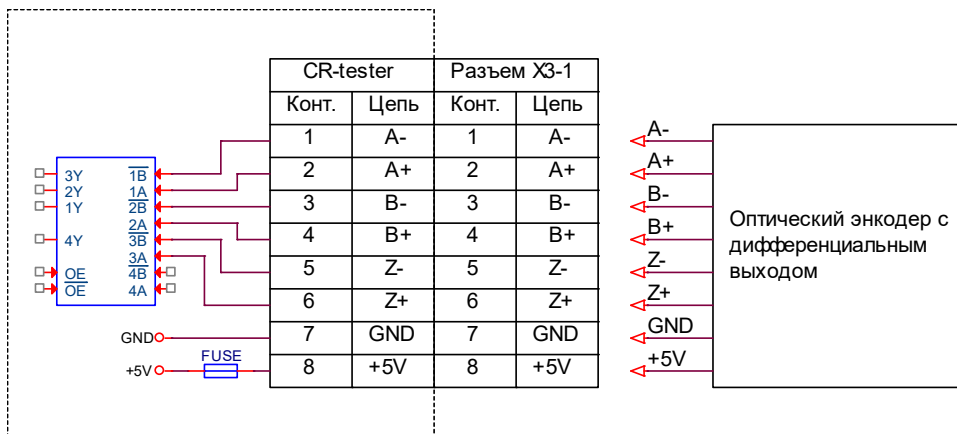


Рисунок 13. Encoder connection connector

## Appendix No. 7 Connector pinout X4-1

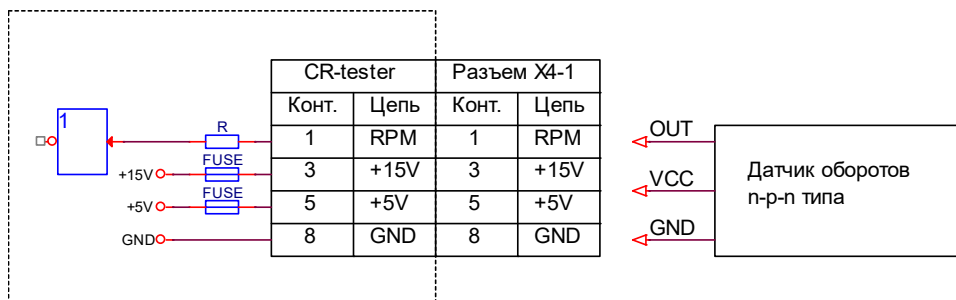


Рисунок 14.Speed sensor connection socket

## Appendix No. 8 X7 connector pinout

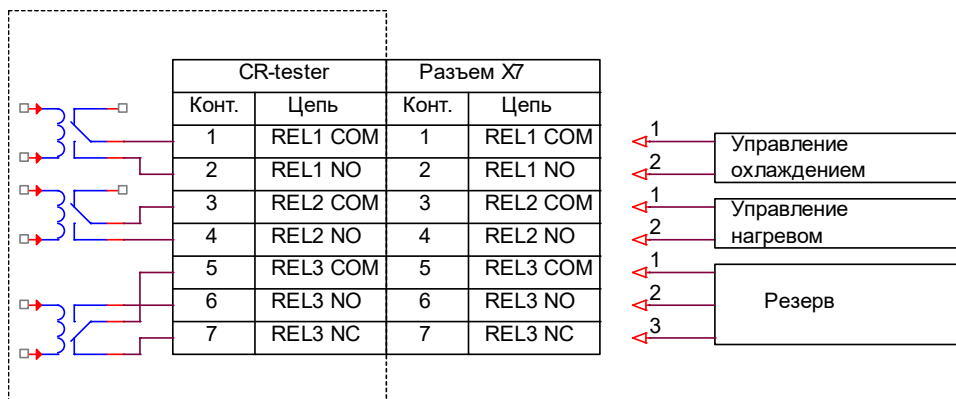


Рисунок 15.Burner control/cooling connection

## Appendix No. 9 X8 connector pinout

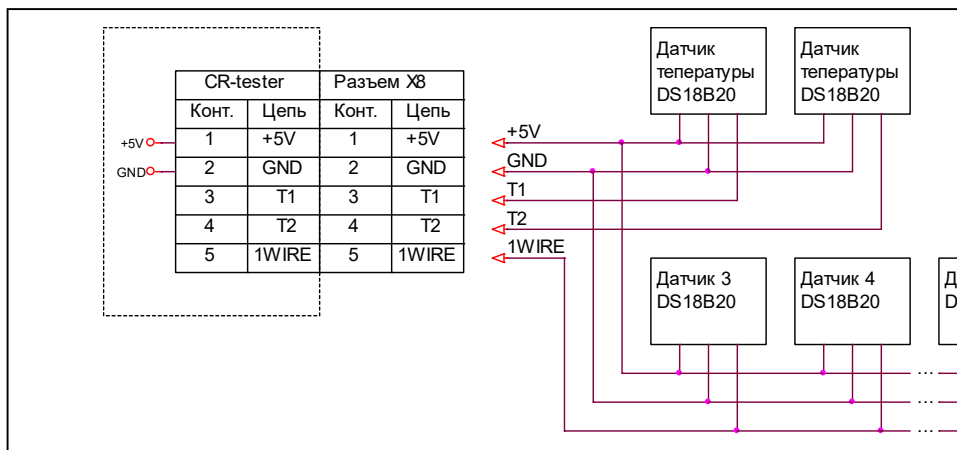


Рисунок 16. Temperature sensor connector

## Appendix No. 10 Connector pinout X9

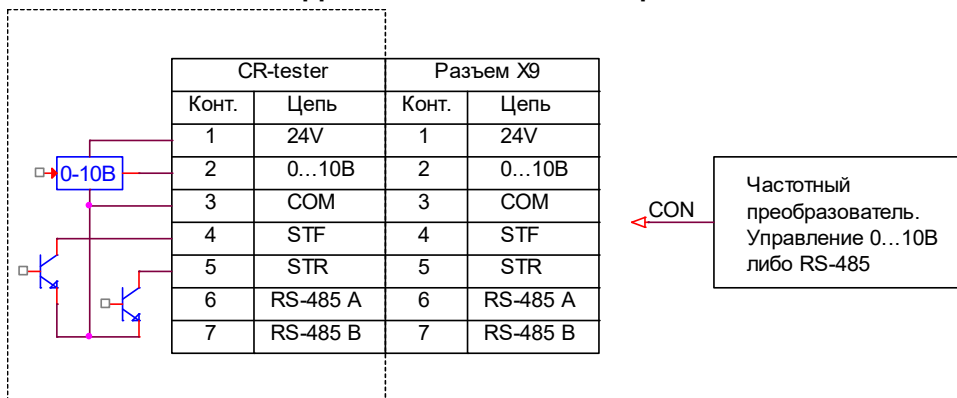


Рисунок 17. Frequency converter connection socket



Appendix No. 11 X10 connector pinout

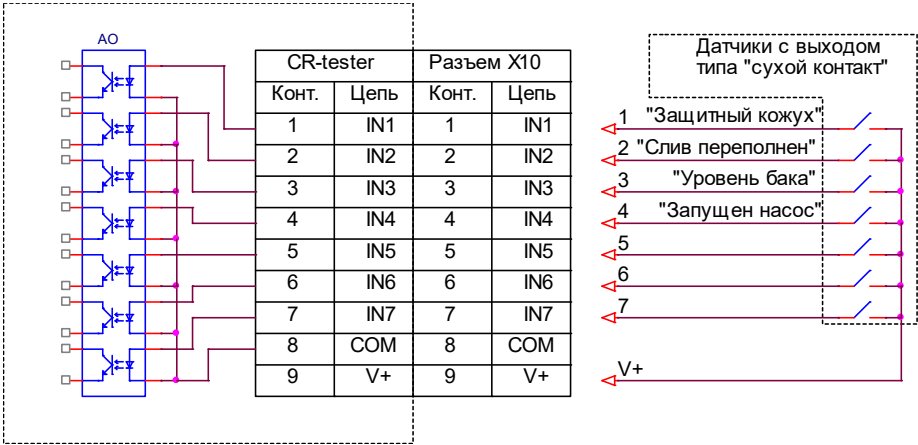


Рисунок 18.Connector for connecting actuator sensors. Variant using internal sensor power supply.

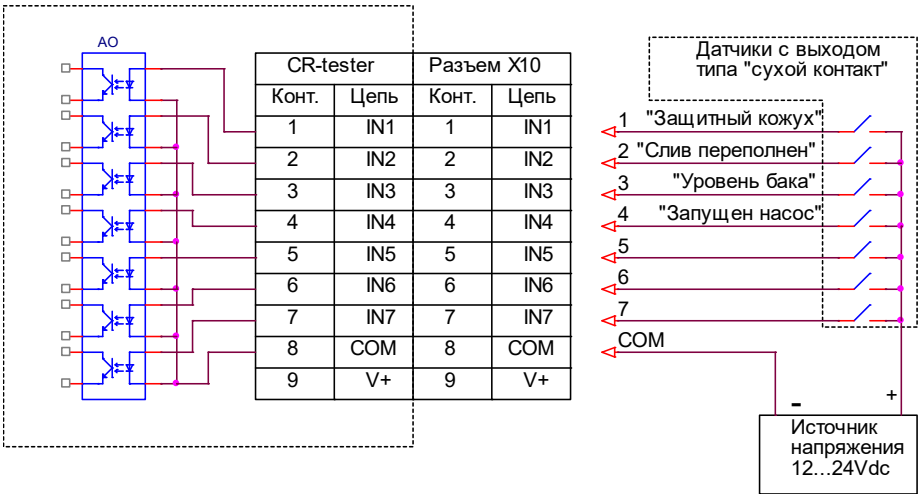


Рисунок 19.Connector for connecting actuator sensors. Option of using an external sensor power supply.

**Appendix No. 12 Warranty card**

**Warranty card #** \_\_\_\_\_

Diesel tester OS. CRIP/V8" for testing and checking the performance of Common Rail diesel injectors.

Warranty repair and maintenance of the "Diesel tester OS.CRIP/V8" controller is carried out by \_\_\_\_\_.

Адрес \_\_\_\_\_

tel. \_\_\_\_\_

fax. \_\_\_\_\_

Date of sale " \_\_\_\_ " \_\_\_\_\_ .

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