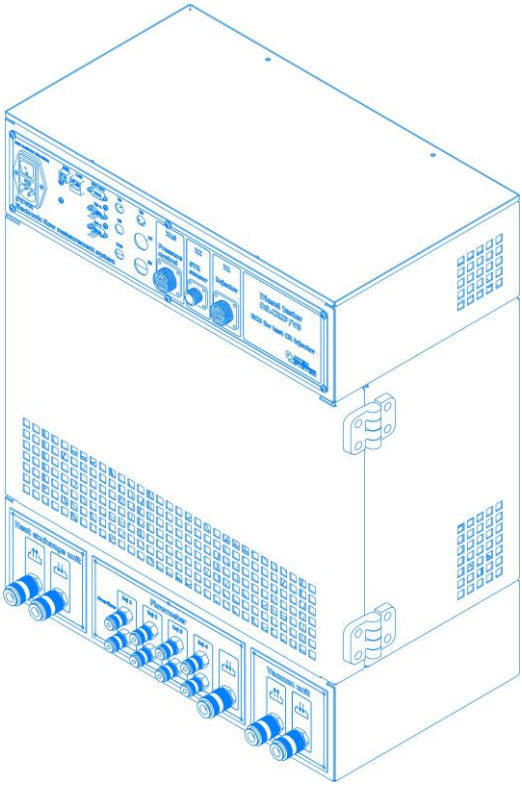


The device for testing Common Rail injectors

“Diesel tester OS.CRIP/V8”

Passport.
Technical description.
Instruction to use.
Warranty card.

2020

Content

Introduction

This passport is a document certifying the main parameters and technical characteristics of the Diesel tester OS.CRIP / V8 controller guaranteed by the manufacturer for testing and verifying the performance of common rail diesel injectors. This passport allows you to be familiar with the device, the procedure and rules for its operation, compliance with which will ensure the correct operation of the controller.

1. Main description

The Diesel tester OS.CRIP / V8 is an electronic control unit that controls the electrical elements of the Common rail fuel system. It is used as a part of test bench and manual equipment.

2. The purpose

The “Diesel tester OS.CRIP / V8” device is intended for diagnosing Common Rail injectors manufactured by Bosch, Denso, Delphi, Siemens VDO at the test bench.

The device provides:

• simultaneous control of 1 injector;

• control of electromagnetic injectors of a passenger series with a voltage of 14V;

• control of electromagnetic injectors of a cargo/truck series;

• control of piezoelectric injectors;

• control of common rail fuel injection pumps of the CP1, CP3 systems;

• control of the measuring unit “curtain”;

• control of the electro valve of the electromagnetic injectors COMMON RAIL manufactured by BOSCH, to measure the stroke of the valve when measuring the magnetic gap.

3. The main technical description

•Supply voltage, V - ~ 220 V ± 15%;

• Power consumption, W, no more - 350 W.

• Load of the curtain control relay - 5A 250V AC, 5A 24V DC;

• Mass of the device: 65 kg;

• Dimensions (width x height x depth) - 520x650x290 mm;

4. The construction of the device

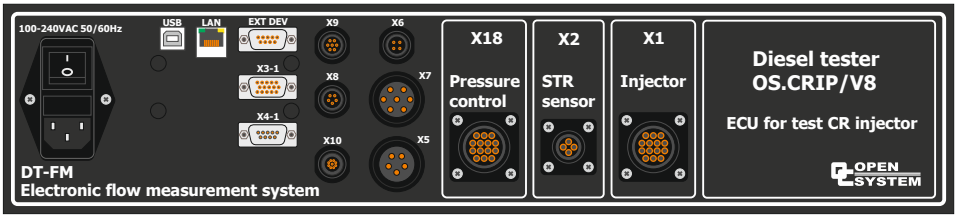


Figure 1. The front panel

The "Diesel tester OS.CRIP / V8" device is structurally made in the form of a block. On the front panel of the device are:

- USB, LAN – for connecting to PC;
- EXT DEV – to connect an external device;
- X3-1 – for connecting an angle encoder;
- X4-1 – to connect a rotation sensor;
- X9 – to connect a frequency converter;
- X8 – to connect a temperature sensor;
- X10 – for connecting actuator sensors;
- X6 – to connect a pressure sensor;
- X7- heating / cooling control;
- X5 – pump control;
- X1 – injector control;
- X2 - to connect the injection sensor;
- X18 - for connecting a regulator and pressure sensor;
- "POWER"- to connect mains power ~ 220 V.

The "POWER" connector is structurally made in one housing with a fuse.

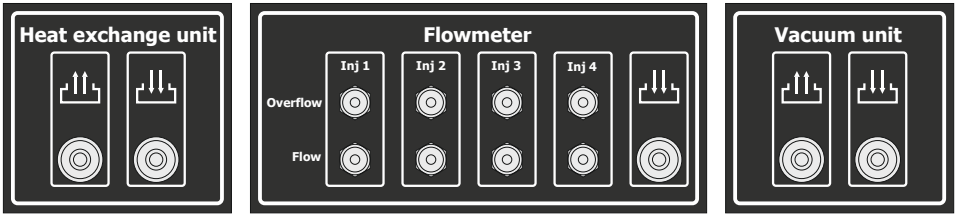


Figure 2. Bottom panel

On the bottom panel of the device there are connectors for connecting to Flow measurement channels and measuring channels for the injector return line, test liquid input / output for the Vacuum unit and for the heat exchange unit.

Depending on the modification, various options for the bottom panel are possible.

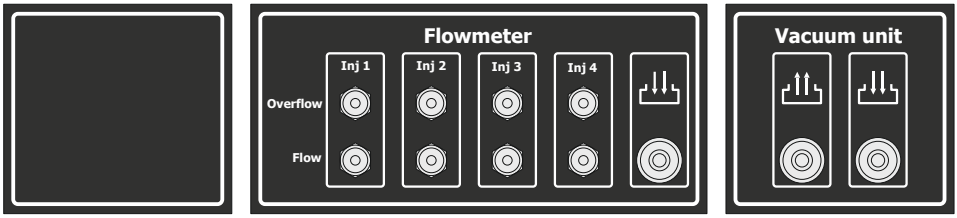


Figure 3. Bottom panel option 2

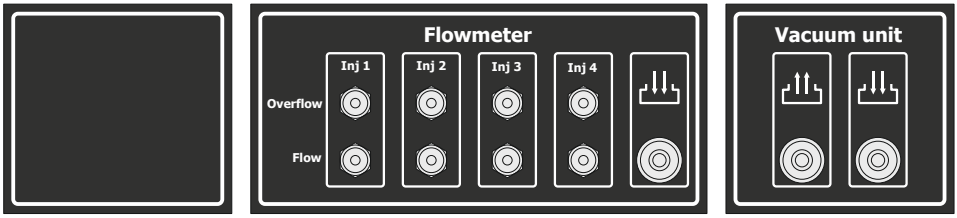


Figure 4. Bottom panel option 3

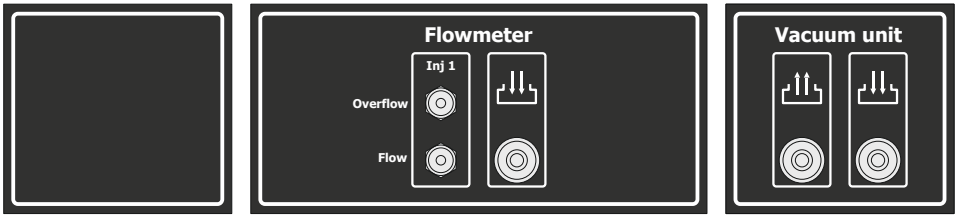


Figure 5. Bottom panel option 4

There are other options for the bottom panel, but they do not affect the basic functions and characteristics of the device.

5. Instructions for use

Environmental Requirements:

- Operating temperature: +5 ºC to +40 ºC
- Temperature during transportation: -20 ºC to +60 ºC
- Relative humidity (non-condensing): working 8% - 80%, storage 5% - 95%.
- Dustiness of air: no more than 75 mcg / m3

Before turning on the device, it is necessary to check visually or with the help of devices, the condition of the connectors-adapters, the power cable 220 volts.

If the device was transferred from a cold to a warm room, it **is strictly forbidden** to turn it on within 1-1.5 hours.

After switching on, let the device run for 2-4 minutes, then proceed to work.

It is strictly forbidden:

• turn on the device with faulty power cables;

• connect and disconnect the adapter sockets from the injector, sensor or pressure regulator when the device is turned on;

• connect the device to a network that does not have a grounding loop;

• connect the device to the network with a cable that does not have a grounding contact;

• use the Diesel tester OS.CRIP / V8 device in conjunction with electrical equipment not connected to the ground loop.

Failure to comply with the last three points may result in electric shock.

In addition to health risks, 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 of which, in the absence of grounding, there will be a voltage equal to half the supply voltage of the device and becomes 110V.

6. Limitation of liability

The manufacturer is not liable to the buyer of this product or a third party for damage or loss suffered by customers or a third party as a result of improper use of the product, including inept or erroneous actions of personnel, as well as for losses caused by the action or inaction of this device.

Under no circumstances will the Manufacturer Company be liable for loss of profits, lost savings, losses caused by an accident, or other subsequent economic losses, even if the company was notified of the possibility of such losses. The manufacturer is not liable for losses incurred by you on the basis of claims of a third party, or caused by failure to fulfill your obligations.

The manufacturer is not responsible for any malfunctions and losses resulting from the use of additional devices recommended for use with this device, as well as its modification, repair or modification to its design, not provided for by the operating instructions, including when using a self-made adapter connector.

7. Preparation for work

Before using the Diesel tester OS.CRIP / V8 device, carefully read the operating instructions.

When preparing the device for operation, the following steps must be taken:

Perform an external inspection of the device and connecting cables. External inspection of the device and connecting cables is carried out with the power off and consists in identifying mechanical damage to the device and connecting cables.

8. The Work with the device

The “Diesel tester OS.CRIP / V8” device allows testing diesel electric injectors of the Common Rail system, giving the user-specified necessary injector control signals and fuel pressure by controlling the control valve.

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

In automatic mode, an additional control of the pressure regulator is available to maintain the set pressure in the system, control various actuators (for example, turning on / off the booster pump, controlling the meter shutter), measuring Response time for checking and coding Delphi nozzles.

1. Connect the nozzle using the appropriate adapter cable to the connection cable and to connector X1.

2. Connect the network cable to the power connector and to the AC 220V / 50Hz.

3. Turn on the device with the power toggle switch (see paragraph 4).

9. The update of the device firmware

To update the device firmware, do the following:

1. Connect the USB cable to the device connector and connect it to the USB port of the PC.

2. Connect the power cable to the power connector and to the AC 220V / 50Hz.

3. Turn on the device with the power toggle switch (see paragraph 4).

4. Start the PC and firmware to update the device. You will see the update program window:

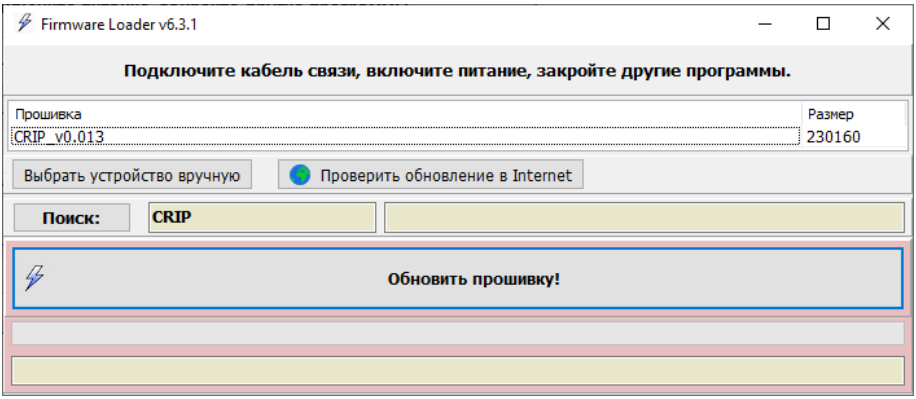


Figure 5. The update of firmware

1. Click the “Update Firmware!” Button.
2. Wait for the update process to complete.
3. Close the updater window.

10. The set of delivery

Passport (Technical description, instruction for operation) ..... 1 pc
The device «Diesel tester OS.CRIP/V8» ..... 1 pc
The cable for injectors ..... 1 pc
The cable-adapter for injectors ..... 4 pcs
The Cable for regulators and pressure sensor ..... 1 pc
Power cable 220V ..... 1 pc
The safety fuse 5A ..... 1 pc
RIP cable for connection with PC ..... 2 pcs

11. Warranty

The manufacturer guarantees the stable operation of the Diesel tester OS.CRIP / V8 device, subject to the owner observing the storage and operation rules set forth in this passport.

The warranty period is established by the manufacturer - 18 months from the date of receipt of the product, unless otherwise specified by the manufacturer and the buyer by an additional contract.

The manufacturer notes in the warranty card the year, month, day of sale, legal address, telephone number of the company performing the warranty repair (the warranty card is in the appendix to the passport for the Diesel tester OS.CRIP / V8 device).

During the warranty period, the owner is entitled to free repair upon presentation of this passport and warranty card. After repairs are carried out, a list of troubleshooting steps is entered in the warranty card.

Not a ground for complaint: violation of the integrity of the connecting wires (adapter cables).

The manufacturer has the right to refuse warranty repair of the Diesel tester OS.CRIP / V8 device in the following cases:

• presence of traces of opening the device case;

• the presence of traces of mechanical damage on the body or electronic circuit board of the device;

• the presence of foreign objects and liquids in the housing or on the electronic board of the device;

• in case of non-observance of the rules of storage and operation of the device.

Without presenting a warranty card and in case of violation of the safety of seals on the product, claims to the quality of work and warranty repairs are not made.

During the warranty period of operation installed on the product, repairs are carried out at the expense of the owner if he does not use it in accordance with these operating instructions.

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

Appendix №1 X1 pinout

CR-tester		Разъем X1	
Конт.	Цепь	Конт.	Цепь
1	Инжектор 1+	1	Инжектор 1+
2	Инжектор 1-	2	Инжектор 1-
3	Инжектор 2+	3	Инжектор 2+
4	Инжектор 2-	4	Инжектор 2-
5	Инжектор 3+	5	Инжектор 3+
6	Инжектор 3-	6	Инжектор 3-
7	Инжектор 4+	7	Инжектор 4+
8	Инжектор 4-	8	Инжектор 4-

Figure 1. Injector connector (4-injector version)

CR-tester		Разъем X1	
Конт.	Цепь	Конт.	Цепь
1	Инжектор 1+	1	Инжектор 1+
2	Инжектор 1-	2	Инжектор 1-

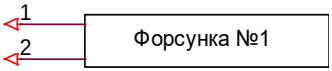


Figure 2. Injector connector (1-injector version)

Appendix №2 X2 pinout

CR-tester		Разъем X2	
Конт.	Цепь	Конт.	Цепь
1	GND	1	GND
2	SIG	2	SIG
3	+5V	3	+5V

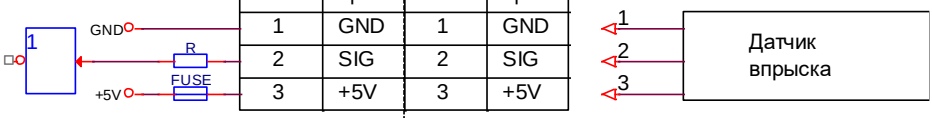
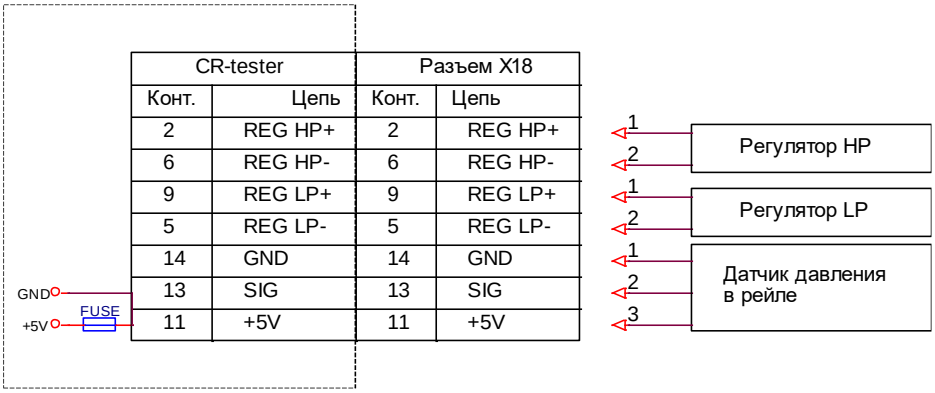


Figure 3. Injection sensor connector

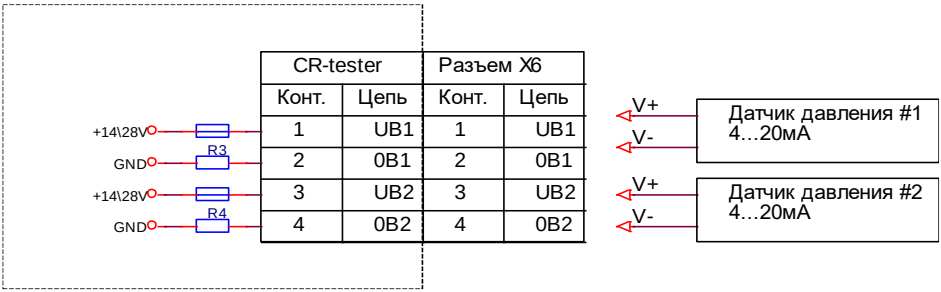
Appendix №3 X18 pinout



CR-tester		Разъем X18	
Конт.	Цепь	Конт.	Цепь
2	REG HP+	2	REG HP+
6	REG HP-	6	REG HP-
9	REG LP+	9	REG LP+
5	REG LP-	5	REG LP-
14	GND	14	GND
13	SIG	13	SIG
11	+5V	11	+5V

Figure 4. Connector for rail pressure sensor and pressure regulators

Appendix №4 X6 pinout



CR-tester		Разъем X6	
Конт.	Цепь	Конт.	Цепь
1	UB1	1	UB1
2	0B1	2	0B1
3	UB2	3	UB2
4	0B2	4	0B2

Figure 5. Sensor Connector with 4-20mA Output

In the case of using the built-in vacuum system, sensor No. 1 is not output to the external connector, but is used to control the amount of vacuum.

Appendix №5 X5 pinout

Figure 6. Socket for connecting to a curtain or pump control relay

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

Appendix №6 X3-1 pinout

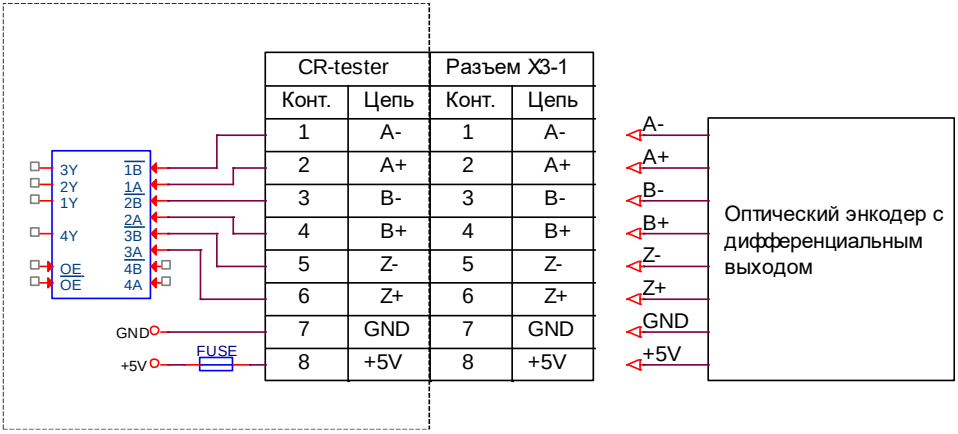
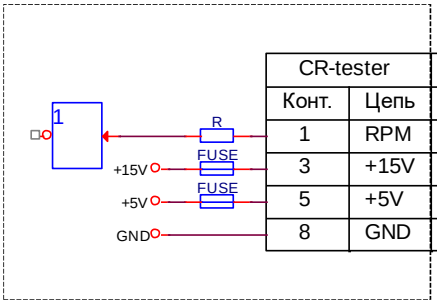


Figure 7. Encoder Connector

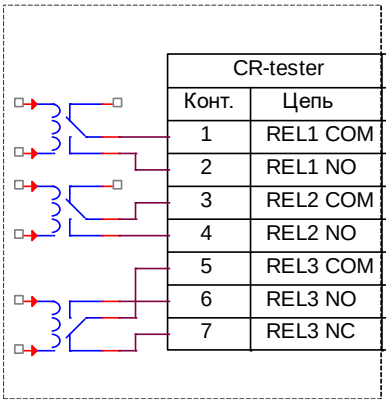
Appendix №7 X4-1 pinout



CR-tester		Разъем X4-1			
Конт.	Цепь	Конт.	Цепь		
1	RPM	1	RPM	OUT	Датчик оборотов n-p-n типа
3	+15V	3	+15V	VCC	
5	+5V	5	+5V		
8	GND	8	GND	GND	

Figure 8. RPM sensor connector

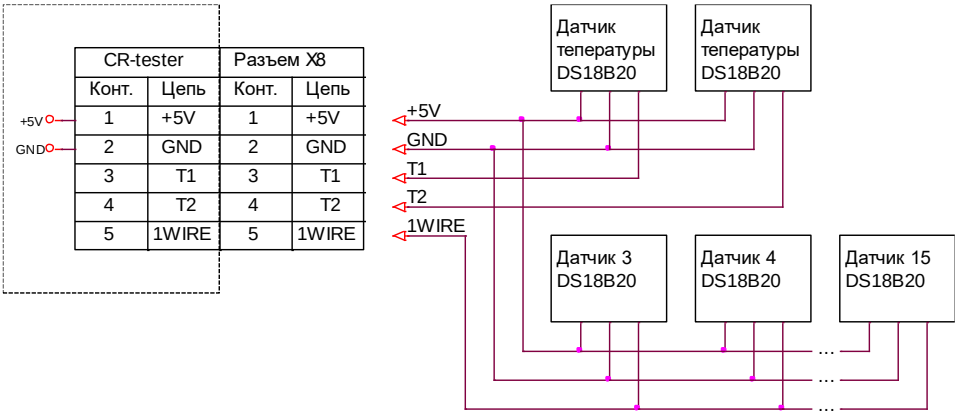
Appendix №8 X7 pinout



CR-tester		Разъем X7			
Конт.	Цепь	Конт.	Цепь		
1	REL1 COM	1	REL1 COM	1	Управление охлаждением
2	REL1 NO	2	REL1 NO	2	
3	REL2 COM	3	REL2 COM	1	Управление нагревом
4	REL2 NO	4	REL2 NO	2	
5	REL3 COM	5	REL3 COM	1	Резерв
6	REL3 NO	6	REL3 NO	2	
7	REL3 NC	7	REL3 NC	3	

Figure 9. Heater / Cooling Control Connector

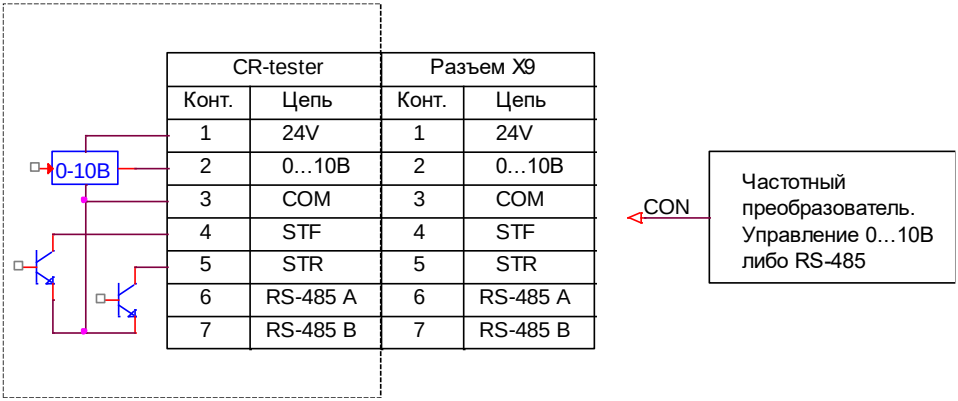
Appendix №9 X8 pinout



CR-tester		Разъем X8	
Конт.	Цепь	Конт.	Цепь
1	+5V	1	+5V
2	GND	2	GND
3	T1	3	T1
4	T2	4	T2
5	1WIRE	5	1WIRE

Figure 10. Temperature Sensor Connector

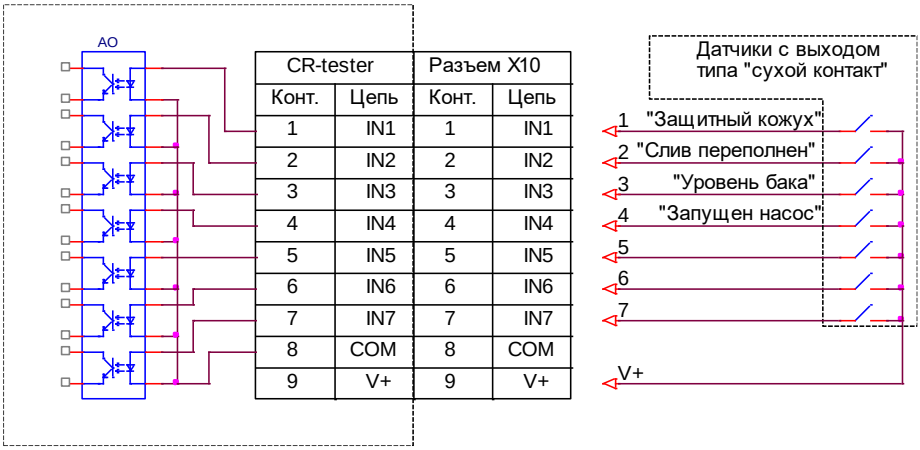
Appendix №10 X9 pinout



CR-tester		Разъем X9	
Конт.	Цепь	Конт.	Цепь
1	24V	1	24V
2	0…10В	2	0…10В
3	COM	3	COM
4	STF	4	STF
5	STR	5	STR
6	RS-485 A	6	RS-485 A
7	RS-485 B	7	RS-485 B

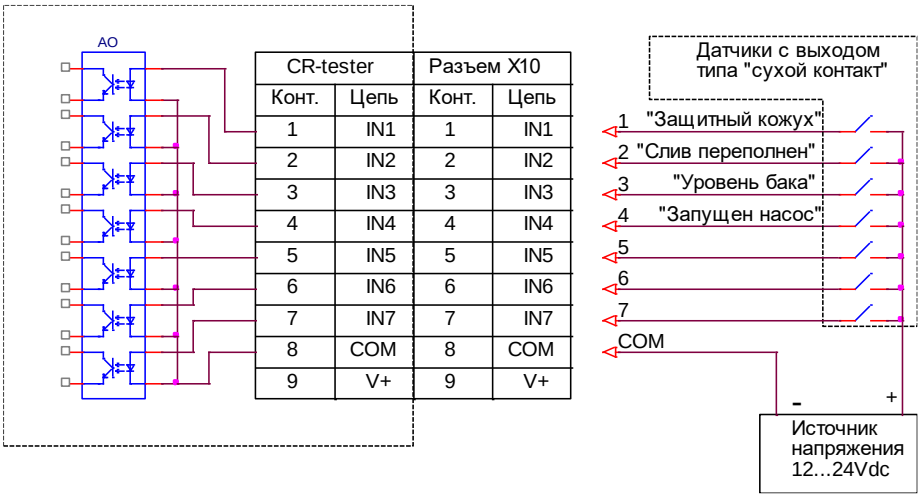
Figure 11. Frequency Converter Connector

Appendix №11 X10 pinout



CR-tester		Разъем X10	
Конт.	Цепь	Конт.	Цепь
1	IN1	1	IN1
2	IN2	2	IN2
3	IN3	3	IN3
4	IN4	4	IN4
5	IN5	5	IN5
6	IN6	6	IN6
7	IN7	7	IN7
8	COM	8	COM
9	V+	9	V+

Figure 12. Socket for connecting actuator sensors. Option using internal power sensors.



CR-tester		Разъем X10	
Конт.	Цепь	Конт.	Цепь
1	IN1	1	IN1
2	IN2	2	IN2
3	IN3	3	IN3
4	IN4	4	IN4
5	IN5	5	IN5
6	IN6	6	IN6
7	IN7	7	IN7
8	COM	8	COM
9	V+	9	V+

Figure 13. Socket for connecting actuator sensors. Option using external power sensors.

Appendix №12 Warranty card

Warranty card №_____

The device «Diesel tester OS.CRIP/V8» for testing and controlling the injectors of Common Rail system.

The warranty repair and service of the device «Diesel tester OS.CRIP/V8» conducting by: _____.

Address _____

Phone nr _____

Date of sale "____"_____ _____

Notes