

# MSG MS121

TESTER FOR ELECTROMAGNETIC VALVES AND  
CLUTCHES OF AIR CONDITIONER COMPRESSORS

## USER MANUAL





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## 1. DESCRIPTION

MS121 Tester is a modern, essential and easy-to-use device for car service centers nowadays, dealing with air conditioners. The tester combines two devices: electromagnetic valve tester and electromagnetic clutch tester.

The device is optimized for simulation of electromagnetic valve control signals, measuring of valve and/or clutch current consumption.

Indicators with diagnostic parameters: current consumption, set performance of an electromagnetic valve (from 0% to 100%), functioning, short circuit, open circuit are disposed on the front panel.

The tester has built-in short circuit protection of supply and testing outputs. Built-in operating algorithm allows connection of tested electromagnetic valves and clutches without observance of polarity.



## 2. TECHNICAL CHARACTERISTICS

<b>Technical characteristics</b>	
Supply voltage, V	12-15
Supply type	Batteries, constant voltage source 12-15 V
Dimensions, mm	155*97*30
Weight, kg	0.2
<b>Air conditioner electromagnetic valves testing</b>	
Voltage, V	12
Tested parameters	- Duty cycle - Current consumption - Open circuit, short circuit
Ampere meter accuracy, A	0.1
Automatic valve polarity selection	Yes
Short circuit protection	Yes
Types	- Diode - No diode
<b>Air conditioner electromagnetic clutches testing</b>	
Voltage, V	12
Tested parameters	- Current consumption - Open circuit - Short circuit
Current measurement accuracy, A	0.1
Automatic clutch polarity selection	Yes
Short circuit protection	Yes
Types	- Diode - No diode

### 3. CONTROL UNITS

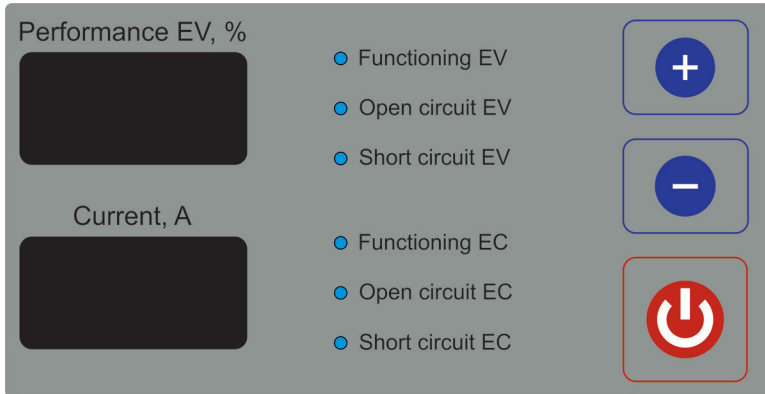


Fig 1. Tester MS121 – Control panel

#### 3.1 BUTTONS



Used to increase electromagnetic valve performance of air conditioner compressor. Performance increases by 5% after short pressing, performance increases up to maximum value – 100% after long pressing.



Used to decrease electromagnetic valve performance of air conditioner compressor. Performance decreases by 5% after short pressing, performance decreases up to maximum value – 0% after long pressing.



Electromagnetic valve and clutch on/off switch.

#### 3.2 CONNECTION TERMINALS



Used to connect the tester to power supply.



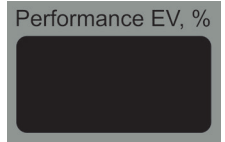
Used to connect the electromagnetic clutch.



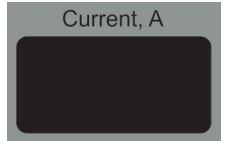
Used to connect the electromagnetic valve.

### 3.3 INDICATORS

Indicator displays performance value of electromagnetic valve from 0% to 100%.

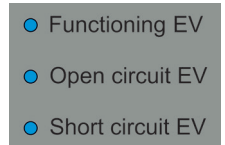


Indicator displays current consumption value of electromagnetic valve, electromagnetic clutch, or their total value.



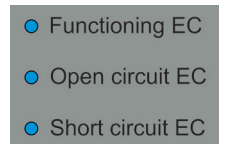
Electromagnetic valve operability LED indicators:

- **Functioning EV:** indicator is on under faultless electromagnetic valve, connected to the tester.
- **Open circuit EV:** indicator is on under open circuit between the tester and the electromagnetic valve, or under open circuit of electromagnetic valve winding.
- **Short circuit EV:** indicator is on under short circuit between the tester and the electromagnetic valve, or under short circuit of electromagnetic valve winding.



Electromagnetic clutch operability LED indicators:

- **Functioning EC:** indicator is on under faultless electromagnetic clutch, connected to the tester.
- **Open circuit EC:** indicator is on under open circuit between the tester and the electromagnetic clutch, or under open circuit of electromagnetic clutch winding.
- **Short circuit EC:** indicator is on under short circuit between the tester and the electromagnetic clutch, or under short circuit of electromagnetic clutch winding.



## 4. SETTING INTO OPERATION

Check the set received. It must contain:

- tester
- wires to connect electromagnetic valve and clutch

- wires to connect the batteries
- User Manual.

Inspect the tester for existence of damage. If it is found, please contact either the manufacturer or trade representative before launching the equipment.

## 5. STEP-BY-STEP INSTRUCTION

It is strongly recommended to learn actual User Manual before launching the tester.

### **Electromagnetic Valve and Clutch Testing**

Connect the tester to 12V power supply. Car storage battery or other device with the corresponding parameters will suit.

Indicators is on under correct connection.

Connect electromagnetic valve and/or clutch to the corresponding connection terminals, there is no need to observe the polarity.

Switch on the tester.



Electromagnetic valve and clutch LED indicators are on.

Current value is displayed on the indicator of current consumption of electromagnetic valve and clutch. On increasing performance of connected electromagnetic valve, current value increases; on decreasing performance of connected electromagnetic valve, current value decreases.

