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CIRCUIT BREAKERS

At present, circuit breakers are increasingly being used to protect networks and electrical receivers from damage caused by a current exceeding the permissible value. They are applied for conducting, switching on and automatically opening electrical circuits in case of abnormal phenomena (for example, overload currents, short circuits, unacceptable voltage drops), as well as for infrequent manual switching on of circuits.

The switches are available with thermal, electromagnetic and combined (both thermal and electromagnetic) disconnectors with a different number of poles — one, two and three. In single-phase circuits, one- and two-pole circuits are used, and in three-phase circuits, three-pole circuits are used.

An automatic circuit breaker is a contact switching device capable of turning on currents, conducting them and disconnecting them under normal conditions in a circuit, as well as turning on, conducting during a normalized time and disconnecting currents under normalized abnormal conditions in a circuit, such as a short circuit.

The circuit breaker consists of two main mechanisms that ensure its shutdown. These elements are known as electromagnetic and thermal decouplers. The action of the electromagnetic release disconnects the automatic in case of a short circuit, and the thermal release operates in case of exceeding the permissible load for a long time.

Most widely used are 16 Amp and 25 Amp circuit breakers. These schemes allow you to effectively protect the devices and electrical networks connected to them. In addition to protection against voltage surges, circuit breakers control the amount of equipment connected to the local network. If an overload occurs, the current supply stops. If this function is not available, a wiring fire may occur with a high probability.

Some automata have thermal response mechanisms. They are called single-pole thermomagnetic automata installed in networks where there is a high probability of overheating and ignition.

Main technical characteristics and types of automatic machines are as follows:

There is a thermal and electromagnetic release.

2. There are versions according to the number of poles, such as: 1+N, 3+N with releases on the phase wire and neutral disconnection when triggered, 1 and 3-pole circuit breakers with releases on each pole, 2 and 4-pole version with releases on the phase wire and neutral.

3. They include all possible versions according to the response characteristic B, C, B, K, Z.

4. There are four types of execution according to the maximum switching capacity of 6000,101. 000,15000,25000 kA.

5. S200/S 201/S202/S203 circuit breakers have built-in additional contact.

6. Applications in conjunction with the prefix DDA-200 to create protection and prevent overload currents, short circuits and leakage currents are possible.

In modern housing, electrical wiring may consist of several groups protected by a separate circuit breaker. In many cases, a residual current device is used in conjunction with automatic machines. They are connected to lines of washing machines, boilers and other high-power equipment.

Connection of protective devices is carried out according to a simple scheme. First, the installation site in the dashboard is prepared. A DIN rail is purchased and installed inside. Then, an automatic machine is fixed on it. It should be remembered that it is not recommended to replace one two-pole device with two single-pole devices. This can cause a system malfunction and even a wiring fire. The installed machine is fixed with special screw clips.

After installation, the supply wire is connected to the upper terminal. The lower terminal is connected to the corresponding protected part of the electrical wiring. The compression of the wires in the terminals should provide a reliable

contact, however, it is impossible to squeeze the core too much, otherwise it will break off quickly. In some cases, a single-pole circuit breaker is installed using a special release device that allows you to remove the device by pressing the installation button.

Nowadays, circuit breakers of various types and models are increasingly being used. They are needed for switching on and automatically opening electrical circuits at overload currents, short circuits and excessive voltage drops. All types of automatic machines have their own technical characteristics that reflect their advantages and disadvantages. Connecting such a device is not something complicated and has long been practiced in the modern electric power industry.