JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205

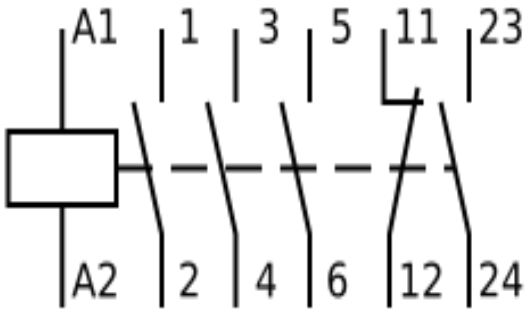
**Volume 15 Issue 06, June 2025**
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

# THE MAIN PART OF THE ELECTRIC MOTOR-RELAY

***Alimova Nargiza Abdirakhimovna***
*Fergana senior teacher of the Department of Information Technology and energy of the District Service and Service Technical School*

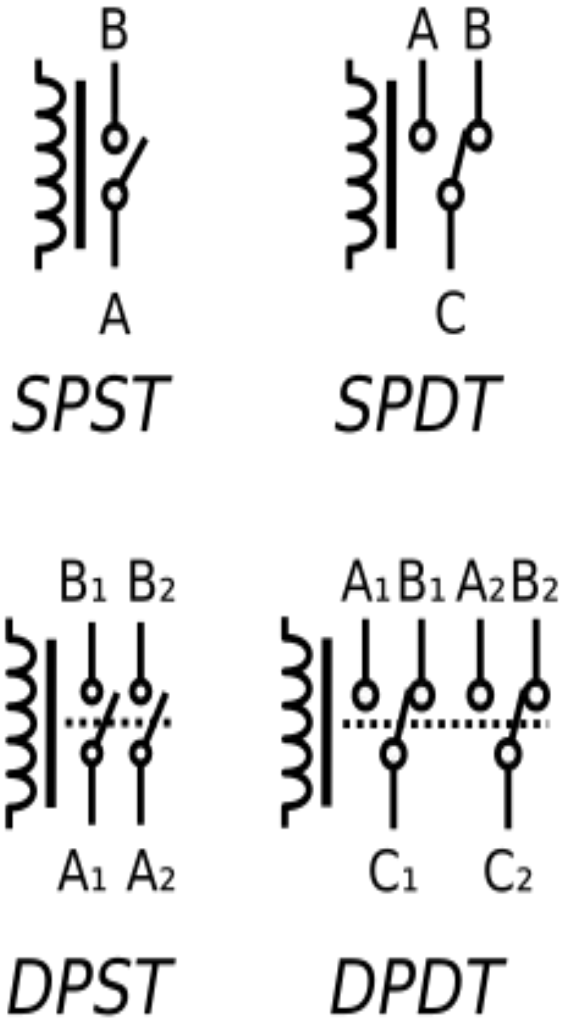
**Annotation:** this article briefly discusses the history of the creation of the relay, which is considered the main part of the elector rueilms, and general concepts about it.
**Keywords:** electricity, relay, voltage, current transfer.

Relay electrically controlled replacement equipment. It consists of a set of input terminals for one or more control signals and a set of operating contact terminals. Equipment l can have any number of contacts in several contact forms, such as setting up contacts, disconnecting contacts, or a combination of them. In 1809 Samuel Thomas Von Sömmerring created an electrolytic relay as part of his electrochemical Telegraph. Electric relays began to be used to further refine telegraphy, with the American scientist Joseph Henry often said to have invented the electromagnetic relay in 1835 to improve his own version of the electrical telegraph developed in 1831. However, it was not until 1840 that Samuel Morse was granted an official patent for his Telegraph, now called electromagnet relays. The described mechanism played the role of a digital amplifier, repeated the telegraph signal and thus made it possible to distribute the signals as desired. The word electronmagnetic relay appears in the context of electromagnetic operations from 1860.



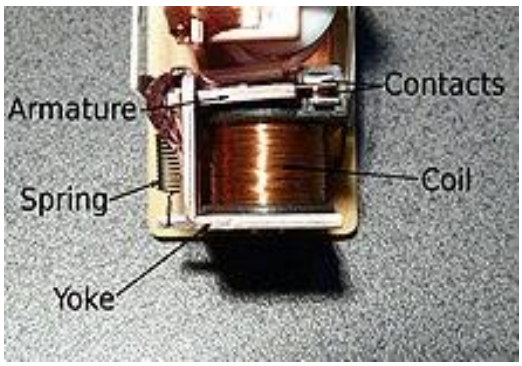

A typical electromagnetic relay consists of a wire wrapped around a soft iron core (solenoid), an iron fairing providing a low-resistance magnetic flux path, a moving iron yakor, and one or more sets of contacts. (two of them are in the photo). The Yakor is connected to the Yarmo by a sharnir and is mechanically connected to one or more sets of moving contacts. The Yakor is held by a spring, so when the relay is de-energized, an air gap appears in the magnetic circuit. In this case, one of the two sets of contacts in the relay shown in the figure is closed, and the other is open. Other relays may have more or less contacts depending on their tasks. The relay in the picture also has a wire connecting the yakor to the Yara. This ensures the continuity of the circuit path on the circuit board(PCB), which is printed through the moving contacts and slit on the yakor. Relays are used where circuit control is required by independent low-power signals, or where multiple circuits need to be controlled by a single signal. Relays were first used as signal repeaters in Interurban Telegraph chains, meaning that signals were updated and reached by transmission from one circuit to another. Relay was widely used in telephone exchanges and early computers to perform logical operations. The traditional form of a Relay uses an electromagnet to close or open contacts, but other operating principles used by relays have also been created. For example, the control properties of a semiconductor in solid-state(solid-state) relays without relying on moving parts. Relay calibrated operating features and sometimes complex operating catushkas are used to protect electrical

JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 06, June 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75




circuits from excessive force or malfunctions. In modern electrical energy systems, these functions are still performed through digital instruments called protective relays.

Since relays are wiklyuchatels, the terminology that applies to wiklyuchatels also applies to relays. For example: the relay changes one or more poles, each contact of which can be thrown by powering the katushka. Normally Open (no) contacts usually cause contacts to bind when the relay is activated; the circuit is disconnected when the relay is inactive. Typically a circuit break occurs when the Normally Closed(NC) contacts relay is activated; the circuit is connected when the relay is inactive. All forms of communication include a combination of NO and NC connections. The National Association of relay manufacturers and its descendant, the relay and Switch Industry Association, define 23 separate electrical communication forms located in relays and wiklyuchatels. Of these, the following are frequent




**SPST-NO** (Single-Pole Single-Throw, Normally-Open) relay has a single Form a contact. They have two terminals that can be connected or turned off. For Katushka, it will be possible to include two. Such a relay has a total of four terminals.

**SPST-NC** (Single-Pole Single-Throw, Normally-Closed) relays have a single From B or break contact. Like the **SPST-NO** relay, such a relay has a total of four terminals.

**SPDT** (single pole double throw) relay has a single From **C** set, disconnection before transfer or transmission. That is, the common terminal connects to one of the two, never connecting to both at the same time. Including two for the coil, such a relay has a total of five terminals.

**DPST**-a two-pole single-shot relay is equivalent to a pair of SPST switches or relays operated by a coil. Including two for the coil, such a relay has a total of six terminals. Poles can be either an

JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 06, June 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

A-shape or a b-shape (or one of each; **NO** and **NC** characters must be used to resolve uncertainty).
**DPDT**-bipolar double firing position has two sets of **C**-shaped contacts. They are equivalent to two
**SPDT** keys or relays controlled by a single coil. Such a relay has eight terminals containing a coil
**D** shape-make before break.
Form **E**-combination **D** and **B**

**Sources used:**

1. https://mysite.du.edu/~jcalvert/tel/morse/morse.htm#H1
2. Thomas Coulson. *Joseph Henry: His Life and Work*. Princeton: Princeton University Press, 1950.
3. https://books.google.com/books?id=WKuG-VIwID8C&q=Invention+of+the+relay&pg=PA153
4. https://uz.wikipedia.org/wiki/Rele#cite_note-:0-7