Bistable Relay

Types RXPSU6n, RXPSU14n
ABB – a global technology leader

ABB is a global leader in Power and Automation technologies that enable utility and industry customers to improve performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries and employs over 1,05,000 people.

In India, ABB serves customers with the complete range of power and automation technologies. The company has a vast installed base, extensive manufacturing facilities and a countrywide marketing and service presence.

As a part of its Power Technologies offering, ABB serves electric, gas and water utilities as well as industrial and commercial customers with a wide range of products, systems and services for power generation, transmission and distribution. ABB’s system offering ranges from Electrical Balance of Plant (EBOP) for power plants, bulk power transmission, turnkey substations and complete electrification to utility automation and power distribution.

The product offering covers a wide spectrum of technologies across the entire voltage range including indoor and outdoor circuit breakers, air and gas insulated switchgear, disconnectors, capacitor banks, reactive power compensators, power transformers, distribution transformers, instrument transformers, Compact Secondary Substations (CSS) and Ring Main Units (RMU).

Advantage ABB

- 120 years of technology and innovation
- Unparalleled domain competence
- Global experience
- Complete solution capabilities
- Large installed base
- Environment-friendly technologies
Bistable relay types RXPSU6n, RXPSU14n

Features

- High degree of reliability, even when it has been idle for a long time
- RXPSU14n is with mechanical flag type indicator
- 6 / 14 contacts with double interruption
- Contact configuration can be changed with ease
- Wide range of voltage and contact configuration

Application

For remote and automatic controls there is often a need for contactors which have two stable contact positions, even in the dead state. This requirement is fulfilled by changeover contactors type RXPSU...n. The application of alternate control pulses to the coils cause the contacts to change from the one state to the other. If the supply is interrupted, the contacts remain in their previous position, even when the voltage is restored.

Design and principle

The bistable relays in the COMBIFLEX system, type RXPSU6n and RXPSU14n are composed of the same constructional elements as the established contactors type P8n. Two magnet systems are interconnected by a pivoted element. In the type RXPSU6n with 6 free contacts, only one system has contacts; in type RXPSU14n with 14 free contacts, both systems have contacts. In each case two contacts are required for changing over the connection of the coils.

The contacts are arranged symmetrically on both sides of the relay coil and armature assembly in two stacks. They are easily accessible and the conversion from N/C to N/O contacts and vice versa is simple. The maximum rated voltage is 250V DC or AC and the material used is hard silver.

The following definitions apply for reset and operate condition. Reset condition - Armature assembly position is away from the base i.e. the upper system has been pulsed and lower system is ready to be pulsed. The flag strips are invisible i.e. white during this condition. Operate condition - Armature assembly position is closer to the base i.e. the lower system has been pulsed and upper system is ready to be pulsed. The flag strips are visible i.e. red during this condition.

A transparent, incombustible cover with a gasket protects the contacts against dirt. The terminals of the contact stacks themselves to permit two wires of 1.5mm diameter maximum to be secured.

Changeover relays must always be mounted with the contact post horizontal, that is with the base on a vertical surface. The plug-in relay module occupies two seats (2U 12C).

Type designation of auxiliary relays

<table>
<thead>
<tr>
<th>RXPSU</th>
<th>Basic relay with combiflex mounting.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6n</td>
<td>with 6 free contacts and without operation indicator</td>
</tr>
<tr>
<td>14n</td>
<td>with 14 free contacts and operation indicator</td>
</tr>
</tbody>
</table>

Technical data

<table>
<thead>
<tr>
<th>Energizing quantities, rated values and limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage $U_n$</td>
</tr>
<tr>
<td>Operative voltage range</td>
</tr>
<tr>
<td>Permitted ambient temperature range</td>
</tr>
<tr>
<td>Pick-up voltage (%$U_n$)</td>
</tr>
<tr>
<td>Pick-up time at $U_n$ (typical)</td>
</tr>
<tr>
<td>Maximum power consumption at the instant of switching</td>
</tr>
<tr>
<td>Mechanical durability tested acc to IEC 255</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type RXPSU6n</td>
</tr>
<tr>
<td>Type RXPSU14n</td>
</tr>
</tbody>
</table>

Contact data

<table>
<thead>
<tr>
<th>Contact configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type RXPSU14n</td>
</tr>
<tr>
<td>Type RXPSU6n</td>
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</table>
Technical data

<table>
<thead>
<tr>
<th>Maximum voltage within contacts system</th>
<th>250V DC/AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated current</td>
<td>5 A</td>
</tr>
<tr>
<td>Max. making current</td>
<td>50 A</td>
</tr>
<tr>
<td>Max. Breaking capacities</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Voltage</th>
<th>24V</th>
<th>48V</th>
<th>110V</th>
<th>250V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contacts</td>
<td>1</td>
<td>2 in parallel</td>
<td>1</td>
<td>2 in parallel</td>
</tr>
<tr>
<td>DC resistive load</td>
<td>5A</td>
<td>10A</td>
<td>5A</td>
<td>10A</td>
</tr>
<tr>
<td>DC inductive, L/R =15ms</td>
<td>5A</td>
<td>10A</td>
<td>5A</td>
<td>8A</td>
</tr>
<tr>
<td>DC inductive, L/R =40ms</td>
<td>4A</td>
<td>8A</td>
<td>4A</td>
<td>8A</td>
</tr>
<tr>
<td>AC resistive &amp; inductive</td>
<td>10A</td>
<td>-</td>
<td>10A</td>
<td>-</td>
</tr>
</tbody>
</table>

Electrical endurance; tested according to IEC 255-23: 0.2 million operations at 110 V DC, 0.5A L/R, 40 ms
Terminals: Suitable for 2x1.5mm² wires

Electrical tests
- Measurement of resistance; tested acc. to IEC 255-6: +/- 10% of specified
- Temperature-rise; tested acc. to IEC 255-6: Coil (class F)
- Insulation resistance; tested acc. to IEC 255-5: >100 M Ohm at 500 V dc
- Dielectric; tested acc. to IEC 255-5: 2.0 kV, 50 Hz, 1 min
- Impulse; tested acc. to IEC 255-5: 5 kV, 1.2/50μs, 0.5J

Environmental tests
- Vibration response; tested acc. to IEC 255-21-1: 10-150Hz, 0.5g, 3 axis
- Vibration endurance; tested acc. to IEC 255-21-1: 10-150Hz, 1.0g, 3 axis
- Dry heat; tested acc. to IEC 68-2-2: at +55°C in energized condition
- Dry cold; tested acc. to IEC 68-2-1: at 0°C
- Damp heat (cyclic - 6days); tested acc. to IEC 68-2-30: 12 Hr/55°C + 12 Hr/25°C x 2 @ 93% RH
- Storage test; Tested acc. To IEC 68-2-48: +70°C for 72 Hrs and -25°C for 72 Hrs

Dimensions

Fig. 3- Combiflex mounting
Connection diagram and contact configuration

Fig 1 - Relay type RXPSUs6n on combiflex mounting. Contact configuration shown for relay in reset position.

Fig 2 - Relay type RXPSUs14n on combiflex mounting. Contact configuration shown for relay in reset position.

References
- Connection and installation components in COMBIFLEX 1MRK 513 003-BEN
- Relay mounting systems 1MRK 514 001-BEN
## Ordering details

Refer type designation for selection and mark (✓) appropriate boxes

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<tr>
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<th>Quantity</th>
<th>Item no.</th>
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<tbody>
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<td>RXPSU6n</td>
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### Aux Voltage Options

- **24VDC**
- **30VDC**
- **48VDC**
- **110VDC**
- **125VDC**
- **220VDC**
- **250VDC**

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<th>Type</th>
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<th>Item no.</th>
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<td>RXPSU14n</td>
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<td></td>
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</tbody>
</table>

### Aux Voltage Options

- **24VDC**
- **30VDC**
- **48VDC**
- **110VDC**
- **125VDC**
- **220VDC**
- **250VDC**

### Contacts Options

- **6N/O + 0N/C**
- **5N/O + 1N/C**
- **4N/O + 2N/C**
- **3N/O + 3N/C**
- **14N/O + 0N/C**
- **13N/O + 1N/C**
- **12N/O + 2N/C**
- **11N/O + 3N/C**
- **10N/O + 4N/C**
- **9N/O + 5N/C**
- **8N/O + 6N/C**
- **7N/O + 7N/C**

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