

Auxiliary, signalling and tripping relays

RXMA 1, RXMA 2, RXMM 1, RXMS 1, RXSF 1, RXME 1, RXME 18, RXMH 2 & RXMT 1



RXMA 1

(RXMA_1 .eps)



RXMS 1

(RXMS_1 .eps)



RXSF 1

(RXSF.eps)



RXMM 1

(RXMM_1 .eps)



RXMH 2

(RXMH_2 .eps)



RXME 1

(RXME_1 .eps)

Features

- Suitable for tripping, blocking, interlocking, signalling etc. in protection, control and industrial systems
- Various ratings and contact configurations
- High voltage insulation
- Screen protected and dust-proof with a transparent plastic cover
- Low power consumption
- Heavy-, medium or light duty operation and long mechanical life
- Indication flags
- High resistance to shock and vibration
- Ultra high and high speed operation, down to 1,5 ms
- Up to 15 contacts in one relay

Application

The relays are intended for installations where high operating requirements exist, on operating time, contact rating (heavy breaking duty) or else where normal relays of industrial type are not suitable.

The relays are especially suitable in protection and control circuits. Models exist that are very suitable for high corrosive atmosphere or seismic areas. Tripping, interlocking and multiplying functions are easily achieved with single relays or combinations of relays.

Special requirements can be met by using different contact types, twin contacts, bridge contacts or dry-reed contacts.

Types RXMA 1, RXMA 2 and RXMM 1 are used as position repeat relays, as interposing relays in control equipment and as output relay in protection relays.

Type RXMM 1 is a space saving relay with two coils, each with 3 contacts for applications where few contacts are needed.

Type RXMS 1 is particularly suitable as tripping relay due to its extremely short operate time. A special variant, which is not influenced by capacitive discharges at earth fault and which also has improved insulation across open contact, is available for heavy applications where high disturbance immunity is required.

RXMS 1, in combination with heavy-duty relays, is used in high speed tripping assemblies as accessories to protection relays.

Type RXSF 1 is a signal flag relay intended for use as operation indicator. A zero voltage type is available and can be used to supervise dc supply voltages.

Types RXME 1 and RXME 18 are used where a low number of heavy duty contacts are required e.g. as trip relay. RXME 18 is a RXME 1 with an operating flag indicator.

Type RXMH 2 is used when many heavy duty contacts are required. It can be provided with an operating flag indicator, as an option.

Design

The auxiliary relays in the COMBIFLEX system permit interchanging between various types of relays chiefly because the coil terminals are always connected to the same terminal on the plug-in base of the relay. Relays having the same contact symbol can be interchanged without alteration of the connection.

The contact elements are made of silver, however, gold elements on the contacts can sometimes be necessary, for example in sulfuric atmospheres or when the voltage in the contact circuit is lower than 10 V and the current lower than 10 mA.

Each relay has a dust-tight cover, except the RXMS variants A and E, and is intended to be mounted on a terminal base. Terminal bases are available in four sizes. The relays are fixed to the terminal bases with two or four Phillips No. 2 cross-head screws. Each relay cover has a hole covered by a removable plastic plug with the exception of RXME 18, RXSF 1 and RXMT 1. Through the hole the armature of the relay can be activated. Relays with indicating flags have a resetting knob accessed from the outside of the cover.

The relays are marked with the type designation, Ordering No., rated voltage, and where applicable, the symbol of the relay is also shown.

All dc supplied relays, with the exception of RXMS 1 and RXMT 1, can be supplied with full-wave or half-wave rectified ac.

For supply with full-wave rectified ac, select relays with a rated voltage equivalent to the supply voltage.

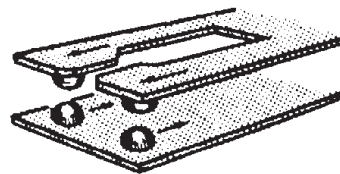
For supply with half-wave rectified ac, a diode in addition to the series diode is to be connected in parallel across the coil and the rated voltage of the relay is to be equivalent to half the supply voltage. If transients are expected in the supply voltage, these determine the choice of matching diodes.

Smoothing capacitors are unnecessary in both cases.

The auxiliary relays will operate within a range of 80-110% of the rated voltage. If the rated voltage is given as a voltage range, e.g. 110-125 V, the relays will operate within a range of 80-110 % of each rated voltage between 110 and 125 V. Permissible temperature range is given in the data table.

Relays with twin contacts

Auxiliary relays used in automatic equipment for control and regulation must have a very high degree of contact reliability even at lower voltages. Auxiliary relays with twin contacts fulfil this requirement. A twin contact has two contact elements on each contact member and each of these makes independent and simultaneous contact with the corresponding element on the other contact member. This gives two parallel current paths and greatly reduces the risk of contact failures. The contact sets have contact levellers of wear-resistant material with a low coefficient of expansion. This means that the correct contact force is always obtained even in contact units containing numerous contact springs. Type RXMA, RXMM, RXMS and RXSF contain twin contacts.



(96000039)

Figure 1: Twin contact

RXMA 1

This relay is designed for dc supply. The outstanding features of this relay are its low power consumption and long mechanical life.

A few variants of RXMA 1 is ac operated with a valid frequency between 50-60 Hz and rated voltage of 115 or 230 V. A half-wave rectifier is built in, connected in parallel across the coil.

RXMA 2

This relay is a variant of RXMA 1, with a larger terminal plug-in plate, and a greater number of contacts.

The relay occupies two seats.

RXMA 1 and RXMA 2 have one, two or three sets of contact stacks. The system voltage across one stack of contacts must not exceed 300 V dc or 250 V ac. The corresponding voltage between contact stacks must not exceed 600 V dc or 500 V ac.



(RXMA_2.eps)

RXMM 1

The relay is designed for dc supply. Two smaller type relays are included in RXMM 1. These relays can each have up to 3 contacts (6 contact springs). Relay RXMM 1 with different rated voltages for the two relays is also available as an option.

RXSF 1

The unit contains one or two smaller relays with three contacts and red indicating flags. The flags are reset manually with an external knob or automatically when the dc is switched off.

The RXSF 1 is also available as loss-of-voltage relay. The indicating flag is always automatically reset in this variant.

There are DC voltage and DC current operated versions of the RXSF 1 relay. See the selection tables on p. 16. The current operated relay may e.g. be used to indicate that breaker trip coil current has flown, i.e. as a series trip current flag (target).

SCADA Interposing Relay type RXSF 1

Interposing relays for SCADA equipment must not misoperate due to induced AC overvoltages that may occur as a result of a relatively long distance between the RTU and the remote control panel. Such a misoperation may lead to maloperation of breaker or isolator open / close commands.

There is a variant of the well proven relay RXSF 1 that may be used to reduce the risk of such a misoperation. The RXSF 1 is designed

to reject induced AC voltages. The SCADA interposing version of RXSF 1 is in addition designed to provide a higher operating current in order to even further increase security against maloperation due to induced AC voltage interference.

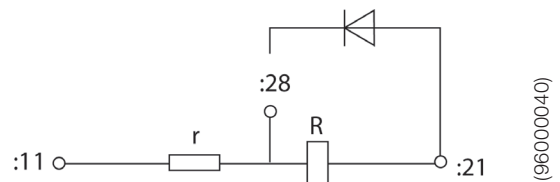
RXMS 1

This relay is designed for dc supply. It has a very short pick-up time, down to 4 ms for a make contact (variant A, 7 W). Variant B is a low power variant (3 W) with 1,5 ms longer pick-up time.

Variant E (7 W) is safe for capacitive discharge through the coil at dc earth faults. It has also a larger contact gap, which can withstand 2 kV test voltage.

Because of the high power consumption in variants A and E these variants should not be continuously energized.

The relay has an additional terminal (28) brought out between the coil and the series resistor. This terminal is intended for dropout delay by connecting a diode across the coil.



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Figure 2: RXMS 1

Relays with bridge contacts

Auxiliary relays which are to be used as tripping relays or as operating relays should have a high breaking capacity, good contact reliability and be free from risk of contact welding. These qualities are possessed by relays with bridge contacts.

The contacts have two fixed contact members and a moving bridge-shaped member. This design with two breaking points in series gives high breaking capacity.

The moving contact member is designed so that a considerable sliding motion is obtained between the contact elements during closing; this increases contact reliability and reduces the risk of welding.