**CONNECTION AND SETTING GUIDE**

Rated current of the relay, $I_r$ (available variants: 1 A or 5 A)

**LED indicators:**
- **In serv. (green):** indicates relay in service.
- **$Z<$ Start (yellow):** indicates operation of $Z<$ (no time delay).
- **$Z<$ Trip (red):** indicates operation of $Z<$ after the set time delay.
- **OOS Trip (red):** indicates operation of OOS, out-of-step (no time delay).

Potentiometer (P1) for setting of the reactive reach $X$.

Potentiometer (P2) for setting of the resistive reach $R$.

3-pole programming switch (S1) for setting of the scale-constant $I_s$.

Potentiometer (P3) for setting of the characteristic angle $\alpha$.

Potentiometer (P4) for setting of the time delay for the delayed $Z<$ trip function.

Reset push-button.

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**CONNECTION:**

The RXZK 23H relay requires a dc-dc converter type RXTUG for auxiliary voltage supply ±24 V. Connection of the voltage $RL$ shall be made only when the binary input is used.

The relay is delivered with a short-circuiting connector RTXK for mounting on the rear of the terminal base. This connector will automatically short-circuit the current input when the relay is removed from its terminal base.

**NOTE!** The auxiliary voltage supply should be interrupted or the output circuits should be blocked to avoid the risk of unwanted alarm or tripping, before the relay is plugged into or withdrawn from its terminal base.

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Fig. 1  Front layout

Fig. 2  Terminal diagram
SETTINGS:

All settings can be changed while the relay is in normal service.

1. Setting of the scale-constant \( I_s \).
The scale constant \( I_s \) is equal to the rated current \( I_r \) times the sum of the set value of the switches S1:1, S1:2 and S1:3 plus 0.1. The setting range is from 0.1 to \( 1.0 \times I_r \).

2. Setting of the under-impedance function (\( Z< \)).
The setting range of the under-impedance function is expressed as \( Z = jX + R \), where \( X \) and \( R \) are individually set as follows:

2.1 Setting of the reactive reach (\( X \)).
The operate value is set with potentiometer P1 according to the formula \( X = x \times 1/I_s (\Omega) \), where \( x \) is the set value of P1.
The setting range of P1 is 1-20. Setting range of \( X \) is 1-200 \( \Omega \) for \( I_r = 1 \) A and 0.2-40 \( \Omega \) for \( I_r = 5 \) A.

2.2 Setting of the resistive reach (\( R \)).
The operate value is set with potentiometer P2 according to the formula \( R = r \times 1/I_s (\Omega) \), where \( r \) is the set value of P2.
The setting range of P2 is 1-20. Setting range of \( R \) is 1-200 \( \Omega \) for \( I_r = 1 \) A and 0.2-40 \( \Omega \) for \( I_r = 5 \) A.

4. Setting of the characteristic angle \( \alpha \).
The characteristic angle, \( \alpha \), is settable between 0° to 90°. The angle is adjusted with potentiometer P3.

5. Setting of the time delay \( Z_t \).
The time delay has definite-time characteristic for the \( Z< \) trip function. The setting range is 0 - 5 s. The setting is done with potentiometer P4.

6. The binary input.
There are two binary inputs (Bin 1 and Bin 2) on the relay. Bin 1 (terminals 111/112-113) is used for external blocking of all functions of the relay. Bin 2 (terminals 121/122-123) is used for resetting of the LED indicators. The functions are activated when a voltage RL is applied to the binary inputs.

INDICATION
There are four LED indicators. The trip indicators seal-in and are reset manually by the "Reset" pushbutton or electrically via the binary input, while the start indicator resets automatically when the relay resets. When the "Reset" pushbutton is depressed during normal operating conditions, all LEDs except "In serv." will light up.

When connecting RXZK 23H to the auxiliary voltage, the relay performs a self test. The "In serv." LED is alight, after performing the self test and when the relay is ready for operation. In case of a fault, the LEDs will start flashing.

TRIPPING AND START OUTPUTS
The RXZK 23H relay has one start and one tripping output for the under-impedance function, and one trip output for the out-of-step function. Each output is provided with one change-over contact. All outputs reset automatically when the criteria for function decreases below the resetting value of the relay.

ESD
The relay contains electronic circuits which can be damaged if exposed to static electricity. Always avoid to touch the circuit board when the relay cover is removed during the setting procedure.