CONNECTION AND SETTING GUIDE

Rated voltage of the relay \( U_r = 120 \text{V} \).
Rated current of the relay \( I_r = 1 \text{A or 5A} \).
Rated frequency of the relay \( f_r = 50 \text{Hz or 60 Hz} \).
Phase angle \( \phi \), positive if \( I \) lags \( U \).

LED indicators:
In serv. (green): indicates relay in service.
Start \( I_{\alpha} \) (yellow): indicates operation of \( I \cos(\phi-\beta) \) (no time delay).
Trip \( t_1 \) (red): indicates operation after the set \( t_1 \) time delay.
Trip \( t_2 \) (red): indicates operation after the set \( t_2 \) time delay.

**I_{\alpha} directional over / under current stage:**
Potentiometer (P1) for setting of the operate value for the function
\( I_{\alpha}>: \) Operates when \( I \cos(\phi-\beta-180^0) \geq \text{set } I_{\alpha} \).
\( I_{\alpha}<: \) Operates when \( I \cos(\phi-\beta) \leq \text{set } I_{\alpha} \).

Potentiometer (P2) for setting of the compensation angle \( \beta \).

6-pole programming switch (S1) for setting of the function characteristics, the scale-constant \( I_s \), the polarity of the compensation angle \( \beta \), the operation characteristic of the binary input function and the hold-time delay \( t_h \) for Trip \( t_2 \).

Potentiometer (P3) for setting of the definite time delay \( t_1 \), for the short time-delay function.

Potentiometer (P4) for setting of the definite time delay \( t_2 \), for the long time-delay function.

Reset push-button

**CONNECTION**
The RXPPK 2H relay requires a dc-dc converter type RXTUG for auxiliary supply \( \pm 24 \text{V} \). Connection of 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output circuits should be blocked to avoid the risk of unwanted alarm or tripping, before the relay is plugged into or withdrawn from its terminal base.

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 reverse / low-forward current characteristics.
The reverse current characteristic, operates when \( I \times \cos(\varphi-\beta-180^\circ) \geq \text{set } I_\alpha \), is set with S1:1 at \( I_\alpha \geq \).
The low forward current characteristic, operates when
\[ I \times \cos(\varphi-\beta) \leq \text{set } I_\alpha, \]
is set with S1:1 at \( I_\alpha < \).

2. Setting of the scale-constant \( I_s \).
\( I_s \) is set with the programming switches S1:2 and S1:3. Available settings are 0,1, 0,4, 0,7 and 1,0 x rated current \( I_r \).

3. Setting of the operate value for the reverse / low-forward current stage \( I_\alpha \).
The operate value \( I_\alpha \) is set with potentiometer P1 in percent of \( I_s \).
The setting range of P1 is 3 to 15.

4. The time delay \( t_1 \).
The time delay \( t_1 \) is set with potentiometer P3 within the range of 0,1 to 4,0 seconds.

5. The time delay \( t_2 \).
The time delay \( t_2 \) is set with potentiometer P4 within the range of 0,1 to 30 seconds.

6. Setting of the system inaccuracy compensation angle \( \beta \).
The compensation angle is set with P2 within the range of 0° to 3°.
The polarity of the angle \( \beta \) is set with S1:4.

7. Setting of the remote block / enable function.
The remote block / enable function of the Trip \( t_1 \) stage is set with S1:5.
When the function is set to Block, active signal on RL1 (bin 1) will block the Trip \( t_1 \) function. When the function is set to Enable, active signal on RL1 will enable the Trip \( t_1 \) function.

8. Setting of the hold-time delay \( t_h \).
The hold-time delay seal-in the input for the Trip \( t_2 \) function and is set with S1:6 to 0 or 5 seconds. When the hold-time is set to 5 seconds the Trip \( t_2 \) function will not reset until the start \( I_\alpha \) stage has been reset for more than 5 seconds. This will ensure operation when power-swing occurs.

NOTE! The \( t_2 \) function should be set to longer time than \( t_h \), to prevent unwanted operation.

9. The remote resetting of the LED indicators.
The second binary input (bin 2) is used for remote reset of the Trip \( t_1 \) and Trip \( t_2 \) LED indicators. The function is activated when a voltage is applied to input RL2.

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

When connecting RXPPK 2H to the supply 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 RXPPK 2H relay has one start and two tripping outputs. Each output is provided with one change-over contact. All outputs reset automatically when the measured value 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.