Use of 3RB22, 3RB23 and 3RB24 solid-state overload relays up to 820 A with external 3UF18 current transformer (intermediate transformer)

Description

The 3RB22, 3RB23 and 3RB24 solid-state overload relays can also be used to protect loads up to 820 A by means of an external current transformer. The secondary lines of the current transformer are looped through the three through holes of the current measuring module and are then short-circuited. The secondary current of the external current transformer is the primary current of the current measuring module (3RB29) of the 3RB22, 3RB23 or 3RB24 solid-state overload relay.

Caution
If nominal current flows through the main circuit, the secondary current of the current transformer must lie within the setting range of the employed current measuring module!

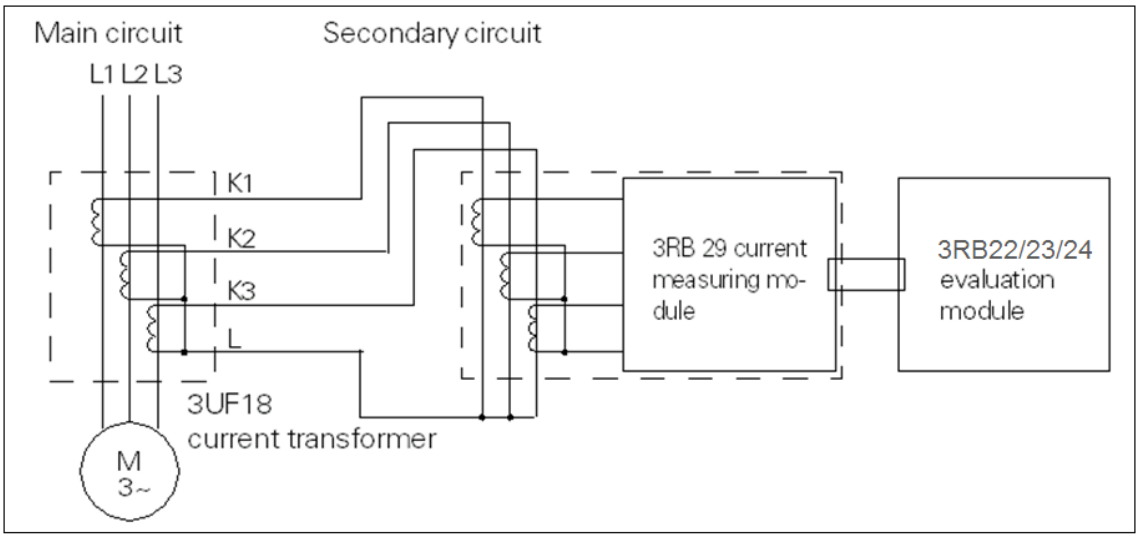


Fig. 1: Current measuring with external 3UF18 current transformer

Ratio (general)

The ratio can be calculated on the basis of the following formula:

$$Ratio = \frac{Primary\ current\ (external\ current\ transformer)}{Secondary\ current\ (external\ current\ transformer)}$$

Technical data of the current transformer (if not 3UF18)

- Secondary current: 1 A
- Frequency: 50 Hz/60 Hz
- Transformer capacity: Recommended ≥ 2.5 VA, depending on secondary current and line length
- Overcurrent factor: 5P10 or 10P10
- Accuracy class: 1

Example 1:

- 3UF1868-3GA00 current transformer:
  - Primary current: 820 A with nominal load
  - Secondary current: 1 A
- 3RB22, 3RB23 or 3RB24 solid-state overload relay with 3RB2906-2BG1 current measuring module, setting current 0.3 A to 3 A

i.e.:

- The secondary current of the current transformer amounts to 1 A with rated load and therefore lies within the setting range from 0.3 to 3 A of the used current measuring module.
- The setting current Ie in the 3RB22, 3RB23 or 3RB24 solid-state overload relay amounts to 1 A.

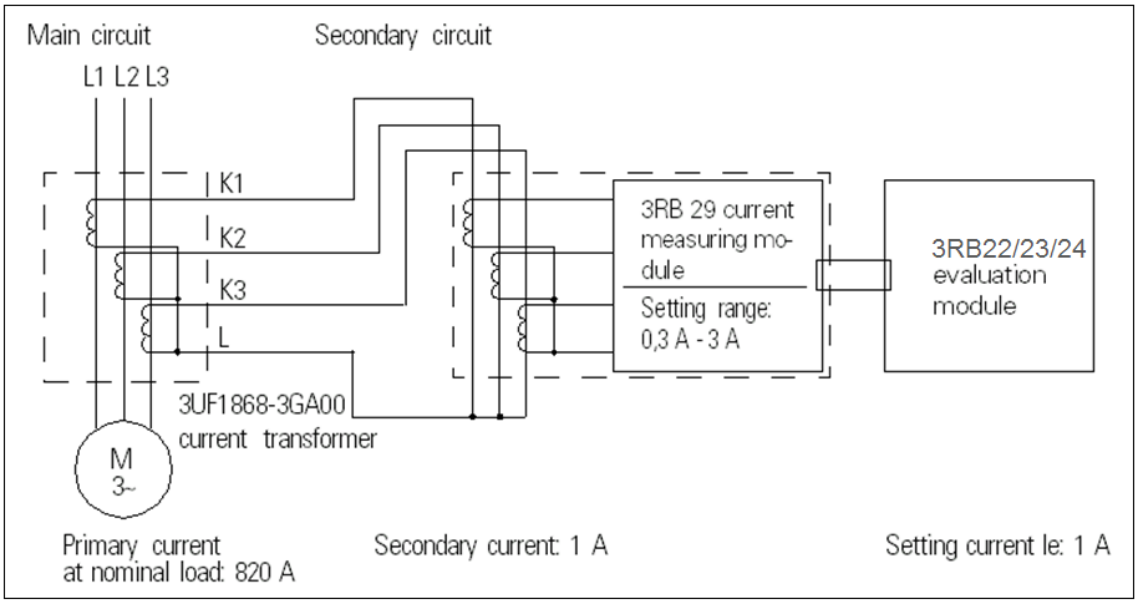


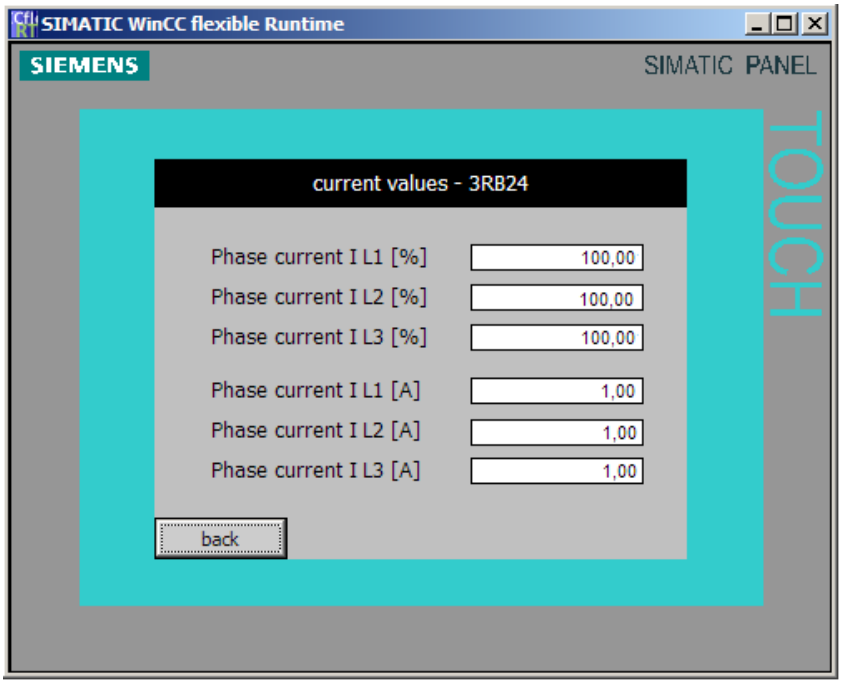
Fig. 2: Example of current measuring with external 3UF1868-3GA00 current transformer (intermediate transformer)

Note:

For usage in applications of explosion-proof motors, please contact the technical assistance.

Overload relays 3RB24 with analog value transmission

The transmission ratio must be taken into account at the overload relay 3 RB24 in the transferred analogue values (current values, rated operational current).
Example: With a transmission ratio of 820 the shown/transmitted value of 1 A represents a value of 820 A.



Example in WinCC flexible 2008