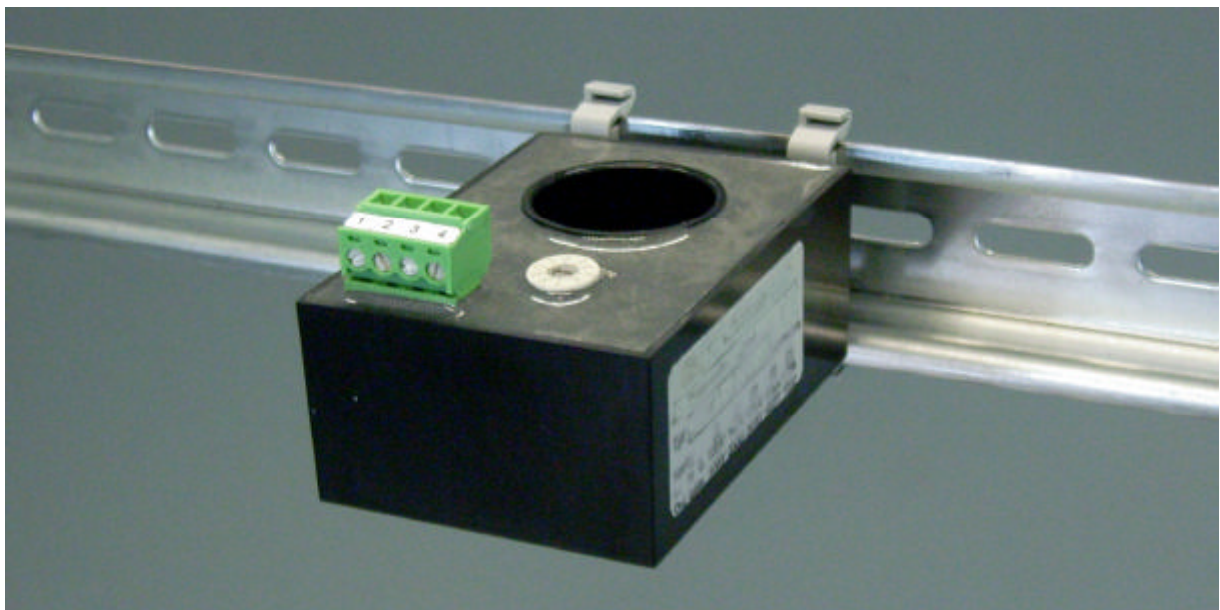


HC 100

Single-phase current transformer

Configurable current transformer for AC current measurement up to max. 150 A, standard DIN rail mounting.



- galvanically isolated measurement of AC mains currents at 50 / 60 Hz
- simple clip-on mounting to 'top-hat' DIN rail TS35
- large diameter (24 mm) hole for one or more primary conductors
- DC output signal for subsequent 'true rms' measurement
- **rotary switch permits selection of 5 different measuring ranges with the following primary/secondary current ratios:**

30A	60A	90A	120A	150A
1000:1	2000:1	3000:1	4000:1	5000:1

- overload and open-circuit proof
- several transformer outputs can be connected in parallel
- no separate power supply required

Technical data / Notes on connection

Current measurement:

Primary circuit

measuring range: 1A ... 150 A (see configuration table)

Saturation current: ≥ 175 A rms

Overload: < 1 minute at max. current, depending on measuring range (see table)

Nominal error: < 1,5% of full-scale value for all measuring ranges

Low-range error: > 10% (relative) with small currents (less than 5% of full-scale value)

Output: 0...30 mA rms (42 mA peak value), not limited

Output voltage limiting: 7,5 V (peak value)

Type of output current signal: rectified sine wave, scaled

Evaluation: by means of subsequent 'true rms' measurement

The output supplies a signal current that is proportional to the measured primary current.

Use in single-phase supplies

The conductor to the load (primary current) is passed through the hole in the current transformer. The output supplies a galvanically isolated signal current that is proportional to the transformer's configured measuring range.

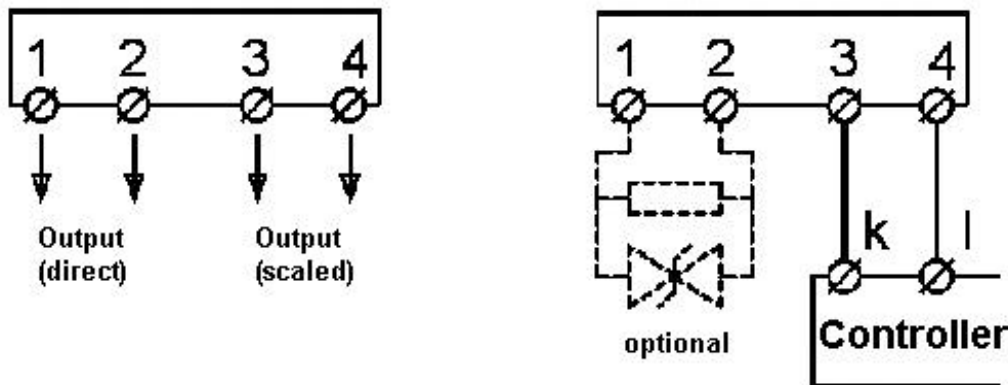
Use in three-phase supplies

If all three conductors of a 3-phase star supply are passed through the transformer, it is also possible to measure the sum of the individual phase currents against neutral. In an ideal case, the sum of all currents (in a star connection) results in '0' or very small values. This means that the sum value can be very high, without overloading the transformer. For checking purposes, the loads can be connected and measured one at a time.

Saturation current

At about 175 A, the transformer starts going into saturation, i.e. its transfer characteristic becomes non-linear. If small currents are to be measured immediately after the transformer has been in saturation, it takes about 400 ms before the transfer characteristic is linear again.

Electrical connections



Terminal assignment

- 1 - Output 1 (+) rectified output current (possible connection of an
- 2 - Output 1 (-) external load or voltage limiting)
- 3 - Output 2 (+) rectified and scaled output current
- 4 - Output 2 (-)

The conductors with the load currents to be measured must be passed through the transformer only once. If the load current is insufficient for the full measuring range, the conductor can be looped through the transformer two or more times. With every loop, the measured current is multiplied accordingly (x2, x3, x4, etc.).

This increases the measurement resolution, which also reduces the measurement error in the lower scale range.

The data given in the table below refer to single conductors through the transformer. In case of multiple conductor loops, the parameters must be converted accordingly (:2, :3, etc.).

Configuration options / measuring ranges

	Primary curr. range ACrms	Max. cont. current ACrms	Measuring range limit (7,5V / 170Ω load)	Scaling $I_{prim} : I_{sec}$	Terminals	Switch position	HC100 value (KS 800)	Tr.Rat value (KS vario)
1	30 A	100 A	about 32 A	1000:1	3 - 4	⑧	29	967
2	60 A	140 A	about 61 A	2000:1	3 - 4	⑩	57	1900
3	90 A	175 A	about 91 A	3000:1	3 - 4	②	85	2833
4	120 A	175 A	about 120 A	4000:1	3 - 4	⑤	112	3733
5	150 A	175 A	about 150 A	5000:1	3 - 4	⑦	140	4666

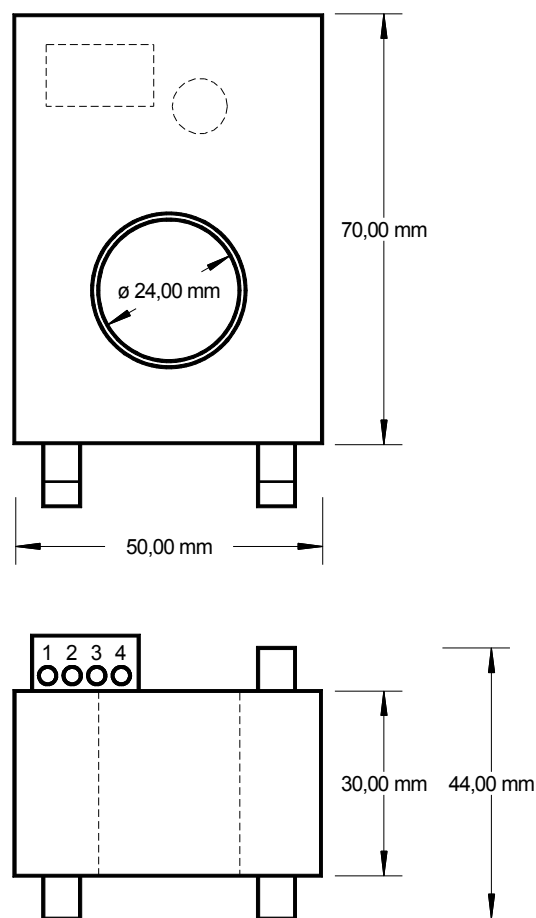
Notes

The output voltage limit value of 7,5 V (peak value) in the various measuring ranges indicates the point at which the specified error of 1,5% (of full-scale value) is exceeded.

Although measurements are still possible above the peak value, exceeding the measuring range by 10% results in an rms output value that is 15% too low, for example.

The specified max. continuous current may be exceeded for brief periods (inrush current, short circuit current). If the max. current is exceeded for a longer period, this can lead to thermal damage of the transformer.

Dimensions



Ordering information

Description	Order no.	Features
HC 100	KSVC-109-31011	Single-phase current transformer with adjustable ranges



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