



Sold & Serviced in USA by:



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4761 / 4764

High Precision Current Comparators

Datasheet



HAEFELY

Current and voltage – our passion

Designed by



General Description

The high precision Current Comparators (current transformers) are used to convert high currents to a lower, measureable level.

The errors of conventional standard current transformers inevitably depend on their burden. A magnetic flux in the core produces the e.m.f. which sustains the secondary current in the burden.

This disadvantage has been eliminated by the development of the two new current comparators, type **4761** and **4764**.

An indicator winding measures the magnetic flux in the core, while an amplifier - by regulating the current in a compensating winding - ensures that the amplitude of the residual flux in the core is approximately zero.

With this technique, the high precision Current Comparators will maintain typical current ratio errors below 10 ppm and current phase errors below 0.1 min on a long term basis over an extremely broad current range. The technical data table on next page provides the full specification of the device.

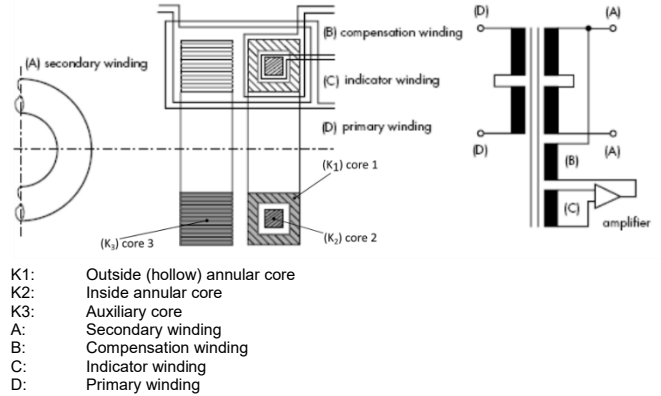
DESIGN

All terminal connections and controls are mounted on the top panel.

The lateral hole located on the side panels of the unit is used as window for the primary loop winding.

The housing of both comparators is made of an insulating material.

BASIC CIRCUIT DIAGRAM



Features

- Wide measuring range with up to 155 primary current taps (5 ... 5000 A) on type 4764, 2 secondary current taps (5 A/1 A), up to 200 % of the nominal current at full accuracy
- Outstanding accuracy and stability over a very broad working range (1 ... 200 % I_N)
- Suitable for shunt reactor losses measurement together with the 2823-REF
- Suitable for power capacitors C/tan δ measurement on high capacitance values
- Built-in overload protection with indication, overtemperature indication on type 4764
- 4761 fitted with handles. 4764 fitted with handles and castors
- Reversible unit : secondary/primary

Advantages

- ☑ **Wide current measurement spectrum** – Extended current measurement, from mA to kA allowed with one single device. The secondary tapping is provided for maximum versatility.
- ☑ **Accuracy at best level** – The 476x units are prepared for accuracy testing of current instrument transformers with most stringent accuracy requirements – 476x units are qualified for use as standard current transformers in metrology institutes.
- ☑ **Extending other instruments measurement capabilities** – 476x units allows a current measurement range extension above 15 A for the 2823 series.
- ☑ **On-board fault indication and unit self-protection**
- ☑ **Ease of handling and mobility** – Standard units customized for temporary and mobile test arrangements.
- ☑ **Highest versatility** in current taps combinations.

Applications

- Current instrument transformers (LV/MV/HV)
- Current instrument transformers for switchgears, MV/HV cables, busbars, bushings
- Losses on shunt reactors
- Power capacitors
- Metrology institutes
- Research and development

Scope of Supply

- 1 High Precision Current Comparator, type 4761 or 4764
- 1 Mains cable 2P+E
- 1 Set of accessories comprising spare fuses, light bulbs
- 1 Test Certificate
- 1 Operating Manual
- 1 Year warranty

Technical Data

Current ranges – Transformation ratios

Device type	4761		4764	
Primary current I _{PN}	connection on upper terminals:	connection through lateral window:	connection on upper terminals:	connection through lateral window:
	1 – 2 – 5 – 10 – 20 – 50 – 100 – 200 A	500 – 1000 A (1 or 2 turns)	5 ... 500 A (in 93 ranges)	500 ... 5000 A (in 62 ranges)
Secondary current I _{SN}	1 A – 5 A			

Accuracy Specification

Device type	4761			4764		
Primary current I _{PN}	I _{PN} = 1 ... 100 A			I _{PN} = 100 ... 1000 A (1 and 2 turns)		
Secondary current I _{SN}	I _{SN} = 1 A	I _{SN} = 1 A	I _{SN} = 5 A	I _{SN} = 1 A	I _{SN} = 1 A	I _{SN} = 5 A
Operating range (as a percentage of I _{PN})	1 ... 5 %	5 ... 200 %	1 ... 200 %	1 ... 5 %	5 ... 200 %	1 ... 200 %
Ratio accuracy	±0.002 %	±0.001 %		±0.002 %	±0.001 %	
Phase angle accuracy	±0.10 min	±0.10 min		±0.15 min	±0.10 min	

Device type	4764			4764		
Primary current I _{PN}	I _{PN} = 5 ... 500 A			I _{PN} = 500 ... 5000 A (1 and 2 turns)		
Secondary current I _{SN}	I _{SN} = 1 A	I _{SN} = 1 A	I _{SN} = 5 A	I _{SN} = 1 A	I _{SN} = 1 A	I _{SN} = 5 A
Operating range (as a percentage of I _{PN})	1 ... 5 %	5 ... 200 %	1 ... 200 %	1 ... 5 %	5 ... 200 %	1 ... 200 %
Ratio accuracy	±0.002 %	±0.001 %		±0.002 %	±0.001 %	
Phase angle accuracy	±0.10 min	±0.10 min		±0.15 min	±0.10 min	

Measurement requirements – Device protection

Device type	4761	4764
Frequency range	47 ... 62 Hz	
Max. output (max. burden)	5 VA	
Overload protection	Built-in overload protection with signal lamp warning and fuses in the power plug for easy access	
Overtemperature indication	n/a	Built-in overtemperature indication with signal lamp warning for type 4764.

Environmental, Mechanical and Power Supply

Device type	4761	4764
Operating temperature	+5 °C ... +40 °C	
Storage temperature	-20 °C ... +55 °C	
Humidity	5 ... 80 % r.h., non-condensing	
Dimensions (W x D x H)	435 x 260 x 450 mm (17.2 x 10.3 x 17.8 in)	715 x 515 x 790 mm (28.2 x 20.3 x 31.1 in)
Diameter of lateral window	55 mm (2.16 in)	130 mm (5.11 in)
Weight	35 kg (approx. 77 lb.)	117 kg (approx. 258 lb.)
Handles / Castors	2 / 0	2 / 4
Rotational switches for I _{PN} selection	n/a	2
Rotational switches for I _{SN} selection	n/a	1
	the selection is done by physical connection	
Power supply Spec.	115/230 V, 50/60 Hz, 20 VA	

Applicable Standards

General	IEC, VDE, ANSI
CE conformity	EMC Directive 2014/30/EU and RoHS Directive 2011/65/EU

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HAEFELY

Current and voltage – our passion



HIGH VOLTAGE



INSTRUMENTS



EMC

precision.

swiss made.