

# TOPACC-HC

## ZERO-FLUX™

### DC CURRENT



The TOPACC-HC Zero-flux™ system is specially designed for measuring very high DC currents. The bipolar version can measure currents up to 30 kA. The unipolar version can even measure currents up to 60 kA. This with a linearity better than 2.5 ppm. The system has many standard features such as automatic reset after overload, zero-current detection and uninterrupted operation through power failures.

Hitec Power Protection is famous for its high precision Zero-flux™ measuring systems and has a long standing reputation of building measuring systems with an exceptionally high thermal and long term stability. The company was the first to manufacture products based on the zero-flux principle and has now over 25 years experience in doing this. The unique Zero-flux™ systems are mainly used as control/measuring units in feed-back loops in high performance power supplies and amplifiers, as a secondary DC standard reference, as a testing device or as calibrating instrument.

#### TOPACC-HC features

- ◆ Exceptionally high thermal stability due to a specially built burden resistor.
- ◆ No extra power consuming and possibly unreliable temperature control devices are used.
- ◆ 10 V output at users specified rated current.
- ◆ Immediate availability because of no warming-up time.
- ◆ A high reliability with a MTBF of 30 years.
- ◆ True bipolar operation, 10 V rated output.
- ◆ Calibration traceable to NMI (Netherlands Measuring Institute).
- ◆ Linearity better than 2.5 ppm.
- ◆ Standard temperature coefficient even less than 0.5 ppm/K (0.25 ppm/K optional).
- ◆ Specially designed for high current measurement.
- ◆ Fast recovery after overload.
- ◆ Saturation detection circuit with automatic reset.
- ◆ Zero-current detection.
- ◆ Can be switched on with main current already present.

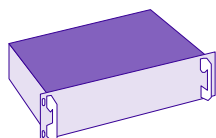
## Specifications Topacc-HC

<b>Primary Circuit</b>	rated current (bipolar) (unipolar)	up to 30000 A up to 60000 A (non-continuous)	
	permissible overcurrent	115 % of rated current (10s)	
	short-circuit current	1000 % of rated current (0.1s)	
	current slew rate	unlimited	
<b>Output Circuit</b>	rated voltage	± 10 V	
	maximum load current	5 mA	
	output impedance	< 10 mΩ	
	output slew rate	1.5 V/μs	
	small signal-bandwidth (< 5% of rated primary current)	0...500 kHz	
	rms value of output noise related to rated $V_{out}$	0 ... 10 Hz	< 0.1 ppm
		0 ... 100 Hz	< 0.3 ppm
<b>DC accuracy</b>	0 ... 10 kHz	< 1.5 ppm	
	<u>offset error</u> related to rated output voltage (adjustable)		
	- initial (at 25°C)	< 2.5 ppm	
	- versus temperature	< 0.5 ppm/K (< 0.25 ppm/K optional)	
	- versus time	< 5 ppm/year	
	<u>ratio error</u> related to actual output voltage		
	- initial (at 25°C)	< 25 ppm	
	- versus temperature	< 1 ppm/K (< 0.25 ppm/K optional)	
	- versus time	< 5 ppm/year	
	<b>Signalling</b>	<u>linearity error</u> related to actual output voltage	< 2.5 ppm
		LED's + relay contacts	
<b>General data</b>	output valid and zero current detection		
	ambient temperature	measuring head	0...45 °C
		electronics module	10...40 °C
	Auto reset after overload. Starts with load at power on		

### Available types

Bipolar      THC10 ? 6...10 kA,    THC20 ? 10...20 kA,    THC30 ? 20...30 kA  
 Unipolar      THC40 ? 30...40 kA,    THC50 ? 40...50 kA,    THC60 ? 50...60 kA (non-continuous currents)

A standard Topacc-HC current measuring system consists of an electronics module, a measuring head and an interconnection cable (standard length 3 m).



### Available versions

Chassis for 19" rack mounting.  
 Dimensions           : 133 x 448 x 500 mm (3U, 19")  
 Supply voltage       : 400 V / 3 phase / 50 ... 60 Hz (Other supply voltages on request)  
 Power consumption   : 450 Watt

### Applied measuring heads

All measuring heads are build according to customers specification. Depending on the application and the maximum current a model is selected. Please state, at ordering, the rated current for 10 V output.

	<b>Model 332-05</b>	<b>Model 470-10</b>
Maximum current	: 20000 A	: 60000 A
Dimensions	: 460x460x220 mm	: 550x550x300 mm
Bore	: 150 mm	: 200 mm
Weight	: 90 kg	: 110 kg
Test voltage (50 Hz, 1 min)	: 5 kV	: 5 kV

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