

# 3695

## Programmable Electronic Voltage Burden

■ HAEFELY has designed a programmable electronic voltage burden for efficient testing of instrument transformers.

In conjunction with the type 2767 automatic instrument transformer test set and the type 4860 electronic voltage divider, the system makes it possible to integrate burdens into a computer-controlled testing system.

The electronic voltage burden replaces traditional burdens with passive resistances and inductances.

The wide range of programmable impedances makes it possible to emulate most existing national and international standard burdens as well as customer-specific values.



### FEATURES AND BENEFITS

- ☑ The **universal voltage burden** is suitable for standard voltage ratings. Power levels are selectable over a wide range (up to **75 VA**) with  $\cos \beta = 0.1$  to 1 at 50 and 60 Hz.
- ☑ Cost-effectiveness: many classical passive burdens can be replaced by a single electronic voltage burden.
- ☑ The **power range can be extended to 400 VA** with an additional passive voltage burden.
- ☑ Burden values can be retrieved from stored tables based on **IEC 60044-2**, **ANSI C57.13** and VDE 0414 Part 2.
- ☑ **Nine individual burden settings** ( $S_N$ ,  $\cos \beta$ ) can be stored and retrieved as needed.
- ☑ **High accuracy of 1%** - even with additional passive burden connected.
- ☑ The internal resistance of the measuring system can be parameterised from the keyboard and is automatically compensated. The unit can thus be used with a variety of instrument transformer test sets, such as Tettex types 2767 or other makes.
- ☑ Prompting for interactive input of parameters makes operation simple.
- ☑ The unit can be fully integrated into an automatic measurement system via the RS – 232 or optional IEEE 488 GPIB interface.

### APPLICATIONS

The programmable electronic voltage burden 3695 is mostly used by:

- Manufacturer of Voltage Instrument Transformers
- Calibration Laboratories
- National Standards Laboratories
- On-Site Testing of High Voltage Instrument Transformers

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**TECHNICAL SPECIFICATIONS**

Rated power $S_N$	0; 1 to 75 VA
In increments of	0.01 VA
Power factor $\cos \beta$	1 to 35 VA: 0.1 to 1 ind. 35 to 75 VA: 0.5 to 1 ind.
In increments of	0.01
Rated voltages $U_N$	100 / 110 / 115 / 120 / 200 / 230 V
All values with factors of	1/1, 1/√3 and 1/3
Voltage range	2 to 190% $U_N$
Maximum burden current	12 A
Test voltage frequency	48 to 62 Hz

**Error thresholds:**

- under reference conditions:
 

Test voltage frequency	50 or 60 Hz
Resistance $\Delta R /  Z $	$\pm 1\%$ *
Reactance $\Delta X /  Z $	$\pm 1\%$ *
- under rated service conditions:
 

Resistance $\Delta R /  Z $	$\pm 3\%$ *
Reactance $\Delta X /  Z $	$\pm 3\%$ *
- at 0 VA setting
 $S < 0.05$  VA |

Cited error thresholds also apply when additional burden is connected.

Reference and rated service conditions according to IEC 359 and operating instructions.

Line power	230 or 115 V, 50 or 60 Hz
Power consumption	Approx. 620 VA
Temperature range	+5 to +40 °C
Dimensions (W x H x D)	500 x 320 x 470 mm
Weight	Approx. 50 kg

\* Related to the corresponding impedance  $Z = R + iX$ ,  $|Z| = U_N^2 / S_N$ . Excitation  $< 2\% U_N$ : General error limit  $\pm 5\%$

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**SCOPE OF SUPPLY**

Programmable electronic current burden 3695 and power cable.

Please specify line voltage when ordering (230 V / 50 Hz or 110 V / 60 Hz).

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**ACCESSORIES AND OPTIONS**

3697	Remotely controlled additional passive voltage burden with automatic detection of possible burden range $S_N$ , $U_N$ and $\cos \beta$ by 3695. Expands the range to max. 400 VA. <table border="0" style="margin-left: 20px;"> <tr> <td>Rated power <math>S_N</math></td> <td>75 to 400 VA</td> </tr> <tr> <td>Rated voltage <math>U_N</math></td> <td>100 / 110 V</td> </tr> <tr> <td>All values with factors of</td> <td>1/1, 1/√3 and 1/3</td> </tr> <tr> <td>Power factor <math>\cos \beta</math></td> <td>0.8 to 0.85</td> </tr> <tr> <td>Test voltage frequency</td> <td>50 and 60 Hz</td> </tr> </table>	Rated power $S_N$	75 to 400 VA	Rated voltage $U_N$	100 / 110 V	All values with factors of	1/1, 1/√3 and 1/3	Power factor $\cos \beta$	0.8 to 0.85	Test voltage frequency	50 and 60 Hz
Rated power $S_N$	75 to 400 VA										
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All values with factors of	1/1, 1/√3 and 1/3										
Power factor $\cos \beta$	0.8 to 0.85										
Test voltage frequency	50 and 60 Hz										
3695 / 1	Interface (IEEE 488 GPIB) for remote control by external computer, incl. data cable. Disables standard RS – 232 interface.										

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**INSTRUMENT TRANSFORMER TESTING EQUIPMENT**


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2767

**Automatic Instrument Transformer Test Set**

Highly accurate test set for accuracy measurements of voltage and current instrument transformers according IEC60044, ANSI C57.13 and others.

3691

**Electronic Current Burden**

Programmable electronic current burden according IEC, ANSI or user defined values. Up to a rated power of 75 VA with 1% accuracy. Can be extended to 200 VA with external burden Tettex 3692.



3697

**Additional Voltage Burden**

Remotely controlled additional voltage burden  
Range expansion to max. 400 VA  
1% accuracy

3692

**Additional Current Burden**

Remotely controlled additional current burden  
Range expansion to max. 200 VA  
1% accuracy over the full range



4860

**Standard Electronic Voltage Divider**

Electronic voltage divider used as a variable comparison standard (replacement of inductive nominal voltage transformers). Voltage Ranges from 1 kV to 800 kV or higher.

4761 / 4764

**Current Comparators**

Electronically compensated current comparator with an accuracy of 10 ppm and 0.05 min. User settable ratios of 1 / 5 A to 1000 or 5000 A.

