

# High Current Wideband AC Measuring Transformer

Measuring power electronics  
at medium and high frequencies



## Main applications:

- Plasma excitation
- Laser excitation
- Ultrasonic excitation
- Induction heating
- Induction cooking
- High speed spindles
- Avionic power supplies (including harmonic analysis up to 150kHz)
- CE-Harmonic analysis over 16A (e.g. EN61000-3-12)

# High Current Wideband AC Measuring Transformer WCT100/WCT1000

Precision Power Meters need Precision Current Sensors – in wideband and high current performance for the power electronics applications. For this ZES ZIMMER has been developing and manufacturing the current transformer series WCT – WCT100 up to 100A, WCT1000 up to 1000A with a frequency range from 30Hz to 1MHz as an outstanding feature.

Usually, standard CTs and clamps have only a few kHz bandwidth. There is really a gap in

the market for accurate high current sensors without any slew rate limitation but at the same time with high bandwidth and a minor phase shift.

The new WCT100 from ZES ZIMMER has a guaranteed accuracy with max. 0.25% amplitude error from 30Hz to 100kHz (and an error smaller 2% from 100kHz up to 1MHz). For precision power measurement their low phase error of 0.3° is essential.

The design of WCT is a passive one, that means no auxiliary supply is needed and therewith improved reliability is achieved. The WCTs are optimised for the ZES ZIMMER Power Meter LMG500 and especially for its  $I_{HF}$  input. The low and overall impedance of its measuring input yield best accuracy.

The WCTs also fit best with the ZES ZIMMER Power Meter LMG95.

## Specifications

|                       | <b>WCT100</b>   | <b>WCT1000 (preliminary)</b>          |
|-----------------------|---|---------------------------------------|
| Nominal Input Current | 100A  | 1000A                                 |
| Measuring Range       | 250A <sub>pk</sub>  | 2500A <sub>pk</sub>                   |
| Transformer Ratio     | 100A:1A   | 1000A:1A                              |
| Maximum Input         | 120A continuous, 200A for 1 minute  | 1200A continuous, 2000A for 1 minute  |
| Bandwidth             | 30Hz ... 1MHz   | 30Hz ... 1MHz                         |
| Output Burden         | max. 100mΩ for the specified accuracy   | max. 500mΩ for the specified accuracy |
| Isolation             | 600V CATIII, 1000V CATII, test voltage output I to 20mm busbar (for higher voltages, the primary lead has to be isolated according to the working voltage of the system!) |                                       |
| Output Connection     | Safety sockets, 4mm   | Safety sockets, 4mm                   |
| Temperature Range     | -10 ... +70°C   | -10 ... +70°C                         |
| Through Hole Diameter | 23mm  | 46mm                                  |
| Weight                | about 350g  | 3000g                                 |
| Dimensions            | L 120mm x W 95mm x H 65mm   | L 190mm x W 170mm x H 160mm           |
| Order No.             | LMG-Z601  | LMG-Z602                              |

## Accuracy

| Frequency range                 | 30Hz to 100Hz | 100Hz to 100kHz | 100kHz to 300kHz | 300kHz to 1MHz |
|---------------------------------|---------------|-----------------|------------------|----------------|
| Current ±(% of measuring value) | 0.25%         | 0.25%           | 1%               | 2%             |
| Phase ±(phase error in degree)  | 0.6°          | 0.3°            | 0.4°             | 0.6°           |

Specification is valid for small signal as well as for wide signal level

Use LMG-Z601 and LMG specifications to calculate the accuracy of the complete system

Subject to technical changes, especially to improve the product, at any time without prior notification.