

Data Sheet no. 6.31/2

PD Measuring Impedances, Types CIL and CIT

The HV PD measuring circuit according to IEC 60270:2000 (see Catalog Sheet 6.21, Fig. 1) consists of the test object, the coupling capacitor and the measuring impedance, which has to be inserted in the earth connection of the coupling capacitor or the test object. The following types of measuring impedances are available:

Measuring impedances, types CIL,

consist of an inductor in parallel with a damping resistor. The inductor and resistor are calculated to form, together with a high-voltage coupling capacitor, a second order high pass filter. Therefore, it is important to match the range of the CIL with the size of the coupling capacitor with which it will be used. Input: Banana; Output: BNC



CIL4L

Measuring impedances, types CIL/V,

are similar to the CIL types. Additionally, they contain a capacitor acting as a voltage divider together with the high-voltage coupling capacitor. This provides a low-voltage copy of the applied high-voltage wave that synchronizes the PD detector and allows monitoring the quality of the applied high-voltage wave. Input: Banana; Output: 2 x BNC



CIL4M/V

Measuring impedances, types CIT,

are transformer type units, where a preamplifier's input resistance operates as the required damping resistor. CIT units offer a higher sensitivity than the CIL coupling units. Furthermore, CIT units are available for bridged configurations to connect two similar test objects as well.



CIT5M

For an optimum transfer behavior the measuring impedance shall be matched very well to the coupling capacitor:

The types CIL shall be applied for multi-purpose application in test fields and for research work.

The types CIL/V are for the same application when additionally the test voltage shall be measured or used for reference purposes.

The types CIT are designed for PD testing of cables as well as for testing in bridge configuration.

It is recommended to select the correct type from the following table:

| Type | Transformer Type | Voltage Range at 50 Hz | Coupling Capacitor Range | AC Current Range | Isolated Input | Measurement at HV Cables | 50 Ohm Matched | Opt. Balanced Mode (Two Bridged Inputs) | Voltage Divider Capacitor (to be specified) |
|--------|------------------|------------------------|--------------------------|------------------|----------------|--------------------------|----------------|---|---|
| CIL3M | | 400 kV | 200 pF - 800 pF | 100 mA | | | | | All CIL and CIT are available with one or two (switchable) built-in divider capacitors to provide a voltage output signal, marked by 'V'. |
| CIL4L | | 125 kV | 600 pF - 2.5 nF | 100 mA | | | | | |
| CIL4M | | 500 kV | 600 pF - 2.5 nF | 400 mA | | | | | |
| CIL4 | | 1000 kV | 600 pF - 3.5 nF | 1.1 A | | | | | |
| CIL5L | | 125 kV | 2 nF - 9 nF | 350 mA | | | | | |
| CIL5M | | 250 kV | 2 nF - 9 nF | 700 mA | | | | | |
| CIL5 | | 1000 kV | 2 nF - 12 nF | 3.8 A | | | | | |
| CIL6M | | 125 kV | 6 nF - 35 nF | 1.4 A | | | | | |
| CIT4M | ✓ | 1000 kV | 600 pF - 2.5 nF | 800 mA | ✓ | ✓ | | ✓ | |
| CITS4M | ✓ | 1000 kV | 600 pF - 2.5 nF | 800 mA | ✓ | ✓ | ✓ | | |
| CIT4 | ✓ | 1000 kV | 600 pF - 3.5 nF | 1.1 A | ✓ | | | | |
| CIT5M | ✓ | 500 kV | 2 nF - 9 nF | 1.4 A | ✓ | ✓ | | ✓ | |
| CITS5M | ✓ | 500 kV | 2 nF - 9 nF | 1.4 A | ✓ | ✓ | ✓ | | |
| CIT5 | ✓ | 1000 kV | 2 nF - 12 nF | 3.8 A | ✓ | | | | |
| CIT6M | ✓ | 180 kV | 6 nF - 35 nF | 2.0 A | ✓ | ✓ | | ✓ | |
| CITS6M | ✓ | 180 kV | 6 nF - 35 nF | 2.0 A | ✓ | ✓ | ✓ | | |

For further information please contact

or our local representative:

HIGHVOLT Prüftechnik Dresden GmbH

Marie-Curie-Straße 10

D-01139 Dresden / Germany

Tel. +49 351 8425-648

Fax +49 351 8425-679

e-mail dresden@highvolt.de

website <http://www.highvolt.de>