

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	✓	✓	✓		

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