

# WV 18-18/1.4

- Portable three-phase test source for induced voltage testing of distribution transformers
- Minimum disturbance emission for sensitive partial discharge diagnostics
- Compact design for use on site and in the factory



# TEST SOURCE FOR PD DIAGNOSTICS OF DISTRIBUTION TRANSFORMERS



Fig. 1 Portable test source WV 18-18/1.4

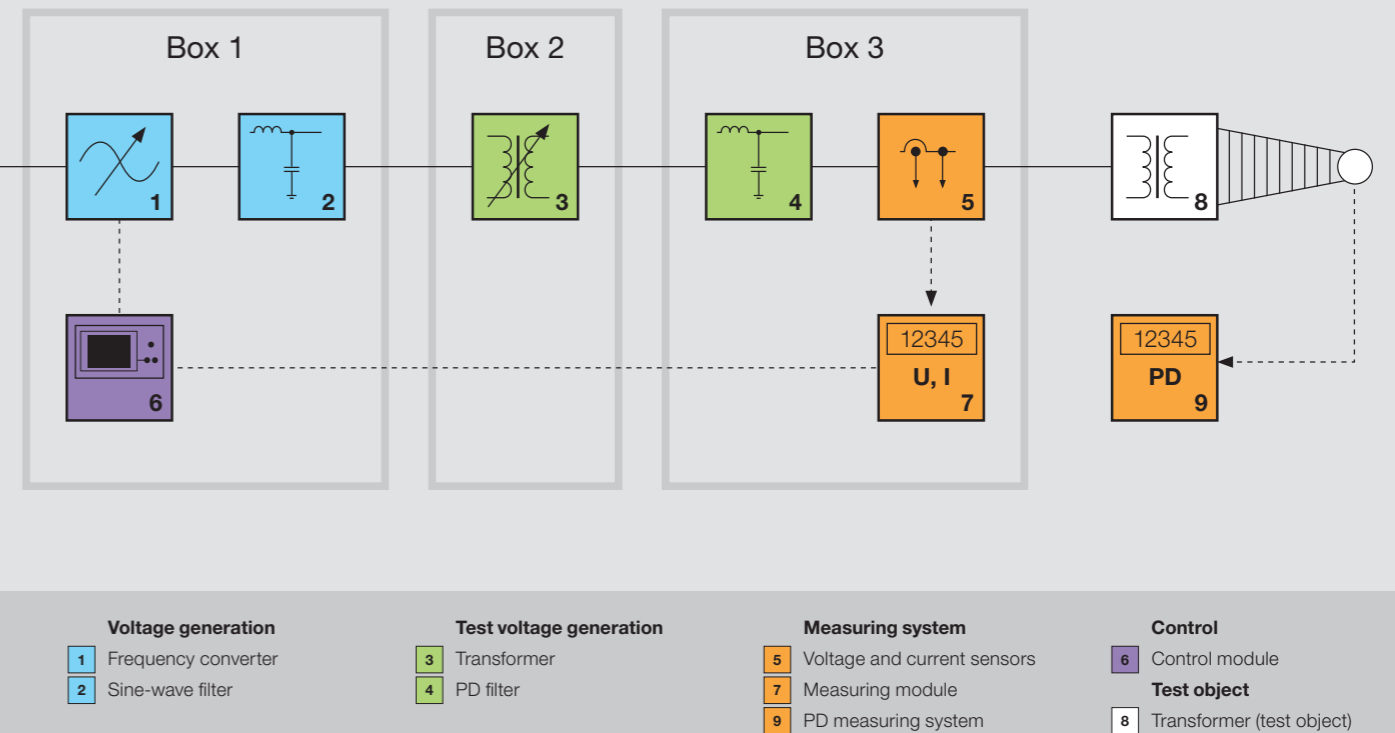


Fig. 2 Block diagram of test source WV 18-18/1.4

## BRIEF DESCRIPTION

The insulation of transformers, especially inside wind power plants, is exposed to particular external conditions which include thermal, mechanical or electrical loads caused by the power electronics, all of which may cause faster aging of the insulation system.

Regular preventive diagnostics help to detect such aging effects at an early stage, thus preventing a spontaneous failure of the equipment.

The WV 18-18/1.4 is a portable three-phase test source for induced voltage testing and partial discharge measuring of distribution transformers on site.

## APPLICATIONS

Combined with a separate partial discharge measuring system, the test source WV 18-18/1.4 covers applications such as:

- Induced voltage test in accordance with IEC 60076, IEEE C57.152 or GOST 3484
- Condition assessment of the insulation system of oil and cast resin transformers
- Regular preventive diagnostics to prevent spontaneous failure
- Partial discharge diagnostics in the field, also in confined spaces, for example in the nacelles of wind turbines

## ADVANTAGES

- POWERFUL TEST SOURCE FOR PD MEASUREMENTS ON TRANSFORMERS UP TO 8 MVA RATED POWER
- STURDY AND COMPACT DESIGN FOR EASY TRANSPORT AND USE IN CONFINED SPACES
- QUICK PREPARATION IN THE FIELD FOR EFFICIENT TESTING

## SYSTEM AND COMPONENTS

The intuitive operating concept and the simple design of the three-phase test source, which consists of 3+1 separate transport boxes, minimizes the need for training and ensures short operating times on site.

Extensive safety functions ensure reliable and safe operation even under difficult conditions of daily on-site service. The particularly low disturbance level of the output voltage allows a sensitive measurement of partial discharge levels, which is also suitable for a reliable condition evaluation of cast resin transformers.

To allow standard-conforming performance of the tests, the internal voltage measuring system already comes DAKS calibrated on delivery.

The active components of the test source are distributed into three transport boxes, which can be assembled on site in a short time using just a few connection cables. A fourth transport box contains all necessary cables and other accessories. All transport boxes are dust and splashwater-proof when closed. In addition to the control and operation module, box 1 contains a three-phase frequency converter (1) with output filter (2), which generates a variable three-phase voltage with a fixed frequency of 200 Hz. This voltage is transformed to the output voltages required for testing by a transformer (3) with switchable taps located in box 2. The voltage ranges are chosen such that distribution transformers with typical low-voltages of 400 V or 690 V can be tested at a test voltage of up to  $2 \times U_n$ . The third box contains further filter stages (4) and the measuring devices (5) for output current and output voltage. The measured values are recorded and digitized by a measuring module (7) and transmitted to the central control module (6). The test source is operated via a touch control panel with graphical user interface. Comprehensive protection against short circuit, overload and over temperature ensures reliable operation. HIGHVOLT offers as a supplementary option the partial discharge measuring system PiDAS (9) and suitable coupling capacitors.

- THREE-PHASE MEASUREMENT
- TIME-SAVING DIAGNOSTICS OPTIONS ON SITE AND AT THE FACTORY
- NO TRANSPORT OF TEST OBJECT NEEDED

# TEST SOURCE FOR PD DIAGNOSTICS

## TECHNICAL SPECIFICATION

Item	Unit	WV 18-18/1.4			
Rated power	kVA/kW	18/18			
Output frequency	Hz	200			
Output voltage	V	0 ... 800	0 ... 1380		
Output current	A	0 ... 17	0 ... 11.5		
Output phases		3			
PD level	pC	< 10			
THD of output voltage	%	< 3			
Duty cycle at up to 40 °C ambient temperature		100 %: 30 s, 80 %: 60 min, cooling time: 30 min			
Cooling of power section		AF			
Degree of protection		IP 20 (during operation), IP 64 (closed boxes, transport)			
Power supply		50/60 Hz, 380 ... 480 V, 32 A via CEE-32 plug			
Technical specification of transport boxes		Box 1	Box 2	Box 3	Box 4
Dimensions (approx.)	mm	850 x 460 x 720	627 x 500 x 300	630 x 500 x 300	630 x 500 x 300
Weights (approx.)	kg	74	62	34	30



Fig. 3 Applications for the test source WV 18-18/1.4 for testing of distribution transformers (selection)

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