

PVS 100

Phase Verification System

System for identifying phases on live electrical power systems

Advantages:

- ▶ **Clear identification of the phasing in relation to a reference phase**
- ▶ **Results shown in real time via GPS synchronisation and GSM connection to base station**
- ▶ **Offline measurement without GSM possible using post-synchronisation**
- ▶ **Phase angle correction for transformer vector groups**



Description

Precise knowledge of the phase assignment in an electrical power network is an essential condition for safe and reliable operation. This is true for all levels from the distribution network to the transport network for high-voltage transmission lines. Phase identification on live systems is necessary when preparing and executing network restructuring, for recording, updating and revising planning documentation as well as for planning and setting up of new network systems.

The system consists of two identical devices, one of which is used as a base station and is connected to a known reference phase.

The second device (the mobile unit) can be connected anywhere in the network. The phasing can be determined across various voltage levels by comparing the angle of the phase currently being tested with that of the reference phase. Automatic comparison with a direct indication of the phase assignment takes place by synchronising the two devices via a GSM connection, using GPS as a highly accurate time base.

If there are one or more transformers between the base station and the test point, the effect of the vector groups and the associated phase shifts (multiples of 30°) can be easily taken into account by entering appropriate correction values. Special operating modes allow the system to be used even when there is no GPS or GSM connection. To do this, the mobile unit can either be synchronised before the test to an available low voltage supply that remains connected to it, or the recorded test readings are synchronised via an existing GSM connection after the test.

The PVS 100 can be used anywhere thanks to its built-in rechargeable battery. The system is directly connected to the test object at network voltages up to 400 V. At higher voltages up to 120 kV, the test is performed using a high voltage sensor which communicates with the PVS 100 via bidirectional wireless communication. The test status and the phase indication are signalled using a visual display on the sensor.

Technical data

PVS 100

LCD touch screen	240 x 128 (transflective display)
GPS antenna with cable	Length 20 m
Wireless modem for high voltage sensor	866 MHz
Data storage	1 GB data memory / USB interface
Accuracy:	
At voltages up to 400 V	± 0.5°
Up to 120 kV	± 10°
Operating voltage	115 V / 230 V AC 50/60 Hz
Battery operation	10 hours
Operating temperature	-20 °C ... +50 °C
Dimensions (W x H x D)	235 x 105 x 181 mm
Weight	3.2 kg
Protection class	IP 54 with housing closed

HVS 120 high voltage sensor

Wireless modem	866 MHz
Maximum voltage	120 kV
Battery operation	50 hours
Dimensions (D x L)	85 x 220 mm
Weight	0.9 kg
Protection class	IP 43

Features

- ▶ Direct phase indication with GSM/GPS connection or with available low voltage connection
- ▶ Can operate independently of GSM or GPS reception with synchronisation of stored readings
- ▶ 1 GB internal memory (for 10 days continuous operation)
- ▶ Li-Ion battery for 10 hours operation
- ▶ Data transfer via USB
- ▶ Operation via LCD touch screen
- ▶ Intuitive operating software, online help function
- ▶ High voltage sensor with bidirectional wireless communication to the PVS 100 as well as direct visual signalling

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Technical data subject to change without notice.
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