HAEFELY HIGH VOLTAGE TEST

OT 248

AC System Operating Terminal

The Operating Terminal OT 248 provides a safe and easy computer-aided operation of transformer- or resonance-type AC high voltage test systems. The unit is built into a standard 19" desktop housing. It has a high electro-magnetic compatibility and does not need additional screening. Due to the built-in safety interlocks the operator can fully concentrate on the test object.

All set or measured data are displayed on a bright 6.5" color LCD display. An easy-to-understand graphical user interface is used for all information exchange.
Short key buttons perform the control of the AC test system with direct access to the main functions and scrolling menus handle the secondary functions easily.

At any time - in addition to the output high voltage output status - additional system information blocks can be visualized on the display:
- Over-voltage and over-current protection status
- Tuning and actual gap distance of the HV reactor
- System timer
- Output voltage and current of the regulating transformer

A front installed USB socket enables the connection of an USB-stick for the transfer of CSV data files on another PC into an Excel spread sheet. Data files can also be accessed via LAN.

The High Voltage measuring signal is derived from the built-in HV divider of the test system. The value of the high voltage is permanently displayed, either as peak /√2 or as RMS value.

In case of flashover at the test object the control unit automatically stores the last voltage measurement as well as the polarity of the high voltage during the discharge.

FEATURES

- Switch-on, switch-off of the primary circuit breaker and the high voltage contactor
- Manual variation of the output high voltage with two speed levels.
- Automatic raise of the output high voltage to a final value with a defined speed.
- Timer for switching off the high voltage automatically after a pre-set time period
- Remote control compensation reactors of transformer test systems
- Automatic control the resonance condition of resonant test systems
- Remote control DC test systems

BENEFITS

Easy and safe operation reduces the learning curve and minimizes any dangerous situations.

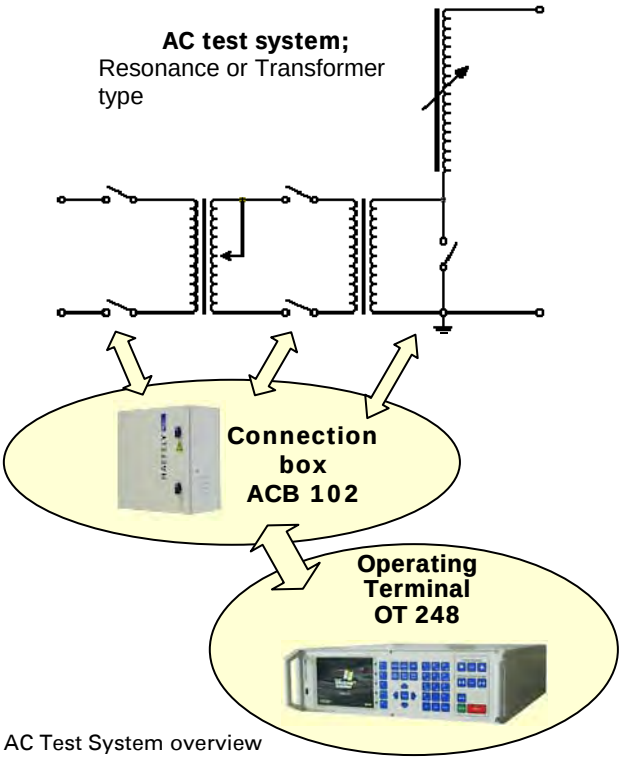
Rugged and compact design guarantees high durability and helps reducing the installation costs.

Versatile and compatible solution supports easy integrating into a manufacturing chain for routine testing purposes.

APPLICATIONS

- Transformer Testing
- Switchgear Testing
- Surge Arrestor Testing
- Research and Development
- Routine Testing

SYSTEM DESCRIPTION



AC Test System overview

The standalone AC connection box ACB 102 is the front-end interface to the AC test system itself, which can be a transformer or a resonance system type. Also DC test systems are usable.

Basically the ACB links the AC test system hardware with the controller, supports the front-end signals (gap motors, grounding system, regulating transformer, HV reactor, etc.) and collects the measurement lines from the system.

Two shielded AMP type connector cables for analogue and digital signal exchange connect the control module OT 248 to the connection box ACB 102 and to the regulator.

The OT 248 instrument acquires the measured data from the ACB and sends control commands to operate the system.

All parameters are clearly displayed on the screen and are easily accessible over the buttons on the front panel of the OT 248.

The modular architecture of the AC control system allows minimal wiring and suppresses interferences most effectively. Due to the separation between connection box and control module it is also very easily to upgrade or retrofit an instrument without replacing the whole system.

ACB connection boxes are available for virtually any size and type of test system.

CALIBRATION

For reference voltage measurements Haefely Test AG can provide you with DKD certificates, which are traceable to highest national and international standards as required in the group of standards ISO 9000 and the ISO/IEC 17025.

Calibrations carried out by DKD (German Calibration Services) allow the user to trust in the reliability of measurement results and increase the customers' confidence and competitiveness in the high voltage measurement field.

INTEGRATION

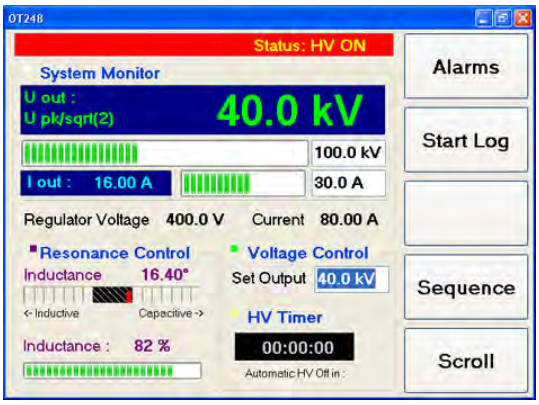
The OT 248 controller can be integrated in a superior system or vice versa other measuring equipment (e.g. a DDX9101 PD detector) can be connected to the OT 248. Therefore the external measured data can be transferred to the controller for sequence control and reporting purposes.

Example of the OT 248 terminal together with a 6-channel PD detector integrated into an operating desk.

CONTROL MENU

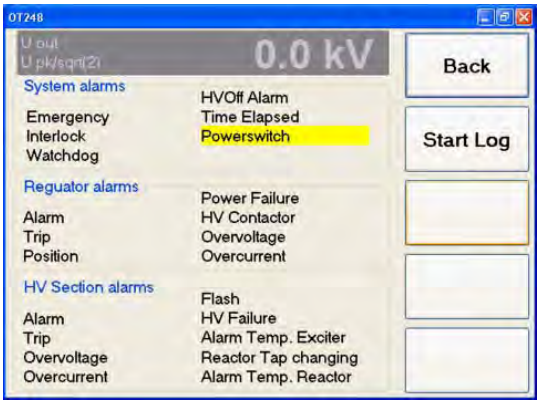
The control menu of the OT 248 takes care of adjustments used to perform routine tests with the AC test system. Following parameters can be edited:

- Test voltage: The test voltage can be regulated either manually or automatically.
- Tuning: The system can be tuned into resonance either manually or automatically. The actual tuning information is easy understandable visualized in the display.
- Test time: A timer can be started to turn of the High Voltage after a certain time.
- Output voltage and current Trip: To protect the test object from over-voltage or over-current, limits can be set by the user.
- Scope: Test voltage over time u/t history is displayed in a diagram.
- Alarms: Display of all alarms and warnings
- Trips: Max. charging voltage and primary current



ALARM MENU

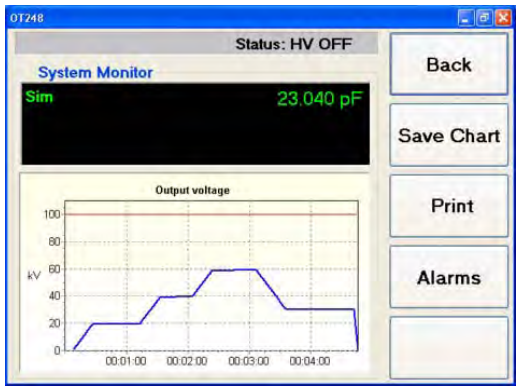
All alarms of the test system are displayed here. An activated alarm is displayed in yellow.



SCOPE MENU

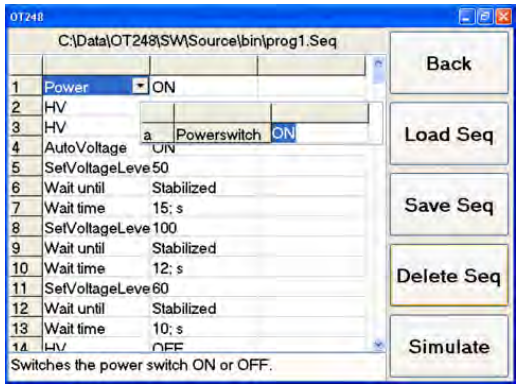
In this menu the test voltage over time u/t is displayed graphically. If available, an external measuring unit like a DDX9101 PD Detector can be connected and the measuring values transferred and displayed.

These external measuring data can be used in the controller e.g for test sequence control in routine testing.



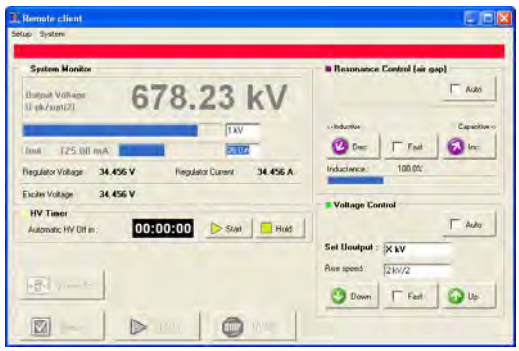
TEST SEQUENCES (OPTIONAL)

With this function an execution of automated test sequences (macro) can be performed. A sequence can be stored under a dedicated name, loaded and executed.
The sequence can be started at any position and it can be paused or interrupted at any time.



REMOTE CONTROL (OPTIONAL)

With the remote control option the OT 248 can be accessed and controlled from an external computer or a laptop via the Ethernet port. All control functionalities are then available by remote control.



TECHNICAL SPECIFICATIONS

Voltage Measurement

Display	RMS, Peak/√2
OT 248 unit	± 0.5% rdg. @10%..f.s.d.
Overall *	± 1% rdg. @10%..f.s.d., 50/60 Hz

* incl. voltage divider and coupling quadripole

Controlled Parameters

Max. output voltage	Limited to user defined value
Max. output current	Limited to user defined value
Test time	Switch-off high voltage timer
Tuning	Serial resonance system, Parallel resonance system, AC compensating reactor
Actual connection	Active (used) tap, Reactor connection (mode)

Power Supply

Line voltage	115/230 V AC
Line frequency	50 / 60 Hz
Power consumption	400 VA

Interfaces

Digital I/O	24 V DC
Analog I/O	0 ... 10 V DC
AC out	0 ... 7 V AC (signal for a scope)
DC out	0 ... 10 V AC (signal for y-t plotter)
Ethernet	10/100
USB	1.1
Serial (option)	RS232 (for ext. measuring device)
Safety interlock	24 V DC
Emergency stop	24 V DC
Warning lamp	115 / 230 V AC

Weight and Dimension

Weight	15 kg
W x H x D	450 x 135 x 350 mm

Environmental Conditions

Operating temp.	10 ... 40° C
Humidity range	35 ... 85 % r.h., non-condensing

SCOPE OF SUPPLY

Control unit prepared for resonance test systems or transformer test systems in 19" desk top housing,

- Connection box ACB 102 (assembled to interface a transformer* or a resonance system)
- Set of control cables, 20 m (other length on request)
- Emergency stop button mounted in separate box
- Manual and certificate

* smaller transformer systems can be connected directly without the ACB102 box.

ORDER INFORMATION

Name	Description
OT 248 R	Control unit kit for Resonance test systems
OT 248 T	Control unit kit for Transformer test systems

Options	
OT 248 REMOTE	Software Option for Remote Control via external PC
OT 248 RS232	RS232 Serial Interface hardware
SEK AC	Secondary unit for AC voltage measurement incl. measuring cables, 20 m (other length on request)
OT 248 SEQ	Software tool "SEQUENCE" (programmable test sequences)

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