



## goes Middle East

Join us in March 18-19, 2007 in Qatar



Preparations are already under way: The next TRANSFORM – an international convention devoted to transformer componentry – will be held in Doha, the capitol of Qatar, from March 18 to 19, 2007.

In addition to MR and its subsidiaries Messko and HIGHVOLT, well-known suppliers of the transformer industry such as Röchling Engineering Plastics, HSP, Pfisterer and quite a few others will be in attendance. As with the last event in Thailand in 2004, a wide variety of lectures, workshops, group discussions and product presentations will be offered again. Take advantage of the opportunity to meet experts from all over the world. Experience live the latest developments surrounding the transformer and, last but not least, enjoy the legendary hospitality of Qatar.

If you are planning on attending, you should register early. The easiest way is to visit [www.transform2007.com](http://www.transform2007.com) starting end

of October 2006. Or send us an e-mail right now and we will send you a personal invitation: [c.schulz@reinhausen.com](mailto:c.schulz@reinhausen.com)

### VISA for Qatar:

Qatar grants tourist visas at border points for the nationals of more than 33 countries including USA, Canada, Iceland, West European countries, some East European countries, Japan, Singapore, Malaysia, Hong Kong, South Korea, Brunei, Australia and New Zealand, besides the nationals of the GCC countries. Visit visas for the residents of the GCC countries and their companions are issued at border points, while entry visas for businessmen coming from places other than the countries mentioned above need to be arranged beforehand.

[www.e.gov.qa/eGovPortal/visaservice/visaservicedetails.jsp](http://www.e.gov.qa/eGovPortal/visaservice/visaservicedetails.jsp)

More Information on Qatar: [www.experienceqatar.com](http://www.experienceqatar.com)

# Upgrading of existing High-Voltage Test Systems by New Control and Measuring Equipment

## HIGH VOLT

HV test fields play an important role in type-, routine- and acceptance- testing. Often customers and inspectors take part in such testing and therefore the HV test field is taken as a figurehead for the whole company.

HV components as test transformers or impulse generators have a life time of 30 or more years. In opposite, the applied control and measuring equipment becomes outdated after 10, latest after 15 years. Such an outdated control might be reliable, but it does not fit to the communication system of a state-of-the-art

factory, it does not enable automatic or semi-automatic test procedures, and it requires more test field personnel. One solution is to buy a complete new HV test system or – more economically – to upgrade the existing HV test system by a new computer-based control and measuring system. HIGHVOLT as a supplier of all kind of HV test systems is well prepared for such upgrading, because the applied control concept is designed for both, new HIGHVOLT test systems and **upgrading of HV test systems of any supplier.**

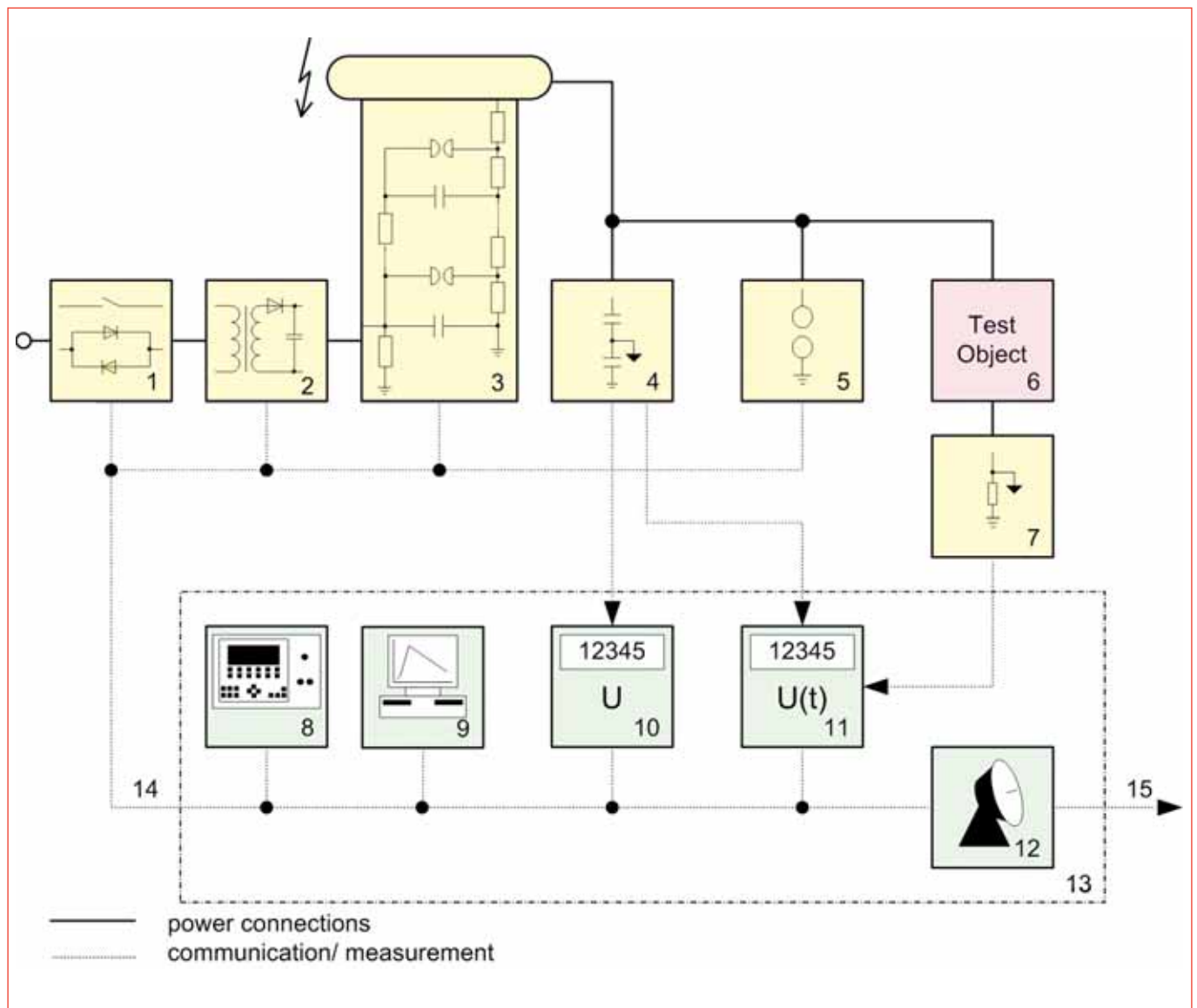


Fig. 1: Principle circuit diagram of a HV impulse test system.

## Upgrading of existing High-Voltage Test Systems

**HIGH  
VOLT**

The state-of-the-art control concept (Fig. 1) shall be explained in brief:

The HV components (no. 2 to 5) are controlled by programmable logic controllers (PLC) in the switching cubicle. The PLC's get their commands from a operator device (no. 8) or an industrial computer (IPC, no. 9) via optic links (PROFIBUS and/or ETHERNET). HV measurement is realized via a voltage divider (no. 4) to the peak-voltmeter (no. 10) and/or the digital impulse analyzer (no. 11), both connected to the IPC (no. 9). Current measurement is realized via a shunt (no. 7) in a similar way. With a special module (no. 12) the control and measuring system is connected to the communication network and via Internet to the HIGHVOLT Remote Service Center for software updates and trouble shooting.

Due to well-prepared interfaces for the connection of the new control to the existing power components the described state-of-the-art control and measuring system can be attached easily to the power components of an existing HV test system. Links for communication are carried out optically to avoid electromagnetic interferences.

The software package includes optional features for automatic test processes from test object identification, selection of the test parameters, execution of the test procedure, compilation of test data, data processing until printing of a test record. Last but not least it should be mentioned, that the SIMATIC type PLC's have proven highest reliability. The HIGHVOLT concept for upgrading control and measuring systems has convinced many customers

worldwide. For example the US cable manufacturer Forte Power decided to upgrade their HV resonant test system – manufactured by a competitor – with a HIGHVOLT control (Fig. 2). The PLC's and the interfaces are placed in a switching cubicle (arrow) fixed at the HV reactor. The operator device enables manual and semi-automatic operation modes.

A similar decision has been taken by NETFA, South Africa (Fig. 3). Their impulse generator – also manufactured by a competitor – required not only the new control and measuring system, but also a new DC voltage charging unit and a new impulse voltage measuring system.

Even the KEMA, the famous Dutch test laboratories, was committed to the excellence of the HIGHVOLT concept and decided to order the upgrading of three impulse test systems at HIGHVOLT (Fig. 4). This upgrading includes the adaptation to special KEMA measuring systems (right hand rack).

Due to the adaptability, HIGHVOLT considers the upgrading of existing HV test systems as an interesting solution for customers to improve their existing test systems regardless if it is manufactured by HIGHVOLT or by a competitor. The upgrading includes the full-line of HIGHVOLT services including Calibration-Service.

If you think about an upgrading of an existing test system of HIGHVOLT or even of a competitor please do not hesitate to contact us at [sales@highvolt.de](mailto:sales@highvolt.de) or send your inquiry directly to our specialist Mr. Baronick, [baronick@highvolt.de](mailto:baronick@highvolt.de). ●



Fig 2: Upgrade of a HV resonant test system at Forte Power/USA



Fig 3: Upgrade of an impulse voltage test system for NETFA/South Africa



Fig 4: Control and measuring system at KEMA/The Netherlands

## Exemplary installed – the MTraB®-System at the Niagara Falls in Canada



Length of brink: 2600 feet; height: 167 feet; volume of water: 600,000 U.S. gallons per second. These are the dimensional aspects of a nature monument called Niagara Falls.

"Canada turns to Niagara Falls Power for Energy – Ontario wants more Hydroelectric from falls...", that's what Fred Langan (Christian Science Monitor) wrote on Aug. 21, 2006

"Actually the second largest tunnelling project ever will bring more water to existing turbines on the Canadian side, generating enough new electricity to run 160,000 homes. "The focus is on how to find as much clean and renewable energy as possible, and this fits the bill," says Emad Elsayed, vice president of hydroelectric development at Ontario Power Generation, which is owned by the Ontario government and operates the hydroelectric plants on the Canadian side of the falls.

The giant drilling machine, made by the Robbins Company of Solon, Ohio, will start boring through hard rock in early September. The machine cuts through about 50 feet a day. At that speed, the 6.4 mile tunnel will be ready in 2009. At 47 feet in diameter

it is 1 1/2 times the width of the Channel Tunnel between England and France. And it was a lot easier boring under the soft chalk of the English Channel than through hard rock 460 feet below Niagara Falls. The \$535-million tunnel will take 17,500 cubic feet of water per second from the Niagara River above the falls, to the Sir Adam Beck generating station below the falls. "We are in effect adding more fuel by adding more water, making sure the existing turbines run at top capacity," says Mr. Elsayed."

Under these circumstances **Asset Management** is the magic word not only in Canada but at utilities around the world. How can resources be utilised in as inexpensive and reliable manner as possible? One answer to this question is **MTraB®** made by MESSKO. The Reinhausen subsidiary has installed several maintenance-free dehydrating breathers at Hydro One substation near the Niagara Falls. Because of the successful implementation of these systems, Hydro One decided to change the conventional breathers at their transformers to the **MTraB®**-system over the next years. ●

**There have been several reasons for this decision:**

- economical savings
- technical advantages
- reliable function

**It's a simple principle:**

**Attach it to the transformer and forget it!**

Contact: [info@messko.com](mailto:info@messko.com), [www.messko.com](http://www.messko.com)



## OILTAP® M will replace OLTCs from Eastern Europe in Syria

The Public Establishment for Generation and Transmission (PEEGT) Syria requested MR about the replacement of two TRO East German on-load tap-changers (OLTCs). They proved to be very unreliable. The failure of many of the TRO OLTCs has caused damage to transformers in the past. At the end of the 70s, PEEGT purchased approximately 30 TUR transformers (70 and 80 MVA 230/66 kV) in East Germany (GDR). Similar situations exist for nearly all of the 20 MVA 66 kV TUR transformers in which other OLTCs from Eastern Europe are installed.

### According to PEEGT the main reasons for the failures are:

- Weak contact system which wears out quickly
- Damaged tap-selector gears which do not work
- Unreliable operating system of the motor drive units which caused end-positions to be exceeded and critical damage to the OLTC and transformer
- A variety of other reasons

Since PEEGT requested reliable and high-quality OLTCs MR will install OILTAP® M-type. Iran Transfo After Sales Service Company (ITASS) could be won over as an MR partner who would handle replacement of the OLTCs. ITASS is very experienced with regard to transformer technology and design and is very familiar with OLTC replacement procedures. In the field of OLTC replacements ITASS will be a very competent MR partner. Mr. Jamshidi of ITASS (see photo right - second person from the left) confirmed the above mentioned partnership between MR and ITASS during his recent visit to MR. ●

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Photos show the installed OLTCs in the 70 MVA and 20 MVA TUR transformers at PEEGT Syria.

## Transformer manufacturers in the Middle East rely on VACUTAP®

From the Siemens concern in Karachi to the family business Emirate Transformers to the state-run manufacturer Iran Transfo – they are all relying on MR vacuum technology for various major projects in Egypt, Pakistan, Iran and the United Arab Emirates. ●

### The advantages:

- Maintenance-free for up to 300000 switch operations
- Approved for furnace operation
- Exchange of vacuum interrupters only after 600,000 switch operations
- Also for autotransformers, HVDC and sealed transformers
- For regulation at line end of delta winding

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## Thanks for joining us at [www.switch-to-300000.com](http://www.switch-to-300000.com)

The participation in our online game starting the market introduction of VACUTAP® VR 1300 has overwhelmed us.

Several hundred experts from utilities, industrial companies and transformer manufacturers from all over the world joined us.

Now the prizes are on their way to lucky winners! ●

Win a prize with your knowledge of VACUTAP®!

Take advantage of the chance to win valuable prizes – we help you prepare for your next project!

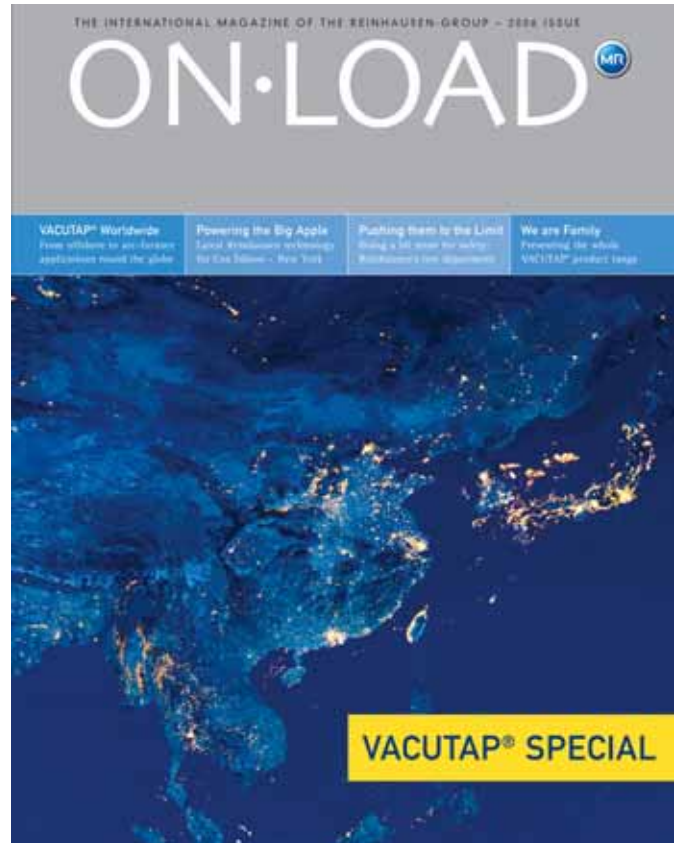
First prize is a Panasonic digital camera with original Leica lens

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