



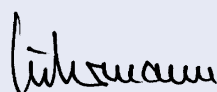
FOREWORD

Dear Customers, dear Readers,

Highest quality. That's our goal every single working day of the year. And that's also the goal of INSIGHT, our quarterly newsletter. High-quality information. What we don't want to do is to offer you yet another publication to read which cuts into your already limited free time. That's the reason we are keeping this short. We want to give you important and interesting news on our product family in compact format. You will read about technical trends and the latest developments as well as news from sales and service. The goal of INSIGHT is to provide you with as much useful information as possible for your daily work. That's why we need your feedback. We are looking forward to hearing from you.



Dr. Maier-Scheubeck



Dr. Lührmann

Moscow, here we come!

On July 1, 2003, our Russian subsidiary, o.o.o. MR (MR GmbH), will officially open its doors for business. General manager, Alexander Kulkov will run the new office in Moscow. He will be assisted by Nina Motorina. Our team will support the CIS countries. Assistance in all questions pertaining to our family of products: on-load tap-changers, motor drive units, voltage regulators, accessories, and Messko products.



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INSIGHT – The MR-Infoletter, Issue 1|2003

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Although this newsletter has been prepared with the greatest of care, it cannot be guaranteed that the information is free of errors and accurate.

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ISSN 1612-1856

Special off - circuit tap - changer model

Special requirements demand inventive solutions. Working on an order from ABB Power Technology Products AB/Transformers in Ludvika/Sweden, a technically very sophisticated special model was created in Regensburg for a final user in China. Since it was absolutely necessary that the connection contacts be arranged in three different levels, GFRP cylinders were used. Below are the primary data.

Off-circuit tap-changer type: 3x U I 2400-245-12 05 0D

Performance: 750 MVA 3-phase autotransformer

Voltage: 525 kV (HV) 230 kV +/- 2* 2,5 % (LV)

Current: 1982 A



DEETAP® U and IEC 60214-1

Tap-changer regulation IEC 60214 has been revised and new regulation IEC 60214-1 has been in effect since February, 2003. This release deals with off-circuit tap-changers for the first time. The following requirements were defined for them.

1. Temperature rise of contacts
2. Short-circuit current
3. Mechanical endurance
4. Dielectric requirements

All DEETAP® U off-circuit tap-changers comply with the new IEC 60214-1.

Contact: sales@reinhausen.com



One Tap Ahead

The TAPCON voltage regulator - wide variety of uses

Nothing is as permanent as change. This saying is particularly true of electronics development. Our VC 100 and VC 100E voltage regulators have made a name for themselves on the market and we are proud to be able to present to you our new development - the TAPCON® family.

From simple regulating tasks to complex control tasks (e.g., for phase shifter transformers). The devices of the TAPCON® family can handle all applications. They offer maximum operating control convenience coupled with the reliability of all MR products. Long years of experience gained from previous device generations and, naturally, the requirements of the user were all included in the development. TAPCON® 230 is designed for projected panel mounting. TAPCON® 240 is designed for flush panel mounting, for mounting in a 19" rack, in a mountable housing or to be installed in motor drive ED.

The primary features of the TAPCON® 240 at a glance:

- Excellent function security and long life

- Maximum flexibility: From simple regulating tasks to complex control tasks
- Well-organized, clear display of system voltage, tap positions and drag hands function - no other displays necessary in the control cabinet
- Integrated parallel control of up to 16 transformers
- Measured value recorder including extensive measured value archive
- Serial interface with various versions of logging to the control system
- Freely programmable inputs and outputs including LED signaling
- Quick installation and commissioning, almost no training required
- Customizable menu structure and menu scope

For more information on the TAPCON® family, go to: www.tapcon.de

Our electronics sales team is looking forward to talking with you.

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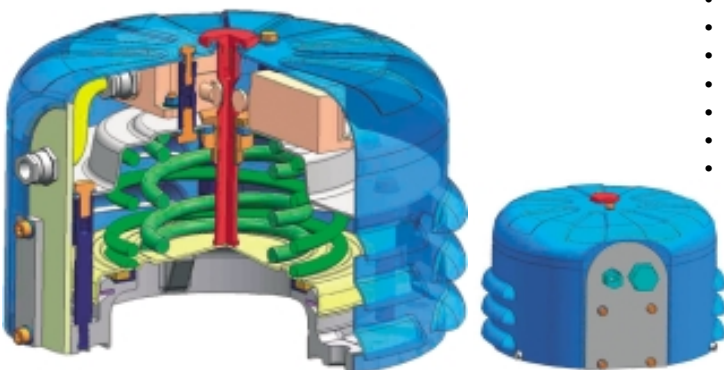
E-mail: sales.electronic@reinhausen.com

MPreC - pressure relief device

The new standard for transformer protection

Modern energy generation processes must meet high quality standards. Effective and safe monitoring facilities are essential prerequisites for reliable operation.

Messko products for transformers ensure a high degree of safety and longevity. To further strengthen our reputation already familiar throughout the branch for decades, we have expanded our classic product lines.



Can we still improve on state-of-the-art technology?

We can. With the new product line of MPreC pressure relief devices in Messko quality which offer functional advantages over other comparable systems.

- Complete protection with integrated covering cap already included in basic model
- Saltwater proofed materials
- Weather proofed and robust. No plastic parts.
- Optimized gaskets to prevent unwanted pressure relief
- Optimized signal pin. Notches prevent unintentional resets.
- Alarm contacts mounted inside for optimum protection
- Simple connection of the alarm contacts
- Design in accordance with IEC 60947-5-1
- Computer-assisted individual pressure and leakage test

Expected availability date: 4. quarter 2003

For more information: www.messko.de

Ready-to-use thyristor power controller

Thyro-C for capacitive three-phase current loads in low-voltage networks



Modern industrial plants are characterized by the use of highly dynamic, inverter-controlled manufacturing machines. Although the advantages of this technology are undisputed, one drawback exists, however, frequent changes in load and harmonics put a strain on power networks. This often leads to unstable voltage conditions, flickering, current peaks, and increased

losses in power distribution. This not only decreases network power but also affects the functioning of sensitive electronic controllers.

Although conventional reactive power compensation systems are designed to reduce the harmonics level in addition to pure optimization of the power factor, they are unable to deal with the quick changes in load and thus do not offer a satisfactory solution to the above problem. The application area of these systems lies in the compensation of static or slowly changing loads with switching cycles in the minutes range.

The answer here is Thyro-C, the AEG thyristor power controller for capacitor loads of our new business division PQM in Berlin. Together with a reactive power controller, this electronic controller makes it possible to set up dynamic real-time compensation systems. These systems react to load change within one network

period and suppress reactive power jumps in the power network. The power factor remains optimized at all times and the effects described above are reduced to a minimum. For the user, this not only means stable network conditions but also reduced costs since overdimensioning of the power distribution is no longer necessary.

This is done when the Thyro-C control commands are completed within 0.2 msec and the power capacitors are switched through during the next voltage current zero. Another positive effect of this principle is the "gentle" switching of the capacitors. Conventional air contactors create transient switch-on peaks which not only strain the components of the compensation system itself but may also cause the loads on the network to malfunction. The Thyro-C always switches on during the voltage current zero and off during the current zero and transient interference is completely avoided. The number of switching operations of Thyro-C is unlimited (i.e., wear free).

These features make the Thyro-C particularly suitable for use in office buildings and computing centers which react very sensitively to all network interference.

These features and its compact, ready-to-use design make the Thyro-C the right solution for implementation of modern reactive power compensation systems and low-voltage networks. •

For more information: www.pqm.reinhausen.com

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Power Quality Management delivers filter circulation plant to Hammerfest

The business division Power Quality Management (PQM) in Erfurt landed a major order from STATOIL in Norway. In Hammerfest a natural gas liquefaction plant for the Snovit gas deposits uses inverter drives. PQM supplies the necessary medium voltage filter circulation plants with a total capacity of 70 Mvar. This is the first time complete electro drives have been used for a plant of this size. Due to the requirements for setting the speed of the drives, they are designed as 12-pulse inverters with rated capacities of 2 x 65 MW, 32 MW and 16 MW. To avoid the disadvantages of these inverters (i.e., withdrawal of reactive power from the transmission network and distortion of the network voltage by harmonics), PQM designed passive filter circuits for the medium voltage level.

After complete installation in switching station modules, these filter circuits will be delivered in the middle of the year so that tests can be performed in Germany and Italy under conditions similar to actual practice. Afterwards the complete electrical unit will be sent to Norway. At the construction site, the side walls and roofs of the switching station modules will be removed and the filter circuits will be operated in airconditioned buildings. PQM supplies low-maintenance SF6 switching systems for connection/disconnection of the filter circuits while the inverters are running. This major project continues the Erfurter specialists' series of particularly demanding systems (e.g., for the Transrapid Shanghai,

Thyssen Krupp in Bochum, Rolls Royce Wildau and DOW Chemical in Stade). PQM is increasingly strengthening its worldwide reputation as a reliable partner for the planning and delivery of filter circulation plants for powerful inverter drives and electrolysis.

Four OILTAP® M on-load tap-changers were delivered by MR for the Hammerfest project too. •

Find out more about this project under: <http://www.statoil.com>

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