



## Stable Voltage under the Eiffel Tower

VACUTAP® VV delivered for the Paris Métro

One of the world's largest transportation companies, the Métro company in Paris - the RATP, depends on the advantages of MR vacuum technology. It was the significantly reduced amount of maintenance work (150,000 switching operations until the next maintenance regardless of the duration of operation) which primarily convinced technicians. In addition, the positive experiences with older MR tap-changers was a deciding factor. A total of five new VACUTAP® VVs was delivered. One of the trans-

former stations is located in the immediate vicinity of the Eiffel Tower (see picture).

Seven large substations of the RTE (three with 225 kV, four with 63 kV) supply the power for the Métro. On the RATP side, there are 15 transformer stations each with 2 transformers which convert the voltage to 15 kV. A total of 125 transformers spread throughout the city then convert the voltage to the Métro's operating voltage of 750 V. ●

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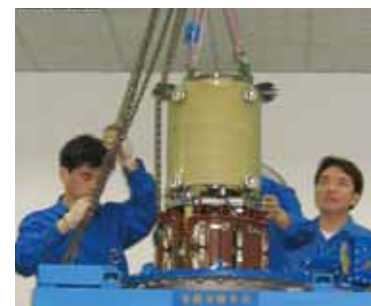


### Paris Métro: Facts and figures

Start of operation: 1900  
Track network: 211 km  
Stops: 380  
Cars: 3500  
Employees: 15,000  
Passengers daily: 6,000,000

# Guangdong MR opens modern Training Center

First training program for Chinese customers successfully started



The modern training center of Guangdong MR opened with a training program for nine large Chinese customers. Managing Director Dr. Jens Frost greeted the participants of the first courses in the new rooms. Together with Sales Engineer Konrad Roider, who came especially from Regensburg to attend the event, Dr. Frost said that first-hand information will be able to be gathered here for the first time. This was the reason that he was especially happy that the customers had sent employees from a wide variety of areas. From assembly to purchasing to testing to engineering and quality control to sales. The primary emphasis of the training courses was the improvement of product knowledge and the handling of MR products. This makes it possible for customers to avoid problems during assembly, testing and commissioning. The advantages: No delays and thus no extra costs. Jianhua Zhong, Director of the new training center, was pleased with the positive feedback from the first participants. He is proud to be able to demonstrate on original equipment the most important MR OLTCs as well as the complete program of accessories. MR has stationed an additional experienced service specialist in Guangdong in support of the next training courses. ●

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# New Technologies introduced in Singapore



MR agent Aspectus Engineering in Singapore was the main organizer of a successful event in the ballrooms of the famous Raffles Town Club in the center of Singapore. 148 customers involved in voltage regulation, Power Quality Management and transformers were united under one roof to learn about the latest trends in these fields. Not only the highly interesting and educating presentations were appreciated by the participants but the fruitful discussions during the breaks at the exhibition once again highlighted MR's good reputation in the island state of Singapore. Participants came from utilities, independent power producers (IPP), factories, shipyards, panel makers, substation builders and contractors as well as from international consultants. Special emphasis was put on the methods of asset management in respect to on-load tap-changers, methods, techniques and corresponding equipment like VACUTAP®, TAPCON®, TAPGUARD®, MESSKO Mpreç & Mtrab and, for the first time in Asia, the EPT202. ●



## New Director of Sales & Marketing at MR Japan

Effective April 1st 2005, Mr. Koji Tanaka became the new Director of Sales & Marketing of MRJ. He will be responsible especially for marketing, sales and service including technical consultations. Furthermore, Mr. Tanaka will be dealing with manufacturers of power transformers and operators of OLTCs. His office will be located in Yokohama. Mr. Tanaka has been working for ten years as Marketing and Sales manager of TÜV Bayern in Tokio. He also was Director of TÜV Ohtama. ●

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# Brandnew for the US Market:

External paralleling assistant TAPCON® XPA-I



TAPCON® XPA-I offers all the required components to place an additional power transformer and on-load tap-changer electrically in parallel with an existing transformer(s) using the minimum circulating reactive current method. It provides the parallel-independent control switch (43P), settable trip current level to interrupt the motor operation and sensitivity adjustment to balance tap-changer operations. The characteristics of the present circulating reactive current are transferred via the CAN-Bus to the TAPCON® AVR family (90 Relay) for proper regulation and control.

By using a special current transformer switching system, TAPCON® XPA-I registers the circulating reactive current between parallel connected power transformers.

The mode of operation of TAPCON® XPA-I complies with the method set forth in ANSI C57.12.10-1998, paragraph 10.2.

Since the sensitivity for the circulating reactive current can be balanced directly at the TAPCON® XPA-I, problems such as hunting of tap position between two voltage steps of the transformer (sensitivity too high) or the passing over of several voltage steps (sensitivity too low) can be effectively avoided.

Additionally, the motor-drive of the on-load tap-changer can be stopped by a relay contact in case the circulating reactive current exceeds an adjustable threshold value.

#### Your advantages:

- Three-in-one: Paralleling module, AC-current relay and adaptable to replace existing equipment or install in existing parallel provisions
- Prevents damage to LTC transformer's switching mechanism under excessive loads
- 50 % cost savings in wiring compared with non-Reinhausen parallel regulated transformer
- Reduced electrical interference levels
- Compatible with all parallel working voltage controllers of the Reinhausen TAPCON® series
- Flush panel mounting or DIN rail
- Robust aluminum housing
- Usable with numerous non-Reinhausen paralleling voltage controller devices
- Easy one to one replaceable design ●

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## New Motor-Drive MD-II

All in one from Reinhausen Manufacturing



The new motor-drive for RMV-II and RMV-A type tap-changers is full of benefits:

- all necessary relays and control switches
- complete wiring of the control scheme
- model B monitoring board, providing condition-based maintenance criteria LTC-control (automatic voltage regulation relay) TAPCON® 230 included as option.



Therefore it substantially reduces your installation and commissioning costs. With the MD-II motor-drive, you cash in on the Reinhausen innovation and quality. Contact us today and let us build a MD-II motor-drive for you. ●

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## In Dubai: First MRcademy



Knowledge transfer from expert to expert - that's the purpose of the new clients' academy of MR. Called MRcademy, it was presented for the first time at the Royal Meridien Beach Hotel in Dubai on March 5th to 6th 2005.

Right from the start, it was a big success, drawing about 130 participants from 15 Arabic countries. Guests included experts from important power suppliers, transformer manufacturers and industrial companies. MR experts made reports on new developments in the asset management sector, transformer cooling, dehydrating breathers, automatic voltage regulation and power quality management with the focus on concrete, economically optimized solutions and not on product presentations. Intense discussions showed that the topics were very well received by customers. Many of the participants took advantage of the opportunity to visit the Middle East Electricity Trade Fair following the MRcademy. ●



As a result of the participation in MRcademy Pakistan utility WAPDA made a decision for MR VACUTAP® technology (Photo shows the high ranking WAPDA delegation in the first row). ●

## MR Conference in Saudi Arabia highlighted Asset Management



Some weeks after the palmy MRcademy in Dubai, MR invited experts from Saudi Arabia to its Asset Management Seminar. On Wednesday, May 4, 2005, more than 80 guests from different companies came together in Jeddah and gave MR and the local representative CEPCO a warm and friendly welcome.

Once again, the focus was on Asset Management. Also topics like transformer cooling and the benefits of maintenance-free dehydrating breathers were debated in an open discussion. Participants gave their views about secure power transmission in Saudi Arabia. Finally, the development of maintenance-free on-load tap-changers was announced and different pilot projects were initiated there and then. ●

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## Next MRcademy in Madrid from June 28<sup>th</sup> to 29<sup>th</sup> 2005

The next MRcademy, which will be held from June 28 to 29, 2005 in the NH-Eurobuilding Hotel in Madrid, is designed for specialists of utilities and industrial enterprises in Spain and Portugal. The event will cover points of emphasis on safety and maintenance of transformers. There will be specialized lectures

by MR and Messko experts on these subjects. In addition, HSP (Cologne) could be engaged as a guest to speak on the safety aspects of bushings. The conference language will be Spanish. ●

Register now: [www.reinhausen.com/mr/es](http://www.reinhausen.com/mr/es)

## VACUTAP® VRC for German Wind Park

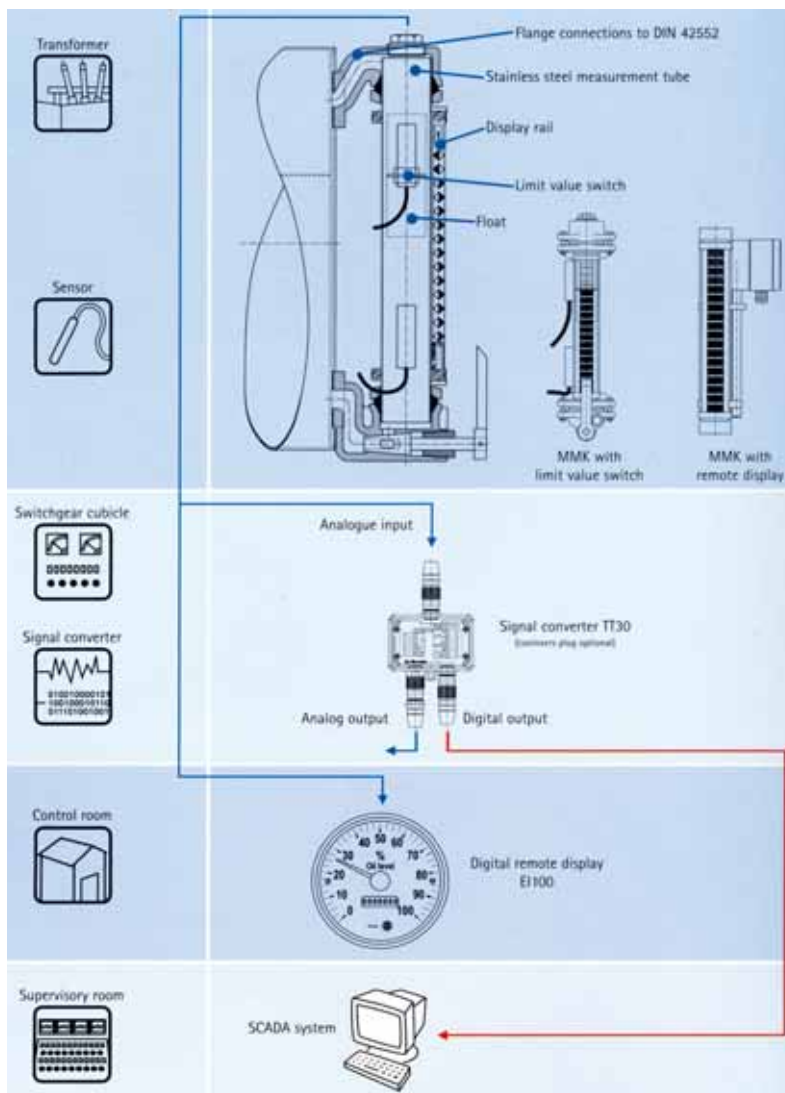
Installed in a sealed transformer of the Schorch Transformer Division of Areva Energietechnik, a VACUTAP® VRC III 400Y ensures that regulated voltage is provided at Windpark Lüdersdorf-Parstein (Brandenburg). The transformer is hermetically sealed to reduce the penetration of moisture. Turning radiators developed and patented by Schorch record the change in oil volume. That makes the transformer almost maintenance-free. MR on-load tap-changers with vacuum technology are the ideal supplement to this. They need no service until after 150,000 switching operations. A first project with VACUTAP® VV in the sealed transformer at Stadtwerke Ingolstadt was so successful that other customers have inquired about similar solutions. In Lüdersdorf-Parstein, Ventotec GmbH uses a total of 15 wind energy systems each with a capacity of 1.5 MW. These are supplied by GE Wind Energy. ●

## Lufthansa Technik bets on TAPGUARD®

With a total of four TAPCON® 240s, Lufthansa Technik AG is counting on the new voltage regulator generation of MR at its Hamburg-Finkenwerder location. To be able to extend the maintenance cycles of the OILTAP® M III 300 on-load tap-changers being used, the company is also using the TAPGUARD® function of the voltage regulators, starting this summer. All that has to be done is to provide the regulators with the parameter records of the on-load tap-changers. These parameters will arrive via e-mail from Regensburg and can be read into the regulators by the customers themselves. TAPGUARD® handles the rest. It calculates the primary maintenance criteria of the on-load tap-changers, indicates the current status and the time until the next maintenance is due. The primary difference from the previously available devices is the output of clearly structured operating management information which can be utilized without expert knowledge. ●

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## MMK – Universal Oil Level Indicator for new Installation and Retrofitting



## and Retrofitting

The MMK Oil Level Indicator enables oil indication without a float in the conservator and without having to remove existing flange connections. The magnetic flag indicator can be easily mounted to existing flange connections in compliance with DIN 42 552 to replace fragile glass tube indicators. A magnetic float in the stainless steel tube rotates the magnetic flags of the indicator rail by 180°, depending on fill level. The fill level in the conservator can thus be clearly read from the outside, even at a distance. ●

### Advantages of the MMK measurement and indicator system

- Can be retrofitted on the transformer
- Fill level indicator does not require auxiliary power
- Indicator rail remains clearly readable for years due to weatherproof Makrolon
- Limit value contacts and remote displays can be retrofitted
- Clear readability from a distance

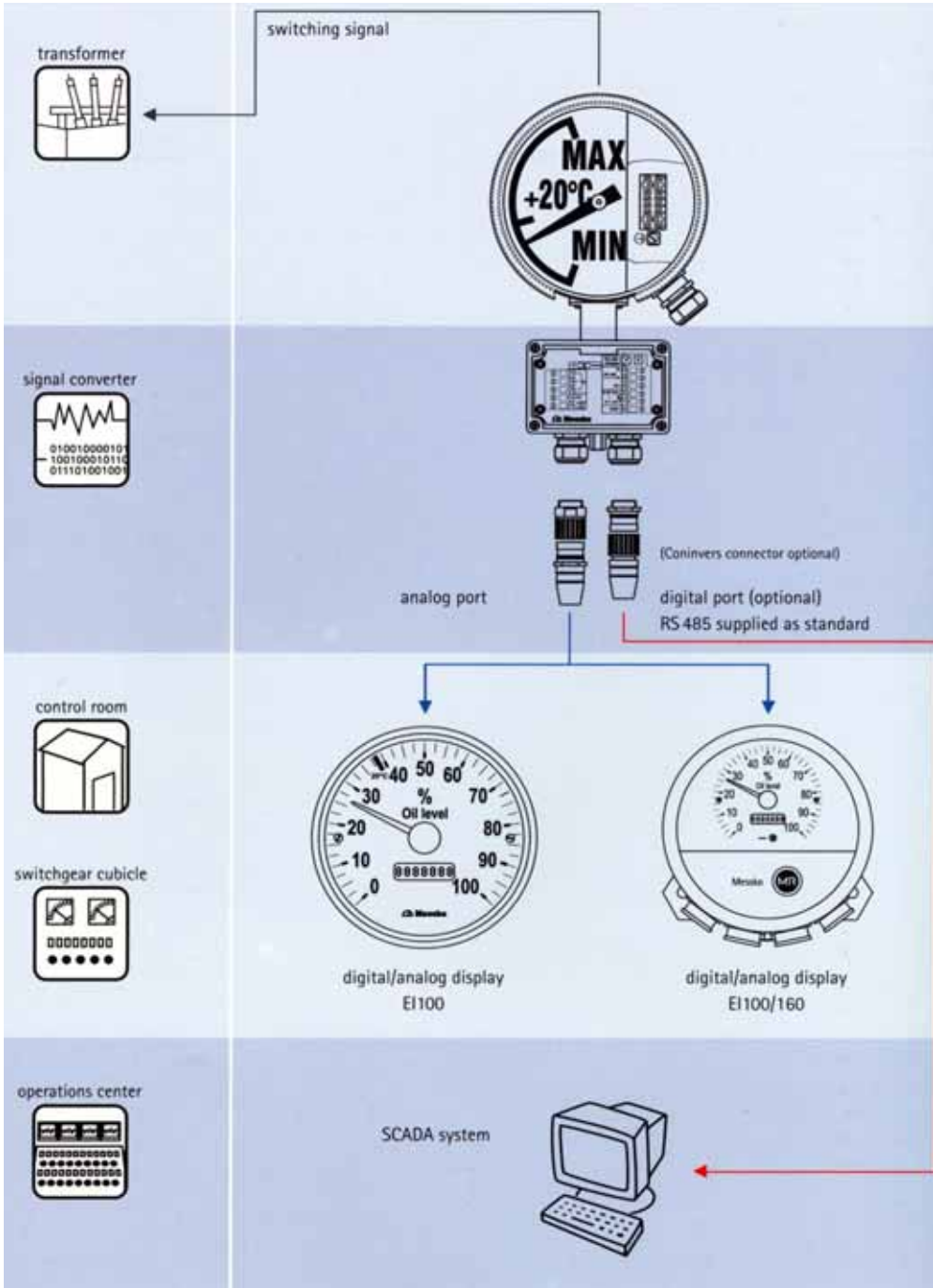
### Images

Signal current graph  
from brochure IN2059  
See enclosure

[www.messko.de](http://www.messko.de)



# Mechanical Oil Level Indicator with Remote Display Option



The oil level indicators from the product group MTO are measuring devices with or without switching contacts that are ideal for displaying fill levels of transformer oil conservators. The float arm, mounted to the sensor unit, transfers the rise and fall of the float to a spindle, which is connected to the display unit via a magnetic clutch. All versions of the MTO series can be optionally equipped with analogue or digital interfaces when installed in very large transformers connected to higher-level control or monitoring systems with restricted space available (indoor installation). ●

[www.messko.de](http://www.messko.de)

