

- **SMARTCHARGE SYSTEM**
- **ENERGY METER**
- **VOLTAGE MONITORING**

2017 | ISSUE 3

EDITORIAL

Dear readers,

Electromobility!

For a few years now, electromobility has experienced a marked upswing. The reasons for this can be found in the aspired reduction of CO₂ emissions as well as in technological advancements. Modern drive technology is becoming increasingly efficient and batteries more effective. Rapid loading systems lead to high vehicle availability and thus expanded mobility. Modern monitoring devices ensure that batteries do not overcharge and receive or cause damage. Technical developments in these fields go hand in hand.

The increasing electromobility is influenced by several existing commercial fields, but also leads to the development of new business models. This is taking place in the field of charging infrastructure as well as in energy supply. Undoubtedly, numerous projects are already being implemented in Switzerland and abroad, strengthening "emission-free mobility" day by day. Today, users often find it imperative to travel with a set of various charging cables for obtaining electrical energy. Does this situation have to be accepted as is, or can regulatory measures in the political domain remedy this? After all, we wish to expand the use of such vehicles and not weaken it due to concise problems.

Fortunately, it can be said that a growing number of companies offer their employees the opportunity to charge their electric cars at the workplace. Often this energy comes from their own photovoltaic systems. The synergy between the generation of electricity and the use of electricity is thus increasing and consequently relieving the infrastructure of available electro-distribution systems.

When considering bicycles, scooters and electric vehicles which have entered operation in recent years, one could become genuinely anxious about the adequate availability of energy. On the other hand, it must be taken into account that society is presently working on markedly lowering demands for energy, whether in households or in industrial operations. Technologically-improved heat sources, insulation, vitrification as well as increasingly efficient users are leading to a reduced use of energy in existing systems.

We at ComatReleco contribute by providing devices which measure energy use and electrotechnical properties of a given energy grid. This facilitates the ability to derive measures for optimising systems with respect to the local energy use. The products which we implement for specific tasks are readily presented in this brochure.

We wish you a vibrant autumn and look forward to many stimulating exchanges.

With autumnal greetings,



Daniel Herren



Daniel Herren
Vice President of
Sales

ETRIX THANKS TO SMARTCHARGE SYSTEMS, PIZZA NOW ARRIVES BY ELECTRIC SCOOTER

The sustainably-designed electric scooter from ETRIX Ltd. has a long service life and requires low maintenance due to being equipped with an exchangeable battery. The company promises customers that it will position itself in an ecological and sustainable manner. A central component of the scooter is the exchangeable batteries, which if needed can be replaced in a matter of

seconds without extended downtime. In order to optimise the service life and security of these high-performance batteries one should avoid overcharging them. In addition to the integrated battery management system (BMS), the batteries are monitored online during the charging time. ComatReleco's monitoring systems are suited for the task.

No downtimes when loading scooter batteries

If you calculate total cost of ownership (TCO) of petrol and electric scooters, electric scooters demonstrate a cost advantage of 15%.

Likewise, the electric scooters are superior to petrol scooters with respect to performance, noise and odour emissions. Despite these advantages, professional fleet operators have thus far exclusively implemented petrol scooters.

What is the basis of this contradiction?

When it comes to electric scooters in professional use – e.g. for courier services – there are economic factors, such as downtimes for charging batteries. Regarding permanently installed batteries, charging times may be up to 8 hours. Accordingly, the scooters are not available for a long time.

The SMARTcharge system developed by ETRIX Ltd. is based on the separation of the vehicle and the battery pack. Up to 24 high-performance battery packs can be charged indoors. This considerably decreases the vehicle's downtimes and makes the vehicle attractive for delivery service at short and moderate distances. ETRIX is distinguished, for instance at Domino's Pizza, by its role in the deployment of 200 scooters in the largest two-wheeled fleet in Switzerland.

devices of the Swiss company ComatReleco ensure that the batteries are charged according to the predetermined parameters. In case of overload, the system isolates the charging system from the grid. This is how complete operational safety is guaranteed.

ComatReleco and ETRIX Ltd.: Partners for an innovative product

ETRIX Ltd., with its main office in Regensdorf, Switzerland, develops and builds electric scooters, in particular for professional use by service providers such as in the field of delivery services. The SMARTcharge concept especially allows business clients to profit, since range and availability of vehicles can be increased through efficient charging systems. For monitoring its charging stations, ETRIX has decided on the products from ComatReleco. Their high-quality monitoring devices can be implemented as a result of their broad measuring range in small- and low-voltage systems. They provide reports in the event that the adjustable limit value is exceeded or not met. They can be quickly put to use due to their clear-cut menu navigation. Supply occurs in the voltages UC12–48 V or UC110–240 V.

Monitoring the SMARTcharge system

The high-quality monitoring devices from ComatReleco come from the MR series and have been developed for monitoring of 1- and 3-phase systems. The devices are suited for monitoring of all electrical variables, such as voltage, current, performance (AC/DC), frequency, phase sequence or power factor $\cos\varphi$ and generating an alarm in the case of disturbances or faults. Servicing them is user-friendly. At the push of a button, the devices show measured values, user parameters and operating status. For the output there are two change-over contacts for 6 A, 250 V. Both contacts can be configured independent of one another. The devices correspond to the DIN 43880 standard, with a mounting dimension of 35 mm.



Various companies already rely ETRIX Ltd.'s electric scooter.

The monitoring process as a factor of success

High-performance batteries are not non-hazardous. Charging these highly sensitive units must be continuously monitored in order to rule out overloads and the associated risk of fire. All battery packs are for that reason monitored online. The monitoring

Based on modern and high-performing e-scooters, ETRIX offers an innovative, sustainable and likewise affordable product. Electric scooters are future-oriented vehicles having set advantages, particularly in urban environments and at short and medium distances.



MRU – Monitoring for the SMARTcharge system

The Swiss company ETRIX Ltd., with its main office in Regensdorf, develops modern mobility solutions. The vehicle components are manufactured in several countries and assembled in Switzerland. Prior to delivery, the vehicles are put through a rigorous final inspection. In Regensdorf, ETRIX provides its own battery manufacturing as well as modern dynamometers for electric two- and three-wheelers.

ETRIX
CLEAN MOTION

MRE ENERGY METER

In this time of energy transformation, it is increasingly important to have knowledge of a complete system's energy use or an individual output. The optimisation of energy flows from infrastructural and industrial systems no longer exclusively concerns typical energy-intensive companies, but also KMUs in industrial and service provision sectors. Also, previous knowledge

of service requirements of performance components and the optimal utilisation of distribution branch points are important subjects in a modern automation environment. These tasks require a measuring infrastructure that performs well and which can be scaled according to various needs and topologies.

The MRE-44S/DC24V is a compact energy-measuring device for high-precision acquisition of all electrical variables. It can be implemented in all grid systems at a frequency of 30–65 Hz. As a result of the high accuracy grade (current 0.1, voltage 0.05) and numerous features that can be enabled – such as an expansion of the grid frequency range from 15 Hz to 400 Hz, a complete power quality analysis and the analysis of harmonics up to 50 kHz – it can be versatily implemented for nearly all measuring tasks in relation to electric infrastructure in industrial, office and administrative buildings.

The integrated web server allows for the MRE to be configured manageably and in relation to the application with a few clicks. The integrated search function allows for quick location of the desired parameters. Important variables can be compiled into a favourites list and displayed graphically. Two access levels protect the device from unauthorised access and ensure a high degree of security.

For data recording, an effective data logger is provided. Thereby data measured from several MREs can be summarised and graphically displayed and reports generated as well.

The advantages are:

- High-precision measuring, collection and storage of all important electrical variables. For identification of savings potentials and deviations in the context of energy management as per EN 50001.
- Monitoring of power quality (PQ) through complete PQ analysis and comprehensive gathering of harmonics up to 50 kHz. Monitoring of individual users or entire networks allows for the identification of PQ problems or the monitoring of critical components.
- Continuous service through an integrated web browser for visualisation and parametrising. Quick access to all relevant data at all times by means of mobile devices or laptops – without additional software.
- Efficient logging of measurement data of several MREs by means of a data logger allows for long-term analyses in high resolution and can also be used for statistical data analysis and fault prognosis.

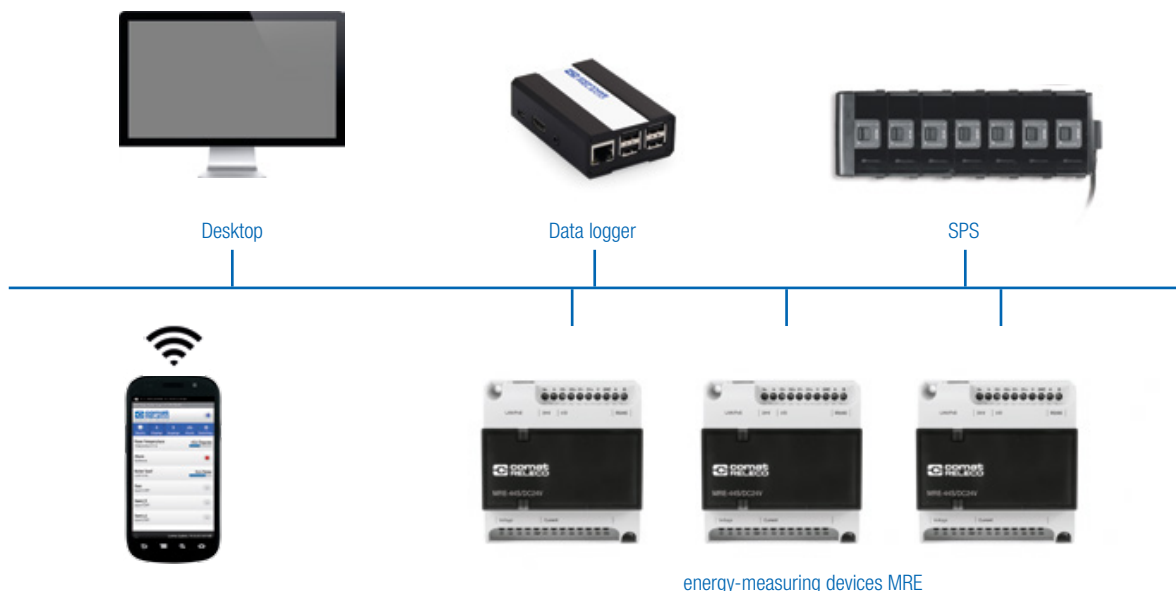


André Marti
Product Manager



Energy-measuring device MRE-44S/DC24V

Connectivity / ethernet architecture



energy-measuring devices MRE

MADE BY ComatReleco MBU VOLTAGE MONITORING DEVICE

Power supply stability has an increasing influence on the availability and service life of electrical devices as well as on reliability in modern manufacturing processes. The MBU voltage monitoring device was specifically

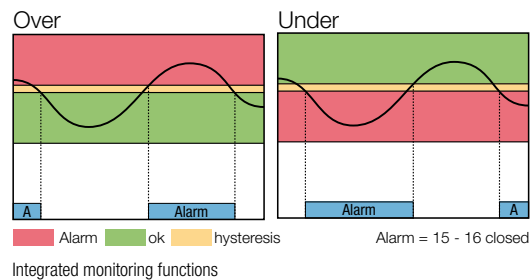
designed for that purpose: to detect deviations from nominal values in the applicable power supply.

High and low voltages are faults that occur frequently in the power grid. In modern power supply network systems, these grid faults arise with increasing frequency due to the increasing number of non-linear operating resources such as switching power supplies, frequency converters and electronic ballasts. The majority of grid faults can be traced back to problems with excessively low voltages.

The advantages are:

- Wide range of monitoring features: reports when adjustable limit value is exceeded or not met, adjustable alarm delay time
- Monitors all electrical quantities; depending on model: voltage, phase sequence, phase failure
- Quick commissioning due to a potentiometer that can be easily adjusted

Short-term surges cause damage to insulation, medium- to long-term overvoltage events result in thermal overload and, in the most minor cases, lead to a shorter service life for the affected components. Excessively low voltages in the range of 1–2 half-cycles cause malfunctions in which, for example, relays and contactors chatter or fail entirely. Longer periods of undervoltage caused by control faults, overloads, or faults in the grid (e.g. interruption in neutral conductor) may also result in thermal overloads, malfunctions, and irreparable damage to components.



The newly designed MBU voltage monitoring device from ComatReleco performs voltage measurements in 1- and 3-phase systems. It is extremely easy to operate. All user parameters can be adjusted via infinitely variable potentiometers. For the output, a change-over contact with 5A, 250 V AC is provided. A red status LED lights up when the alarm is active. The devices correspond to the IEC/EN 60255-1 standard, with a mounting dimension of 17.5 mm. The devices will be available as of Q2 2018.



Thomas Klöpfer
Product Manager

ineltec. WIN WITH ComatReleco DAILY AND JACKPOT WINNERS

Thank you very much for visiting our exhibition stand at the ineltec 2017 in Basel. We had very interesting discussions with you. Hearing about your needs and showing you what we are working on are motivating factors for

us. We look forward to staying in contact with you. If you have any questions, we will be eager to assist. On this occasion we would once again like to congratulate the winners of the competition.

We are proud to presented the winners to you.
The solution to our jackpot question is: **10,350 g.**

Daily winners Electra Buin, Mr Urs Domenig
Migros-Verteilbetrieb Neuendorf, Mr Martin Stöckli
Schiffahrtsgesellschaft Hallwilersee, Mr Manfred Siegrist
Rittmeyer Ltd., Mr Daniel Bitterli

Jackpot Gfeller Elektro Ltd., Mr Adrian Hofstetter



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