

## MEASURING AND MONITORING WITH THE COMATRELECO FAMILY OF MEASURING DEVICES

Energy measurement<sup>1</sup> is a buzzword today, and a key concern of many professional institutions. That's fully understandable – because the benefits from the data obtained make a considerable contribution to optimising systems and resources. A precise energy measuring device records and documents energy needs. Targeted initiatives can optimise network loads and decrease operating costs.

Current and voltage monitoring relays are being used not only to protect systems and persons, but also in process management. ComatReleco measuring devices are the perfect support for users' needs in the field, right up to supervisory and management level.

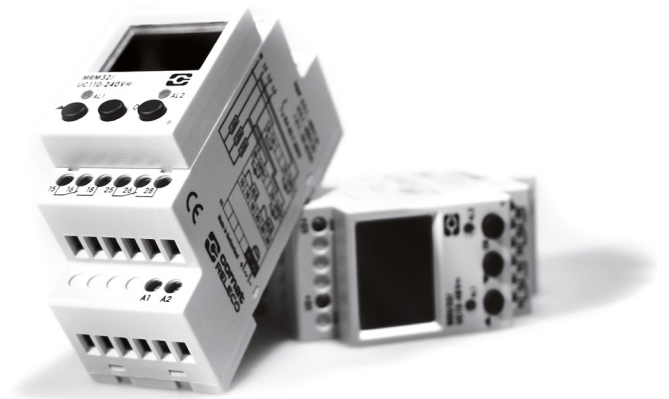
### Base level: MBx devices for everyday use

Efficient assembly plus quick start-up and maximum system availability – these are our prime concerns with this series. The voltage, current and motor temperature monitoring relays of the MBx series are compact and user-friendly. The response threshold is set by means of one potentiometer, and the delay time (notification delay) is determined using

another. The easy-to-read, multicoloured status LED on the device ensures that information is displayed clearly. The market launch of this family of devices will take place in the fourth quarter of 2018. The first device of the series to become available will be the MBU voltage monitoring device.

### State level: MRx devices for demanding situations

The much-loved MR series is the established standard in the field of high-quality monitoring relays for voltage, electricity, phase failure and other values in AC and DC circuits. The devices are available in one- and three-phase designs. The one-phase device monitors one measurement variable, while the three-phase MR allows two measurement variables to be monitored simultaneously and assigned to one of the two separately configurable relay outputs (6A/250V). The status of the measurement variables is displayed on clearly visible LEDs. The contrast-rich display makes for easy reading of the current measurement values. The device is configured using an easy-to-understand menu, which has been designed so that it is impossible to forget any of the many different settings. The user parameters are saved in such a way as to be proof against power cuts. The devices have permanent self-diagnosis systems. This ensures that an alarm is always triggered in the case of a defect.



### High level: MRE devices also measure and communicate via fieldbus

The MRE-44S/DC24V is a compact energy-measuring device for high-precision recording of all electrical variables. As a result of the high accuracy grade (current 0.1, voltage 0.05) and numerous features that can be freely 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 used flexibly for nearly all measuring tasks related to electrical infrastructure in industrial settings as well as 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 measuring circuit data are output directly into the SPS or control system via the integrated ethernet interface (TCP/IP modbus) or RS-485

interface (RTU modbus). The data logger, available as an optional extra, displays the measuring circuit data of several MREs and makes it possible to create long-term analyses and evaluations. A wide range of different transformers is available for current measurement, with various degrees of accuracy and corresponding transformation ratios.

Based on a modern architecture, this device is ideally suited for implementing customer-specific requirements – whether they take the form of integrated user software or expanded fieldbus interfaces.

### Overview of the ComatReleco family of devices

High level High-precision Measuring	MRE Energy			Programmable functionality with configurable parameters. <b>Commissioning:</b> Ethernet interface + web server
State level Advanced monitoring	MRU Voltage	MRI Current	MRM Multi	Programmable functionality with configurable parameters. <b>Commissioning:</b> display + keys
Base level Basic monitoring	MBU Voltage	MBI Current	MBT Temperature	Fixed functionality with configurable parameters. <b>Commissioning:</b> Infinitely variable potentiometer