

MRE-44S

Energy measuring | 4 voltage channels | 4 current channels

Power supply

Nominal voltage	24 V DC
Operating voltage range	18 ... 30 V DC
Power consumption AC/DC	- / 5 W

Measuring circuit

Measured parameters	U, I, f, P, Q, S, E, THDU, THDI
Number of voltage measurement inputs	4
Rated AC voltage L-N / L-L	230 V AC / 400 V AC
AC voltage measurement range L-N / L-L	5 ... 276 V AC / 5 ... 480 V AC
Number of current measurement inputs	4
Rated measurement current	5 A
Measurement current range	0.005 ... 6 A
Max. current	60 A, 1 s
Rated base frequency	30 ... 65 Hz
Harmonic frequency	< 10 kHz
Sampling frequency per measurement channel	20 kS / s
Bandwidth per measurement channel	10 kHz
Accuracy class voltage [U]	0.05
Accuracy class current [I]	0.5
Accuracy class frequency [f]	0.02
Accuracy class power factor [cosPhi]	0.5
Accuracy class active power [P]	0.1
Accuracy class active energy [E]	0.2
Accuracy class reactive power [Q]	1
Accuracy class apparent power [S]	0.2
THDU / THDI	1 / 1

Inputs

Number of analogue / digital inputs	3
Nominal voltage digital inputs	24 V DC
High level threshold digital Inputs	11.5 V DC
Nominal range analogue inputs	0 ... 10 V
Resolution of analogue inputs	12 Bit

Outputs

Number of transistor outputs	1
Rated voltage	60 V DC
Rated current	350 mA

Interfaces

Hardware interfaces	Ethernet, RS 485
Protocols	Modbus TCP, Modbus RTU
Transfer rate	100 Mbit, 19200 Baud

Insulation

Rated insulation voltage	300 V
Pollution degree	2
Overvoltage category	III

General data

Ambient temperature storage	-40 ... 85 °C
Ambient temperature operation	-25 ... 55 °C
Conductor cross section	2.5 mm ²
Nominal screw torque	0.5 Nm
Module width	fig. 2
Weight	120 g
Protection degree	IP 20
Housing material	PC

Product references

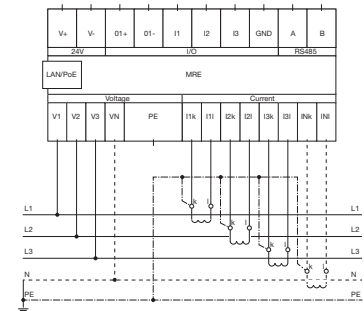
Types	Product reference	24
Energy measuring	MRE-44S/DC...V	✓

"..." list control circuit voltage to complete product references.

Other voltages on request. Please contact support@comatreleco.com.

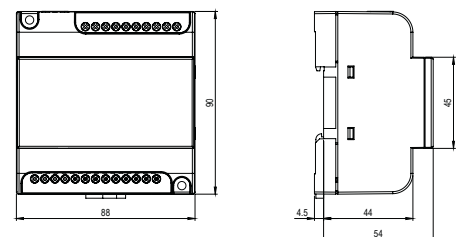


fig. 1. Wiring diagram



Connection diagrams for other networks in the technical data sheet.

fig. 2. Dimensions (mm)

**Standards and approvals**

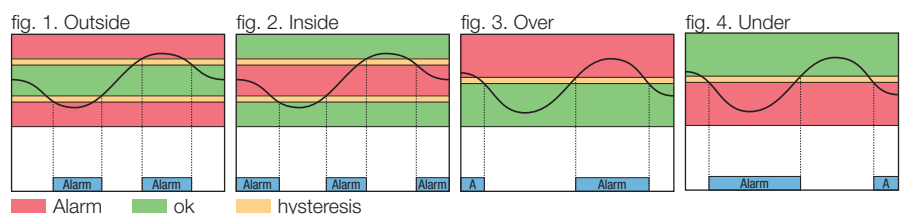
Standards	IEC/EN 61000-6-2:2005, IEC/EN 61000-6-3:2007, IEC/EN 61557-12, IEC/EN 61000-4-15, IEC/EN 61000-4-30
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Approvals



	Description	MRE-44S	MRM11	MRM11R	MRM32	MRM32R	MRU11	MRU32	MV53	SSU34	SSU31	SSU33L	MRI11	MRI32	TSR19	ESU-D2R	CT515R	CT524R
Monitoring	One phase voltage monitoring		●	●			●		●									
	Three phase voltage monitoring				●	●		●		●		●						
	Four channel voltage measuring	●																
	DC Voltage monitoring		●	●	●	●	●	●			●							●
	One phase current monitoring		●	●									●					
	Three phase current monitoring				●	●								●				
	Four channel current measuring	●																
	DC current monitoring		●	●	●	●							●	●				●
	Phase failure				●	●		●		●	●	●						
	Phase sequence monitoring	●			●	●		●		●	●	●						
	Phase angle monitoring / measuring*	●			●	●		●		●		●						
	Differential voltage monitoring / measuring*	●									●	●						
	Neutral failure monitoring	●									●	●						
	Frequency monitoring / measuring*	●	●	●	●	●	●	●		●		●	●	●				
	Apparent power monitoring / measuring*	●	●	●	●	●												
	Active power monitoring / measuring*	●	●	●	●	●												
	Power factor monitoring / measuring*	●	●	●	●	●												
	Active energy measuring	●																
	THDI / THDU measuring	●																
	PTC monitoring														●			
Earth failure monitoring																●		
Functions	Threshold exceeded "over" fig. 3.	●	●	●	●	●	●	●	●	●		●	●	●	●		●	●
	Threshold undershot "under" fig. 4.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Window function "inside" fig. 2.	●	●	●	●	●	●	●					●	●			●	●
	Window function "outside" fig.1.	●	●	●	●	●	●	●					●	●			●	●
	Alarm on-delay	●	●	●	●	●	●	●	●	●		●	●	●		●	●	●
	Alarm off-delay	●	●	●	●	●	●	●	●				●	●				
	Error storage function	●	●	●	●	●	●	●					●	●	●			
	Threshold selectable	●	●	●	●	●	●	●	●	●			●	●	●	●	●	●
	Threshold fixed										●	●			●			
	Power supply	Supply isolated from measuring circuit	●	●	●	●	●	●	●					●	●	●	●	
Supply from measure circuit									●	●	●	●					●	●
Mounting	DIN rail mounting	●	●	●	●	●	●	●	●	●			●	●		●		
	Housing according IEC/EN 43880 (electrical distribution mounting)	●	●	●	●	●	●	●	●					●	●			
	Plug-in (socket mounting)											●	●		●		●	●

*Measuring: MRE-44S only



Overview of features

Due to its compact size and the use of interface technologies such as Modbus TCP, the MRE is perfectly suited for use in installations with multiple loads that require monitoring. To do so, one meter is connected to each corresponding power terminal or load to be measured.

Thanks to precise measurements and sophisticated calculation processes, the MRE records highly precise values for the electrical quantities, regardless of the type of load or the grid situation (e.g. power electronics providers). It can be used in all conventional systems operating at 16.7 Hz, 50 Hz and 60 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 used flexibly for nearly all measuring tasks related to electrical infrastructure in industrial settings as well as office and administrative buildings.

- High-precision measuring, recording and archiving of all important electrical variables. For the identification of savings potentials and deviations in the context of energy management as per DIN EN ISO 50001.
- Monitoring of power quality (PQ) through complete PQ

analysis and comprehensive recording of harmonics up to 50 kHz. Monitoring of individual loads or entire grids allows for the identification of PQ problems or the monitoring of critical components.

- Continuous management through an integrated web browser for visualisation and parameterisation. Quick access to all relevant data at all times via mobile devices or laptops, and without additional software.
- Sophisticated data recording via the data logger allows for long-term analyses in high resolution and can also be used for statistical data analysis and fault prognosis.

Areas of application	Key areas	Conformity / Standards
<ul style="list-style-type: none"> • Industry • Infrastructure • Testing devices • Service sector • Public sector 	<ul style="list-style-type: none"> • Modular measurement for multiple outlets • Accuracy class 0.1 for electricity and 0.05 for voltage in accordance with IEC 61557-12 • High flexibility and intuitive operation • Plug and Play • PQ functionality in accordance with IEC 61000-4-30 • Flickermeter in accordance with IEC 61000-4-15 • Records harmonics in current and voltage • Highly precise measurements in the additional frequency range 	<ul style="list-style-type: none"> • IEC 61557-12 • IEC 61000-4-15 • IEC 61000-4-30 • ISO 14025

Discovery Tool

The MRE is configured with a preset IP address upon delivery. With the free discovery tool, the device can easily be located from any computer in all networks. No special knowledge is required, nor is it necessary to modify the communication parameters of your own computer. Whether you are using a fixed IP address or DHCP, the discovery tool allows the basic settings of the MRE's communication interface to be configured as required.

Web server

The integrated web server provides a clear interface for configuring the MRE for each individual application. In just a few clicks, the MRE can be configured for the circuit to be measured. The integrated search function allows the desired parameters to be found quickly. Important variables can be added to a favourites list and displayed graphically. Two access levels protect the device from unauthorised access and ensure a high degree of security.

Flexible

- Simplified wiring with PoE
- Measurements close to load (transformer and meter)
- Data logging and customised dashboards via optional data logger
- Full PQ functionality and individual protective functions can be optionally integrated
- Transformers of various accuracy grades available as accessories