



# MEIER

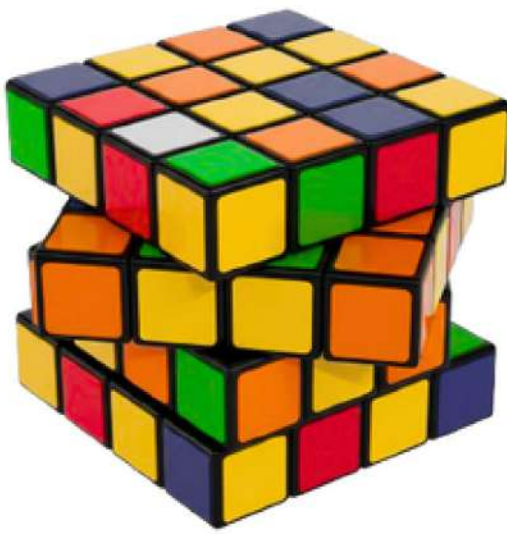
The future is Electric



## CMM-MOD

High-Performance Modular  
Electrical Measurement System

[www.meierenergy.com](http://www.meierenergy.com)



# CMM-MOD<sup>®</sup>

**Assemble. Combine. Master.**



High-Performance Modular  
Measurement System

Turn the complexity of energy management into clarity.

CMM-MOD is an innovative modular solution that installs in minutes, adapts to your needs, and gives you full control over your energy and fluids consumption and the quality of your electrical networks.

## Assemble.

### Simple and Fast Installation

Thanks to its unique internal bus, CMM-MOD connects without additional cables or tools, drastically reducing installation time and complexity.

- Quick and secure internal bus connection
- Reduced wiring through automatic voltage sharing (CMM-MODVA module)
- Simplified maintenance and faster commissioning

## Combine.

### Flexible Current Sensors

Adapt your system to all types of electrical installations thanks to wide compatibility:

- Rogowski coils: flexible, up to 200 mm diameter, ideal for retrofits
- Split-core VCT, reliable and quick to install, suitable for large conductors
- Fixed RJ12 CTs: compact and cost-effective, perfect for new installations

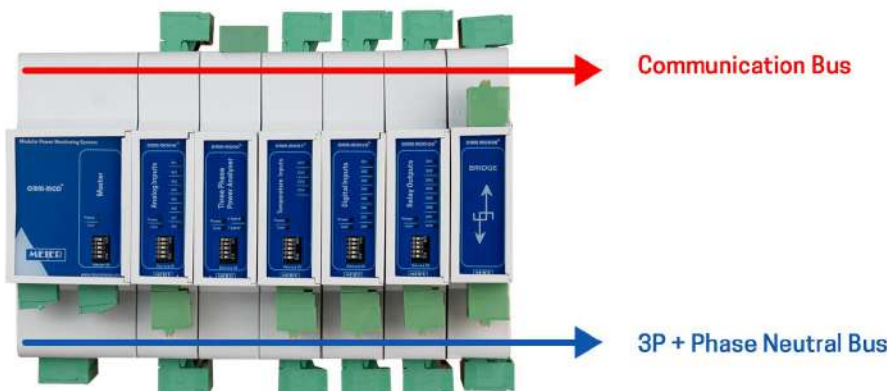
Each sensor connects via RJ-12, ensuring simplicity and safety.

## Manage.

### Advanced connectivity for optimised monitoring

With its Ethernet and RS-485 Modbus gateways, CMM-MOD integrates seamlessly into your SCADA, BMS, EMS, or energy management platforms.

- Reliable and secure transmission (Modbus RTU, Modbus TCP, BacNet MSP, BacNet-IP)
- Smooth integration into existing infrastructures
- Centralized real-time management
- Automated reporting for faster decision-making





### ► Quick and easy installation

With CMM-MOD, installation is simplified and accelerated thanks to an internal bus that enables the various modules to be easily connected, without the need for additional cables or tools. This feature optimizes wiring and reduces set-up time, a major advantage in industrial or commercial environments where time is of the essence.

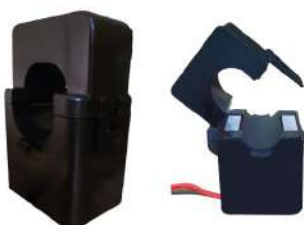
- Easy module addressing via a front-mounted microswitch on each module.
- Connection without cables or tools: The internal bus system enables fast, safe assembly.
- Optimized wiring: the module measures the voltage of the electrical panel's busbar.

CMM-MODC or CMM-MODBR\* modules share voltage signal with the other CMM-MOD modules. This configuration reduces wiring requirements, simplifying installation and maintenance.

### ► Flexible Current Sensors

The CMM-MOD system is compatible with a wide range of current transducers, enabling you to adapt the solution to different types of electrical installation. The transducers feature RJ-12 plugs for easy, fast and secure installation. Compatible transducers include:

- Rogowski Tores: Available in a range of diameters from 16 mm to 200 mm, they are ideal for installations where access is limited.
- Split core TC with voltage output (VCT): Economical solution for environments not requiring measurements on wider conductors.
- Optimized-size fixed CTs: economical solution for new installations, with RJ12 port integrated into each measurement CT.



CTS24/36



RCM 100/150/200



RCM 16/24/36

# High-Performance Modular Measurement System

## ▶ Advanced connectivity for optimized supervision

CMM-MOD-CA module enable the communication with the front panel Display and offers in the same time an Ethernet and an RS-485 communication ports, ensuring easy integration with SCADA systems and other energy management solutions.

- Smooth, secure communication: Serial and Ethernet ports ensure reliable data transmission to a centralized system through Modbus or BACnet protocols
- Easily expand existing systems with CMM modules, hot-swappable and without any interruption.
- Predictive maintenance: Quickly identify anomalies and reduce the risk of downtime.

## Data Collection with Datalogger Module

▶ The Datalogger module CMM-MODCM, which integrates a 32GB internal memory enables continuous electrical data collection and archiving. It can also be used as a communication gateway, instead of CMM-MODCA module, providing an all-in-one solution for facility management:

- Long-term recording: Collect and store essential data for proactive energy management.

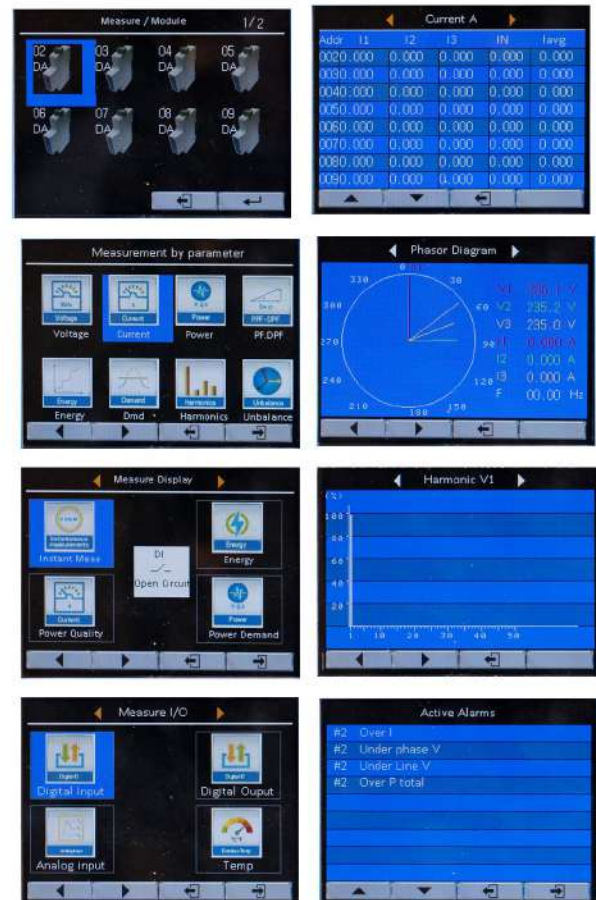


## ▶ CMM-MODD Display: Intuitive Interface



Designed for demanding industrial environments, the CMM-D combines robustness with ergonomics:

- ☑ High-resolution 96x96 mm color TFT screen
- ☑ IP66 front protection
- ☑ Responsive, durable capacitive touch buttons
- ☑ Real-time visualization of up to 32 modules simultaneously
- ☑ Low sensitivity to dust or polluted environments



## ► Key Benefits CMM-MOD

**Speed:** minimal installation and wiring

**Flexibility:** up to 32 interconnected modules

**Safety:** reliable and secure connections

**Scalability:** adapt your system to present and future needs

**Compatibility:** immediate integration with SCADA / BMS environments

## ► Applications and Sectors of Use

CMM-MOD is designed to meet the needs of the following sectors:



**Industry** : Optimization of energy consumption and real-time monitoring of electrical installations at industrial sites.



**Datacenters** : Supervision of electrical installations in data centers, where reliability and energy management are essential to guarantee service continuity.



**Commercial and tertiary buildings** : Efficient energy management in complex facilities such as offices or shopping centers.



**Energy management systems** : Monitoring and optimization of electrical equipment in various environments.



# ► System technical specifications

## 1-Display

Description	
Display mounting type	Recessed front panel
Display screen	3.5" TFT LCD, 320x240 resolution, 16700 colors
Keyboard	4 capacitive keys, backlit
Connection	RJ12 port for connection to CMM-MODVA module
IP degree of protection	Display: IP67 (front panel)
Dimensions	Overall dimensions: H*W*D 9.6*9.6*0.38 cm Front panel thickness: 18 mm

## 2-Measurement and data acquisition modules

Description	
Module mounting	Din Rail
Weight	CMM-MODVA: 122g Other modules: 59g
IP degree of protection	Modules: IP20
Dimensions	CMM-MODVA: H*W*D 9.3*8.0*3.6 cm; Other modules: H*W*D 9.3*8.0*1.81cm; Display: H*W*D 9.6*9.6*0.38 cm Display: front panel thickness: 18 mm

Measurement module wiring system (CMM-MODVA and CMM-MODA)	
Wiring system	3P4W_3CT, 3P3W_3CT, 3P3W_2CT, 1P3W, 1P2W

Current measurement inputs (CMM-MODVA and CMM-MODA)	
Rogowski coil	NRC-16 (100A) – NRC-24 (300A) – NRC-36 (600A) – NRC-100 (1000A) – NRC 150 (3000A) – NRC-200 (6000A)

Voltage output current transformer (VCT)	0~99999A
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Voltage measurement inputs (CMM-MODVA)	
Measurement range	0~600VAC
Maximum voltage	720VAC

Inputs/Outputs	
Relay output (CMM-MODVA, CMM-MODA, CMM-MODIO)	1-circuit electromagnetic relay output, contact rating: 3A 30V DC, 3A/ 250V AC
Digital input (CMM-MODVA, CMM-MODA, CMM-MODID)	Galvanic isolation by optocoupler (5kVrms)
Analog inputs (CMM-MODIA)	Inputs 0...20mA or 4...20mA software configurable

Communication	
RS485 port (CMM-MODVA, CMM-MODCA et CMM-MODCM)	RS485 communication port - two wires - Half-duplex Transmission speed: 400bps~38400bps Protocol: Modbus-RTU
Ethernet port CMM-MODCA et CMM-MODCM)	Ethernet communication port Transmission speed: 10/100 Mbit/s Protocol: Modbus-TCP

Power supply	
Power supply	85-265VAC/110-370VDC, 45-60Hz (24V DC power supply version available on request)
Maximum power consumption per module	≤3.5VA

## 3-Measured parameters CMM-MODA

Parameter	Specification
<b>Power Supply</b>	
Supply Voltage	5-12 V d.c.
Power Consumption	≤ 2 W
Frequency	47 ... 63 Hz
<b>Digital Inputs (Potential-Free, Opto-Isolated)</b>	
Number of Inputs	8
Maximum Activation Current	10 mA
<b>Analog Inputs (0 ... 20 mA) (4...20mA) (0-10V)</b>	
Number of Inputs	4
Input Value / Range	0 ... 20 mA , 4 ... 20mA , 0 – 10V
Resolution	12 bits (4096 points)
<b>Relay Outputs</b>	
Number of Outputs	8 (5 A max.)
Maximum Operating Power	750 VA
Maximum Operating Voltage	250 V a.c.
Maximum Switching Current	Resistive Load /: 5 A a.c.
Number of Electrical Operations (250 V a.c. / 5 A)	9 x 10 <sup>4</sup> operations
Number of Mechanical Operations	1 x 10 <sup>7</sup> operations
<b>Communications</b>	
Port	RS-485
Protocol	Modbus/RTU
<b>Environmental Conditions</b>	
Operating Temperature	-10 ... +60 °C
Protection Rating	IP 20
Humidity	5 ... 95 % (non-condensing)
Altitude	2000 m

Instantaneous values	
Line to neutral	U1, U2, U3, AVG, U0 (Homopolar voltage)
Line to line	U12, U23, U31, AVG
Current	I1, I2, I3, AVG, In
Frequency	F1, F2, F3, Σ
Power factor PF	PF1, PF2, PF3, Σ
Cos phi (DPF)	DPF1, DPF2, DPF3, Σ
Active power	P1, P2, P3, Σ
Reactive power	Q1, Q2, Q3, Σ
Apparent power	S1, S2, S3, Σ

Energy	
Active energy Exported	EP1, EP2, EP3, Σ
Active energy imported	EP1, EP2, EP3, Σ
Imported reactive energy	EQ1, EQ2, EQ3, Σ
Reactive energy Export	EQ1, EQ2, EQ3, Σ Exported reactive energy
Apparent energy	ES1, ES2, ES3, Σ
Energy by tariff	ET1, ET2, ET3, ET4, ET5, ET6

Harmonics	
Voltage harmonic distortion in %	THDU total (U1,U2,U3) THDU total odd rows (U1,U2,U3) THDU total even rows (U1,U2,U3) Harmonics per rank 1-50e (U1,U2,U3)
Current harmonic distortion in %	THDI total (I1, I2, I3) 3 THDI total odd (I1,I2,I3) THDI total even (I1,I2,I3) K factor (I1, I2, I3) Harmonics per rank 1-50e (I1, I2, I3)
Voltage harmonic value (V)	Total Harmonics (U1, U2, U3) Harmonics 1-50e (U1, U2, U3)
Current harmonic value (A)	Total Harmonics (I1, I2, I3) Harmonics 1-50e (I1, I2, I3)

Phase shifting	
Phase sequence	Voltage, current
Tension angle	U1, U2, U3
Current angle	I1, I2, I3
Voltage-current angle	U11, U12, U13

Demand (Maximeter)	
Demand	Total active power, total reactive power, total apparent power

Maximum total active power demand	Maximum demand and duration
Maximum total reactive power demand	Maximum demand and duration
Maximum total apparent power demand	Maximum demand and duration

Unbalance	
Voltage unbalance	Negative component, homopolar component
Current unbalance	Negative component, homopolar component

Max. & Min.	
Voltage L-N	Each phase and average
Voltage L-L	Each phase and average
Voltage degré	Each phase and average
Active power	Each phase and the total
Reactive power	Each phase and the total
Apparent power	Each phase and the total

## 4-Precision and Standards

Measuring	
Current measurement accuracy	0.1%+ Current sensor accuracy
Voltage measurement accuracy	± 0.2% (60V-600V AC) ± 0.01% (45-65Hz)
Power factor	± 0.005
Active and apparent power	IEC62053-22 class 0.5S
Reactive power	IEC62053-21 class 1S
Active energy	IEC62053-22 class 0.5S
Reactive energy	IEC62053-21 class 1S

Environmental parameters	
Operating temperature	-25°C ~ +60°C
Storage temperature	-40°C ~ +85°C
Humidity rating	5-95% RH, 50°C (non-condensing)
Pollution Degree	2
Protective class	Class III, applicable to power distribution systems below 277/480VAC
Insulation resistance	IEC61010-1
Altitude	3000m Max
IP Degree of protection	IP20 (according to IEC 60629)

EMC (electromagnetic compatibility)	
Electrostatic discharge	Level IV (IEC61000-4-2)
Radiation immunity	Level III (IEC61000-4-3)
EFT Electrical Fast Burst Immunity	Level IV (IEC61000-4-4)
Surge immunity	Level IV (IEC61000-4-5)
Immunity to conducted disturbances	Level III (IEC61000-4-6)

Immunity to high-frequency magnetic fields	0.5mT (IEC61000-4-8)
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Conduction and radiation	Class B (EN55022)
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Standard	
EN 62052-11, EN 61557-12, EN 62053-21, EN 62053-22, EN 62053-23, EN 50470-1, EN 50470-3, EN 61010-1, EN 61010-2, EN 61010-3	

## ► System Technical Modules

CMM-MOD is a modular system composed of several complementary modules, each designed to meet specific needs. Below is the list of modules:

### CMM-MODCA: Main Module (Master)

This module integrates the display CMM-MODD through its RJ-11 port.

It includes four voltage inputs for busbar voltage measurement within the switchboard, sharing this information with other modules through an internal voltage bus.

It also manages communication and power distribution to all other modules via a second internal communication bus.

This module has two RS485 ports, the first one can manage up to 32 3<sup>rd</sup> party devices and the second one can be used BacNet MSP communication. It also integrates one Ethernet port used for Modbus TCP or BACnet-IP communication. These two parts can integrate the system into existing SCADA, BMS, or energy supervision platforms.

### CMM-MODA: Measuring Module

This module is equipped with an RJ-12 port for current measurement on a specific load or circuit, using Rogowski coil kits from the RCM range or split-core CT kits from the CTS range by Meier Energy.

It receives the voltage signal from the Master module (CMM-MODCA) or the Bridge module (CMM-MODBR).

### CMM-MODT: Temperature Measuring Module

Temperature Measuring Module with 4 PT100 inputs (2- or 3-wire) for temperature monitoring of equipment.

### CMM-MODIA: Analog Input Module

Analog Input Module with 8 configurable analog inputs (0-20 mA, 4-20 mA, 0-5 V, or 0-10 V) for collecting data from external analog sensors or transmitters.

### CMM-MODID: Digital Input Module

Digital Input Module with 8 digital inputs for connecting switches, sensors, or other devices with digital outputs.

### CMM-MODIO: Relay Output Module

Equipped with 8 relay outputs potential-free for ON/OFF control of actuators, alarms, or other equipment based on data collected by the system.

### CMM-MODBR: Bridge Module

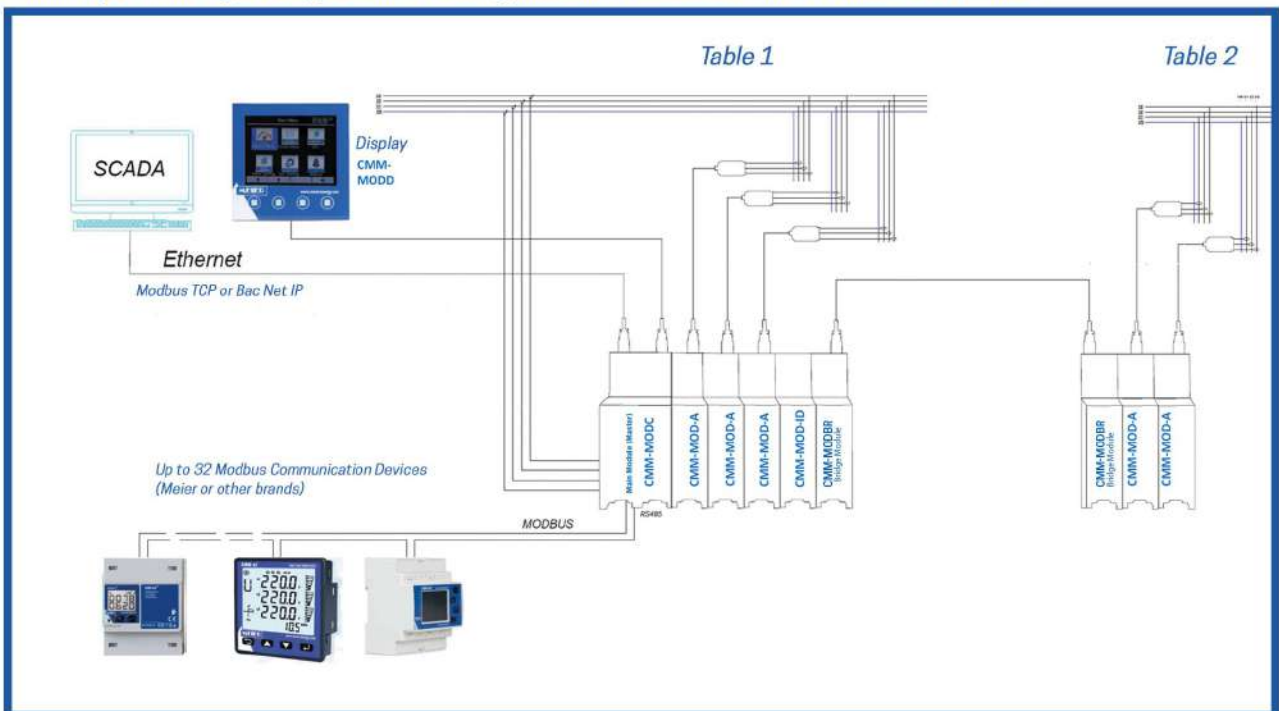
This module extends the two internal buses ( voltage bus and communication bus ) to additional measuring Module or I/O modules when cabinet layout or spacing requires it.

Like the CMM-MODCA Master module, it also includes voltage measurement inputs and an RS-485 port, allowing it to function as the system head when the display is not needed.

### CMM-MODD: Color TFT Display (96×96)

Provides a color display of all measurements and I/O status from connected modules.

It also enables system configuration, parameter setting, and alarm visualization for all modules connected.





# MEIER

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