

# CMC 850

The Protection Test Set Dedicated to IEC 61850



# CMC 850 – Protection Testing with Sampled Values

The CMC 850 is the world's first protection test set dedicated to IEC 61850. It focuses on the real-time communication methods of GOOSE and Sampled Values to interface with the devices under test. The test set is controlled by OMICRON's proven Test Universe software. Beyond this, the CMC 850 offers several embedded functions, which are accessible through a Web interface by simply using a standard Web browser.

Since time synchronization is often required in such test cases, the CMIRIG-B is supplied along with the CMC 850. The unit is small and lightweight because its focus on IEC 61850 applications means there is no need for conventional binary I/O and amplifiers for the secondary signals. The CMC 850 can utilize the full Test Universe software suite and can also control external amplifiers through its low level analog outputs.



1.7 kg (3.7 lbs)  
85 x 145 x 325 mm (3.3 x 5.7 x 12.8 in)

**Extension interface**  
e.g., for CMIRIG-B

**USB port for PC control**

**Low level outputs 1 - 6**

**Low level outputs 7 - 12**

**2 PoE (Power over Ethernet) ports for PC control, CMGPS 588 or IEC 61850 GOOSE and Sampled Values**



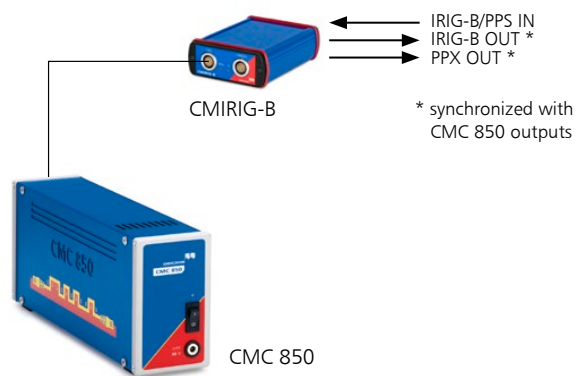


## CMC 850 Package

The CMC 850 is part of the CMC 850 Package which comprises optimized hardware and the key software components from the Test Universe software, making it “ready to go” for time synchronized testing with GOOSE and Sampled Values:

Hardware:

- CMC 850 device
- CMIRIG-B interface unit for time synchronization



Software:

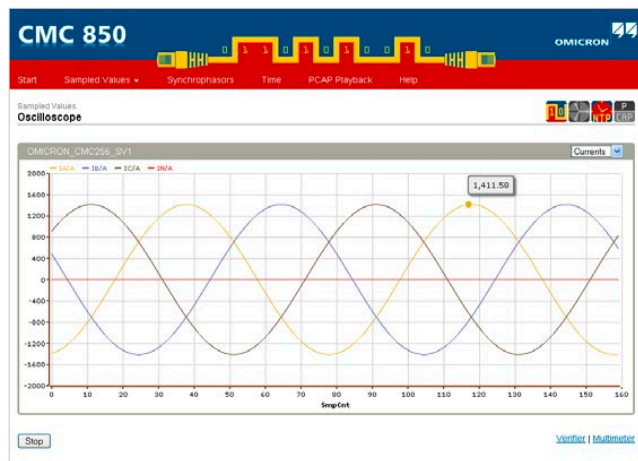
- IEDScout
- OMICRON Control Center
- GOOSE Configuration module
- Sampled Values Configuration module
- QuickCMC
- State Sequencer



## Embedded Functions

The CMC 850 provides new functions which are accessible through a web interface, simply by using a web browser.

- Receiving Sampled Values and displaying the data in a Multimeter View and an Oscilloscope View
- Calculating phasors from the subscribed Sampled-Values and providing them via the IEEE C37.118 protocol
- Synchronizing to network time sources via NTP or PTP V1
- Playback of network traffic saved in PCAP file format
- Access to the CMC 850 system information



## Typical Applications

- IED Development
- IED Evaluation
- System Factory Acceptance Testing
- Systems Commissioning
- IED Demonstration
- Training

## GOOSE and Sampled Values

For the simulation and subscription of GOOSE up to 360 inputs and outputs are available. The CMC 850 can generate up to three Sampled Values streams.

## Time Synchronization

To perform time synchronized tests with the Test Universe software (e.g. generation of Sampled Values synchronized with IRIG-B or PPS), the OMICRON CMIRIG-B interface unit is provided. The CMC 850 can use NTP (Network Time Protocol) or PTP (Precision Time Protocol, IEEE 1588-2002, V1) to obtain the time for time stamping GOOSE or Synchrophasors.

## Traffic Segregation

Two 10/100 Mbps Ethernet ports allow safe separation of data traffic from different network segments, for example, substation protocol data and test set control commands.

## Compatibility

Test plans containing the GOOSE Configuration and the Sampled Values Configuration module created for other CMC models can be used by the CMC 850 as well.



## Key Features

- **Small and light weight:** Stripped down to all that is needed for IEC 61850
- **Ready to go software:** OMICRON Control Center, IEC 61850 configuration modules, IEDScout, etc.
- **Embedded functions** accessible with standard Web browser
- **Full Test Universe software compatibility** allowing the use of all protection related test modules
- **Re-use of test plans** with GOOSE and Sampled Values developed for other CMC test set models possible
- **Viewing Sampled Values:** Multimeter and Oscilloscope View
- **Calculation of Synchrophasors from Sampled Values**, publishing via IEEE C37.118 protocol
- **Using Network Time Sources:** NTP or PTP IEEE 1588-2002, V1
- **Playback of captured network traffic** (PCAP files)
- **CMIRIG-B included** for time synchronized testing
- **12 low level analog outputs**, e.g. for stimulating devices with low level inputs

## Additional Benefits

OMICRON provides

- Worldwide high quality technical support
- Platforms for an international knowledge exchange
- Training courses designed for electric power system technicians and engineers

### Ordering Information

#### CMC 850 Package

VE008501	CMC 850 Package
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OMICRON is an international company serving the electrical power industry with innovative testing and diagnostic solutions. The application of OMICRON products allows users to assess the condition of the primary and secondary equipment on their systems with complete confidence. Services offered in the area of consulting, commissioning, testing, diagnosis and training make the product range complete.

Customers in more than 140 countries rely on the company's ability to supply leading-edge technology of excellent quality. Service centers on all continents provide a broad base of knowledge and extraordinary customer support. All of this together with our strong network of sales partners is what has made our company a market leader in the electrical power industry.

The following publications provide detailed information on the products described in this brochure and their applications:



*Product catalog  
(secondary equipment)*



*Testing Solutions for  
Protection Systems*

For more information, additional literature, and detailed contact information of our worldwide offices please visit our website.