

# CMLIB REF6xx

## User Manual



**Manual version: ENU 1025 05 01 - Year: 2012**

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OMICRON electronics translates this manual from the source language English into a number of other languages. Any translation of this manual is done for local requirements, and in the event of a dispute between the English and a non-English version, the English version of this manual shall govern.

## Safety Instructions

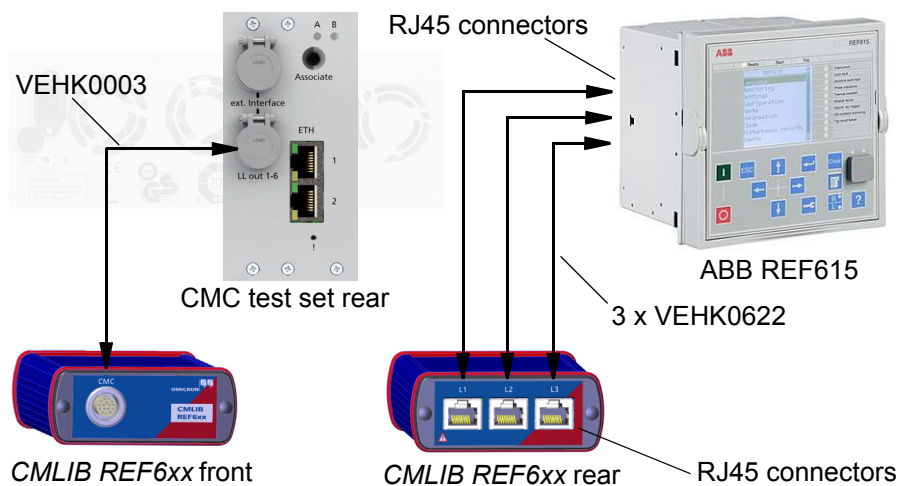
- Use the *CMLIB REF6xx* exclusively in conjunction with the OMICRON test sets listed and the application field specified at "Designated Use" below. The manufacturer is not liable for damage resulting from unintended usage.
- Use the *CMLIB REF6xx* only in a technically sound condition.
- Do not open the *CMLIB REF6xx* or remove any of its components.
- The *CMLIB REF6xx* is a SELV device (SELV = **S**afety **E**xtra **L**ow **V**oltage). Connect the *CMLIB REF6xx* to OMICRON test sets and to devices only that meet the requirements for SELV equipment according to EN 60950 or IEC 60950.

## Designated Use

The *CMLIB REF6xx* is an interface adapter to be connected between the low level outputs of OMICRON CMC test sets and ABB REF6xx relays (e.g., REF615 or REF601) with small signal inputs and RJ45 connectors. In order to simulate a Rogowski sensor, *CMLIB REF6xx* converts the low-level output signals of a *CMC 256(plus)*, a *CMC 353*, a *CMC 356* or a *CMC 850* into a differential (balanced) signal. In addition, it applies a simulation of the voltage system.

Any other use of the *CMLIB REF6xx* is considered improper and may result in damage to property or persons.

## Connecting CMLIB REF6xx:



## Configuring CMLIB REF6xx in the Test Universe Software

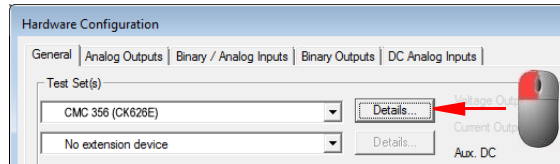
Since the relays ABB REF615 and REF601 have basically an identical pin assignment, the *CMLIB REF6xx* works for both of them. Unlike the ABB REF615 that possesses small signal current and voltage inputs, the REF601 has current inputs, only. Therefore, for the REF601 you do not need to specify a voltage sensor in the *Test Universe Hardware Configuration*.

1. Launch the *Test Universe* module of your choice and start the **Test Object**.

On the **Device Settings** window at “Nominal Values”, set your system’s nominal frequency. Then set the nominal secondary voltage “V nom secondary” and the primary voltage “V primary” to the nominal primary voltage value of the relay ( $V_{sec} = V_{prim}$ ). Do the same with the current values ( $I_{sec} = I_{prim}$ ).

Make sure you also increase the **Limits** accordingly, else no output is possible.

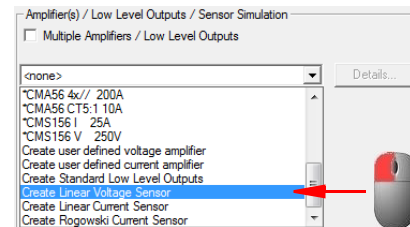
2. Start the **Hardware Configuration**.
3. On the **General** tab, select your CMC from the **Test Set(s)** list.
4. Click the **Details...** button.



5. On the **Output Configuration Details** tab, at “CMC Current Outputs” and “CMC Voltage Outputs” select **<not used>** and click **OK**.

6. If your relay is a REF615, select the **Multiple Amplifiers / Low Level Outputs** option. That way you can set a voltage **and** a current sensor.

7. At **Amplifiers / Low Level Outputs / Sensor Simulation** select **Create Linear Voltage Sensor** (applies to REF615, only).



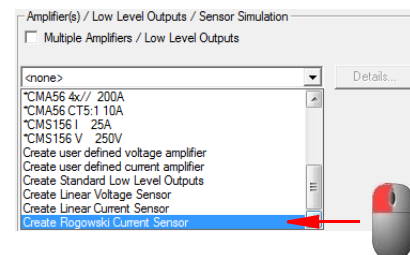
8. In the **Linear Voltage Sensor Simulation Details** window configure your voltage sensor :

At “Output System” set **LLout 1-3** for the CMC voltage outputs and, for example, at 2 V “Nominal Voltage” for the LL output that, for a 10 000:1 ratio, would correspond to a 20 kV nominal primary voltage (set at the *Test Universe Test Object*).

Click **OK**.

9. Repeat steps 6 - 8 with **Create Rogowski Current Sensor**.

At “Output System” set **LLout 4-6** for the CMC current outputs. Per default, at  $f_{nom} = 50$  Hz a voltage of 150 mV corresponds to the primary nominal current as set at the *Test Universe Test Object*, for example  $I_{primary} = 1.000$  kA.



**Note:** If your relay is a REF601, when defining the current sensor, set **twice** the voltage that is defined in the relay; i.e., 300 mV for  $I_{primary} = 1.000$  kA. The measure of doubling the voltage is due to the *CMLIB REF6xx*'s internal circuit logic and particularly applies to ABB relays with single-ended inputs, such as the REF601.

10. You can start working with primary values in the *Test Universe* module now.

## Ordering Information

<i>CMLIB REF6xx</i>	Interface Adapter with all accessories (cables and soft bag), order number VEHZ1113. Interface Adapter without accessories, order number VEHZ1114.
Cables	<ul style="list-style-type: none"> <li>• 1 connection cable CMC ↔ <i>CMLIB REF6xx</i>; order number VEHK0003</li> <li>• 3 x Ethernet cable ABB relay ↔ <i>CMLIB REF6xx</i>, 3 m (10 ft.), RJ45; order number VEHK0622</li> </ul>
Soft bag	For <i>CMLIB REF6xx</i> ; order number VEHP0020

## Technical Data

Accuracy of set <i>CMLIB REF6xx</i> plus CMC	
Guaranteed	Error < 0.07 % of reading + 700 $\mu$ V
Typical	Error < 0.035 % of reading + 350 $\mu$ V
DC offset	
Guaranteed	< 1.6 mV
Typical	< 250 $\mu$ V
Environmental conditions	
Operating temp.	0 ... 50 °C (32 ... 122 °F).
Storage temp.	-25 ... 70 °C (-13 ... 158 °F).
Humidity	5 ... 95 % relative humidity, no condensation.
EMC and Safety Standards	
EMC	The product adheres to the electromagnetic compatibility (EMC) Directive 2004/108/EC (CE conform).
- Emission	Europa: EN 61326-1 International: IEC 61326-1 USA: FCC SubpartB of part 15 Class A
- Immunity	Europa: EN 61326-1 International: IEC 61326-1
Safety	The product adheres to the low voltage Directive 2006/95/EC (CE conform).
	Europa: EN 61010-1 International: IEC 61010-1 USA: UL 61010-1 Canada: CAN/CSA-C22.2 No 61010-1-04
Safety Standard	Manufactured in an ISO9001-certified quality management system.



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We have done our best to ensure that the information given in this manual is useful, accurate, up-to-date and reliable. However, OMICRON electronics does not assume responsibility for any inaccuracies which may be present.

The user is responsible for every application that makes use of an OMICRON product.

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