

LLX

Low Level Output Accessories for CMC 430 Test Devices



LLX – Low level output accessories for CMC 430

LLX accessory units are used to expand CMC 430 test sets with six low level outputs. They are connected to one of the CMC 430s expansion ports, which powers and controls them.

LLX can be used for testing devices with sensor inputs by simulating the output signals of low power voltage and current sensors, such as voltage dividers, Rogowski coils or low power CTs. Unique is that Rogowski coil signals can be simulated not only in the steady state but also for transients. LLX can also be used to control external amplifiers like CMS 356.

To accommodate the requirements of different applications LLX is available in four different types.

LLX1 – Testing devices with sensor inputs

Order no. VEHZ1119



LLX1 is the ideal solution for testing protection and measurement devices with inputs for voltage and current sensors.

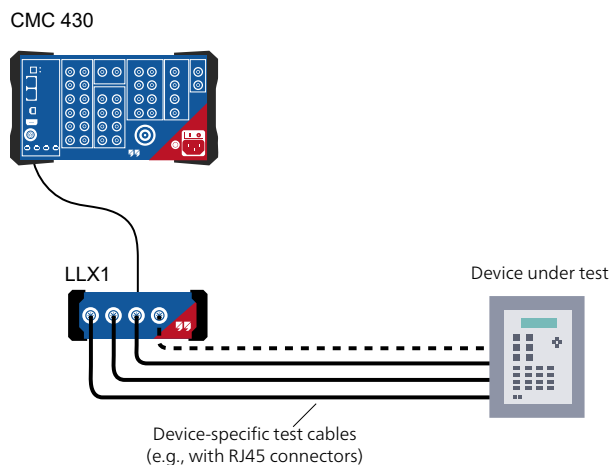
In addition to simulating the phase voltages and currents, LLX1 is also capable of simulating residual voltage and current for dedicated inputs.

A wide range of cables are available for easily connecting LLX1 to different devices that have specific connectors and pinouts.



Ordering information cable sets¹

Cable type	Suitable for	Connector type	Order no.
LAB1	ABB Relion	RJ45	VEHK0306
LAB2	ABB REF542plus	2 x Twin-BNC	VEHK0307
LSI1	Siemens Siprotec Compact	RJ45	VEHK0308
LSE2	Schneider Electric Easergy	2x RJ45	VEHK0311



¹ All cables have a length of 2.5 meters (8.2 ft).

LLX2 – Low level interface for external amplifiers and accessories

Order no. VEZH1120



LLX2 provides a standard low level interface for controlling external amplifiers such as the CMS 356 and other low level accessories with a 16-pin LEMO-type connector.

LLX3 – Versatile low level outputs with 4 mm sockets

Order no. VEZH1121



LLX3 provides low level outputs using standard 4 mm sockets. This makes LLX3 a flexible solution for further applications such as experimental setups.

LLX4 – Low level outputs for recloser and sectionalizer controls

Order no. VEZH1122



LLX4 is used in combination with OMICRON's test cables for recloser and sectionalizer controls that are equipped with sensor inputs.

- > Adds 6 low level outputs to CMC 430 test sets
- > Powered and controlled from CMC 430 Expansion Port
- > Unique simulation of Rogowski-coil signals



Technical specifications¹

Voltage outputs

Number of outputs	6 ²
Range	LLX
0 ... 0.8 V	All
0 ... 8 V	
0 ... 24 V	All except LLX2
0 ... 1.6 V ³	LLX1 only
0 ... 16 V ³	
0 ... 48 V ³	

Voltage amplitude accuracy at a frequency of 50/60 Hz

Range	1 year ⁴	2 years ⁴
0.8 V and 1.6 V	0.07 + 0.03	0.13 + 0.03
8 V and 16 V	0.06 + 0.02	0.10 + 0.02
24 V and 48 V	0.14 + 0.02	0.24 + 0.02

General amplifier specifications

Frequency range	Sine signals	DC ... 1000 Hz
	Harmonics, Interharmonics, Transients	DC ... 3000 Hz
Phase accuracy 50/60 Hz (ref V1)		0.02° guaranteed

Environmental conditions

Operating temperature	-25 ... +50 °C (-13 ... + 122 °F)
Storage and transportation temperature	-40 ... +70 °C (-40 ... + 158 °F)
Relative humidity	5 ... 95 %, no condensation
Max. altitude for operating	4000 m (13000 ft)
Max. altitude for non-operating	15000 m (49000 ft)

Weight and dimensions

Weight	0,9 kg (2.0 lbs)
Dimensions (W x H x D)	142 x 55 x 178 mm (5.6 x 2.2 x 7.0")

¹ Unless otherwise stated all specifications are valid after a 30 min. warm-up at 23 °C ±5 °C (73 °F ±9 °F) and at a relative humidity of < 80 %.

² LLX1 has two additional outputs to simulate automatically calculated residual voltage and / or current.

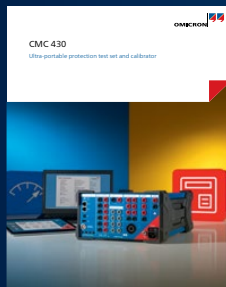
³ Only for low level outputs 4-6 with signal-type "differential".

⁴ ± (% of set value + % of range) or better

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 160 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 further information on the solutions described in this brochure:



CMC 430

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