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. P0006381

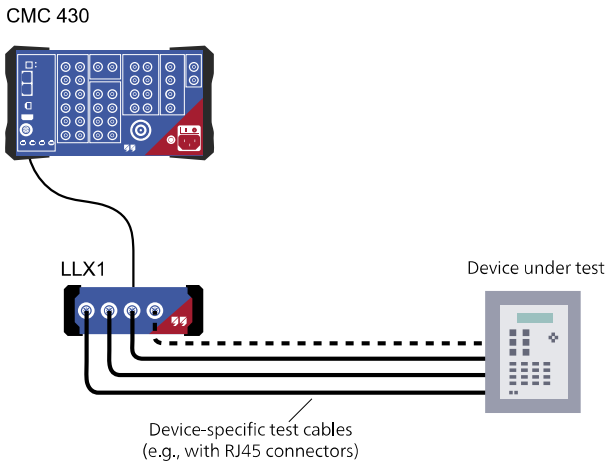
LLX1 is the ideal solution for testing protection and measurement devices with inputs for voltage and current sensors.

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 sets[1]

Cable type	Suitable for	Connector type	Order no.
LAB1	ABB Relion	RJ45	B1960000
LAB2	ABB REF542plus	2 x Twin-BNC	B1960100
LAB3	ABB CSU-2	RJ45	P0000782
LSE1	Schneider Electric Sepam	RJ45	B1960300
LSE2	Schneider Electric Easergy	2x RJ45	B1960500
LSI1	Siemens Siprotec Compact	RJ45	B1960200



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

LLX2 – Low level interface for external amplifiers and accessories

Order no. P0006382

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. P0006383

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. P0006384

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 specifications[1]

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 4°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 that works passionately on ideas for making electric power systems safe and reliable. Our pioneering solutions are designed to meet our industry's current and future challenges. We always go the extra mile to empower our customers: we react to their needs, provide extraordinary local support, and share our expertise.

Within the OMICRON group, we research and develop innovative technologies for all fields in electric power systems. When it comes to electrical testing for medium- and high-voltage equipment, protection testing, digital substation testing solutions, and cybersecurity solutions, customers all over the world trust in the accuracy, speed, and quality of our user-friendly solutions.

Founded in 1984, OMICRON draws on their decades of profound expertise in the field of electric power engineering. A dedicated team of more than 900 employees provides solutions with 24/7 support at 25 locations worldwide and serves customers in more than 160 countries.

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.

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