



APPLICATION GUIDE

Equipment description: smart metering and data acquisition device

Model: OLM-03-ECT

Prepared by:

Date:

Version:

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OLM-03-ECT APPLICATION GUIDE

Electrical measurement and control applications

1. Purpose of the application

The OLM-03-ECT is a metering, data acquisition and control device using external current transformers. It is intended for measuring three-phase low-voltage electrical networks, recording electrical parameters, and controlling external switching devices. The device is not intended for billing or revenue metering.

The device measures the voltage of all three phases directly, while phase currents are measured using external current transformers. Depending on the application, the device can be used directly with OLM-CT4 split-core current transformers or connected to existing busbar current transformers with a known transformation ratio.

This guide summarizes typical installation arrangements. Detailed technical, operating and communication information is provided in the manufacturer documentation.

2. Basic installation principles

The OLM-03-ECT must be installed within the premises, downstream of the utility meter and the existing main switch and circuit breakers, in a three-phase network with a nominal line-to-line voltage of 0.4 kV.

The device is designed for mounting on a standard DIN rail. For mains-voltage measurement and device power supply, conductors L1, L2, L3 and N must be connected according to the terminal assignment specified in the manufacturer documentation. Of the power terminals, terminals 1, 4 and 7 are the phase inputs, terminals 3, 6 and 9 are the controlled phase outputs, and terminal 10 is the neutral input.

Correct phase sequence and current-transformer polarity are essential when wiring the measuring circuits. After commissioning, verify that the device indicates IMPORT when energy is being consumed and EXPORT when energy is being fed back to the grid.

WARNING! Current transformers may only be installed when the circuit is de-energized. The secondary circuit of a current transformer must not be opened during operation; work on the measuring circuit may only be carried out with the main circuit de-energized.

3. Direct use of OLM-CT4 current transformers

The OLM-CT4 is a split-core current transformer. For three-phase measurement, one OLM-CT4 is installed on each of the L1, L2 and L3 phase conductors. The secondary terminals of the current transformers must be connected to the corresponding I1, I2 and I3 measurement inputs of the OLM-03-ECT.

The current transformers must be installed with the correct polarity corresponding to the direction of energy flow. Wiring between the device and the current transformers must be carried out according to the circuit diagram. No overcurrent protection device may be installed in the current-transformer circuit.

4. Use with an existing busbar current transformer

If busbar current transformers with a known transformation ratio are already installed in the electrical distribution board, the OLM-03-ECT can also be connected to them. In this arrangement, the secondary circuit of the existing current transformer supplies the measurement signal through the OLM-CT4.

When using an existing busbar current transformer with any transformation ratio, 5 turns must be made through the core of the OLM-CT4 using H07V-K 1×1 mm² wire; in other words, the conductor must be passed through the core five times.

In the OLM-03-ECT “Setup” mode, the transformation ratio of the existing “Primary CT” can be configured (for example, 800 A / 5 A). When a busbar current transformer is used, this ratio must be entered in the device configuration. Identical transformation ratios and identical measuring-circuit wiring must be used on all three phases.

5. Control of an external contactor

The controlled phase output of the OLM-03-ECT can also be used to operate an external contactor. In the application diagrams in this guide, the 230 V rated contactor coil is controlled by the L1 phase output of the OLM-03-ECT; the L2 and L3 control outputs are not used in this configuration.

The contactor main contacts must be selected according to the rated current and utilization category of the controlled load circuit. According to the manufacturer documentation, the built-in switching element of the device has a rated current capacity of 60 A.

6. Checks before commissioning

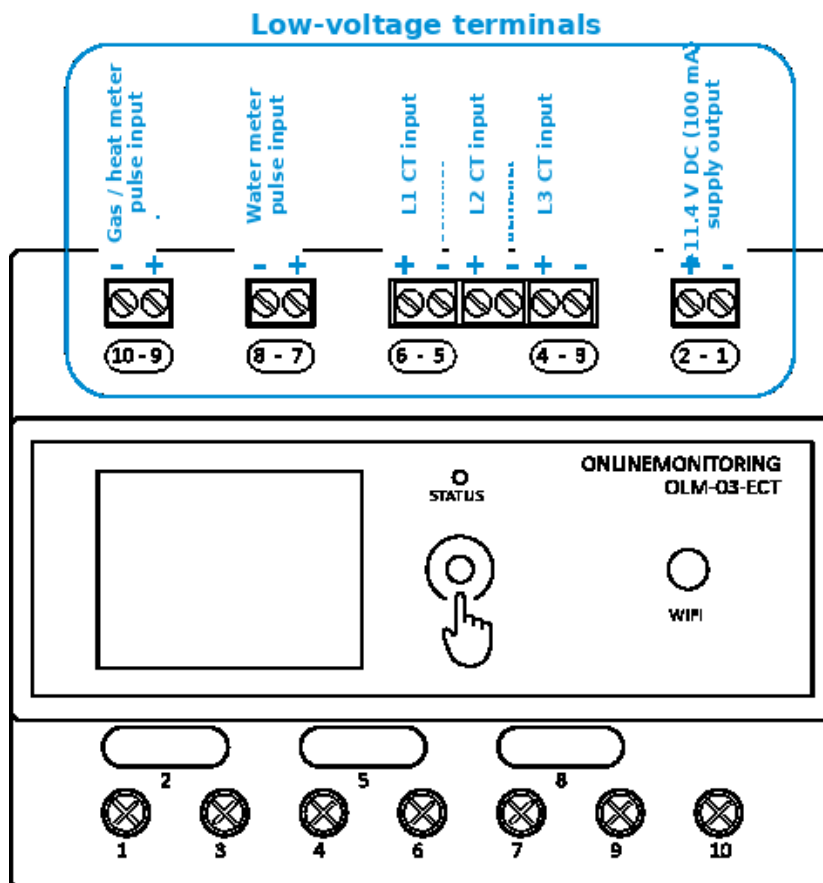
- correct isolation from all sources of electrical power and verification of the de-energized state;
- correct connection of conductors L1, L2, L3 and N;
- correct phase assignment and polarity of the current transformers;
- continuity and safe installation of the current-transformer circuits;
- correct Primary CT transformation ratio setting when an existing primary busbar current transformer is used;
- rated voltage and control circuit of the contactor coil;
- correct indication of IMPORT/EXPORT energy direction after commissioning.

Note: Installation, wiring, modification and inspection may only be carried out by appropriately qualified electrical personnel in accordance with the manufacturer documentation and applicable electrical safety regulations.

7. Terminal assignment

Low-voltage signal terminals

The screw-type low-voltage signal terminals are located on the upper side of the device, as shown in the figure below:



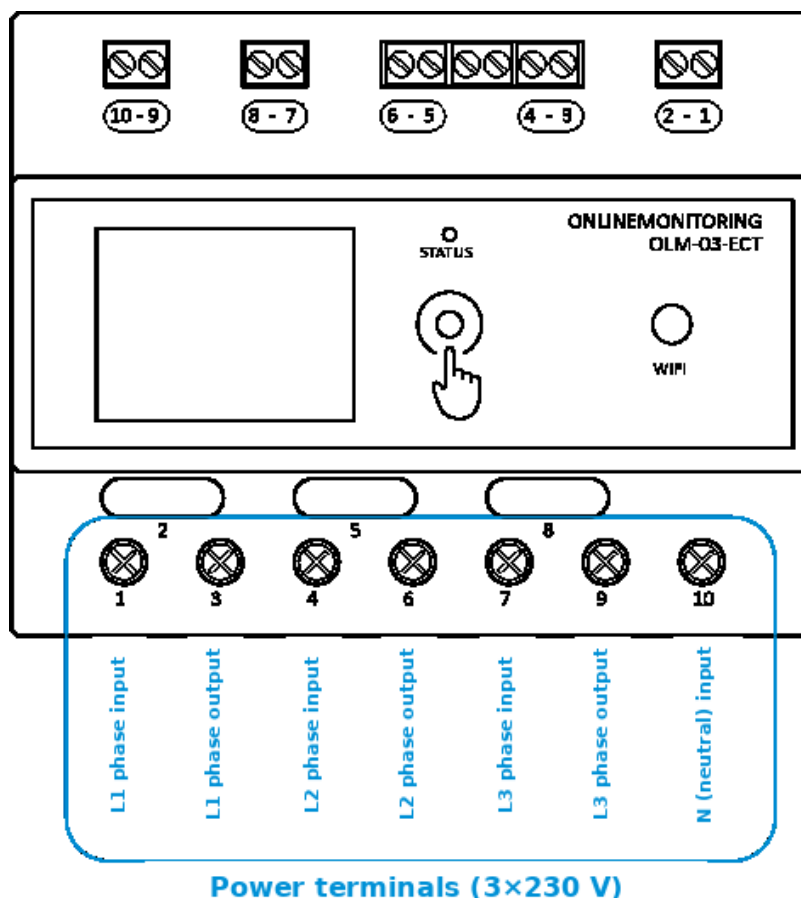
The low-voltage signal terminal strip is suitable for conductors with a cross-sectional area of 0.5...0.75 mm².

WARNING! The circuits of the external current transformers MUST NOT be interrupted during operation!

Work on the external current-transformer circuits is permitted only when the main circuit has been de-energized.

Power terminals

The screw-type power terminals are located on the lower side of the device.



Power terminal assignment:

- 1 Phase 1 input (from the main meter)
- 3 Phase 1 output (to the controlled circuit)
- 4 Phase 2 input (from the main meter)
- 6 Phase 2 output (to the controlled circuit)
- 7 Phase 3 input (from the main meter)
- 9 Phase 3 output (to the controlled circuit)
- 10 Neutral conductor input

Note: The jumper plates on terminals 2, 5 and 8 must not be removed, as this may cause device failure!

The device power screw terminals are suitable for conductors with a cross-sectional area of 1...25 mm².

12. Installation and circuit configuration

The OLM-03-ECT must be installed within the premises, downstream of the utility electricity meter and the existing main switch and circuit breakers, in a three-phase electrical network with a nominal line-to-line voltage of 0.4 kV.

Typical circuit configuration

A high-power consumer or generator feeder circuit can be measured using a single device. This can be achieved without interrupting the existing circuit by using current transformers that can be retrofitted to the phase conductors. The current transformers are available in the following versions:

- OLM-CT2, 100 A / 50 mA (1:2000), split-core design, maximum measured conductor diameter: 16 mm
- OLM-CT4, 200 A / 50 mA (1:4000), split-core design, maximum measured conductor diameter: 16 mm
- OLM-CT4, 300 A / 100 mA (1:3000), split-core design, maximum measured conductor diameter: 25 mm

Current transformer accuracy class: 0.5

The device draws the power required for its operation (<10 W) and for control functions (e.g. an external contactor) from inputs 1, 4 and 7 of the power terminal strip. If an external contactor is used, select a contactor with a coil rated for 230 V.

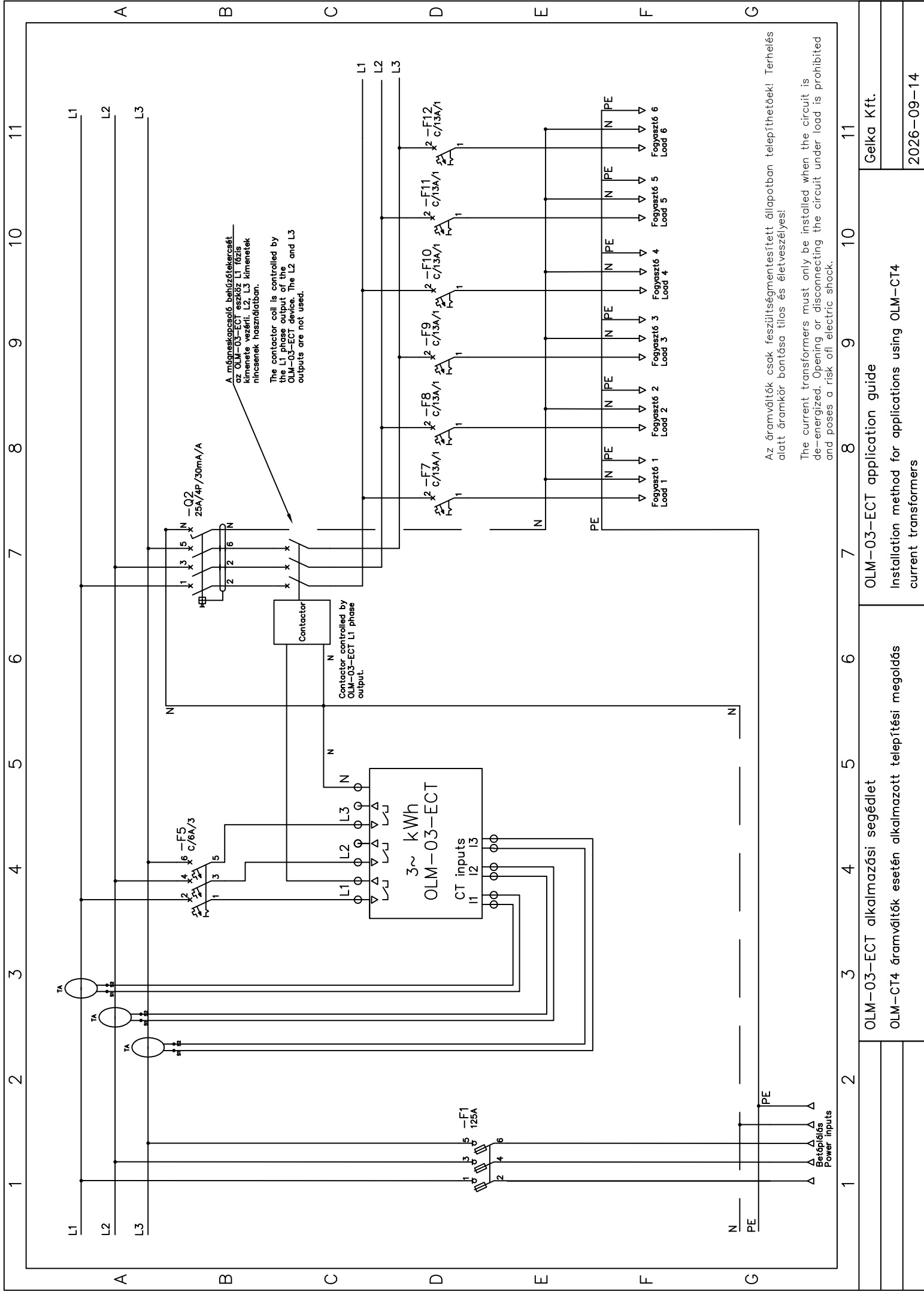
The device provides nominal 230 V mains voltage at terminal outputs 3, 6 and 9 (terminals 1–3, 4–6 and 7–9 are connected when the circuit is switched on and disconnected when the circuit is switched off).

The rated current capacity of the switching element built into the device is 60 A.

The following two circuit diagrams show examples of device applications.

The first diagram shows a configuration without a busbar current transformer.

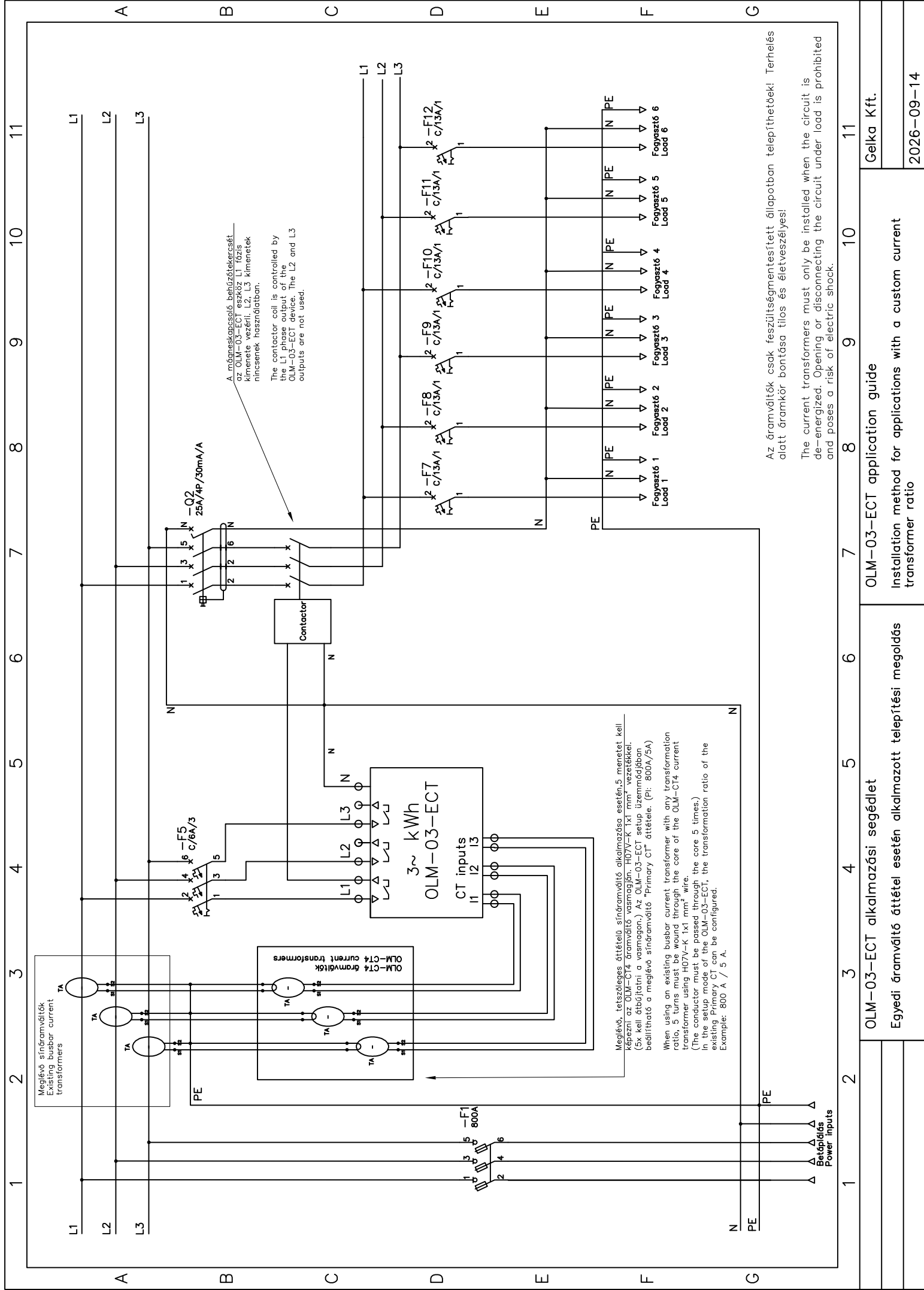
The second diagram shows an application using an existing busbar current transformer.



Az áramváltók csak feszültségmentesített állapotban telepíthetők! Terhelés alatt áramkör bontása tilos és életveszélyes!

The current transformers must only be installed when the circuit is de-energized. Opening or disconnecting the circuit under load is prohibited and poses a risk of electric shock.

OLM-03-ECT alkalmazási segédlet			OLM-03-ECT application guide			Gelka Kft.		
OLM-CT4 áramváltók esetén alkalmazott telepítési megoldás			Installation method for applications using OLM-CT4 current transformers					
						2026-09-14		



Closing remarks

We hope that the OLM-03-ECT will prove to be a reliable and useful device in everyday operation and will help you gain a more accurate understanding of your electricity consumption, improve its monitoring, and support safe control.

Thank you for choosing our product. We trust that the OLM-03-ECT and the services provided by the ONLINEMONITORING system will support your energy-management tasks over the long term and that you will be satisfied with the capabilities offered by the system.

GELKA Kft.