# EU TYPE EXAMINATION CERTIFICATE
# Directive 2014/32/EU, Module B
# 0598/MID/B/24/076 Issue 1

**Product**

Active Electrical Energy Meters (Annex V MI-003)

**Model**

| Meter type | Description | Instrument Traceable No |
|---|---|---|
| OR-WE-528,<br>OR-WE-529,<br>OR-WE-530,<br>OR-WE-529MBUS,<br>OR-WE-530MBUS | Three Phase,Direct connected,<br>Import /Export (kWh),<br>DIN Rail Mounted, Electricity Meter | 0598/MID/B/24/076 |

**Certificate holder / Manufacturer**

ORNO-LOGISTIC Sp. zo.o
44-141 Gliwice, ul, Rolników 437, Poland

**Directive information**

For the instruments mentioned in this Certificate, the following essential requirements of Directive 2014/32/EU apply:
- Annex I Essential requirements
- Annex V Active electrical meters (MI-003)

**Standards**

EN 50470-1:2006, EN 50470-3:2006

**Validity**

This certificate is valid until 2032-11-29
The manufacturer must inform SGS Fimko in case of any intended change to the design. Unauthorised changes will invalidate this certificate.

The Manufacturer is permitted to affix the CE-marking onto the instrument(s) after complying with the conformity assessment procedures referred to in Article 17 of the Directive and to draw up a written declaration of conformity.

**Date of issue**

2025-02-20

SGS Fimko OY
Notified Body 0598

**Signature**

Mikko Välimäki
Certification Manager





Certificate issued by

**SGS Fimko Oy**
Takomotie 8
FI-00380 Helsinki, Finland
**t.** +358 9 696 361 www.sgs.com
Business ID 0634247-4 Member of the SGS Group (SGS SA)

**Test report(s)**

| Report Number | Date |
|---|---|
| SHES220801488301 | 2022-11-21 |
| SHES230100046701 | 2023-02-27 |

**Technical information**

| | |
|---|---|
| Meter type(s) | OR-WE-528, OR-WE-529, OR-WE-530, OR-WE-529MBUS, OR-WE-530MBUS |
| Voltage rating ($U^n$) | 3*230/400V |
| Current rating ($I_{min}$ – $I_{ref}$ ($I_{max}$)) | 0.25-5(30)A, 0.25-5(32)A, 0.25-5(40)A, 0.25-5(45)A, 0.25-5(50)A, 0.25-5(60)A, 0.25-5(80)A, 0.25-5(100)A |
| Frequency ($F_n$) | 50 Hz |
| Active Accuracy Class (kWh) | B (kWh) |
| Type of circuit | 3p4w |
| Temperature range | -40ºC to +70ºC |
| Software/Firmware version no.: | V301 |
| CRC Checksum | OR-WE-528: 708A<br>OR-WE-529: 5B61<br>OR-WE-530: 2B60<br>OR-WE-529MBUS: 710C<br>OR-WE-530MBUS: 3A70 |
| Identification location | LCD |
| Bill of Materials No.(s) | OR-WE-528: D513084 BOM V0.1 & V0.2 & V0.3<br>OR-WE-529: D513083 BOM V0.1 & V0.2 & V0.3<br>OR-WE-530: D513082 BOM V0.1 & V0.2 & V0.3<br>OR-WE-529MBUS: D513102 BOM V0.1<br>OR-WE-530MBUS: D513088 BOM V0.1 |
| IP rating | IP51 (Must be installed in a suitable IP rated enclosure) |
| Insulation protective class | Class II |
| LED Pulse Constant | 1000 imp/kWh |
| Impulse Voltage Rating | 6kV |
| AC Voltage Rating | 4kV |
| Main Cover Sealing Type | Main cover clipped in place and sealed with tamper proof sealing tape |
| Integrity of Meter | Inaccessible without breaking seals |
| Intended location of the Meter | Indoor |
| Type of Register | LCD |





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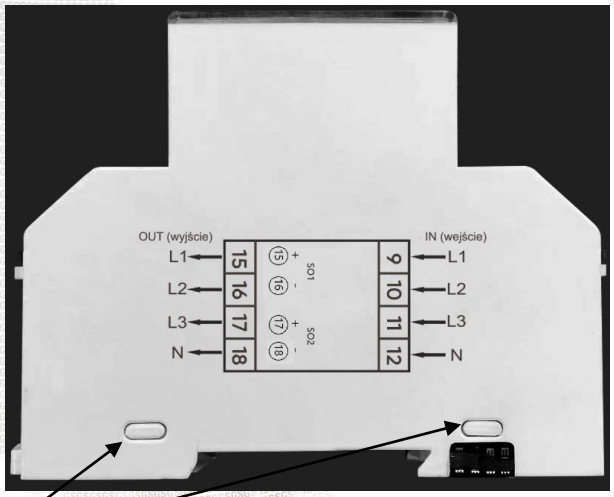
**Photograph of Meter and Sealing Plan**


Terminal Cover Sealing Points


Main Cover Sealing Points





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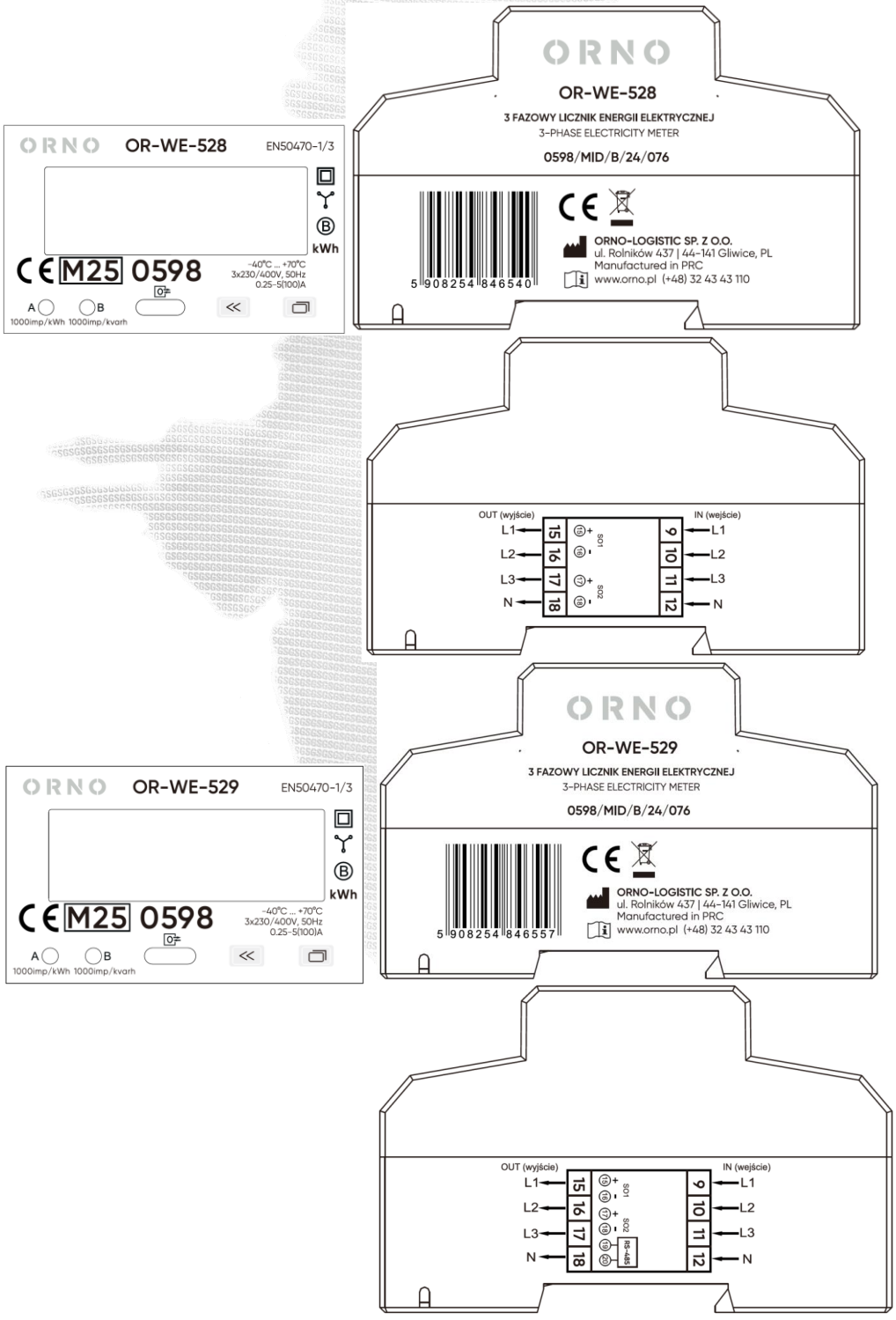
## Example of Nameplates





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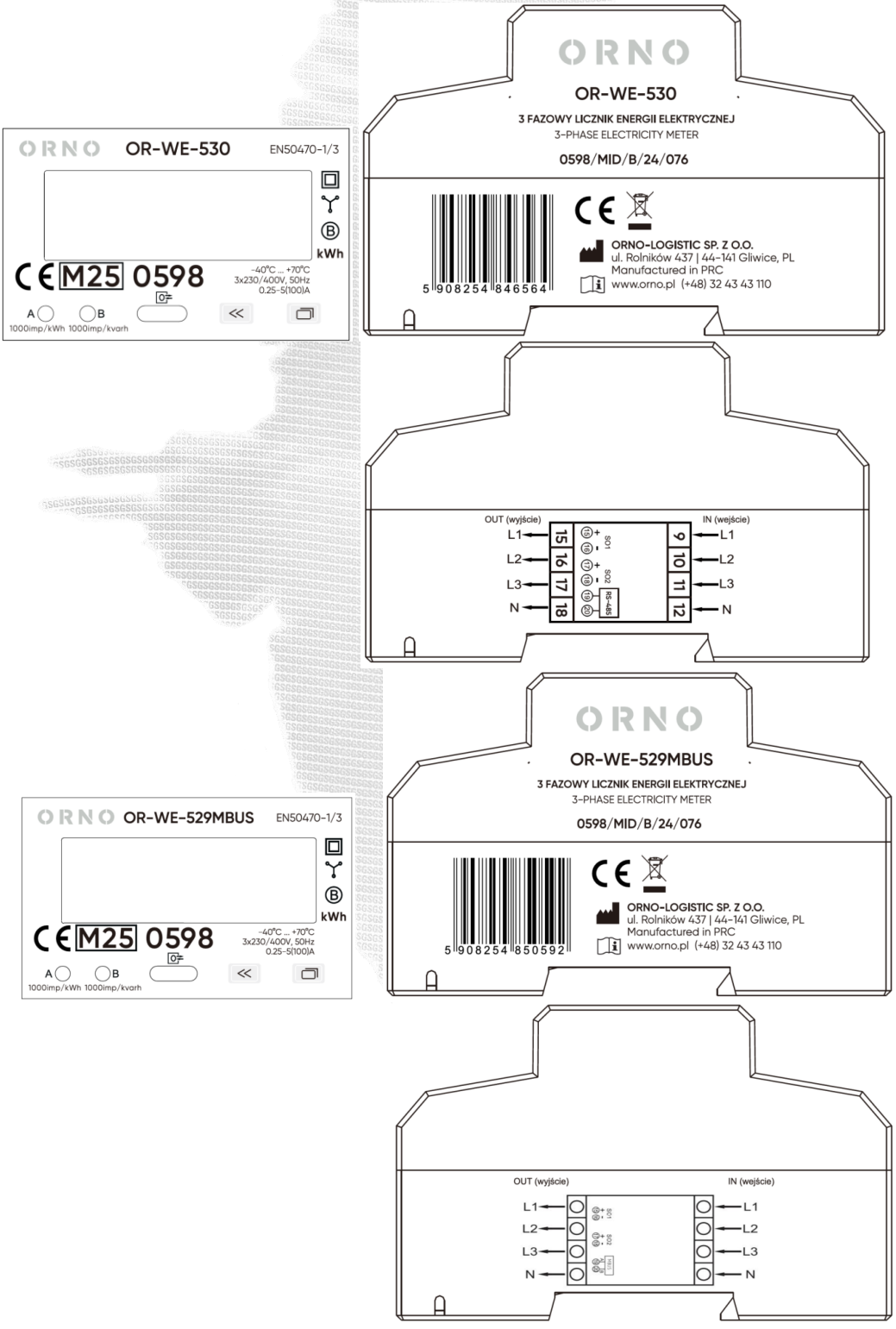






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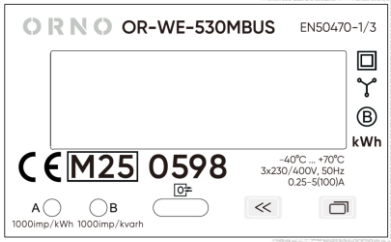


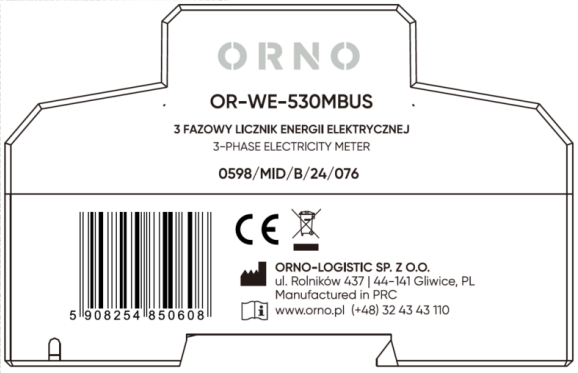


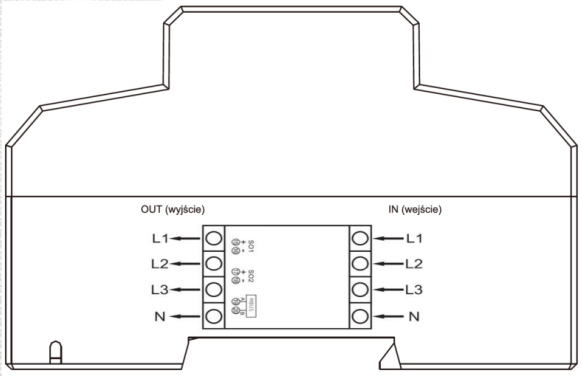






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**Calculation of the composite error / MPE**

During the type approval examination the influence factors for temperature, frequency and voltage are determined per load point. The table below represents the sum of the square values per load, determined via the following formula:

$$\delta e\,(T, U, f) = \sqrt{(\delta e^2\,(T, I, \cos\varphi)\,,\ \delta e^2\,(U, I, \cos\varphi)\,,\ \delta e^2\,(f, I, \cos\varphi))}$$

where

$\delta e(T, I, \cos\varphi)$ = Additional error due to variation of the temperature at the same load

$\delta e(U, I, \cos\varphi)$ = Additional error due to variation of the voltage at the same load

$\delta e(f, I, \cos\varphi)$ = Additional error due to variation of the frequency at the same load.

| | | Influence Factors for Temperature. Frequency & Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Current | PF Cos | -40°C | -25°C | -10°C | 5°C | 30°C | 40°C | 55°C | 70°C |
| Imin | 1.0 | *0.15* | *0.09* | *0.12* | *0.12* | *0.11* | *0.19* | *0.38* | *0.51* |
| Itr | 1.0 | *0.15* | *0.04* | *0.08* | *0.08* | *0.09* | *0.18* | *0.36* | *0.49* |
| 10Itr | 1.0 | *0.28* | *0.12* | *0.12* | *0.12* | *0.28* | *0.28* | *0.45* | *0.67* |
| Imax | 1.0 | *0.52* | *0.52* | *0.52* | *0.53* | *0.62* | *0.68* | *0.80* | *0.91* |
| Itr | 0.5ind | *0.11* | *0.10* | *0.15* | *0.14* | *0.12* | *0.19* | *0.34* | *0.49* |
| 10Itr | 0.5ind | *0.14* | *0.06* | *0.10* | *0.10* | *0.14* | *0.23* | *0.41* | *0.52* |
| Imax | 0.5ind | *0.30* | *0.29* | *0.29* | *0.33* | *0.49* | *0.59* | *0.73* | *0.87* |
| Itr | 0.8cap | *0.11* | *0.06* | *0.09* | *0.08* | *0.13* | *0.22* | *0.39* | *0.56* |
| 10Itr | 0.8cap | *0.25* | *0.17* | *0.17* | *0.17* | *0.43* | *0.38* | *0.52* | *0.69* |
| Imax | 0.8cap | *0.25* | *0.25* | *0.25* | *0.28* | *0.28* | *0.55* | *0.70* | *0.85* |
| | | | | | | | | | |
| L1 | | | | | | | | | |
| Itr | 1.0 | *0.58* | *0.51* | *0.40* | *0.22* | *0.15* | *0.31* | *0.55* | *0.72* |
| 10Itr | 1.0 | *0.52* | *0.50* | *0.37* | *0.19* | *0.16* | *0.35* | *0.58* | *0.75* |
| Imax | 1.0 | *0.55* | *0.45* | *0.25* | *0.08* | *0.37* | *0.56* | *0.75* | *0.91* |
| Itr | 0.5ind | *0.54* | *0.47* | *0.38* | *0.21* | *0.26* | *0.36* | *0.58* | *0.76* |
| 10Itr | 0.5ind | *0.52* | *0.49* | *0.35* | *0.18* | *0.22* | *0.38* | *0.60* | *0.76* |
| Imax | 0.5ind | *0.49* | *0.38* | *0.19* | *0.05* | *0.43* | *0.59* | *0.80* | *0.96* |
| | | | | | | | | | |
| L2 | | | | | | | | | |
| Itr | 1.0 | *0.85* | *0.61* | *0.35* | *0.24* | *0.25* | *0.24* | *0.24* | *0.31* |
| 10Itr | 1.0 | *0.86* | *0.59* | *0.30* | *0.09* | *0.05* | *0.04* | *0.08* | *0.21* |
| Imax | 1.0 | *0.62* | *0.49* | *0.44* | *0.44* | *0.44* | *0.45* | *0.48* | *0.57* |
| Itr | 0.5ind | *0.81* | *0.45* | *0.21* | *0.10* | *0.15* | *0.11* | *0.10* | *0.21* |
| 10Itr | 0.5ind | *0.77* | *0.49* | *0.22* | *0.04* | *0.13* | *0.10* | *0.04* | *0.16* |
| Imax | 0.5ind | *0.66* | *0.52* | *0.45* | *0.44* | *0.44* | *0.46* | *0.50* | *0.58* |
| | | | | | | | | | |
| L3 | | | | | | | | | |
| Itr | 1.0 | *0.16* | *0.18* | *0.25* | *0.23* | *0.16* | *0.23* | *0.39* | *0.54* |
| 10Itr | 1.0 | *0.10* | *0.08* | *0.16* | *0.10* | *0.10* | *0.23* | *0.45* | *0.57* |
| Imax | 1.0 | *0.50* | *0.52* | *0.49* | *0.47* | *0.53* | *0.60* | *0.75* | *0.83* |
| Itr | 0.5ind | *0.22* | *0.26* | *0.30* | *0.28* | *0.23* | *0.28* | *0.48* | *0.54* |
| 10Itr | 0.5ind | *0.08* | *0.16* | *0.22* | *0.17* | *0.09* | *0.19* | *0.45* | *0.52* |
| Imax | 0.5ind | *0.45* | *0.46* | *0.45* | *0.46* | *0.32* | *0.61* | *0.81* | *0.86* |





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**Product Variant Identification Details**

| Model No. | OR-WE-530 | OR-WE-529 | OR-WE-528 | OR-WE-530MBUS | OR-WE-529MBUS |
|---|---|---|---|---|---|
| Voltage range | 3×230/400V | | | | |
| Current range | 0.25-5(30)A, 0.25-5(32)A, 0.25-5(40)A, 0.25-5(45)A, 0.25-5(50)A, 0.25-5(60)A, 0.25-5(80)A, 0.25-5(100)A | | | | |
| Frequency range | 50Hz | | | | |
| IR | ● | | | | |
| RS485 | ● | ● | | | |
| M-Bus | | | | ● | ● |
| Battery | ● | | | ● | |
| Multi-Tariff | ● | | | ● | |
| 2 SO | ● | ● | ● | ● | ● |
| 1 SO,1 External Signal input port | | | | | |





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**Certificate Revision History**

| Issue | Date | Comments |
|---|---|---|
| 1 | 2025-02-20 | Initial Issue |





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