

# EU TYPE EXAMINATION CERTIFICATE

## Directive 2014/32/EU, Module B

### 0598/MID/B/25/135 Issue 1

**Product** Active Electrical Energy Meters (Annex V MI-003)

**Model** Meter type LE-03 Series  
 Description Three Phase, Direct connected, Import /Export (kWh), DIN Rail Mounted, Electricity Meter  
 Instrument Traceable No 0598/MID/B/25/135

**Trademark** F&F

**Certificate holder / Manufacturer** F&F Filipowski sp.k.  
 ul. Konstanynowska 79/81, 95-200 Pabianice, 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** 2025-12-15

SGS Fimko OY  
 Notified Body 0598

**Signature**



Mikko Välimäki  
 Certification Manager

Certificate issued by

**SGS Fimko Oy**  
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**Test report(s)**

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

**Technical information**

Meter type(s)	LE-03d-4Q, LE-03M-4Q, LE-03MW-4Q4T, LE-03M-4Q-I, LE-03MW-4Q4T-I, LE-03MB-4Q, LE-03MB-4Q4T, LE-03MB-4Q-I, LE-03MB-4Q4T-I
Voltage rating (U <sup>n</sup> )	3*230/400V
Current rating (I <sub>min</sub> – I <sub>ref</sub> (I <sub>max</sub> ))	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 <sub>n</sub> )	50 Hz
Active Accuracy Class (kWh)	B (kWh)
Type of circuit	3p4w
Temperature range	-40°C to +70°C
Software/Firmware version no.:	LE-03d-4Q: V301, V310 LE-03M-4Q: V301, V302, V310 LE-03MW-4Q4T, LE-03M-4Q-I, LE-03MW-4Q4T-I: V301, V302 LE-03MB-4Q, LE-03MB-4Q4T, LE-03MB-4Q-I, LE-03MB-4Q4T-I: V301
CRC Checksum	LE-03d-4Q: 708A, AC09 LE-03M-4Q: 5B61, 145A, 9FC4 LE-03MW-4Q4T, LE-03MW-4Q4T-I: 2B60, 5AF0 LE-03M-4Q-I: 5B61, 145A LE-03MB-4Q, LE-03MB-4Q-I: 710C LE-03MB-4Q4T, LE-03MB-4Q4T-I: 3A70
Identification location	LCD
Bill of Materials No.(s)	LE-03d-4Q: D513084 BOM V0.1 & V0.2 & V0.3 LE-03M-4Q: D513083 BOM V0.1 & V0.2 & V0.3 LE-03MW-4Q4T: D513082 BOM V0.1 & V0.2 & V0.3 LE-03M-4Q-I: D513085 BOM V0.1 & V0.2 & V0.3 LE-03MW-4Q4T-I: D513086 BOM V0.1 & V0.2 & V0.3 LE-03MB-4Q: D513102 BOM V0.1 LE-03MB-4Q4T: D513088 BOM V0.1 LE-03MB-4Q-I: D513103 BOM V0.1 LE-03MB-4Q4T-I: D513104 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

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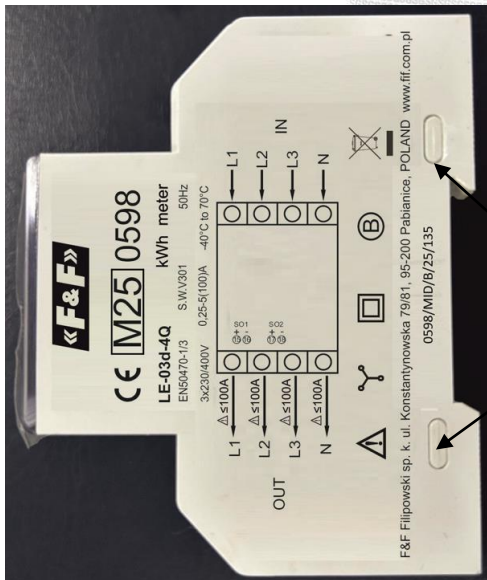
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Impulse Voltage Rating	6kV
AC Voltage Rating	4 kV
Main Cover Sealing Type	Main cover clipped in place and sealed with tamper proof sealing tape
Integrity of Meter	Inaccessible without breaking seals
Intended location of the Meter	Indoor
Type of Register	LCD

## Photograph of Meter and Sealing Plan



Terminal Cover Sealing Points



Main Cover Sealing Points

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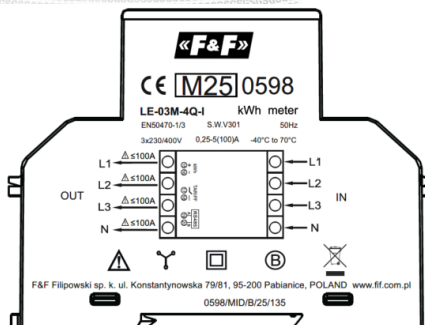
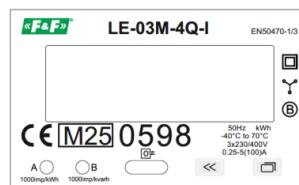
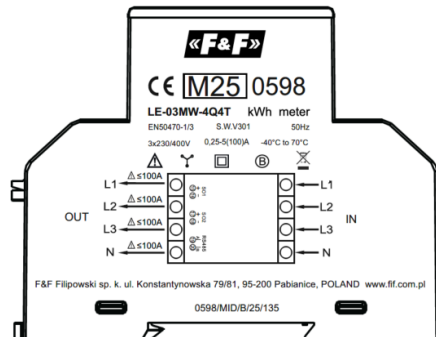
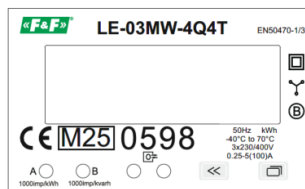
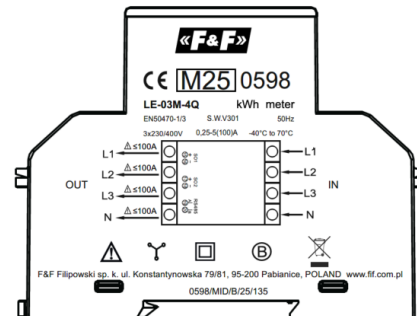
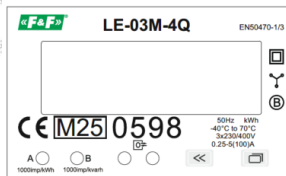
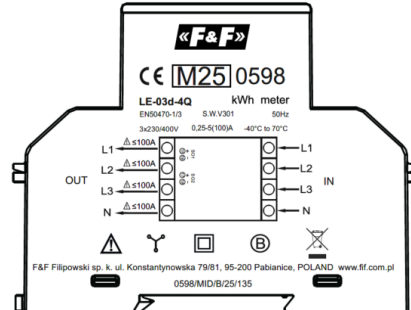
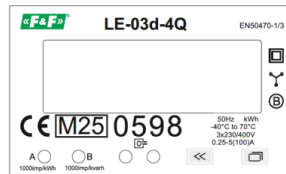
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## Example of Nameplates



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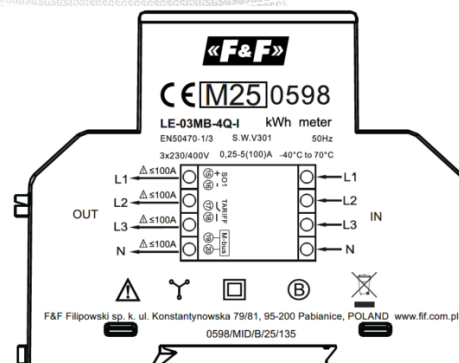
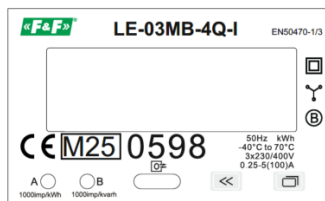
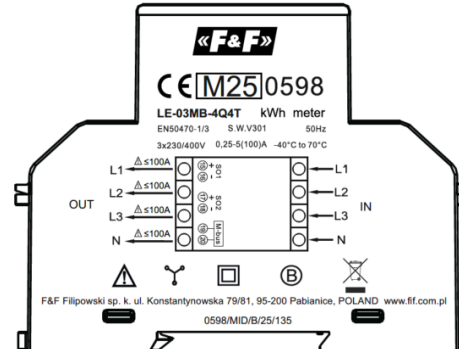
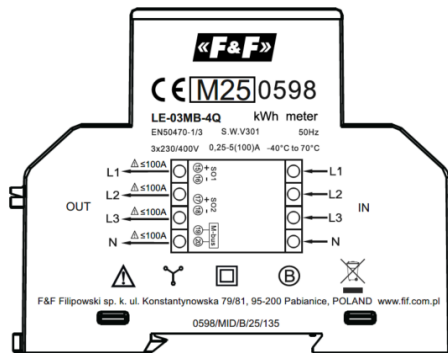
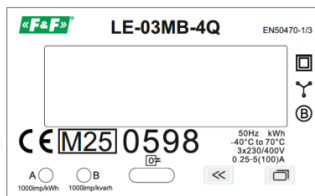
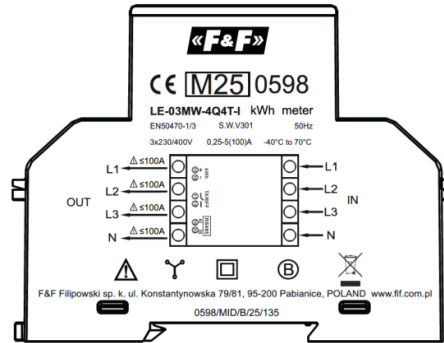
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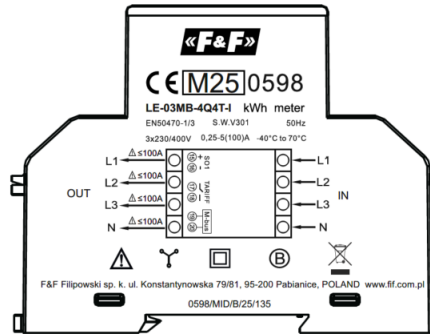
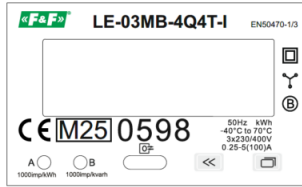
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**Calculation of the composite error / MPE**

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
10ltr	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
10ltr	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
10ltr	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
10ltr	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
10ltr	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
10ltr	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
10ltr	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
10ltr	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
10ltr	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

**Product Variant Identification Details**

Model No.	LE-03MW-4Q4T	LE-03MW-4Q4T-I	LE-03M-4Q	LE-03M-4Q-I	LE-03d-4Q	LE-03MB-4Q4T	LE-03MB-4Q4T-I	LE-03MB-4Q	LE-03MB-4Q-I
Voltage range	3x230/400V								
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		•		•			•		•

**Certificate Revision History**

Issue	Date	Comments
1	2025-12-15	Initial Issue

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