

EU TYPE EXAMINATION CERTIFICATE

Directive 2014/32/EU, Module B

0598/MID/B/24/033 Issue 1

Product	Active Electrical Energy Meters (Annex V MI-003)		
Model	Meter type LE-02d v.2, WZE-3 v.2, LE-02R, LE-02B, LE-03MR-2, LE-03M v.2, LE-03MR, LE-03MR-3	Description Three Phase, Direct connected, Import /Export (kWh), DIN Rail Mounted, Electricity Meter	Instrument Traceable No 0598/MID/B/24/033
Certificate holder / Manufacturer	F&F Filipowski sp.k. ul. Konstaktynowska 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 IEC 62052-11:2021+A11:2022, EN 50470-3:2022, IEC 62052-31:2015		
Validity	This certificate is valid until 2034-10-25 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	2024-11-22		
Signature	SGS Fimko OY Notified Body 0598  Mikko Välimäki Certification Manager		



Test report(s)

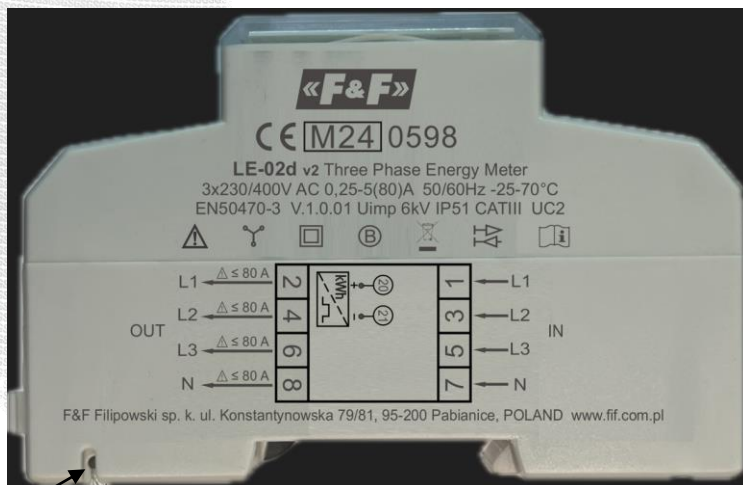
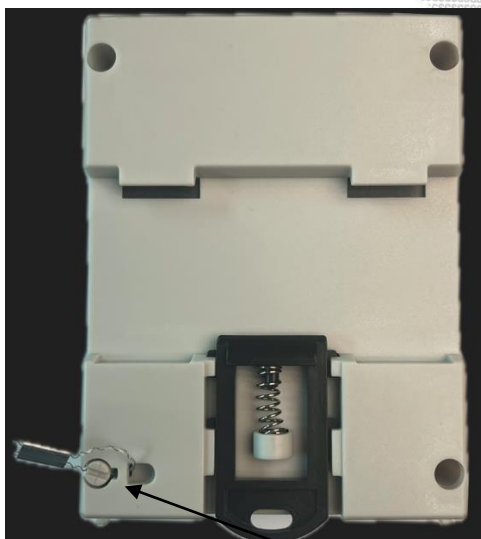
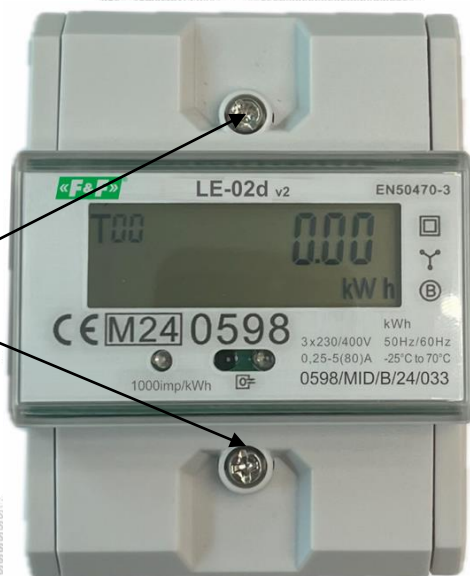
Report Number	Date
SHES240601223401	2024-09-18
SHES240601223402	2024-09-18

Technical information

Meter type(s)	LE-02d v.2, WZE-3 v.2, LE-02R, LE-02B, LE-03MR-2, LE-03M v.2, LE-03MR, LE-03MR-3
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
Frequency (F _n)	50/60 Hz
Active Accuracy Class (kWh)	A or B (kWh)
Type of circuit	3p4w
Temperature range	-25°C to +70°C
Software/Firmware version no.:	1.0.01
CRC Checksum	1D75
Identification location	LCD
Bill of Materials No.(s)	LE-02d v.2: D519168 V0.1, WZE-3 v.2: D519171 V0.1 LE-02R: D512172 V0.1, LE-02B: D519169 V0.1 LE-03MR-2: D519167 V0.1, LE-03M v.2: D519173 V0.1 LE-03MR: D519174 V0.1, LE-03MR-3: D519170 V0.1
IP rating	IP51
Insulation protective class	Class II
LED Pulse Constant	1000 imp/kWh
Impulse Voltage Rating	6kV
AC Voltage Rating	4 kV
Main Cover Sealing Type	Wire & Crimp
Integrity of Meter	Inaccessible without breaking seals
Intended location of the Meter	Indoor
Type of Register	LCD
Terminal Arrangement(s)	DIN

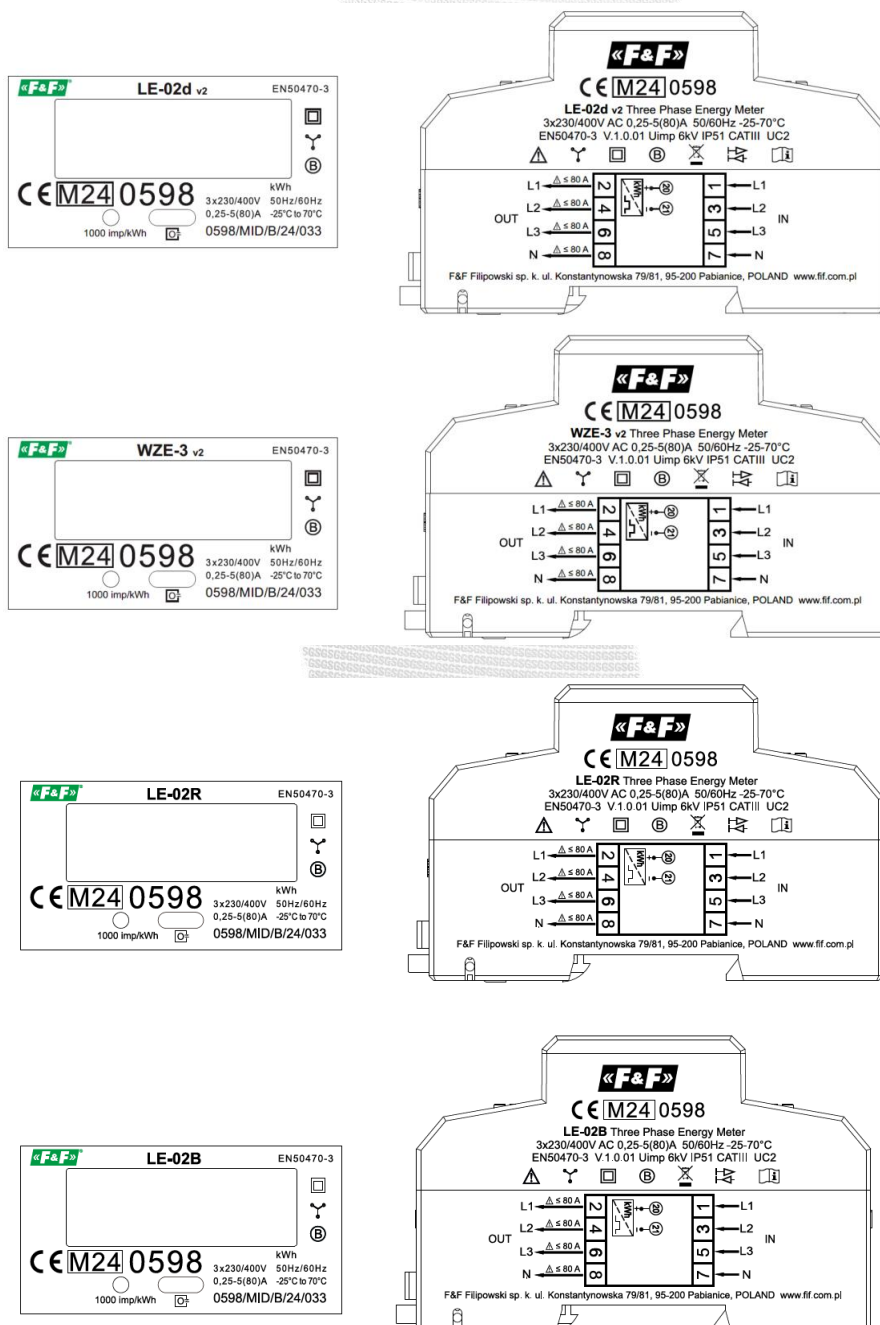
Photograph of Meter and Sealing Plan

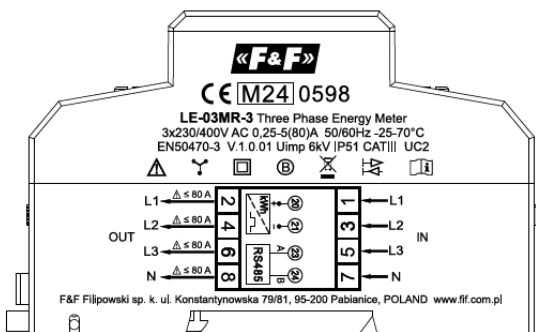
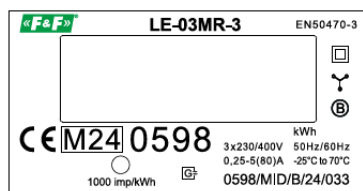
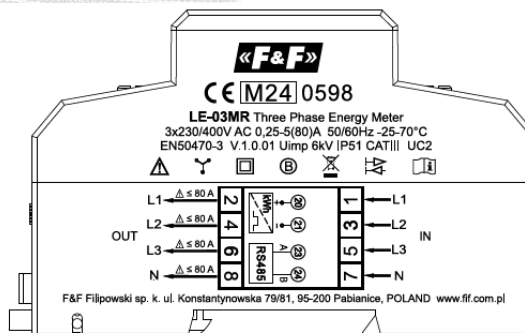
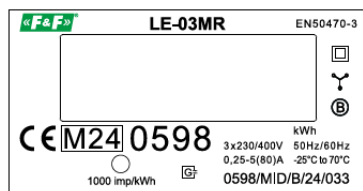
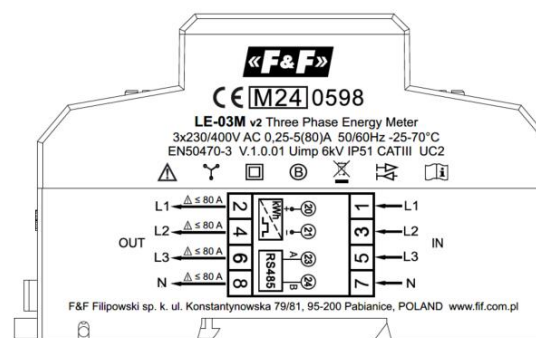
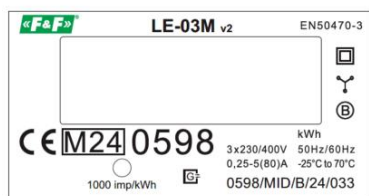
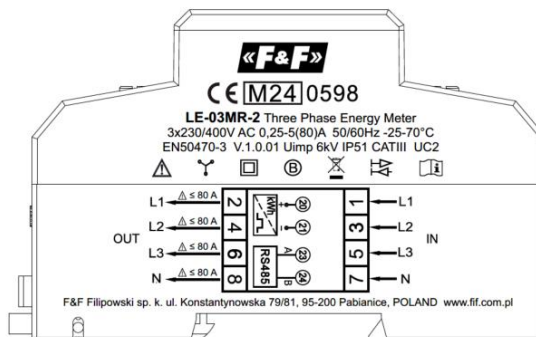
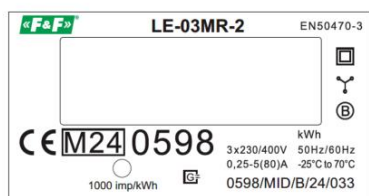
Terminal Cover Sealing Points



Main Cover Sealing Point

Example of Nameplates





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 and voltage						
Current	PF Cos	-25°C	-10°C	5°C	30°C	40°C	55°C	70°C
I _{min}	1.0	0.17	0.18	0.19	0.09	0.08	0.18	0.42
I _{tr}	1.0	0.15	0.15	0.16	0.11	0.09	0.15	0.39
10I _{tr}	1.0	0.25	0.25	0.25	0.18	0.10	0.10	0.27
I _{max}	1.0	0.24	0.23	0.24	0.20	0.17	0.14	0.30
I _{tr}	0.5ind	0.16	0.20	0.16	0.11	0.09	0.15	0.46
10I _{tr}	0.5ind	0.13	0.15	0.14	0.12	0.08	0.10	0.36
I _{max}	0.5ind	0.16	0.17	0.17	0.13	0.09	0.09	0.35
I _{tr}	0.8cap	0.23	0.22	0.21	0.15	0.12	0.13	0.39
10I _{tr}	0.8cap	0.28	0.28	0.28	0.25	0.19	0.18	0.37
I _{max}	0.8cap	0.18	0.18	0.18	0.15	0.14	0.15	0.39
L1								
I _{tr}	1.0	0.21	0.18	0.18	0.19	0.19	0.22	0.51
10I _{tr}	1.0	0.18	0.16	0.16	0.16	0.16	0.21	0.52
I _{max}	1.0	0.17	0.14	0.12	0.12	0.13	0.19	0.57
I _{tr}	0.5ind	0.40	0.40	0.38	0.38	0.38	0.39	0.56
10I _{tr}	0.5ind	0.21	0.16	0.15	0.15	0.17	0.22	0.48
I _{max}	0.5ind	0.19	0.16	0.15	0.15	0.17	0.23	0.54
L2								
I _{tr}	1.0	0.18	0.18	0.18	0.19	0.23	0.32	0.55
10I _{tr}	1.0	0.14	0.13	0.13	0.11	0.13	0.18	0.43
I _{max}	1.0	0.11	0.10	0.09	0.08	0.09	0.13	0.46
I _{tr}	0.5ind	0.33	0.35	0.32	0.32	0.39	0.52	0.75
10I _{tr}	0.5ind	0.14	0.14	0.14	0.14	0.18	0.20	0.48
I _{max}	0.5ind	0.13	0.13	0.13	0.12	0.15	0.16	0.50
L3								
I _{tr}	1.0	0.38	0.29	0.19	0.17	0.17	0.12	0.28
10I _{tr}	1.0	0.25	0.23	0.20	0.11	0.09	0.14	0.29
I _{max}	1.0	0.36	0.36	0.35	0.25	0.22	0.19	0.25
I _{tr}	0.5ind	0.37	0.29	0.33	0.16	0.18	0.10	0.25
10I _{tr}	0.5ind	0.28	0.25	0.24	0.11	0.10	0.12	0.25
I _{max}	0.5ind	0.28	0.27	0.25	0.07	0.12	0.15	0.24

Product Variant Identification Details

Model No.	LE-03MR-2	LE-03MR-3	LE-03M v.2	LE-03MR	LE-02d v.2	LE-02B	WZE-3 v.2	LE-02R
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							
Frequency range	50/60Hz							
Optical Pulse output	1000imp/kWh							
Electrical pulse output	•	•	•	•	•	•	•	•
RS485 communication	•	•	•	•				
Infrared communication					•	•	•	•
Battery	•	•			•	•		•
Backlight	•			•	•			
Software version	1.0.01	1.0.01	1.0.01	1.0.01	1.0.01	1.0.01	1.0.01	1.0.01
Checksum	1D75	1D75	1D75	1D75	1D75	1D75	1D75	1D75

Opaque case and transparent case are optional

Certificate Revision History

Issue	Date	Comments
1	2024-11-22	Initial Issue