

EU Type Examination Certificate Number: **0120/SGS0570**

F&F Filipowski s.j.

ul. Konstanyńska 79/81, 95-200 Pabianice, Poland

Instrument Identification:

LE-01d, WZE-1, LE-01d-AF, LE-01d-FpR, LE-01d-FmR, LE-01d-AI, LE-01d-FI, LE-01d-FpRpl, LE-01d-FmRml

Single phase, Active Import/Export (kWh), Electricity Meter

Instrument Traceable Number

0120/SGS0570

has been assessed and certified as meeting the requirements of

EU Directive 2014/32/EU

on Measuring Instruments Annex II, Module B

It is certified that the manufacturer's technical design and specimen for the above instrument has been examined and, based on the evidence submitted, it is considered that the instrument conforms to the requirements of Annex V of EU Directive 2014/32/EU

This certificate must be used in conjunction with a certificate covering the product verification as required in Annex II, Module D or Annex II, Module F

This certificate is valid from 05th July 2022 until 9th February 2032

Issue 1

Certification is based on report number(s) SHES211102316701 dated 25th January 2022

EMA299525/1/TR50579 dated 25th January 2022

EMA299525/1

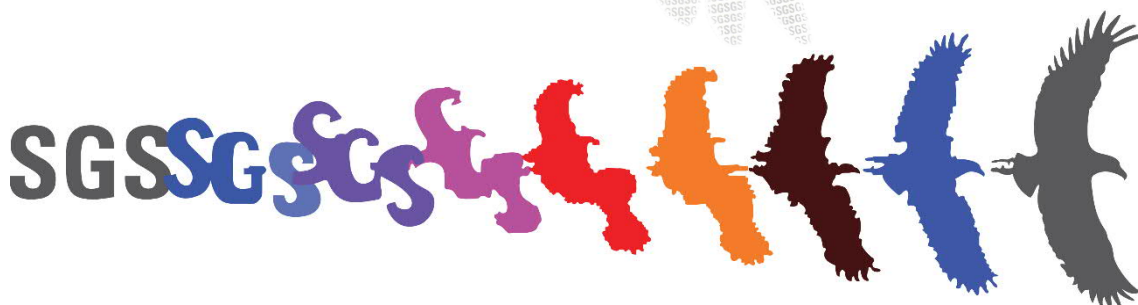
EMA305138/1

Authorised Signature



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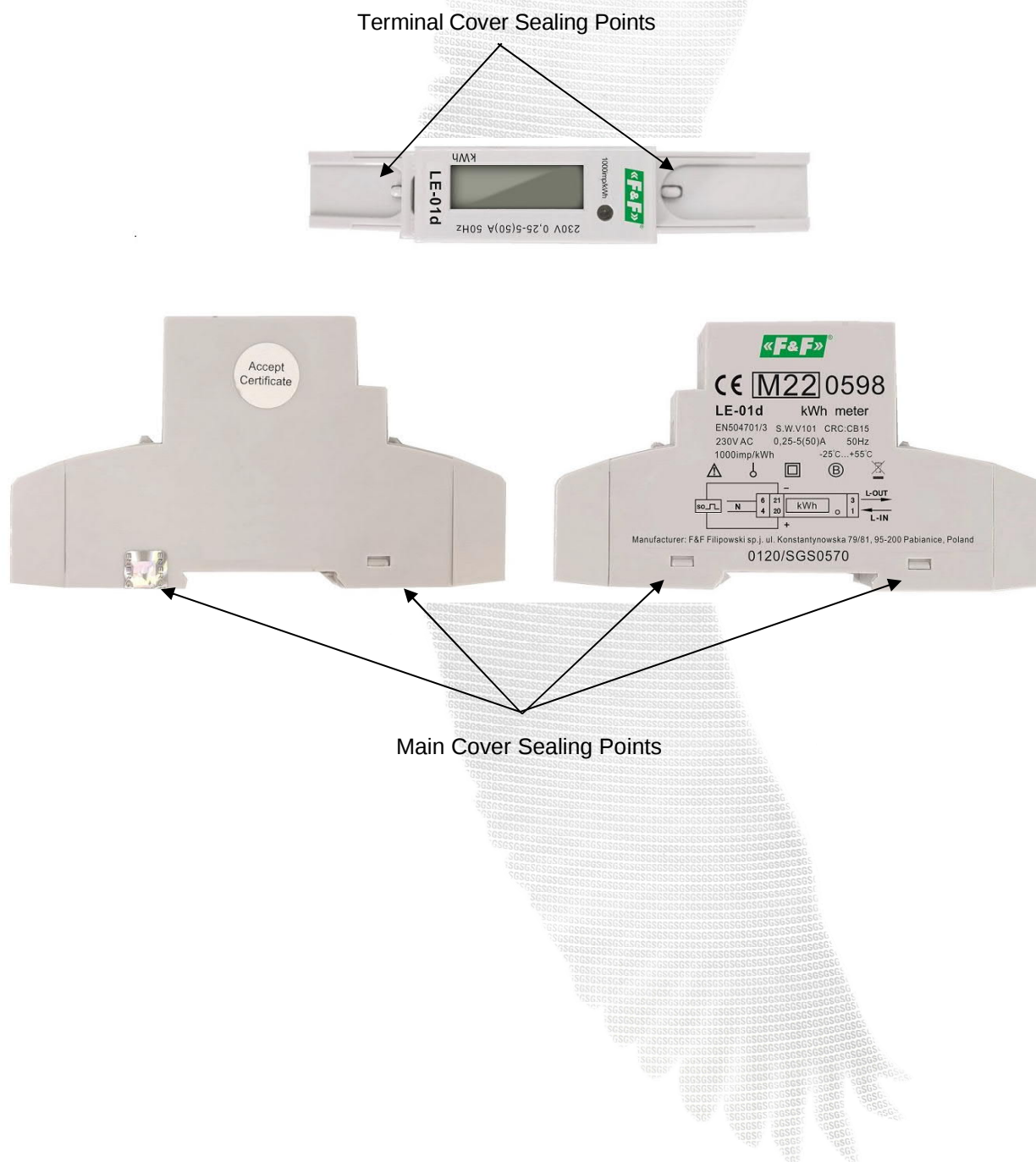
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1. Technical Data

Manufacturer	F&F Filipowski s.j.
Meter Types	LE-01d, WZE-1, LE-01d-AF, LE-01d-FpR, LE-01d-FmR, LE-01d-AI, LE-01d-FI, LE-01d-FpRpl, LE-01d-FmRml
Voltage Rating (<i>Un</i>)	230V
Current Rating (<i>I_{min}</i> – <i>I_{ref}</i> (<i>I_{max}</i>))	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
Frequency (<i>Fn</i>)	50Hz
Active Accuracy Class (<i>kWh</i>)	B (kWh)
Type of circuit	1p2w
Temperature Range	-25°C to +55°C
Software/ Firmware Version No's	V101
Checksum No.	CB15
Identification Location	LCD & Nameplate
Bill Of Materials No's	LE-01d, WZE-1: NZD112129-BOM V1.00 LE-01d-AF: NZD112130-BOM V1.00 LE-01d-FpR: NZD112131-BOM V1.00 LE-01d-FmR: NZD112132-BOM V1.00 LE-01d-AI: NZD112133-BOM V1.00 LE-01d-FI: NZD112134-BOM V1.00 LE-01d-FpRpl: NZD112135-BOM V1.00 LE-01d-FmRml: NZD112136-BOM V1.00
IP Rating	IP51
Insulation Protective Class	Class II
LED Pulse Constant	1000imp/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
Terminal Arrangement(s)	DIN
Location of Manufacturers Name & Address	Side of the meter and associated documentation

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2. Photograph of Meter and Sealing Plan



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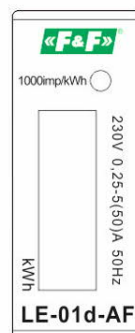
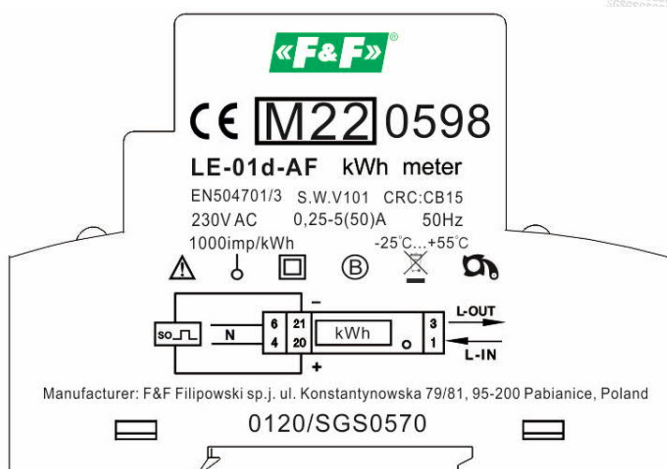
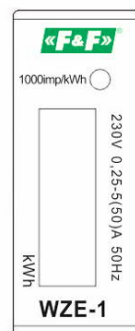
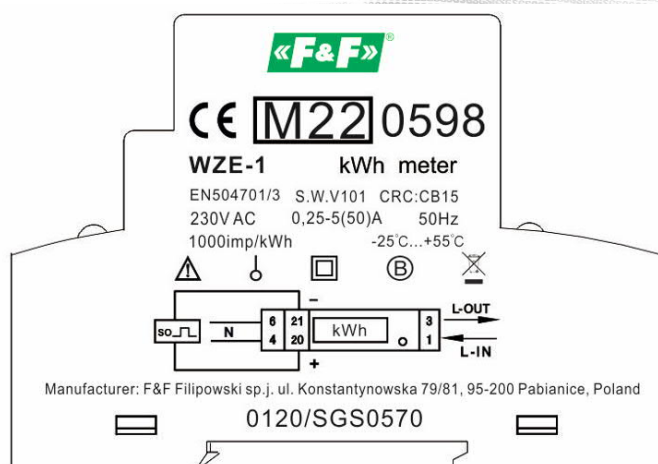
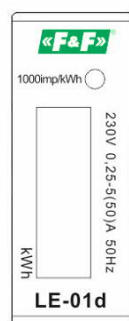
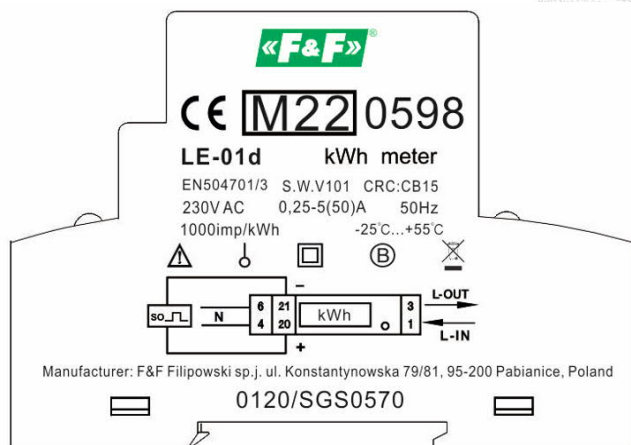
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3. Examples of Nameplates



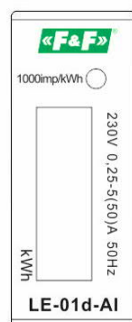
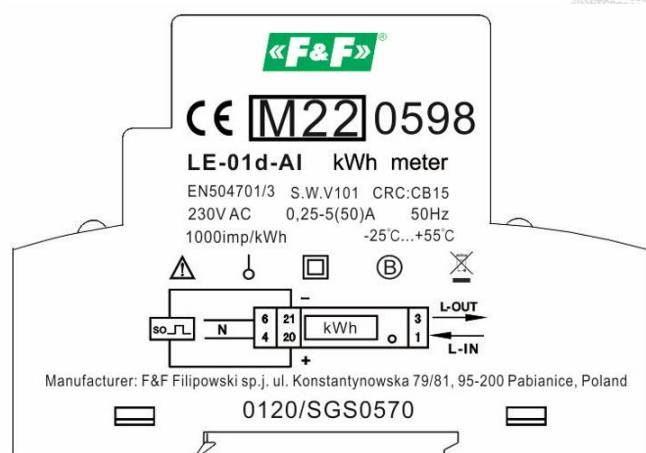
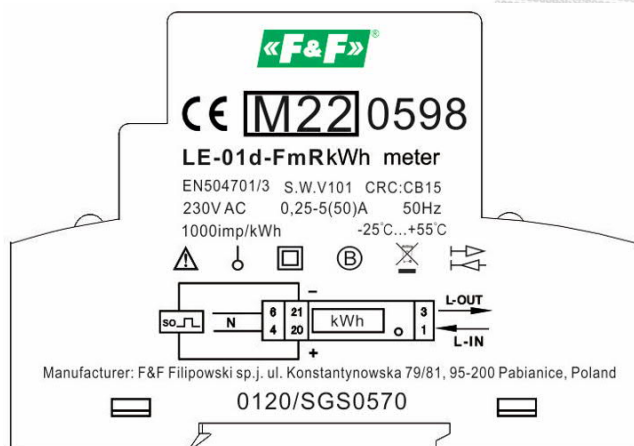
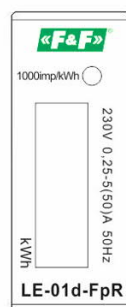
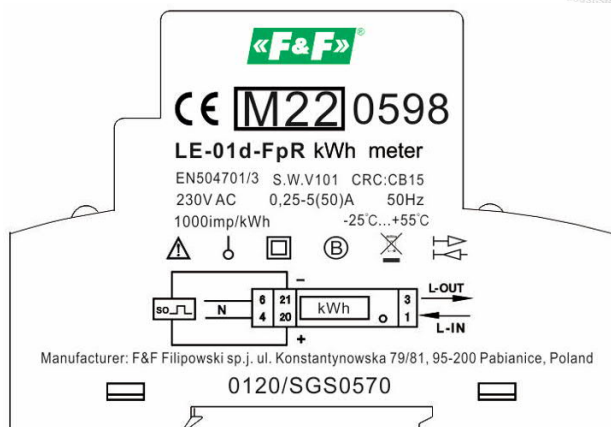
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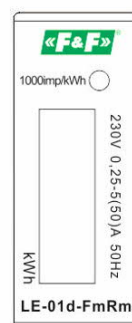
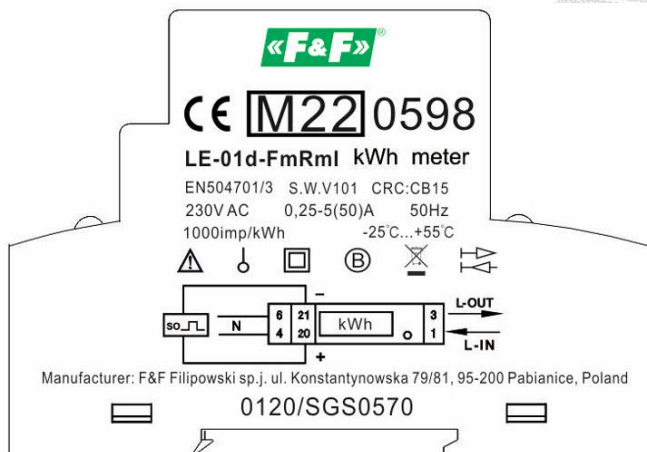
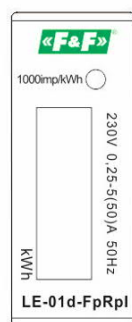
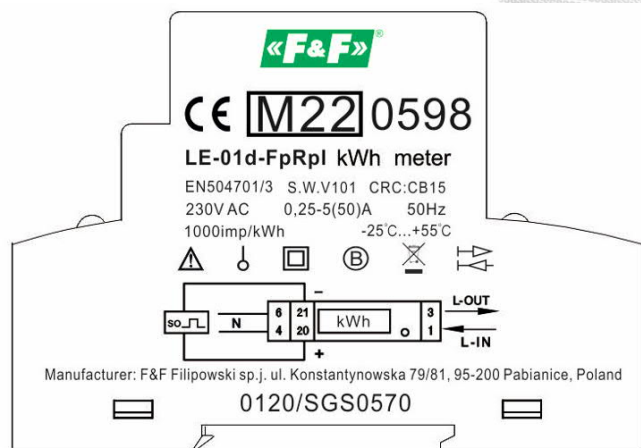
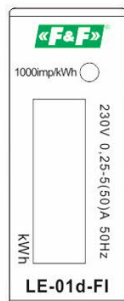
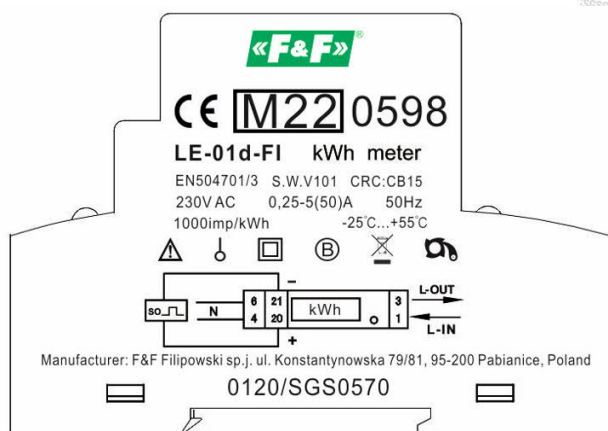
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4. Calculation of the composite error/ MPE

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:-

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

where

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

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

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

		Influence Factors for Temperature, Voltage & Frequency					
Current	PF Cos	-25°C	-10°C	5°C	30°C	40°C	55°C
I _{min}	1.0	0.47	0.34	0.23	0.06	0.08	0.17
I _{tr}	1.0	0.43	0.31	0.19	0.02	0.08	0.17
10I _{tr}	1.0	0.42	0.30	0.18	0.03	0.08	0.17
I _{max}	1.0	0.63	0.42	0.21	0.12	0.19	0.28
I _{tr}	0.5ind	0.45	0.32	0.20	0.04	0.09	0.17
10I _{tr}	0.5ind	0.43	0.31	0.19	0.04	0.08	0.16
I _{max}	0.5ind	0.57	0.34	0.14	0.17	0.25	0.34
I _{tr}	0.8cap	0.43	0.31	0.17	0.04	0.09	0.18
10I _{tr}	0.8cap	0.41	0.29	0.16	0.03	0.12	0.18
I _{max}	0.8cap	0.62	0.42	0.21	0.11	0.26	0.27

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5. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
LE-01d, WZE-1	230V, Total energy (Total = Import + Export) 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
LE-01d-AF	230V, Total energy (Total = Import) 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
LE-01d-FpR	230V, Total, import, export energy (Total = Import + Export) 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
LE-01d-FmR	230V, Total, import, export energy (Total = Import - Export) 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
LE-01d-AI	230V, Total energy(Total = Import + Export), voltage, current, active power, frequency, power factor 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
LE-01d-FI	230V, Total energy(Total = Import), voltage, current, active power, frequency, power factor 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
LE-01d-FpRpl	230V, Total, import, export energy (Total = Import +Export), voltage, current, active power, frequency, power factor 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
LE-01d-FmRml	230V, Total, import, export energy (Total = Import -Export), voltage, current, active power, frequency, power factor 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

Modifications to the meter(s) described according to approval No.**0120/SGS0570** must be notified to the issuing body to confirm the meter(s) continuing compliance to the relevant pattern approval standard(s).

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6. Document Revision History

Issue	Date	Comments
1	05/07/2022	Initial Issue

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END OF CERTIFICATE