



EU Type Examination Certificate Number: 0120/SGS0670

F&F Filipowski sp.k.

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

Instrument Identification:
LE-03d, WZE-3RST, LE-03-FPV-RST, LE-03-FPV-RST-M1, LE-03-FPV-RST-M2

Polyphase, Active Import/Export (kWh), Electricity Meter

Instrument Traceable Number
0120/SGS0670

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 until 20th April 2026
Issue 2

Certification is based on report number(s):

Certification is based on report number(s): SHES151000648101 dated 19th April 2016
EMA288418/1 dated 1st April 2021, EMA288737/3 dated 1st April 2021, EMA288418.1p2w dated 4th July 2022, EMA314862/1 dated 18th April 2023
EMA319594/1
EMA325365/1

Authorised Signature

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	EU-Type Examination Certificate Number:	
	0120/SGS0670	
	Issue Number: 2	Dated: 11 th June 2024

1. Technical Data

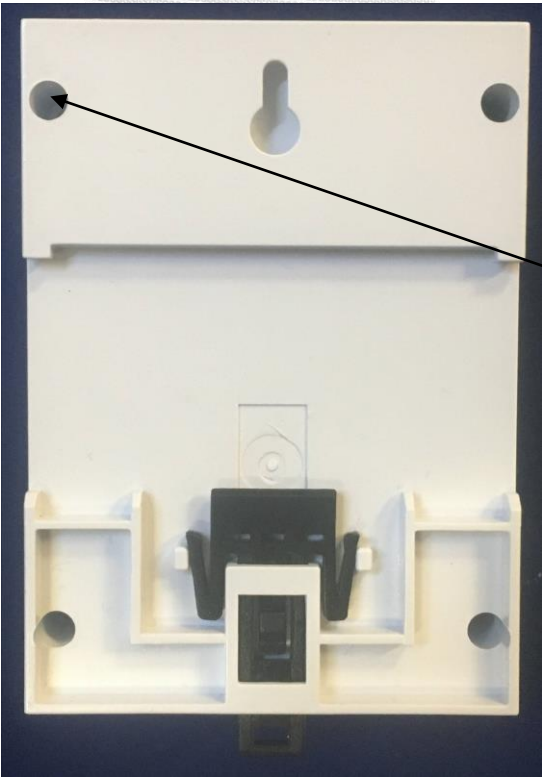
Manufacturer	F&F Filipowski sp.k.
Meter Type	LE-03d, WZE-3RST, LE-03-FPV-RST, LE-03-FPV-RST-M1, LE-03-FPV-RST-M2
Voltage Rating (<i>Un</i>)	230V & 3 x 230/400V
Current Rating (<i>I_{min}</i> – <i>I_{ref}</i> (<i>I_{max}</i>))	0,5-10(100)A & 0.5-10(80)A
Frequency (<i>Fn</i>)	50Hz
Active Accuracy Class (<i>kWh</i>)	B (kWh)
Type of circuit	3p4w, 1p2w
Temperature Range	-40°C to +70°C
Software/ Firmware Version No's	LE-03d: V1.1 CRC: EA8DA16C WZE-3RST: V1.1 CRC: 3BB6108A LE-03-FPV-RST: V1.1 CRC: F02A9803 LE-03-FPV-RST-M1: V1.3 CRC: 9E71902C LE-03-FPV-RST-M2: V1.3 CRC: 9E71902C
CRC Checksum No's	
Identification Location	Laser printed on meter case & LCD
Bill Of Materials No's	LE-03d: DH-JS-150050 V1.4 WZE-3RST: DH-JS-160007 V 1.5 LE-03-FPV-RST: DH-JS-160007 V1.5 LE-03-FPV-RST-M1: DH-JS-200010 V1.2 LE-03-FPV-RST-M2: DH-JS-200010 V1.2
IP Rating	IP51
Insulation Protective Class	Class II
LED Pulse Constant	1000 imp/kWh or 100imp/kWh
Impulse Voltage Rating	6kV
AC Voltage Rating	4kV
Main Cover Sealing Type	Wire & Crimp on terminal cover Meter case sealed with screws
Integrity of meter	Inaccessible without breaking seals
Intended Location of the Meter	Indoor
Type of Register	LCD
Terminal Arrangement(s)	DIN
Location of Manufacturers Address	Associated documents

	EU-Type Examination Certificate Number:	
	0120/SGS0670	
	Issue Number: 2	Dated: 11 th June 2024

2. **Photograph of Meter and Sealing Plan**



Terminal cover sealing points



Meter case sealing point

3. Examples of Nameplates



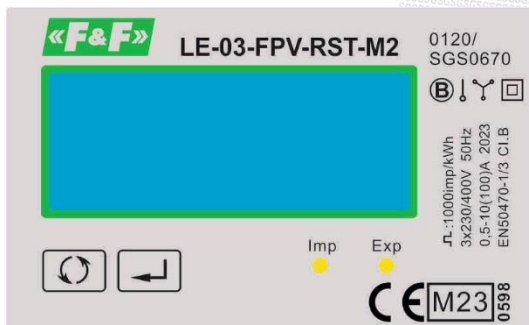
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EU-Type Examination Certificate Number:

0120/SGS0670

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	0120/SGS0670	
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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

1P2W Configuration

		Influence Factors for temperature, frequency and voltage							
Current	PF Cos	-40°C	-25°C	-10°C	5°C	30°C	40°C	55°C	70°C
I _{min}	1.0	0.10	0.11	0.11	0.07	0.08	0.12	0.17	0.21
I _{tr}	1.0	0.07	0.10	0.10	0.06	0.05	0.09	0.15	0.19
10I _{tr}	1.0	0.05	0.08	0.08	0.05	0.06	0.09	0.15	0.19
I _{max}	1.0	0.18	0.14	0.08	0.03	0.09	0.12	0.15	0.16
I _{tr}	0.5ind	0.12	0.13	0.12	0.07	0.07	0.11	0.15	0.19
10I _{tr}	0.5ind	0.05	0.08	0.08	0.05	0.07	0.10	0.15	0.18
I _{max}	0.5ind	0.11	0.07	0.02	0.07	0.17	0.20	0.22	0.22
I _{tr}	0.8cap	0.12	0.14	0.14	0.09	0.03	0.07	0.12	0.16
10I _{tr}	0.8cap	0.07	0.10	0.10	0.06	0.05	0.08	0.14	0.17
I _{max}	0.8cap	0.19	0.15	0.09	0.04	0.07	0.11	0.14	0.14



EU-Type Examination Certificate Number:

0120/SGS0670

Issue Number: 2

Dated: 11th June 2024**3P4W Configuration**

		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
I _{min}	1.0	0.08	0.32	0.24	0.15	0.12	0.15	0.26	0.70
I _{tr}	1.0	0.13	0.34	0.24	0.15	0.10	0.15	0.30	0.61
10I _{tr}	1.0	0.26	0.37	0.28	0.17	0.10	0.15	0.28	0.51
I _{max}	1.0	0.12	0.30	0.24	0.19	0.15	0.17	0.24	0.44
I _{tr}	0.5ind	0.26	0.51	0.45	0.37	0.30	0.30	0.36	0.59
10I _{tr}	0.5ind	0.34	0.40	0.32	0.25	0.18	0.22	0.32	0.43
I _{max}	0.5ind	0.45	0.66	0.62	0.58	0.52	0.51	0.50	0.40
I _{tr}	0.8cap	0.18	0.44	0.34	0.26	0.16	0.17	0.24	0.62
10I _{tr}	0.8cap	0.19	0.37	0.25	0.15	0.09	0.15	0.27	0.56
I _{max}	0.8cap	0.27	0.48	0.42	0.38	0.33	0.31	0.32	0.44
L1									
I _{tr}	1.0	0.19	0.37	0.33	0.29	0.26	0.28	0.38	0.93
10I _{tr}	1.0	0.08	0.30	0.21	0.15	0.10	0.17	0.29	1.09
I _{max}	1.0	0.29	0.23	0.18	0.17	0.11	0.14	0.23	1.09
I _{tr}	0.5ind	0.15	0.44	0.38	0.35	0.34	0.38	0.44	1.16
10I _{tr}	0.5ind	0.19	0.31	0.24	0.22	0.19	0.26	0.38	1.25
I _{max}	0.5ind	0.31	0.29	0.26	0.25	0.22	0.24	0.34	1.08
L2									
I _{tr}	1.0	0.21	0.61	0.61	0.61	0.61	0.61	0.61	0.68
10I _{tr}	1.0	0.11	0.19	0.19	0.19	0.19	0.19	0.20	0.49
I _{max}	1.0	0.30	0.16	0.14	0.12	0.12	0.12	0.12	0.50
I _{tr}	0.5ind	0.53	0.76	0.77	0.77	0.76	0.77	0.77	1.00
10I _{tr}	0.5ind	0.48	0.31	0.30	0.30	0.30	0.31	0.32	0.97
I _{max}	0.5ind	0.66	0.30	0.28	0.27	0.27	0.27	0.27	0.85
L3									
I _{tr}	1.0	0.46	0.80	0.52	0.38	0.27	0.37	0.54	0.17
10I _{tr}	1.0	0.70	0.86	0.64	0.50	0.42	0.48	0.63	0.14
I _{max}	1.0	0.71	1.09	0.97	0.90	0.87	0.89	0.95	0.68
I _{tr}	0.5ind	1.40	1.04	0.92	0.82	0.79	0.82	0.92	0.93
10I _{tr}	0.5ind	1.58	1.03	0.88	0.78	0.74	0.78	0.88	1.03
I _{max}	0.5ind	1.24	1.02	0.92	0.92	0.83	0.87	0.94	1.08

	EU-Type Examination Certificate Number:	
	0120/SGS0670	
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5. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
LE-03d	3x230/400V, 0.5-10(100)A or 0.5-10(80)A 1000imp/kWh or 100imp/kWh Shows only total active energy, without resettable kWh
WZE-3RST	3x230/400V, 0.5-10(100)A or 0.5-10(80)A 1000imp/kWh or 100imp/kWh Shows total active energy, resettable kWh, total active power
LE-03-FPV-RST-M1	230V or 3x230/400V, 0.5-10(100)A or 0.5-10(80)A 1000imp/kWh or 100imp/kWh Shows total active energy, total active power, import and export energy, resettable import and export energy. RS485 communication.
LE-03-FPV-RST-M2	230V or 3x230/400V, 0.5-10(100)A or 0.5-10(80)A 1000imp/kWh or 100imp/kWh Shows total active energy, total active power, import and export energy, resettable import and export energy, voltage, current, power factor, frequency and demand values. RS485 communication.
LE-03-FPV-RST	3x230/400V, 0.5-10(100)A or 0.5-10(80)A 1000imp/kWh or 100imp/kWh Shows total active energy, total active power, import and export energy, resettable import and export energy

Modifications to the meter(s) described according to approval No.**0120/SGS0670** 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	14/11/2023	Initial Issue
2	11/06/2024	Model name change from WZE-3-1 to LE-03d, Model name change from WZE-3-RST to WZE-3RST

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END OF CERTIFICATE