EU Type Examination Certificate Number: **0120/SGS0670**

# F&F Filipowski sp.k.

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

Instrument Identification:

**WZE-3-1, WZE-3-RST, 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 1

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

Authorised Signature

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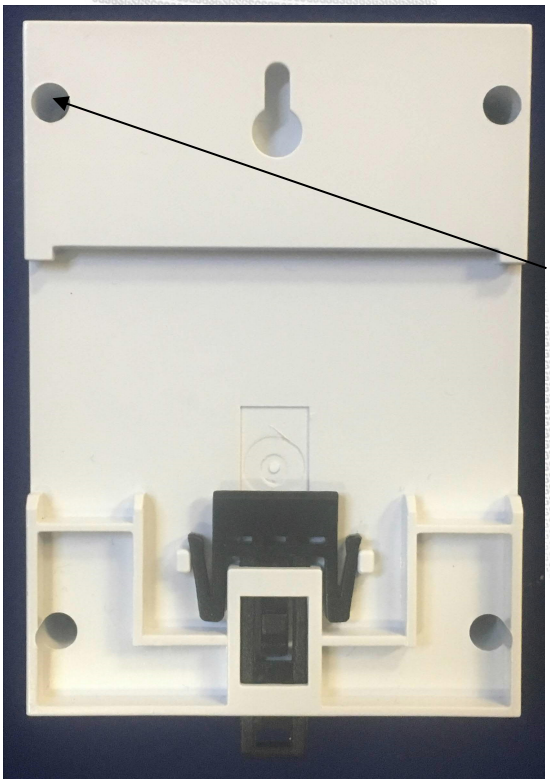
| | EU-Type Examination Certificate Number: | |
|---|---|---|
| | **0120/SGS0670** | |
| | Issue Number: 1 | Dated: 14th November 2023 |

## 1. Technical Data

| | |
|---|---|
| **Manufacturer** | F&F Filipowski sp.k. |
| **Meter Type** | WZE-3-1, WZE-3-RST, LE-03-FPV-RST, LE-03-FPV-RST-M1, LE-03-FPV-RST-M2 |
| **Voltage Rating *(Un)*** | 230V & 3 x 230/400V |
| **Current Rating *(Imin – Iref (Imax))*** | 0,5-10(100)A & 0.5-10(80)A |
| **Frequency *(Fn)*** | 50Hz |
| **Active Accuracy Class *(kWh)*** | B (kWh) |
| **Type of circuit** | 3p4w, 1p2w |
| **Temperature Range** | -40°C to +70°C |
| **Software/ Firmware Version No's**<br><br>**CRC Checksum No's**<br><br><br>**Identification Location** | WZE-3-1: V1.1 CRC: 0282<br>WZE-3-RST: V1.1 CRC: 0283<br>LE-03-FPV-RST: V1.1 CRC: 0284<br>LE-03-FPV-RST-M1: V1.3 CRC: 0388<br>LE-03-FPV-RST-M2: V1.3 CRC: 0388<br><br>Laser printed on meter case & LCD |
| **Bill Of Materials No's** | WZE-3-1: V1.2<br>WZE-3-RST: V1.2,<br>LE-03-FPV-RST: V1.2<br>LE-03-FPV-RST-M1: DH-JS-200010-1.2<br>LE-03-FPV-RST-M2: DH-JS-200010-1.2 |
| **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<br>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 |

## 2. Photograph of Meter and Sealing Plan

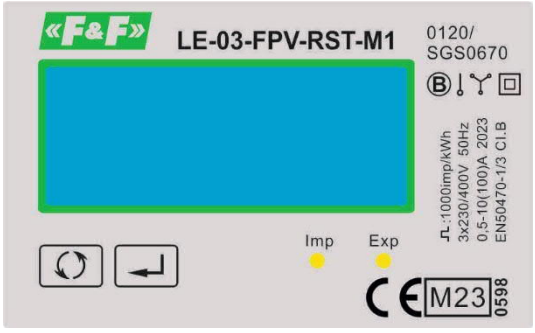



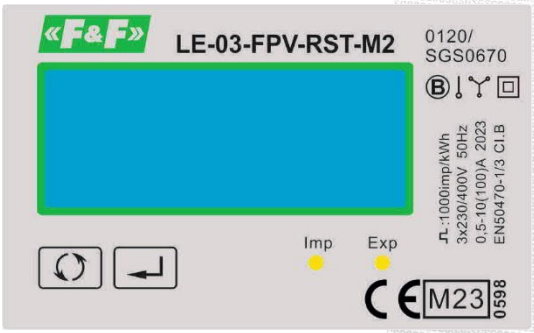
## 3. Examples of Nameplates











«F&F»
LE-03-FPV-RST-M2
0120/
SGS0670
Imp
Exp
1000imp/kWh
3x230/400V 50Hz
0,5-10(100)A 2023
EN50470-1/3 Cl.B
CE M23 0598


«F&F»
LE-03-FPV-RST-M2 0120/SGS0670
Three Phase Energy Meter
3x230/400V~ 0,5-10(100)A 50Hz 2023
1000imp/kWh EN50470-1/3 IP51 SW:V1.3 CAT III
CE M23 0598
3K6
F&F Filipowski sp.komandytowa
ul.Konstantynowska 79/81,95-200 Pabianice, Poland
www.fif.com.pl

## 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:-

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

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

**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 |
| Imin | 1.0 | *0.10* | *0.11* | *0.11* | *0.07* | *0.08* | *0.12* | *0.17* | *0.21* |
| Itr | 1.0 | *0.07* | *0.10* | *0.10* | *0.06* | *0.05* | *0.09* | *0.15* | *0.19* |
| 10Itr | 1.0 | *0.05* | *0.08* | *0.08* | *0.05* | *0.06* | *0.09* | *0.15* | *0.19* |
| Imax | 1.0 | *0.18* | *0.14* | *0.08* | *0.03* | *0.09* | *0.12* | *0.15* | *0.16* |
| | | | | | | | | | |
| Itr | 0.5ind | *0.12* | *0.13* | *0.12* | *0.07* | *0.07* | *0.11* | *0.15* | *0.19* |
| 10Itr | 0.5ind | *0.05* | *0.08* | *0.08* | *0.05* | *0.07* | *0.10* | *0.15* | *0.18* |
| Imax | 0.5ind | *0.11* | *0.07* | *0.02* | *0.07* | *0.17* | *0.20* | *0.22* | *0.22* |
| | | | | | | | | | |
| Itr | 0.8cap | *0.12* | *0.14* | *0.14* | *0.09* | *0.03* | *0.07* | *0.12* | *0.16* |
| 10Itr | 0.8cap | *0.07* | *0.10* | *0.10* | *0.06* | *0.05* | *0.08* | *0.14* | *0.17* |
| Imax | 0.8cap | *0.19* | *0.15* | *0.09* | *0.04* | *0.07* | *0.11* | *0.14* | *0.14* |

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

## 5. Annex of Variants

Product Variant Identification Details:

| Type Designation | Description of meter |
|---|---|
| WZE-3-1 | 3x230/400V, 0.5-10(100)A or 0.5-10(80)A<br>1000imp/kWh or 100imp/kWh<br>Shows only total active energy, without resettable kWh |
| WZE-3-RST | 3x230/400V, 0.5-10(100)A or 0.5-10(80)A<br>1000imp/kWh or 100imp/kWh<br>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<br>1000imp/kWh or 100imp/kWh<br>Shows total active energy, total active power, import and export energy, resettable import and export energy.<br>RS485 communication. |
| LE-03-FPV-RST-M2 | 230V or 3x230/400V, 0.5-10(100)A or 0.5-10(80)A<br>1000imp/kWh or 100imp/kWh<br>Shows total active energy, total active power, import and export energy, resettable import and export energy, voltage, current, power factor, frequency and demand values.<br>RS485 communication. |
| LE-03-FPV-RST | 3x230/400V, 0.5-10(100)A or 0.5-10(80)A<br>1000imp/kWh or 100imp/kWh<br>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).

## 6. Document Revision History

| Issue | Date | Comments |
|---|---|---|
| 1 | 14/11/2023 | Initial Issue |
| | | |
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***END OF CERTIFICATE***