



SGS

EC Type Examination Certificate Number: 0120/SGS0214

**F&F Filipowski sp.j.**

Ul. Konstantynowska 79/81  
Pabianice  
Poland

Instrument Identification:  
**LE-01 Series**

Instrument Traceable Number  
**0120/SGS0214**

Single Phase, Active Import/ Export (kWh), Multifunction, Indoor, Electricity Meter

has been assessed and certified as meeting the requirements of

**EC Directive 2004/22/EC**

**Measuring Instruments Annex 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 MI-003 of EC Directive 2004/22/EC

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

This certificate is valid from 17<sup>th</sup> December 2015 to 15<sup>th</sup> April 2025  
Issue 1

Certification is based on report number(s) SHES141200649301 dated 16<sup>th</sup> April 2015  
EMA202963 dated 16<sup>th</sup> April 2015  
EMA 217856 dated 17<sup>th</sup> December 2015

Authorised Signature

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EC Type Examination Cert



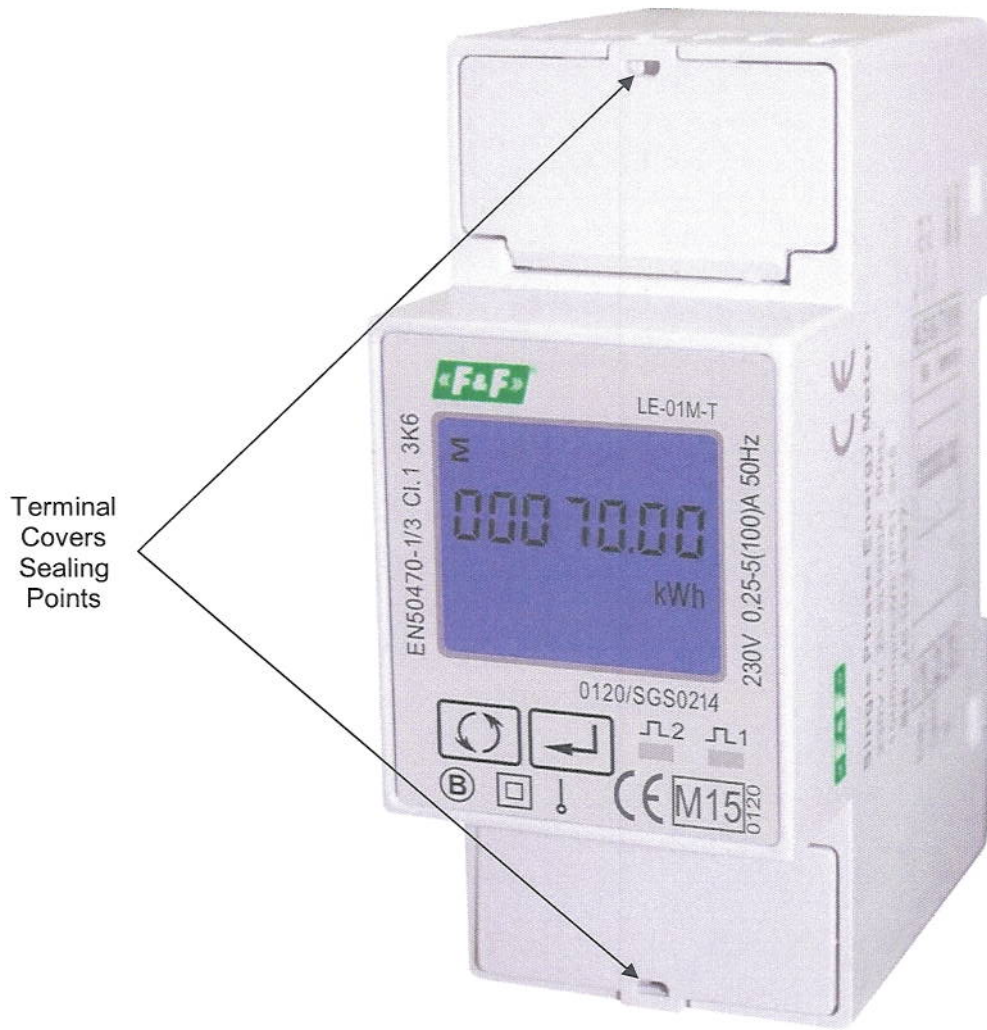
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	<b>0120/ SGS0214</b>	
	Issue Number: 1	Dated: 17 <sup>th</sup> December 2015

## 1. Technical Data

<b>Manufacturer</b>	F&F Filipowski sp.j.
<b>Meter Type(s)</b>	LE-01M-T LE-01MQ LE-01MB LE-01Q
<b>Voltage Rating (<math>U_n</math>)</b>	230V
<b>Current Rating (<math>I_{min} - I_{ref} (I_{max})</math>)</b>	0.25-5(100)A, 0.25-10(100)A
<b>Frequency (<math>F_n</math>)</b>	50Hz
<b>Active Accuracy Class (<math>kWh</math>)</b>	A or B ( $kWh$ )
<b>Type of circuit</b>	1p2w
<b>Temperature Range</b>	-25°C to +55°C
<b>Software Version No.</b>	V1.2
<b>Identification Location</b>	Nameplate
<b>Bill Of Materials No.'s</b>	20151210LE-01M-T 20151210LE-01MQ 20151210LE-01MB 20151210LE-01Q
<b>IP Rating</b>	IP51
<b>Insulation Protective Class</b>	Class II
<b>LED Pulse Constant</b>	1000imp/ kWh
<b>Impulse Voltage Rating</b>	6kV
<b>AC Voltage Rating</b>	4kV
<b>Main Cover Sealing Type</b>	4 clips one of which is ultrasonic welded
<b>Integrity of meter</b>	Inaccessible without breaking seals
<b>Intended Location of the Meter</b>	Indoor
<b>Type of Register</b>	LCD

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



**Photograph of LE-01M-T**

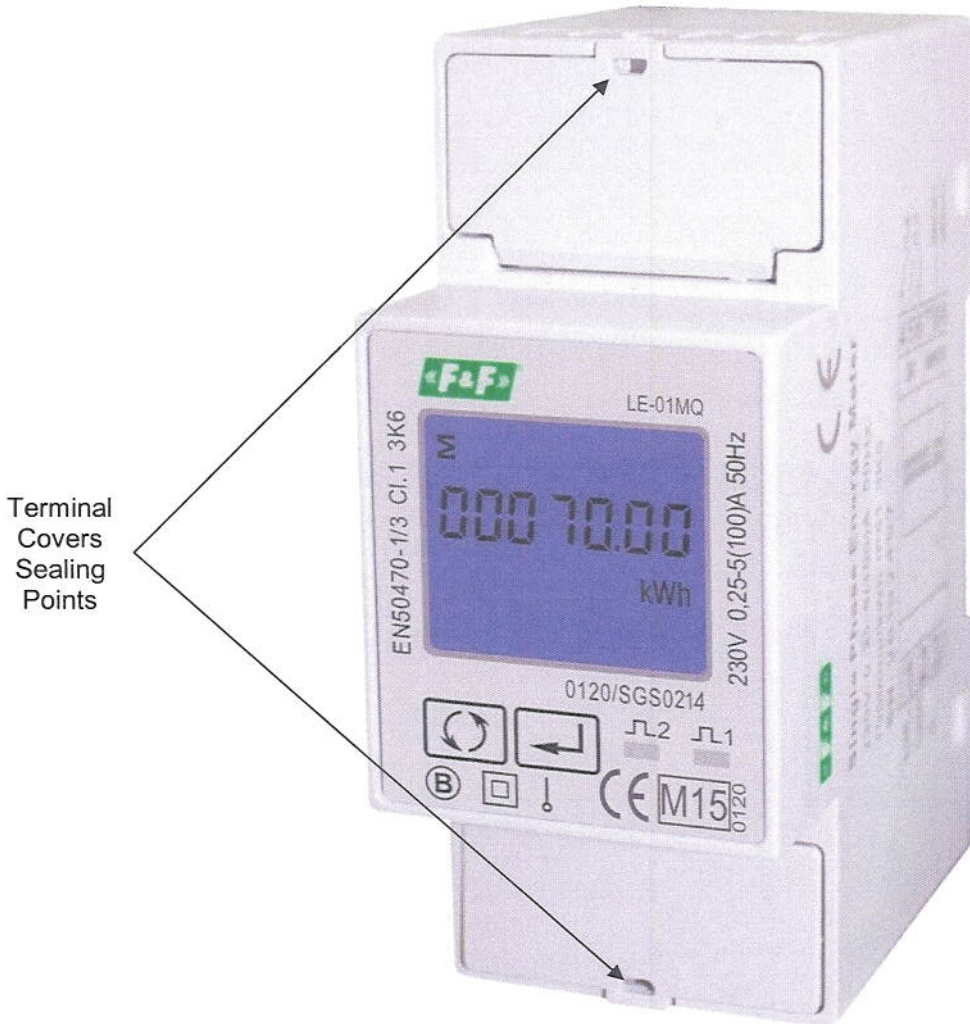
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**Photograph of LE-01MQ**

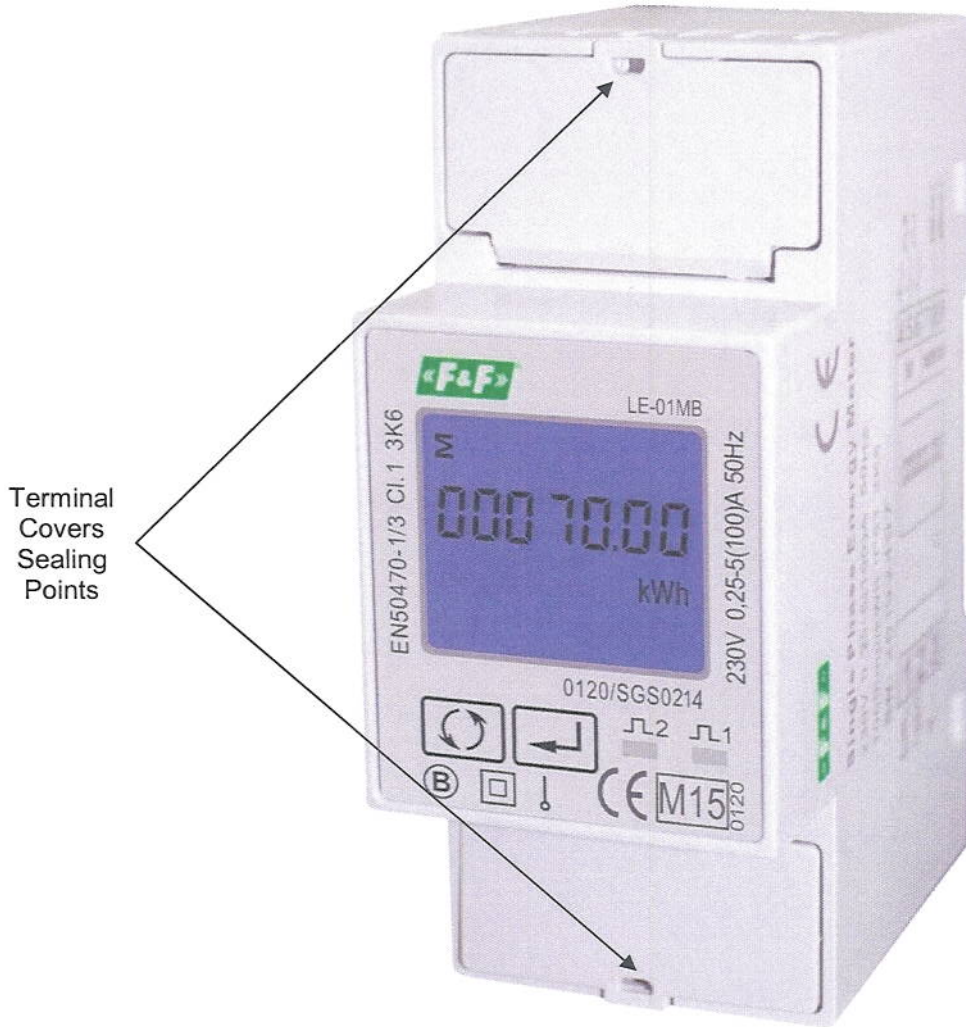
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**Photograph of LE-01MB**

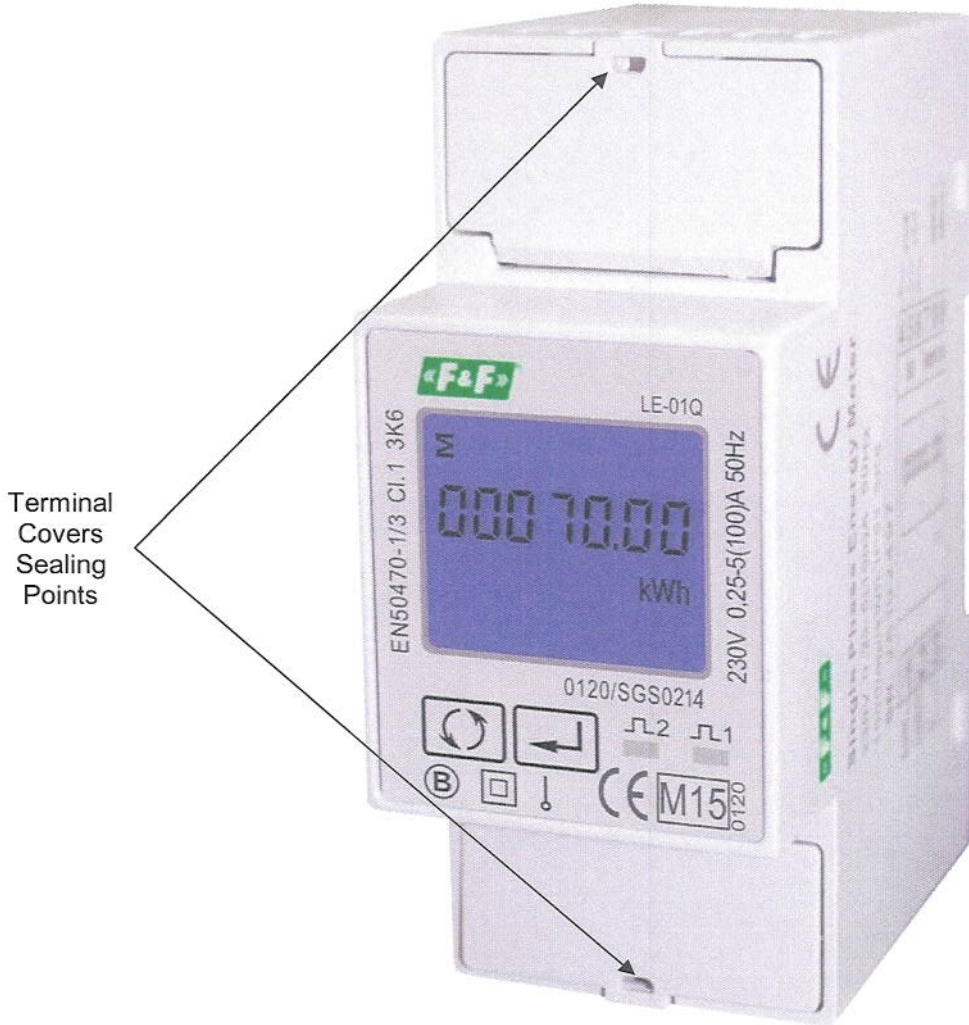
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**Photograph of LE-01Q**

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### 3. Influence factors for temperature, frequency and voltage


Current	PF Cos	-25	-10	5	30	40	55
I <sub>min</sub>	1.0	0.30	0.28	0.25	0.23	0.24	0.23
I <sub>tr</sub>	1.0	0.17	0.15	0.16	0.13	0.13	0.13
10I <sub>tr</sub>	1.0	0.07	0.08	0.08	0.05	0.07	0.10
I <sub>max</sub>	1.0	0.13	0.11	0.05	0.04	0.04	0.04
I <sub>tr</sub>	0.5ind	0.27	0.24	0.24	0.21	0.21	0.23
10I <sub>tr</sub>	0.5ind	0.16	0.16	0.17	0.16	0.16	0.17
I <sub>max</sub>	0.5ind	0.06	0.04	0.05	0.11	0.11	0.09
I <sub>tr</sub>	0.8cap	0.24	0.24	0.22	0.19	0.19	0.19
10I <sub>tr</sub>	0.8cap	0.06	0.07	0.07	0.05	0.07	0.08
I <sub>max</sub>	0.8cap	0.13	0.09	0.04	0.03	0.03	0.03

During the type approval examination the influence factors for temperature, frequency and voltage are determined per load point. The table above 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

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#### 4. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
LE-01M-T:	Multi tariff, single phase, multi function, RS485 Modbus
LE-01MQ:	Single tariff, single phase, multi function, RS485 Modbus
LE-01MB:	Single tariff, single phase, multi function, Mbus
LE-01Q:	Single tariff, single phase, multi function, pulse

Modifications to the meter(s) described according to approval No. **0120/ SGS0214** must be notified to the issuing body to confirm the meter(s) continuing compliance to the relevant pattern approval standard(s).

#### 5. Document Revision History

Issue	Date	Comments
1	17/12/2015	Initial Issue