



SGS

EC Type Examination Certificate Number: 0120/SGS0159

F&F Filipowski sp.j.

ul. Konatantynowska: 79/81
pabaince
Poland
95-200

Instrument Identification:

LE-01M MID

Single Phase, Active Import, Electricity Meter, With RS485 comms

Instrument Traceable Number

0120/SGS0105

has been assessed and certified as meeting the requirements of

EC Directive 2004/22/EC

on 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 for 10 years from 16th August 2012 until 15th August 2022

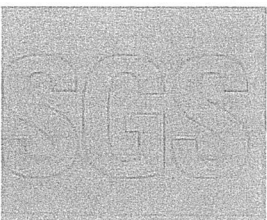
Issue 1

Certification is based on report number(s)
SHES1203000458MI Issue 15th August 2012

Authorised Signature

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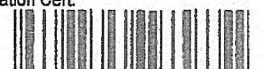
MID-B06E Rev 5


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EC Type Examination Cert

SGSPAPER

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	Issue Number: 1	Dated: 19 th May 2014

1. Technical Data

Manufacturer	F+F Filipowski
Meter Type	LE-01M MID
Voltage Rating (U_n)	230V
Current Rating (I_{min} – I_{ref} (I_{max}))	0,25-5(80)A
Frequency (F_n)	50Hz
Active Accuracy Class (kWh)	A or B (kWh)
Type of circuit	1p2w
Temperature Range	-25°C to +55°C
Software/ Firmware Version No Identification Location	V1.0 Nameplate
Bill Of Materials Number	DDS353B BOM Rev 1
IP Rating	IP51
Insulation Protective Class	Class II
LED Pulse Constant	1600 imp/ kWh
Impulse Voltage Rating	6kV
AC Voltage Rating	4kV
Main Cover Sealing Type	Wire & Crimp & Sticker
Integrity of meter	Inaccessible without breaking seals
Intended Location of the Meter	Indoor
Type of Register	LCD
Terminal Arrangement(s)	DIN

SGS

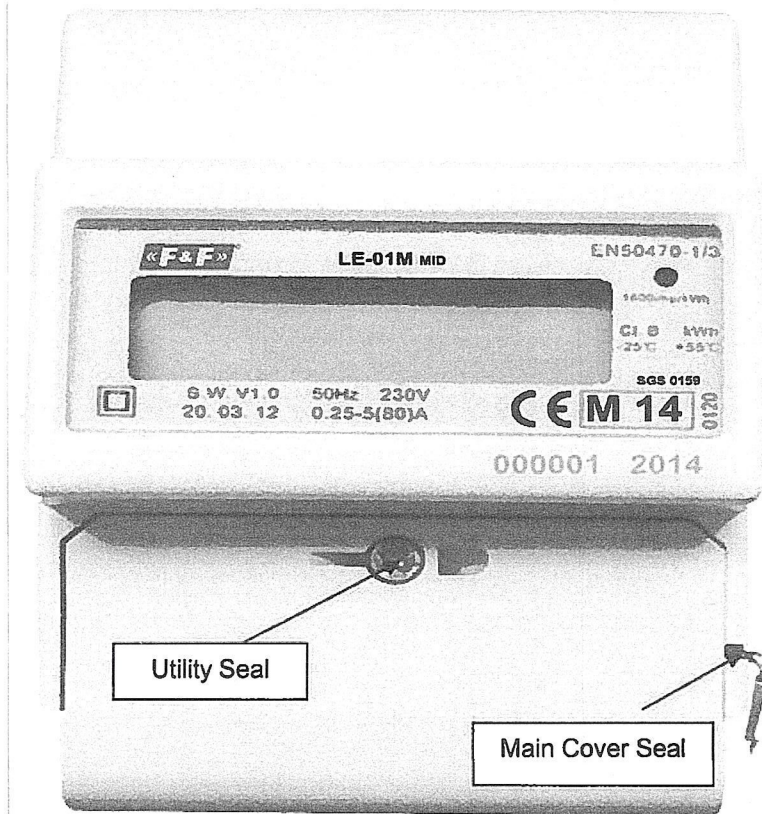
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2. Photograph of Meter and Sealing Plan



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3. Calculation of the composite error/ MPE

In addition to the accuracy requirements the composite error e_c of the meter is shown below

The composite error at a certain load is calculated from the following formula:

$$e_c = \sqrt{e^2(l.\cos\theta) + e^2(T.l.\cos\theta) + e^2(U.l.\cos\theta) + e^2(f.l.\cos\theta)}$$

where

$e^2(l.\cos\theta)$	=	Intrinsic error of meter at a certain load
$e^2(T.l.\cos\theta)$	=	Additional error due to variation of the temperature at the same load
$e^2(U.l.\cos\theta)$	=	Additional error due to variation of the voltage at the same load
$e^2(f.l.\cos\theta)$	=	Additional error due to variation of the frequency at the same load

Ambient Temperature Range 5 to 30 Degrees C						
Current	PF Cos	e(lcos)	e(Tlcos)	e(Ulcos)	e(flcos)	%MPE
lmin	1.0	0.00	0.46	0.02	0.01	0.46
ltr	1.0	0.03	0.33	0.02	0.09	0.34
10ltr	1.0	0.09	0.29	-0.02	-0.08	0.31
lmax	1.0	0.07	0.33	-0.03	-0.07	0.35
ltr	0.5ind	0.32	-0.03	-0.11	-0.13	0.36
10ltr	0.5ind	0.39	-0.05	0.01	-0.09	0.40
lmax	0.5ind	0.26	0.09	0.02	-0.10	0.29
ltr	0.8cap	-0.03	0.45	0.01	-0.06	0.46
10ltr	0.8cap	0.03	0.34	-0.02	-0.06	0.35
lmax	0.8cap	-0.10	0.34	-0.01	-0.05	0.36

Ambient Temperature Range -10 to 40 Degrees C						
Current	PF Cos	e(lcos)	e(Tlcos)	e(Ulcos)	e(flcos)	%MPE
lmin	1.0	0.00	0.46	0.02	0.01	0.46
ltr	1.0	0.03	0.33	0.02	0.09	0.34
10ltr	1.0	0.09	0.34	-0.02	-0.08	0.36
lmax	1.0	0.07	0.34	-0.03	-0.07	0.36
ltr	0.5ind	0.32	-0.37	-0.11	-0.13	0.52
10ltr	0.5ind	0.39	-0.29	0.01	-0.09	0.49
lmax	0.5ind	0.26	-0.19	0.02	-0.10	0.34
ltr	0.8cap	-0.03	0.45	0.01	-0.06	0.46
10ltr	0.8cap	0.03	0.40	-0.02	-0.06	0.41
lmax	0.8cap	-0.10	0.45	-0.01	-0.05	0.46



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Ambient Temperature Range -25 to 55 Degrees C						
Current	PF Cos	e(lcos)	e(Tlcos)	e(Ulcos)	e(flcos)	%MPE
Imin	1.0	0.00	0.48	0.02	0.01	0.48
Itr	1.0	0.03	0.32	0.02	0.09	0.33
10ltr	1.0	0.09	0.34	-0.02	-0.08	0.36
Imax	1.0	0.07	0.34	-0.03	-0.07	0.36
Itr	0.5ind	0.32	-0.51	-0.11	-0.13	0.63
10ltr	0.5ind	0.39	-0.37	0.01	-0.09	0.55
Imax	0.5ind	0.26	-0.19	0.02	-0.10	0.34
Itr	0.8cap	-0.03	0.46	0.01	-0.06	0.46
10ltr	0.8cap	0.03	0.4	-0.02	-0.06	0.41
Imax	0.8cap	-0.10	0.45	-0.01	-0.05	0.46

4. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
LE-01M MID 0,25-5(80)A - Single Phase, Active Import, Electricity Meter, With RS485 comms	

Modifications to the meter(s) described according to approval No.0120/ SGS0159 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	19/05/14	Initial Issue