



EC Type Examination Certificate Number: **0120/ SGS0103**

EM-Lite Limited

10 Reynolds Business Park
Stevern Way
Peterborough
Cambridgeshire
PE1 5EL

Instrument Identification:

ECA2.*

Single Phase, Active Import/ Export, Electricity Meter

Instrument Traceable Number

0120/ SGS0103

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 from 18th June 2012 to 17th June 2022
Issue 4


Certification is based on report number(s)
EMA157563/1

Authorised Signature

Jan Saunders


SGS United Kingdom Limited, Notified Body 0120
Unit 202B Worle Parkway, Weston-super-Mare, BS22 6WA, UK
t +44 (0)1934 522917 f +44 (0)1934 522137 www.sgs.com

Contact Address
SGS United Kingdom Ltd, Unit 10, South Industrial Estate, Bowburn, Durham, DH6 5A, UK
t +44 (0)191 377 2000 f +44 (0)191 377 2020 www.sgs.com

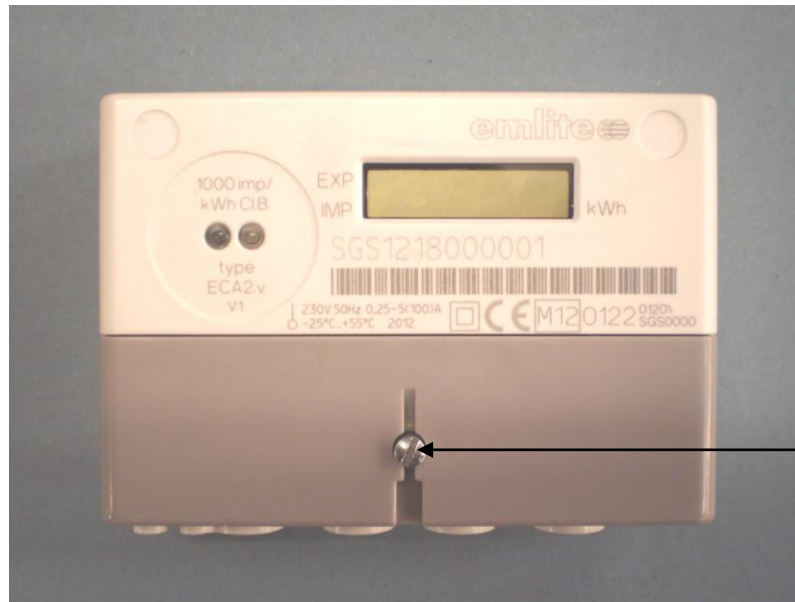
	EC-Type Examination Certificate Number:	
	0120/ SGS0103	
	Issue Number: 4	Dated: 26 th November 2014


1. Technical Data

Manufacturer	EM-Lite Ltd
Meter Type	ECA2.*
Voltage Rating (U_n)	220V – 240V
Current Rating (I_{min} – I_{ref} (I_{max}))	0,25-5(100) 0,5-10(100) 0,75-15(100) 1-20(100)
Frequency (F_n)	50Hz
Active Accuracy Class (kWh)	A or B (kWh)
Type of circuit	1p2w
Temperature Range	-40°C to +70°C
Firmware Version No	V1.01-5 Checksum 50787 V1.01-6 Checksum 50814
Identification Location	LCD
Bill Of Materials Number's	ECA2.z ECA2-4001- 02 REV A ECA2.v ECA2-4002-02 REV A
IP Rating	IP52
Insulation Protective Class	Class II
LED Pulse Constant	1000 imp/kWh
Impulse Voltage Rating	6kV
AC Voltage Rating	4kV
Terminal Cover Sealing Type	Wire & Crimp
Main Cover Sealing Type	Press Fit Non-removable Lasered Plastic Seals
Integrity of meter	Inaccessible without breaking seals
Intended Location of the Meter	Indoor
Type of Register	LCD
Terminal Arrangement(s)	BS

	EC-Type Examination Certificate Number:	
	0120/ SGS0103	
	Issue Number: 4	Dated: 26 th November 2014

2. Photograph of Meter and Sealing Plan



	EC-Type Examination Certificate Number:	
	0120/ SGS0103	
	Issue Number: 4	Dated: 26 th November 2014

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° C						
Current	PF Cos	e(lcos)	e(Tlcos)	e(Ulcos)	e(flcos)	%MPE
Imin	1.0	0.04	-0.38	0.40	-0.05	0.56
Itr	1.0	0.02	-0.16	0.21	0.01	0.26
10Itr	1.0	0.13	-0.01	-0.06	0.02	0.14
I _{max}	1.0	-0.09	0.07	0.06	0.03	0.13
Itr	0.5ind	-0.25	-0.41	0.35	-0.12	0.61
10Itr	0.5ind	0.10	-0.07	-0.09	0.10	0.18
I _{max}	0.5ind	-0.20	0.11	0.12	0.10	0.28
Itr	0.8cap	0.11	-0.2	0.25	0.05	0.34
10Itr	0.8cap	0.25	0.03	-0.10	-0.02	0.27
I _{max}	0.8cap	-0.11	0.12	0.13	0.12	0.24


Ambient Temperature Range -10° to 40° C						
Current	PF Cos	e(lcos)	e(Tlcos)	e(Ulcos)	e(flcos)	%MPE
Imin	1.0	0.04	-0.65	0.40	-0.05	0.77
Itr	1.0	0.02	-0.34	-0.18	0.01	0.39
10Itr	1.0	0.13	-0.05	-0.12	0.02	0.18
I _{max}	1.0	-0.09	-0.1	-0.10	0.03	0.17
Itr	0.5ind	-0.25	-0.75	0.37	-0.12	0.88
10Itr	0.5ind	0.10	-0.13	0.17	0.10	0.26
I _{max}	0.5ind	-0.20	-0.11	0.26	0.10	0.36
Itr	0.8cap	0.11	-0.29	-0.22	0.05	0.38
10Itr	0.8cap	0.25	-0.03	0.13	-0.02	0.28
I _{max}	0.8cap	-0.11	0.12	-0.11	0.12	0.23

	EC-Type Examination Certificate Number:	
	0120/ SGS0103	
	Issue Number: 4	Dated: 26 th November 2014

Calculation of the composite error/ MPE (cont)

Ambient Temperature Range -25° to 55° C						
Current	PF Cos	e(lcos)	e(Tlcos)	e(Ulcos)	e(flcos)	%MPE
Imin	1.0	0.04	-0.86	0.40	-0.05	0.95
Itr	1.0	0.02	-0.49	-0.18	0.01	0.52
10ltr	1.0	0.13	-0.12	-0.12	0.02	0.21
I _{max}	1.0	-0.09	-0.17	-0.10	0.03	0.22
Itr	0.5ind	-0.25	-0.98	0.37	-0.12	1.08
10ltr	0.5ind	0.10	-0.21	0.17	0.10	0.30
I _{max}	0.5ind	-0.20	-0.23	0.26	0.10	0.41
Itr	0.8cap	0.11	-0.52	-0.22	0.05	0.58
10ltr	0.8cap	0.25	-0.11	0.13	-0.02	0.30
I _{max}	0.8cap	-0.11	-0.08	-0.11	0.12	0.21

Ambient Temperature Range -40° to 70° C						
Current	PF Cos	e(lcos)	e(Tlcos)	e(Ulcos)	e(flcos)	%MPE
Imin	1.0	0.04	1.29	0.40	-0.05	1.35
Itr	1.0	0.02	-0.6	0.06	0.01	0.60
10ltr	1.0	0.13	-0.18	0.07	0.02	0.23
I _{max}	1.0	-0.09	-0.29	0.08	0.03	0.32
Itr	0.5ind	-0.25	1.26	0.01	-0.12	1.29
10ltr	0.5ind	0.10	-0.34	-0.05	0.10	0.37
I _{max}	0.5ind	-0.20	-0.36	-0.06	0.10	0.43
Itr	0.8cap	0.11	0.71	0.03	0.05	0.72
10ltr	0.8cap	0.25	-0.17	-0.03	-0.02	0.30
I _{max}	0.8cap	-0.11	-0.2	-0.06	0.12	0.26

	EC-Type Examination Certificate Number:	
	0120/ SGS0103	
	Issue Number: 4	Dated: 26 th November 2014

4. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
ECA2.z	4 terminal basic variant, no auxiliary connections
ECA2.v	4 terminal with electronic pulsed output variant

Modifications to the meter(s) described according to approval No. **0120/ SGS0103** 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	18/06/2012	Initial issue
2	17/07/2012	Minor PCB change
3	11/03/2013	Minor software update with checksums included V1.01-5 Checksum 50787 and V1.01-6 Checksum 50814
4	26/11/2014	Address typo correction