EC Type Examination Certificate Number: **0120/ SGS0100**

Secure Meters (UK) Ltd

Secure House
Lulworth Close
Chandlers Ford
Eastleigh
SO53 3TL

Instrument Identification:
Liberty 100 & 140
Smart, Single Phase, Electricity Meter

Instrument Traceable Number
0120/ SGS0100
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 until 5th August 2022
Issue 10

Certification is based on report number(s)
EMA163717/1 dated 6th August 2012, EMA201664/1 dated 13th April 2015

Authorised Signature

Heather Crick

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 12, South Industrial Estate, Bowburn, Durham, DH6 5AD, UK
t +44 (0)191 377 2000 f +44 (0)191 377 2020 www.sgs.com

	EC-Type Examination Certificate Number:	
	0120/ SGS0100	
	Issue Number: 10	Dated: 6th June 2019

1. Technical Data

Manufacturer	Secure Meters (UK) Limited
Meter Type(s)	E1S0*1
Voltage Rating *(Un)*	230V
Current Rating *(Imin – Iref (Imax))*	0,5-10(100)A
Frequency *(Fn)*	50Hz
Active Accuracy Class *(kWh)*	A or B (kWh)
Type of circuit	1p2w
Temperature Range	-25°C to +55°C
Firmware/ Application Program No. **Identification Location**	B200 P4O1G03 LCD and Nameplate
Bill Of Materials Number(s)	Top Level BOM: E1S0B1-Z00-R009 PCB BOM (No AUX Output): BPX101-628-R006 PCB BOM (AUX Output): BPX101-764-R002 PCB BOM (Option 1. Zigbee + GPRS} BGS2 HUB: BPX101-765-R001 PCB BOM (Option 1. Zigbee + GPRS} Sierra HUB: BPX101-626-R003 Top Level BOM: E1S0B1-001-R004 PCB BOM (Option 5. DLC) HUB: BPX101-662-R003
IP Rating	IP51
Insulation Protective Class	Class II
LED Pulse Constant	3200 imp/ kWh
Impulse Voltage Rating	6kV
AC Voltage Rating	4kV
Main Cover Sealing Type	Tamper Proof Cap x 1 Wire & Crimp x 1
Integrity of meter	Inaccessible without breaking seals
Intended Location of the Meter	Indoor
Type of Register	LCD

2. Photograph of Meter and Sealing Plan

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

where

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

Ambient Temperature Range 5 to 30 Degrees C						
Current	**PF Cos**	**e(Icos)**	**e(TIcos)**	**e(UIcos)**	**e(fIcos)**	**%MPE**
Imin	1.0	-0.26	0.95	0.01	-0.01	***0.99***
Itr	1.0	-0.25	0.55	0.01	-0.01	***0.60***
10Itr	1.0	-0.25	0.4	-0.01	-0.02	***0.47***
Imax	1.0	-0.07	0.5	0.03	0.03	***0.51***
Itr	0.5ind	-0.09	1.03	0.03	0.07	***1.04***
10Itr	0.5ind	-0.11	0.7	-0.01	-0.04	***0.71***
Imax	0.5ind	0.15	0.53	0.11	0.14	***0.58***
Itr	0.8cap	-0.26	0.46	0.01	0.04	***0.53***
10Itr	0.8cap	-0.30	0.2	-0.02	-0.05	***0.36***
Imax	0.8cap	-0.02	0.18	0.11	0.14	***0.25***

Ambient Temperature Range -10 to 40 Degrees C						
Current	**PF Cos**	**e(Icos)**	**e(TIcos)**	**e(UIcos)**	**e(fIcos)**	**%MPE**
Imin	1.0	-0.24	1.11	-0.24	-0.06	***1.16***
Itr	1.0	-0.05	0.72	-0.18	0.03	***0.74***
10Itr	1.0	-0.02	0.57	-0.12	-0.03	***0.58***
Imax	1.0	-0.01	0.64	-0.10	-0.03	***0.65***
Itr	0.5ind	0.17	1.5	0.37	-0.33	***1.59***
10Itr	0.5ind	0.04	0.88	0.17	-0.37	***0.97***
Imax	0.5ind	0.33	0.68	0.26	0.46	***0.92***
Itr	0.8cap	-0.11	0.63	-0.22	0.22	***0.71***
10Itr	0.8cap	-0.04	0.38	0.13	0.20	***0.45***
Imax	0.8cap	-0.10	0.32	-0.11	0.15	***0.38***

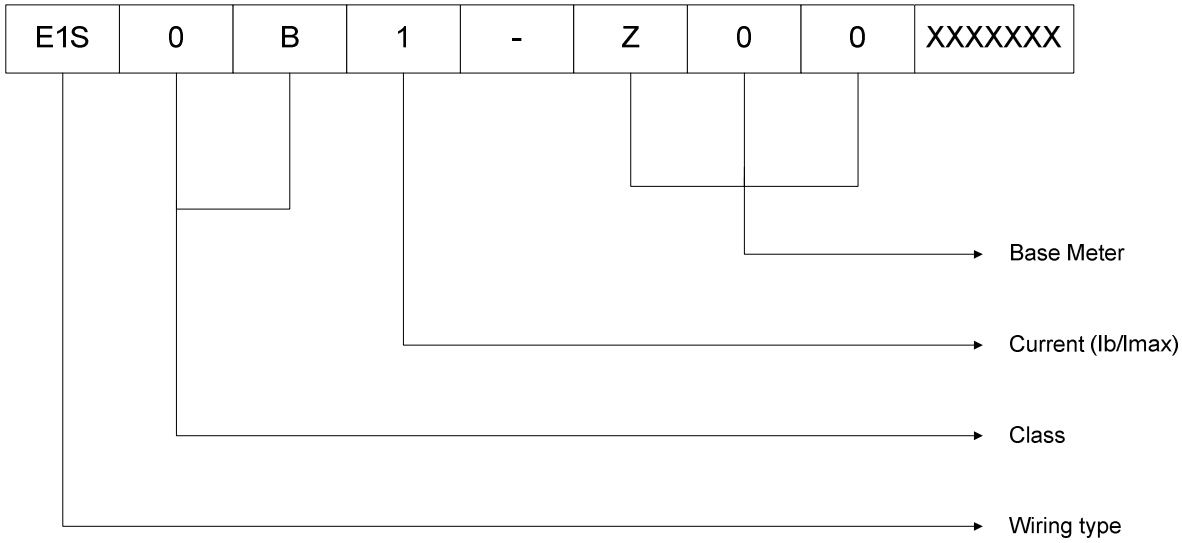
Ambient Temperature Range -25 to 55 Degrees C						
Current	**PF Cos**	**e(Icos)**	**e(TIcos)**	**e(UIcos)**	**e(fIcos)**	**%MPE**
Imin	1.0	-0.24	1.26	-0.24	-0.06	***1.31***
Itr	1.0	-0.05	0.87	-0.18	0.03	***0.89***
10Itr	1.0	-0.02	0.73	-0.12	-0.03	***0.74***
Imax	1.0	-0.01	0.77	-0.10	-0.03	***0.78***
Itr	0.5ind	0.17	1.66	0.37	-0.33	***1.74***
10Itr	0.5ind	0.04	1.04	0.17	-0.37	***1.12***
Imax	0.5ind	0.33	0.8	0.26	0.46	***1.01***
Itr	0.8cap	-0.11	0.79	-0.22	0.22	***0.86***
10Itr	0.8cap	-0.04	0.54	0.13	0.20	***0.59***
Imax	0.8cap	-0.10	0.45	-0.11	0.15	***0.50***

Results taken from:-

Report: EMA163717/1 Dated: 6th August 2012 Sample: D2776607

4. Annex of Variants

Product Variant Identification Details:



Wiring Type:
E1S: 230 V P-N 1P 2W

Class:
0A: Class A (MID)
0B: Class B (MID)

Current (Ib/Imax):
1: 10/100A

Base Meter:
Z00: DLC feed-through for load side
001: DLC feed-through for supply side
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XXXXXXX-Factory configurable features

Factory Configuration Features	
MODULAR COMMUNICATIONS *	CONFIGURABLE
FRONT COVER OPENING DETECTION	CONFIGURABLE
TERMINAL COVER OPENING DETECTION	CONFIGURABLE
COMMUNICATION MODULE OPEN DETECTION	CONFIGURABLE
MAGNET SENSING	CONFIGURABLE
AUXILIARY OUTPUT	CONFIGURABLE

MODULAR COMMUNICATIONS *	OPTIONAL COMMUNICATION MODULE
LIBERTY 100	1. ZIGBEE-GPRS
LIBERTY 100	2. DLC-GPRS
LIBERTY 100	3. ZIGBEE-MESH RADIO
LIBERTY 100	4. ZIGBEE-low power Radio
LIBERTY 100 LIBERTY 140	5. DLC

Modifications to the meter(s) described according to approval No.**0120/ SGS0100** 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	06/08/2012	Initial Issue
2	24/04/2013	Minor modification to hardware. Metrology unaffected.
3	07/07/2014	PCB track change to allow connection of PLC signal.
4	03/09/2014	Auxiliary output option.
5	06/10/2016	New software and BOM revisions
6	14/11/2016	New model Liberty 140 added to approval, with Modular communications Option 5 (DLC)
7	27/02/2017	Change of BOM numbers
8	30/10/2017	Minor PCB and battery track change, removal of unnecessary components and assemblies
9	15/12/2017	Minor non-metrology software change
10	06/6/2019	Change of manufacturer's address

**** End of Document ****