EC Type Examination Certificate Number: **0120/ SGS0055**

GE Energy

130 Main Street
Somersworth
NH 03878
USA

Instrument Identification:
SM1011 & SM1012
Single Phase, Credit/ Pre-payement, Import/ Export, Multi-rate, Electricity Meter

Instrument Traceable Number
0120/ SGS0055
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 30th April 2010 until 29th April 2020
Issue 7

Certification is based on report number(s)
EMA131254 Issued 30th April 2010
EMA141888 Issued 20th December 2010
EMA143939 Issued 29th March 2011
EMA146152 Issued 4th April 2011
EMA150814 Issued 19th January 2012

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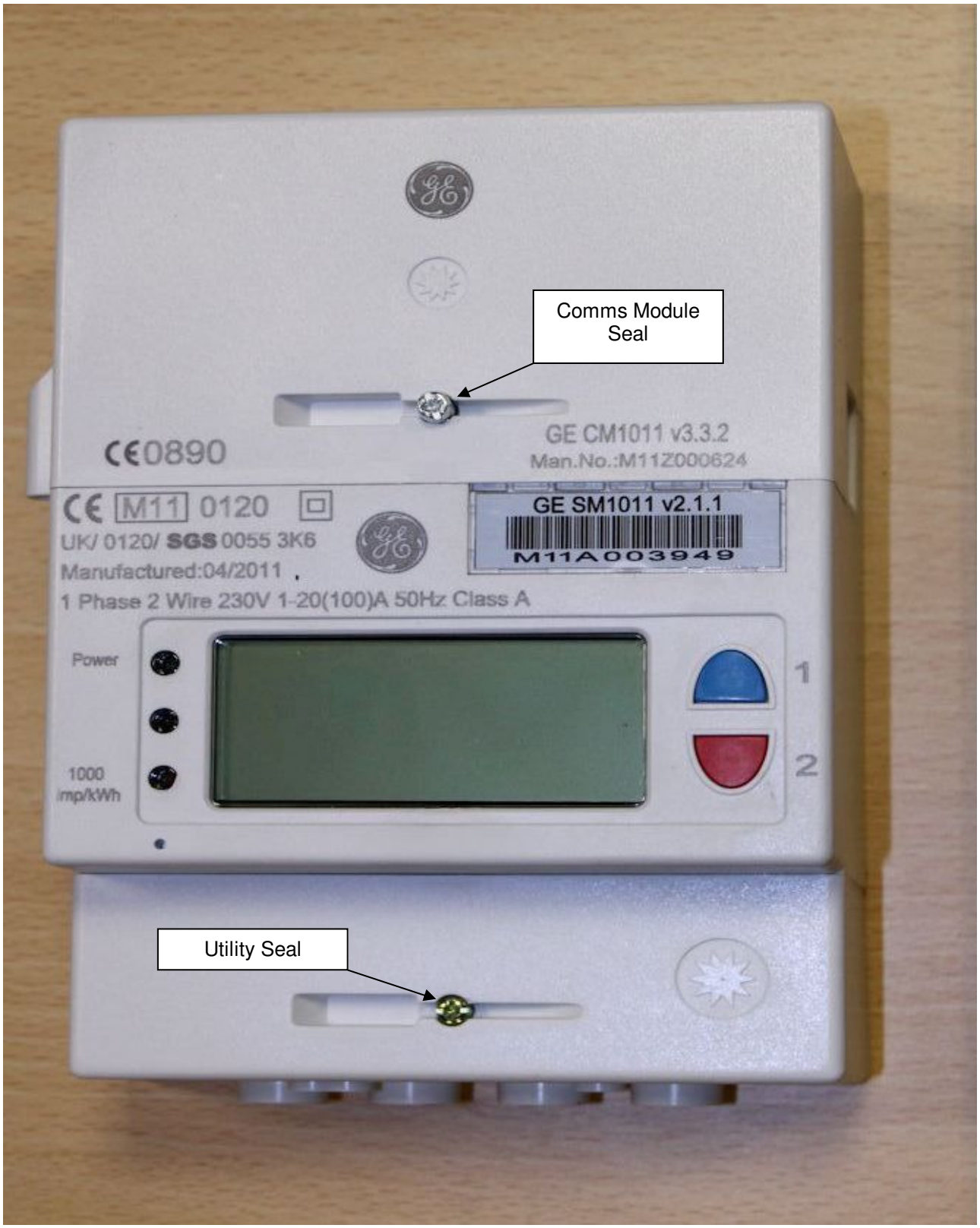
	EC-Type Examination Certificate Number:	
	0120/ SGS0055	
	Issue Number: 7	Dated: 25th July 2012

1. Technical Data

Manufacturer	GE Energy
Meter Type	SM1011 & SM1012
Voltage Rating *(Un)*	230V
Current Rating *(Imin – Iref (Imax))*	1-20(100)A
Frequency *(Fn)*	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** **Hardware Version No** **Identification Location**	2.3.5 or 2.4.0 or 2.4.0.04 LCD 2.1.0 or 2.1.1 Nameplate
Bill Of Materials Number	BOM v2.1.1 r01
IP Rating	IP51
Insulation Protective Class	Class II
LED Pulse Constant	1000 imp/ kWh
Impulse Voltage Rating	6kV
AC Voltage Rating	4kV
Main Cover Sealing Type	Sealed for life Ultrasonic Welding
Integrity of meter	Inaccessible without breaking seals
Intended Location of the Meter	Indoor
Type of Register	LCD
Terminal Arrangement(s)	BS

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	*0.13*	0.48	*0.12*	*0.14*	***0.53***
Itr	1.0	*0.27*	-0.09	*0.06*	*0.06*	***0.30***
10Itr	1.0	*0.18*	-0.45	*0.07*	*0.02*	***0.49***
Imax	1.0	*-0.04*	-0.48	*0.08*	*0.02*	***0.49***
Itr	0.5ind	*0.11*	-1.13	*0.01*	*-0.04*	***1.14***
10Itr	0.5ind	*0.27*	-0.53	*-0.05*	*0.1*	***0.61***
Imax	0.5ind	*0.21*	-0.62	*-0.06*	*-0.2*	***0.69***
Itr	0.8cap	*0.09*	-0.83	*0.03*	*0.07*	***0.84***
10Itr	0.8cap	*0.1*	-0.52	*-0.03*	*0.03*	***0.53***
Imax	0.8cap	*-0.18*	-0.57	*-0.06*	*-0.03*	***0.60***

Ambient Temperature Range -10 to 40 Degrees C						
Current	**PF Cos**	**e(Icos)**	**e(TIcos)**	**e(UIcos)**	**e(fIcos)**	**%MPE**
Imin	1.0	*0.13*	-1.48	*0.12*	*0.14*	***1.50***
Itr	1.0	*0.27*	-1.22	*0.06*	*0.06*	***1.25***
10Itr	1.0	*0.18*	-0.93	*0.07*	*0.02*	***0.95***
Imax	1.0	*-0.04*	-1.34	*0.08*	*0.02*	***1.34***
Itr	0.5ind	*0.11*	-1.55	*0.01*	*-0.04*	***1.55***
10Itr	0.5ind	*0.27*	-1.43	*-0.05*	*0.1*	***1.46***
Imax	0.5ind	*0.21*	-1.24	*-0.06*	*-0.2*	***1.27***
Itr	0.8cap	*0.09*	-1.22	*0.03*	*0.07*	***1.23***
10Itr	0.8cap	*0.1*	-0.88	*-0.03*	*0.03*	***0.89***
Imax	0.8cap	*-0.18*	-1.10	*-0.06*	*-0.03*	***1.12***

Ambient Temperature Range -25 to 55 Degrees C						
Current	**PF Cos**	**e(Icos)**	**e(TIcos)**	**e(UIcos)**	**e(fIcos)**	**%MPE**
Imin	1.0	*0.13*	-2.23	*0.12*	*0.14*	***2.24***
Itr	1.0	*0.27*	-1.81	*0.06*	*0.06*	***1.83***
10Itr	1.0	*0.18*	-1.48	*0.07*	*0.02*	***1.49***
Imax	1.0	*-0.04*	-1.94	*0.08*	*0.02*	***1.94***
Itr	0.5ind	*0.11*	-2.19	*0.01*	*-0.04*	***2.19***
10Itr	0.5ind	*0.27*	-1.92	*-0.05*	*0.1*	***1.94***
Imax	0.5ind	*0.21*	-1.79	*-0.06*	*-0.2*	***1.81***
Itr	0.8cap	*0.09*	-1.88	*0.03*	*0.07*	***1.88***
10Itr	0.8cap	*0.1*	-1.37	*-0.03*	*0.03*	***1.37***
Imax	0.8cap	*-0.18*	-1.68	*-0.06*	*-0.03*	***1.69***

Ambient Temperature Range -40 to 70 Degrees C (OUTDOOR ONLY)						
Current	**PF Cos**	**e(Icos)**	**e(TIcos)**	**e(UIcos)**	**e(fIcos)**	**%MPE**
Imin	1.0	*0.13*	2.69	*0.12*	*0.14*	***2.70***
Itr	1.0	*0.27*	-2.19	*0.06*	*0.06*	***2.21***
10Itr	1.0	*0.18*	-1.79	*0.07*	*0.02*	***1.80***
Imax	1.0	*-0.04*	-2.34	*0.08*	*0.02*	***2.34***
Itr	0.5ind	*0.11*	-2.74	*0.01*	*-0.04*	***2.74***
10Itr	0.5ind	*0.27*	-2.31	*-0.05*	*0.1*	***2.33***
Imax	0.5ind	*0.21*	-2.22	*-0.06*	*-0.2*	***2.24***
Itr	0.8cap	*0.09*	-2.35	*0.03*	*0.07*	***2.35***
10Itr	0.8cap	*0.1*	-1.73	*-0.03*	*0.03*	***1.73***
Imax	0.8cap	*-0.18*	-2.13	*-0.06*	*-0.03*	***2.14***

Taken from report EMA146152 Issued 4th April 2011

4. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter

SM1011 – Meter with internal 100A relay

SM1012 – Meter with internal 100A relay with optional auxiliary 2A relay

with communication output for optional use of communication module:-

CM1011 Zigbee & GPRS Comms Module

or

CM1001 GPRS only Comms Module

Modifications to the meter(s) described according to approval No.**0120**/ **SGS0055** 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	30/04/2010	Initial Issue
2	14/12/2010	Software update to 2.02.02.27, Firmware update to 2.0.07.
3	18/01/2011	Certificate updated for Manufacturer and Meter Type change to GE Energy SM1001
4	29/03/2011	New Firmware and Hardware updated to 2.3.5 and 2.1.00 respectively, meeting Class B accuracy requirements.
5	06/04/2011	New Firmware and Hardware updated to 2.4.0 and 2.1.1 respectively.
6	19/01/2012	New comms module options of CM1001 (GPRS) and CM1011 (Zigbee & GSM)
7	25/07/2012	Firmware update to 2.4.0.04