EC Type Examination Certificate Number: **0120/ SGS0013**

Landis+Gyr

1 Lysander Drive
Northfields Industrial Estate
Market Deeping
Peterborough
PE6 8FB

Instrument Identification:

E230-ZxR110 & E230-ZxR120

Poly Phase, Multi-rate, Active Import/ Export, Credit, Electricity Meter

Instrument Traceable Number

0120/ SGS0013

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 7th April 2008 until 6th April 2018
Issue 23

Certification is based on report number(s) EMA111942 MID & IEC Issue 2 dated 12th November 2008
EMA129181 Issue 2 dated 12th November 2009
EMA133530 dated 26th February 2010
EMA134723 TOU dated 6th May 2010
EMA134723 dated 15th June 2010
EMA151488 dated 12th December 2011
EMA159361 dated 15th May 2012
EMA172227 dated 9th April 2013
EMA179378 Issue 3 dated 9th August 2013
EMA179378/1/50Hz dated 9th August 2013

Authorised Signature

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1. Technical Data

Manufacturer	Landis+Gyr
Meter Types	E230-ZxR110 & E230-ZxR120
Voltage Rating *(Un)*	110 – 130V 220 – 240V 3x110/190V…3x240/415V or valid voltage ranges between these extremes
Current Rating *(Imin – Iref (Imax))*	0,25-5(125)A 0,5-10(125)A 0,75-15(125)A 1-20(125)A or Imax smaller than or equal to 125A, and at least 5 times higher than reference current (Iref)
Frequency *(Fn)*	50Hz
Active Accuracy Class *(kWh)*	A or B (kWh)
Type of circuit	1p2w, 3p3w, 3p4w
Temperature Range	-40°C to +70°C
Software/ Firmware Version No.'s **Identification Location**	50.0.x, 51.1.x, 52.0.x, 52.1.x, 53.0.x for TOU/ Multi-rate variants . 20.0.x, 21.0.x, 75.0.x, 76.0.x for all other variants. Nameplate
Bill Of Materials Number	See overleaf
IP Rating	(IP51, IP52, IP55 Rated)
Insulation Protective Class	Class II
LED Pulse Constant	1000 imp/ kWh *****
Impulse Voltage Rating	8kV
AC Voltage Rating	4kV
Main Cover Sealing Type	Wire & Crimp or Plastic Embossed Pin

Integrity of meter	Inaccessible without breaking seals
Intended Location of the Meter	Indoor
Type of Register	LCD
Terminal Arrangement(s)	BS/ DIN

*** = Test in accordance with the User Manual (section 7 – maintenance). Document ref D000044352 & D000044354**

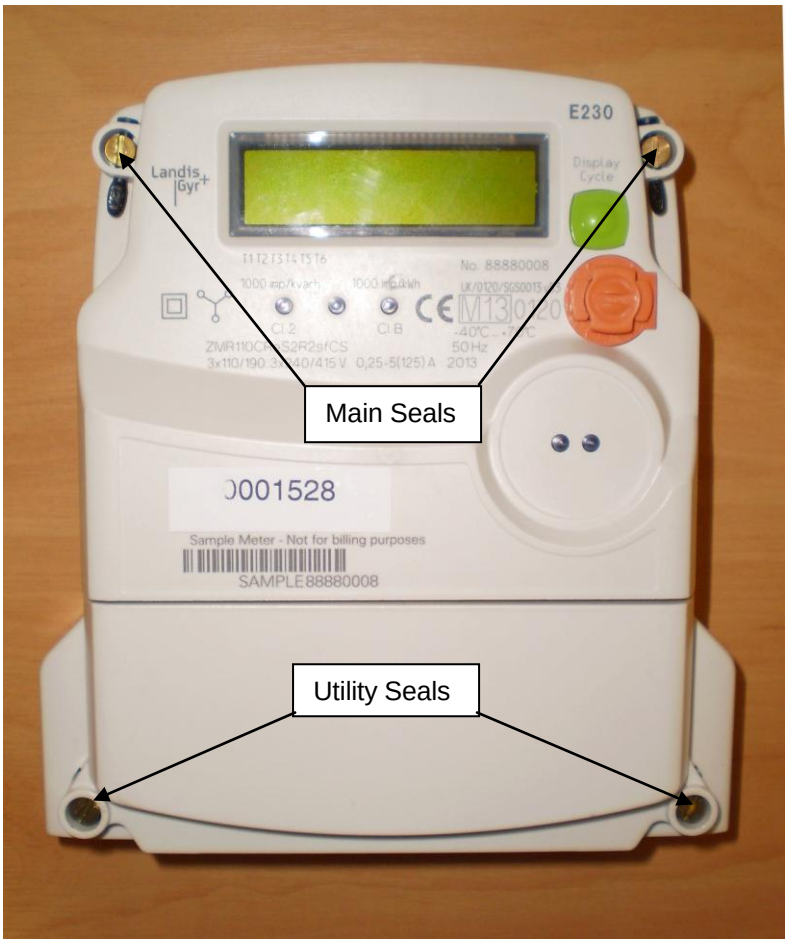
E230-ZxR110xC, E230-ZxR120xC BOM No's:

BOM Main PCBA	**BOM I/O PCBA**
524501FLA0000	5245029
524503FLA0000	5245030
5245014FLA0000	5245046
52450210FLA0000	5245071
52450211FLA0000	5245080
52450292FLA0000	5245081
52450293FLA0000	52450123
52450294FLA0000	52450124
52450295FLA0000	52450125
52450366FLA0000	52450137
52450367FLA0000	
52460368FLA0000	

E230-ZxR110xR, E230-ZxR120xR BOM No's:

BOM Main PCBA	**BOM I/O PCBA**
52450133FLA0000	5245029
52450134FLA0000	5245030
52450135FLA0000	5245046
52450136FLA0000	5245071
52450376FLA0000	5245080
52450377FLA0000	5245081
52450378FLA0000	52450123
52450379FLA0000	52450124
52450370FLA0000	52450125
52450371FLA0000	52450137
52450372FLA0000	52450271
52450373FLA0000	52450273
	52450335
	52450336

2. Photograph of Meter and Sealing Plan



3. Influence factors for temperature, frequency and voltage

Non TOU Variants

		Influence Factors for temperature, frequency and voltage							
Current	**PF Cos**	-40	-25	-10	5	30	40	55	70
Imin	1.0	*0.06*	*0.14*	*0.17*	*0.18*	*0.04*	*0.24*	*0.22*	*0.45*
Itr	1.0	*0.09*	*0.13*	*0.12*	*0.15*	*0.05*	*0.24*	*0.21*	*0.45*
10Itr	1.0	*0.04*	*0.03*	*0.07*	*0.07*	*0.07*	*0.08*	*0.17*	*0.45*
Imax	1.0	*0.13*	*0.02*	*0.06*	*0.06*	*0.07*	*0.15*	*0.18*	*0.38*
Itr	0.5ind	*0.36*	*0.38*	*0.33*	*0.24*	*0.01*	*0.11*	*0.31*	*0.57*
10Itr	0.5ind	*0.20*	*0.19*	*0.16*	*0.14*	*0.06*	*0.24*	*0.32*	*0.52*
Imax	0.5ind	*0.30*	*0.29*	*0.25*	*0.18*	*0.02*	*0.05*	*0.22*	*0.41*
Itr	0.8cap	*0.07*	*0.01*	*0.09*	*0.08*	*0.01*	*0.12*	*0.30*	*0.46*
10Itr	0.8cap	*0.19*	*0.05*	*0.07*	*0.26*	*0.00*	*0.09*	*0.16*	*0.36*
Imax	0.8cap	*0.12*	*0.06*	*0.06*	*0.05*	*0.01*	*0.09*	*0.10*	*0.30*
L1									
Itr	1.0	*0.34*	*0.35*	*0.33*	*0.19*	*0.04*	*0.04*	*0.26*	*0.53*
10Itr	1.0	*0.25*	*0.22*	*0.29*	*0.19*	*0.09*	*0.02*	*0.19*	*0.36*
Imax	1.0	*0.01*	*0.07*	*0.12*	*0.11*	*0.01*	*0.18*	*0.27*	*0.45*
Itr	0.5ind	*0.47*	*0.41*	*0.47*	*0.26*	*0.06*	*0.31*	*0.26*	*0.53*
10Itr	0.5ind	*0.73*	*0.71*	*0.61*	*0.44*	*0.25*	*0.04*	*0.18*	*0.36*
Imax	0.5ind	*0.40*	*0.39*	*0.29*	*0.19*	*0.00*	*0.10*	*0.27*	*0.45*
L2									
Itr	1.0	*0.11*	*0.04*	*0.12*	*0.08*	*0.08*	*0.01*	*0.07*	*0.27*
10Itr	1.0	*0.30*	*0.15*	*0.03*	*0.04*	*0.07*	*0.10*	*0.11*	*0.27*
Imax	1.0	*0.31*	*0.17*	*0.04*	*0.03*	*0.01*	*0.01*	*0.10*	*0.20*
Itr	0.5ind	*0.26*	*0.32*	*0.32*	*0.27*	*0.05*	*0.02*	*0.21*	*0.33*
10Itr	0.5ind	*0.08*	*0.06*	*0.12*	*0.11*	*0.01*	*0.17*	*0.28*	*0.27*
Imax	0.5ind	*0.01*	*0.15*	*0.13*	*0.12*	*0.00*	*0.01*	*0.10*	*0.26*
L3									
Itr	1.0	*0.05*	*0.15*	*0.19*	*0.15*	*0.08*	*0.07*	*0.06*	*0.26*
10Itr	1.0	*0.14*	*0.05*	*0.12*	*0.06*	*0.00*	*0.04*	*0.10*	*0.30*
Imax	1.0	*0.17*	*0.03*	*0.04*	*0.06*	*0.00*	*0.04*	*0.09*	*0.22*
Itr	0.5ind	*0.41*	*0.31*	*0.21*	*0.19*	*0.05*	*0.25*	*0.45*	*0.62*
10Itr	0.5ind	*0.08*	*0.15*	*0.21*	*0.07*	*0.13*	*0.19*	*0.32*	*0.48*
Imax	0.5ind	*0.08*	*0.06*	*0.12*	*0.05*	*0.05*	*0.10*	*0.23*	*0.31*

TOU Variants

		Influence Factors for temperature, frequency and voltage							
Current	**PF Cos**	-40	-25	-10	5	30	40	55	70
Imin	1.0	0.50	0.40	0.34	0.28	0.07	0.17	0.35	0.65
Itr	1.0	0.41	0.39	0.36	0.24	0.13	0.20	0.35	0.64
10Itr	1.0	0.38	0.27	0.33	0.20	0.07	0.10	0.28	0.55
Imax	1.0	0.27	0.30	0.28	0.19	0.16	0.17	0.38	0.56
Itr	0.5ind	0.52	0.57	0.50	0.32	0.06	0.19	0.43	0.64
10Itr	0.5ind	0.46	0.44	0.32	0.20	0.08	0.26	0.44	0.52
Imax	0.5ind	0.50	0.48	0.38	0.28	0.20	0.26	0.40	0.58
Itr	0.8cap	0.30	0.32	0.32	0.25	0.17	0.23	0.36	0.75
10Itr	0.8cap	0.13	0.26	0.23	0.20	0.03	0.10	0.27	0.62
Imax	0.8cap	0.16	0.21	0.17	0.22	0.07	0.12	0.21	0.55
L1									
Itr	1.0	0.32	0.36	0.36	0.25	0.22	0.27	0.41	0.76
10Itr	1.0	0.23	0.26	0.24	0.21	0.03	0.17	0.29	0.62
Imax	1.0	0.24	0.27	0.31	0.28	0.22	0.22	0.35	0.59
Itr	0.5ind	0.55	0.49	0.36	0.14	0.14	0.33	0.58	0.88
10Itr	0.5ind	0.38	0.32	0.41	0.14	0.19	0.21	0.47	0.80
Imax	0.5ind	0.44	0.41	0.30	0.20	0.04	0.11	0.30	0.63
L2									
Itr	1.0	0.47	0.42	0.37	0.26	0.15	0.25	0.50	0.83
10Itr	1.0	0.44	0.31	0.40	0.19	0.02	0.19	0.35	0.64
Imax	1.0	0.39	0.45	0.34	0.25	0.17	0.19	0.37	0.64
Itr	0.5ind	0.72	0.56	0.41	0.25	0.19	0.41	0.65	0.89
10Itr	0.5ind	0.72	0.62	0.50	0.30	0.04	0.14	0.49	0.77
Imax	0.5ind	0.73	0.55	0.51	0.45	0.36	0.40	0.60	0.85
L3									
Itr	1.0	0.31	0.37	0.33	0.30	0.26	0.31	0.46	0.74
10Itr	1.0	0.23	0.20	0.25	0.22	0.09	0.14	0.29	0.56
Imax	1.0	0.22	0.25	0.28	0.26	0.18	0.22	0.34	0.58
Itr	0.5ind	0.62	0.62	0.60	0.38	0.34	0.34	0.60	0.80
10Itr	0.5ind	0.53	0.49	0.43	0.38	0.40	0.46	0.63	0.80
Imax	0.5ind	0.53	0.48	0.49	0.39	0.39	0.39	0.52	0.73

During the type approval examination the influence factors for temperature, frequency and voltage are determined per load point. The table below presents the sum of the square values per load, determined via the following formula:-

$\delta e (T, U, f) = \sqrt{(\delta e^2 (T, I, \cos\varphi) , \delta e^2 (U, I, \cos\varphi) , \delta e^2 (f , I, \cos\varphi))}$

where

$\delta e(T, I, \cos\varphi)$ = Additional error due to variation of the temperature at the same load
$\delta e(U, I, \cos\varphi)$ = Additional error due to variation of the voltage at the same load
$\delta e(f , I, \cos\varphi)$ = Additional error due to variation of the frequency at the same load

4. Annex of Variants

Product Variant Identification Details:

Type Designation **Description of meter**

E230 - ZxR Active / Reactive, Import / Export MID, Class A / B, 50 / 60Hz, 110 / 240V

Description

ZMR 3ph4w, 3ph3w, 2 ph of 3ph4w, 1ph3w and 1ph2w
ZFR 3ph3w

1 Direct Connection

10 Active Energy Class B Reactive Energy Class 2
20 Active Energy Class A Reactive Energy Class 3

A Active Energy
C Active & Reactive Energy

C No RTC
R Internal RTC

Minor Meter Options

e Single tariff, no input
d Dual tariff, one input
t Multi tariff, two inputs
m Multi tariffs and rate control

S1 1 pulse output
S2 2 pulse outputs
- None

R1 1 Relay Output
R2 2 Relay Outputs

s SuperCap
- None

f fraud detection
- None

CS Communication Interface
RS RS485
- None

Brass Terminals 125A Imax

Steel Terminals 100A Imax

Modifications to the meter(s) described according to approval No.**0120/ SGS0013** 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	07/04/2008	Initial Issue
2	07/04/2008	Included location of the seals
3	01/10/2008	Firmware update to 20.0.0
4	21/11/2008	Minor hardware mod. Changed to UK address
5	13/05/2009	Changed back to Swiss address. Current Range amended
6	14/05/2009	Voltage Range & annex amended
7	11/09/2009	Annex amended
8	07/10/2009	TOU Firmware update to 50.2.1 & annex amended
9	08/10/2009	Annex amended
10	06/05/2010	TOU Firmware update to include 51.0.0
11	15/06/2010	Non TOU Firmware update to 21.0.0 & MPE's reported in certificate
12	14/10/2011	New E230 name prefix
13	12/12/2011	Non TOU Firmware update to 75.0.x. BOM list updated
14	22/12/2011	Annex amended
15	15/05/2012	TOU Firmware update to 52.0.x
16	05/09/2012	TOU Firmware update to 52.1.x
17	11/10/2012	New MID template with MPEs
18	15/10/2012	Condensed MPE table into Influence factors
19	12/02/2013	Adding reference to E230 User Manuals for LED pulse constant
20	09/04/2013	Hardware modification. Firmware updated to 53.0.6 (TOU) & 76.0.1 (non TOU)
21	30/05/2013	RS485 communication interface option added.
22	02/08/2013	Impulse Voltage tested and approved at 8kV.
23	06/09/2013	Cert amended and new report listed