



EC Type Examination Certificate Number: **0120/ SGS0138**

Rayleigh Instruments Ltd

Raytel House
Brook Road
Rayleigh
Essex
SS6 7XH
United Kingdom

Instrument Identification:

RI-78-80-C

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

Instrument Traceable Number

0120/ SGS0138

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 November 2013 until 15th August 2022
Issue 1

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


Authorised Signature

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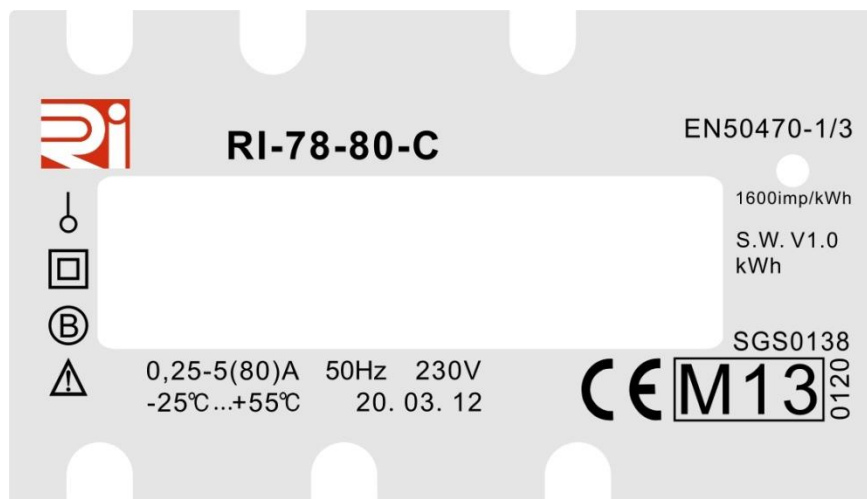
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1. Technical Data

Manufacturer	Rayleigh Instruments Ltd
Meter Type	RI-78-80-C
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	DDS353F 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

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2. Nameplate & Photograph of Meter



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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
Imin	1.0	0.00	0.46	0.02	0.01	0.46
Itr	1.0	0.03	0.33	0.02	0.09	0.34
10Itr	1.0	0.09	0.29	-0.02	-0.08	0.31
Imax	1.0	0.07	0.33	-0.03	-0.07	0.35
Itr	0.5ind	0.32	-0.03	-0.11	-0.13	0.36
10Itr	0.5ind	0.39	-0.05	0.01	-0.09	0.40
Imax	0.5ind	0.26	0.09	0.02	-0.10	0.29
Itr	0.8cap	-0.03	0.45	0.01	-0.06	0.46
10Itr	0.8cap	0.03	0.34	-0.02	-0.06	0.35
Imax	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
Imin	1.0	0.00	0.46	0.02	0.01	0.46
Itr	1.0	0.03	0.33	0.02	0.09	0.34
10Itr	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	-0.37	-0.11	-0.13	0.52
10Itr	0.5ind	0.39	-0.29	0.01	-0.09	0.49
Imax	0.5ind	0.26	-0.19	0.02	-0.10	0.34
Itr	0.8cap	-0.03	0.45	0.01	-0.06	0.46
10Itr	0.8cap	0.03	0.40	-0.02	-0.06	0.41
Imax	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
RI-78-80-C	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/ SGS0138** 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	18/11/2013	Initial Issue