EU Type Examination Certificate Number: **0120/ SGS0098/R1**

Schneider Electric

Wuxi Pro-Face Electronics Co. Ltd
51-A block of Wuxi High-tech Industrial Development Zone
Wuxi
Jiangsu, 214028
P.R.C

Instrument Identification:
iEM31**
iEM33**

Poly Phase, Active Import/ Export (kWh), Direct Connected, Electricity Meter

Instrument Traceable Number
0120/ SGS0098
has been assessed and certified as meeting the requirements of

EU Directive 2014/32/EU

on Measuring Instruments Annex II, Module 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 Annex V of EU Directive 2014/32/EU

This certificate must be used in conjunction with a certificate covering the product verification as required in Annex II, Module D or Annex II, Module F

This certificate is valid from 3rd April 2022 until 2nd April 2032
Issue 1

Certification is based on report number(s)
EMA153420-2 Issue 2 dated 3rd April 2012, EMA184255/1/MID dated 7th March 2014, EMA184255/1/1p4w dated 21st August 2015
EMA297432/1/EM3115 dated 16th March 2022

Authorised Signature

Tuomas Hänninen

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SGS	EU-Type Examination Certificate Number:	
	0120/SGS0098/R1	
	Issue Number: 1	Dated: 3rd April 2022

1. Technical Data iEM31xx

Manufacturer	Schneider Electric
Meter Type	iEM31xx
Voltage Rating *(Un)*	100/173V - 277/480V
Current Rating *(Imin – Iref (Imax))*	0,5-10(63)A
Frequency *(Fn)*	50Hz
Active Accuracy Class *(kWh)*	A or B (kWh)
Type of circuit	3p4w, 1p4w
Temperature Range	-25°C to +70°C
Software/ Firmware Version No's **CRC Checksum No's** **Identification Location**	OS: 1.0.XXX or 1.2.XXX or 1.3.XXX or 1.4.XXX or 1.5.XXXX or 1.6.XXXX 0X24E427A or 0X24E0B20 or 0X23C8A0E or 0X2228602 or 0X400B9E4 or 0X040E6DE9 or 0xFC07FBCA or 0xF3FF14DC or F3FEFA57h LCD
Bill of Materials No's	iEM3110-S1B71915, iEM3115- S1B72211 iEM3155-S1B73002 iEM3135- HRB34627 iEM3165-HRB63163 iEM3175- HRB34622
IP Rating ***= The meter casing is only IP20 complaint. Therefore the meter MUST always be fitted into an IP51 appoved enclosure.**	IP20 Casing*
Insulation Protective Class	Class II
LED Pulse Constant	500 imp/ kWh
Impulse Voltage Rating	6kV
AC Voltage Rating	4kV
Main Cover Sealing Type	1 x Tamper-proof Adhesive Label
Integrity of meter	Inaccessible without breaking seals
Intended Location of the Meter	Indoor
Type of Register	LCD
Terminal Arrangement(s)	BS
Location of Manufacturers Address	Nameplate

SGS	EU-Type Examination Certificate Number:	
	0120/SGS0098/R1	
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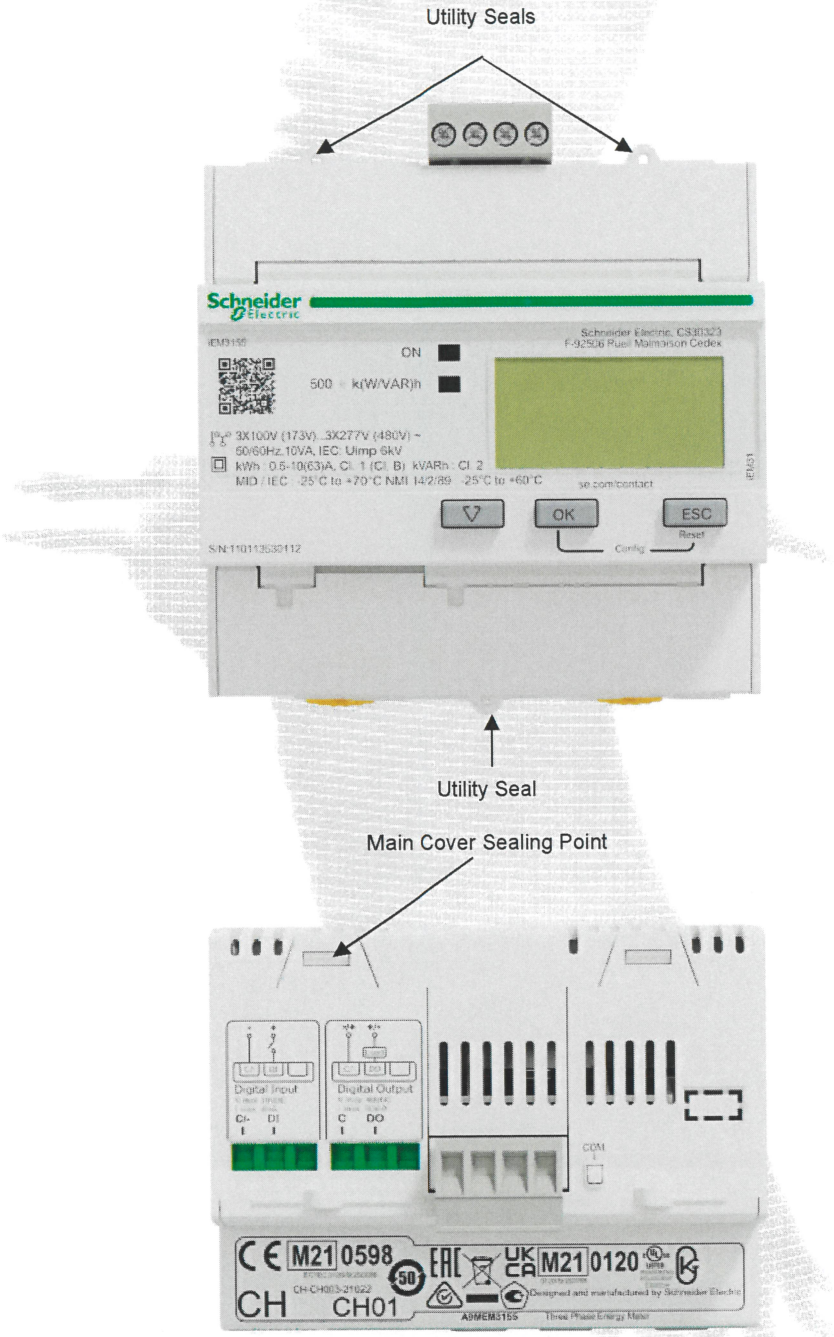
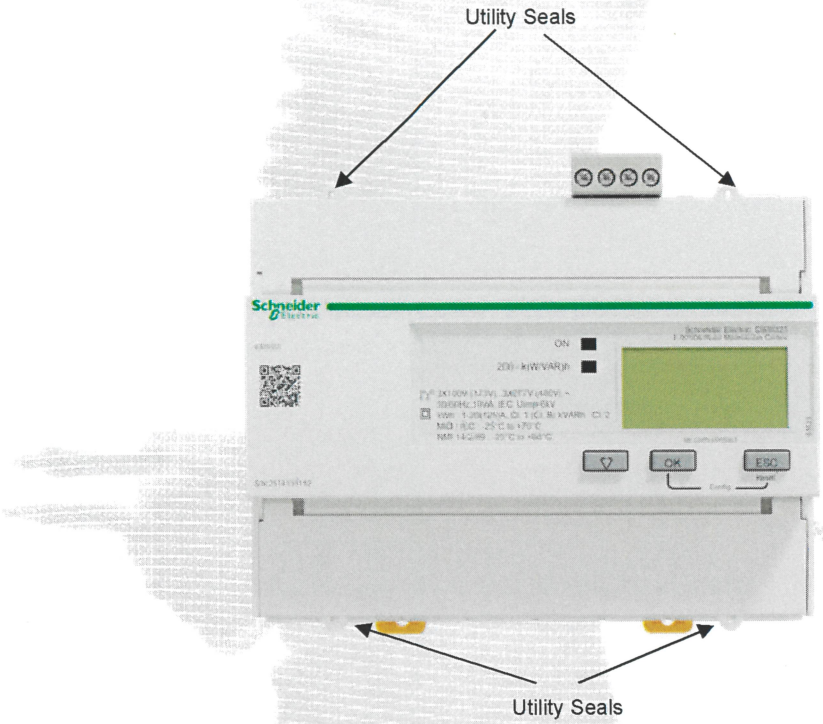
Technical Data iEM33xx

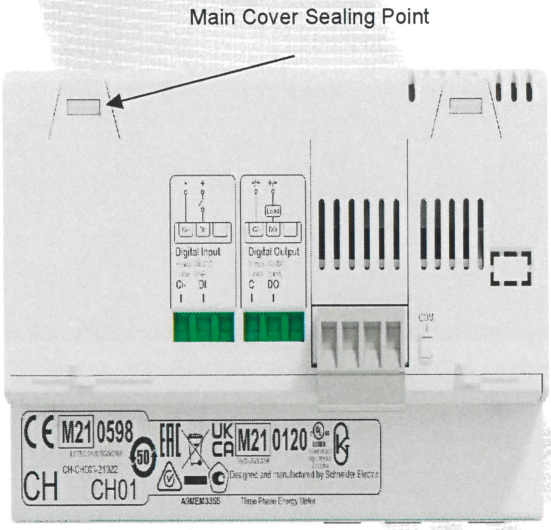
Manufacturer	Schneider Electric
Meter Type	iEM33xx
Voltage Rating *(Un)*	100/173V - 277/480V
Current Rating *(Imin – Iref (Imax))*	1-20(125)A
Frequency *(Fn)*	50Hz
Active Accuracy Class *(kWh)*	A or B (kWh)
Type of circuit	3p4w, 1p4w
Temperature Range	-25°C to +70°C
Software/ Firmware Version No's **CRC Checksum No's** **Identification Location**	1.0.XXX or 1.1.XXX or 1.2.XXX or 1.3.XXXX or 1.4.XXXX or 1.5.XXXX 0X22EFFFD or 0X419F2A4 or 0X0426FF59 or 0xFC209604 or 0xF419B91F or 0xF418441B or F418550Eh LCD
Bill Of Materials No's	iEM3310-HRB90606 iEM3355-HRB90608 iEM3335- HRB90609 iEM3365- HRB90610 iEM3375- HRB90611
IP Rating ***= The meter casing is only IP20 complaint. Therefore the meter MUST always be fitted into an IP51 appoved enclosure.**	IP20 Casing*
Insulation Protective Class	Class II
LED Pulse Constant	200 imp/ kWh
Impulse Voltage Rating	6kV
AC Voltage Rating	4kV
Main Cover Sealing Type	1 x Tamper-proof Adhesive Label
Integrity of meter	Inaccessible without breaking seals
Intended Location of the Meter	Indoor
Type of Register	LCD
Terminal Arrangement(s)	BS
Location of Manufacturers Address	Nameplate

2. Photograph of Meter and Sealing Plan for iEM31xx



Photograph of Meter and Sealing Plan for iEM33xx





	EU-Type Examination Certificate Number:	
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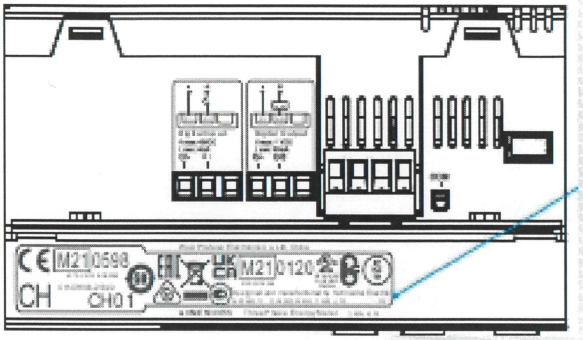
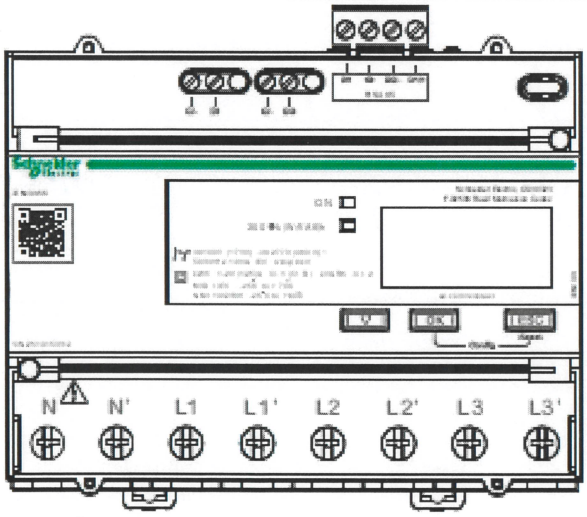
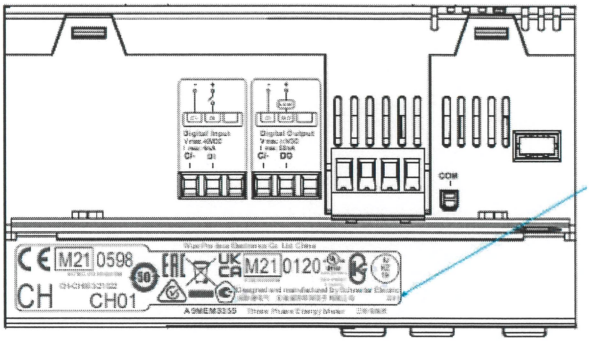
Examples of Nameplates

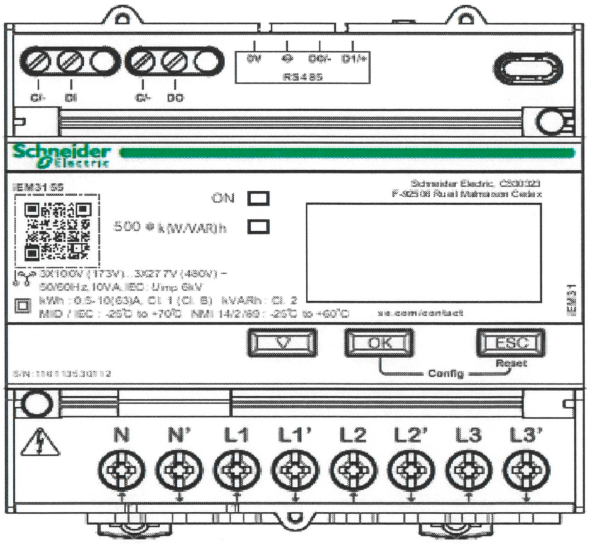
iEM3355





iEM3155





3. Calculation of the composite error/ MPE for iEM31xx

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

		Influence Factors for temperature, frequency and voltage						
Current	PF Cos	-25°C	-10°C	5°C	30°C	40°C	55°C	70°C
Imin	1.0	0.20	0.18	0.18	0.24	0.24	0.21	0.20
Itr	1.0	0.18	0.11	0.11	0.29	0.29	0.12	0.22
10Itr	1.0	0.17	0.08	0.07	0.08	0.08	0.07	0.17
Imax	1.0	0.14	0.05	0.04	0.05	0.05	0.04	0.13
Itr	0.5ind	0.62	0.52	0.41	0.49	0.49	0.40	0.43
10Itr	0.5ind	0.68	0.54	0.51	0.62	0.62	0.54	0.47
Imax	0.5ind	0.75	0.60	0.52	0.63	0.63	0.57	0.53
Itr	0.8cap	0.20	0.26	0.21	0.26	0.26	0.22	0.24
10Itr	0.8cap	0.36	0.35	0.35	0.43	0.43	0.39	0.41
Imax	0.8cap	0.26	0.27	0.26	0.34	0.34	0.29	0.31
L1								
Itr	1.0	0.12	0.12	0.16	0.13	0.13	0.14	0.13
10Itr	1.0	0.17	0.10	0.09	0.09	0.09	0.10	0.16
Imax	1.0	0.14	0.07	0.07	0.07	0.07	0.07	0.14
Itr	0.5ind	0.79	0.58	0.56	0.68	0.68	0.58	0.61
10Itr	0.5ind	0.70	0.54	0.47	0.61	0.61	0.50	0.49
Imax	0.5ind	0.71	0.58	0.50	0.61	0.61	0.55	0.51
L2								
Itr	1.0	0.15	0.11	0.11	0.13	0.13	0.12	0.15
10Itr	1.0	0.19	0.10	0.09	0.11	0.11	0.09	0.17
Imax	1.0	0.18	0.07	0.03	0.04	0.04	0.03	0.09
Itr	0.5ind	0.51	0.40	0.36	0.39	0.39	0.30	0.32
10Itr	0.5ind	0.65	0.51	0.45	0.57	0.57	0.51	0.45
Imax	0.5ind	0.79	0.67	0.60	0.70	0.70	0.65	0.59
L3								
Itr	1.0	0.31	0.10	0.08	0.08	0.10	0.15	0.31
10Itr	1.0	0.21	0.10	0.08	0.08	0.16	0.08	0.21
Imax	1.0	0.20	0.08	0.06	0.06	0.08	0.06	0.23
Itr	0.5ind	0.69	0.32	0.24	0.24	0.38	0.24	0.32
10Itr	0.5ind	0.70	0.54	0.45	0.49	0.45	0.54	0.46
Imax	0.5ind	0.76	0.56	0.42	0.08	0.35	0.40	0.45

Calculation of the composite error/ MPE for iEM33xx

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

		Influence Factors for temperature, frequency and voltage						
Current	**PF Cos**	-25°C	-10°C	5°C	30°C	40°C	55°C	70°C
Imin	1.0	0.45	0.46	0.46	0.42	0.42	0.41	0.73
Itr	1.0	0.34	0.34	0.31	0.33	0.29	0.29	0.54
10Itr	1.0	0.23	0.23	0.22	0.23	0.21	0.20	0.29
Imax	1.0	0.26	0.21	0.21	0.22	0.20	0.21	0.35
Itr	0.5ind	0.47	0.48	0.42	0.37	0.34	0.43	0.68
10Itr	0.5ind	0.35	0.36	0.42	0.34	0.37	0.38	0.46
Imax	0.5ind	0.41	0.41	0.41	0.38	0.38	0.39	0.41
Itr	0.8cap	0.49	0.49	0.46	0.47	0.44	0.45	0.55
10Itr	0.8cap	0.35	0.36	0.34	0.35	0.34	0.34	0.36
Imax	0.8cap	0.31	0.32	0.31	0.32	0.30	0.31	0.43
L1								
Itr	1.0	0.26	0.25	0.25	0.29	0.23	0.25	0.55
10Itr	1.0	0.11	0.12	0.15	0.13	0.14	0.13	0.23
Imax	1.0	0.16	0.16	0.19	0.18	0.17	0.18	0.27
Itr	0.5ind	0.56	0.56	0.57	0.64	0.54	0.61	1.00
10Itr	0.5ind	0.43	0.43	0.52	0.46	0.49	0.48	0.63
Imax	0.5ind	0.38	0.38	0.45	0.40	0.41	0.43	0.49
L2								
Itr	1.0	0.41	0.41	0.36	0.33	0.32	0.32	0.50
10Itr	1.0	0.28	0.26	0.27	0.27	0.25	0.27	0.36
Imax	1.0	0.31	0.30	0.27	0.25	0.25	0.27	0.45
Itr	0.5ind	0.56	0.56	0.52	0.51	0.51	0.51	0.80
10Itr	0.5ind	0.38	0.38	0.47	0.42	0.40	0.42	0.55
Imax	0.5ind	0.46	0.52	0.45	0.42	0.42	0.46	0.65
L3								
Itr	1.0	0.49	0.48	0.47	0.47	0.48	0.48	0.68
10Itr	1.0	0.15	0.16	0.17	0.15	0.16	0.16	0.29
Imax	1.0	0.18	0.18	0.19	0.17	0.17	0.19	0.36
Itr	0.5ind	0.32	0.27	0.34	0.29	0.32	0.36	0.64
10Itr	0.5ind	0.35	0.35	0.45	0.41	0.42	0.39	0.42
Imax	0.5ind	0.75	0.75	0.75	0.29	0.76	0.76	0.74

4. Annex of Variants

Product Variant Identification Details:

	Type Designation	Description of meter
Model	-	**Description**
iEM3110	-	Poly phase, Active Import/ Export (kWh), Direct Connected, Electricity Meter, with 1 pulse output
iEM3115	-	Poly phase, Active Import/ Export (kWh), Direct Connected, Electricity Meter, with Multi-tariff by 2 Digital Inputs
iEM3155	-	Poly phase, Active Import/ Export (kWh), Direct Connected, Electricity Meter, with 1 Digital Input & 1 Digital Output and modbus communication
iEM3135	-	Poly phase, Active Import/ Export (kWh), Direct Connected, Electricity Meter, with 1 Digital Input & 1 Digital Output and M-Bus communication.
iEM3165	-	Poly phase, Active Import/ Export (kWh), Direct Connected, Electricity Meter, with 1 Digital Input & 1 Digital Output and BACnet communication.
iEM3175	-	Poly phase, Active Import/ Export (kWh), Direct Connected, Electricity Meter, with 1 Digital Input and LonWorks communication.
iEM3310	-	Poly phase, Active Import/ Export (kWh), Direct Connected (125A max), Electricity Meter, with 1 Pulse out.
iEM3355	-	Poly phase, Active Import/ Export (kWh), Direct Connected (125A max), Electricity Meter, with 1 Digital Input, 1 Digital Output and Modbus (RS485) communication.
iEM3335	-	Poly phase, Active Import/ Export (kWh), Direct Connected, Electricity Meter, With 1 Digital Input & 1 Digital Output and M-Bus communication.
iEM3365	-	Poly phase, Active Import/ Export (kWh), Direct Connected, Electricity Meter, With 1 Digital Input & 1 Digital Output and BACnet communication.
iEM3375	-	Poly phase, Active Import/ Export (kWh), Direct Connected, Electricity Meter, With 1 Digital Input and LonWorks communication.

Modifications to the meter(s) described according to approval No.**0120/ SGS0098** 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	03/04/2022	Re certification initial issue Extended operating temperature range -25°C to +70°

END OF CERTIFICATE