



SGS

EC Type Examination Certificate Number: **0120/SGS0077**

EDMI Limited

47 Yishun Industrial Park A
Singapore
768724

Instrument Identification:
Mk7B

Single Phase, Active Import/ Export, Multi-rate, Electricity Meter

Instrument Traceable Number
0120/SGS0077

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 **1st March 2021**
Issue 18

Certification is based on report number(s)
EMA143215 dated 2nd March 2011
EMA157777 dated 26th March 2012

Authorised Signature

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EC Type Examination Cert.

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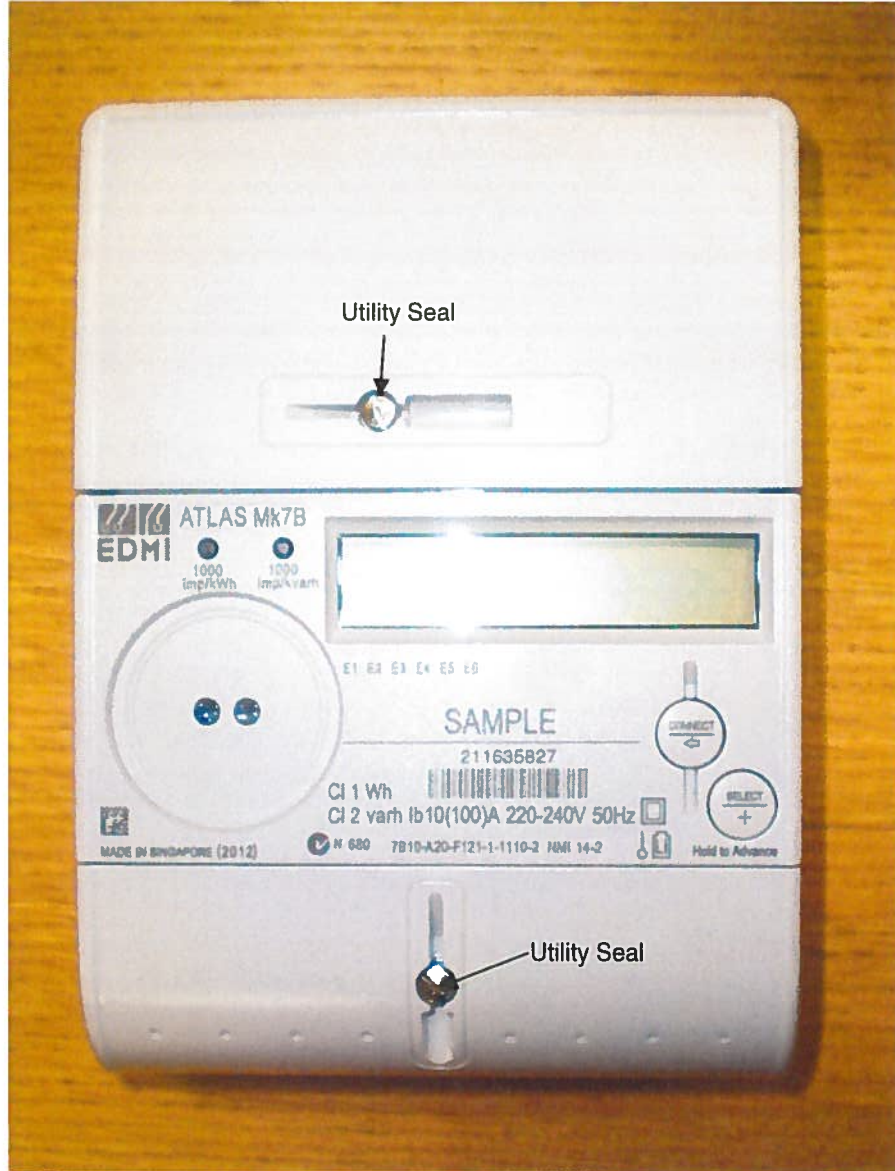
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Dated: 29th October 2018**1. Technical Data**

Manufacturer	EDMI
Meter Type	Mk7B
Voltage Rating (U_n)	220-240V
Current Rating (I_{min} – I_{ref} (I_{max}))	0,25-5(100)A or 0,5-10(100)A
Frequency (F_n)	50Hz
Active Accuracy Class (kWh)	A or B (kWh)
Type of circuit	1p2w
Temperature Range	-40°C to +70°C
Software/ Firmware Version No(s)	V1.42 to V1.432, V1.45 to V1.458 V1.48 to V1.49, V1.502 to V1.505 V2.01, V2.031, V2.041, V2.04B, V2.900, V2.910, V2.911, V2.912, V2.914, V2.260.06, V2.916
Checksum Number	0x51CF035F
Identification Location	LCD
Bill Of Materials Number(s)	PCB S3 Rev A: MK7B S3 Main Card Rev A: Rev 003 MK7B Hardware BOM REV 024 MK7B Hardware BOM REV 025 PCB Rev C: MK7B Main Card Rev C REV 001 MK7B Hardware BOM REV 002 MK7B Hardware BOM REV 024 MK7B Hardware BOM REV 025 PCB Rev G: MK7B Main Card Rev G REV 001 MK7B Hardware BOM REV 010 MK7B Hardware BOM REV 024 MK7B Hardware BOM REV 025 PCB Rev H to I: MK7B Main Card Rev H REV 000 MK7B Main Card Rev I REV 002 MK7B Hardware BOM REV 011 MK7B Hardware BOM REV 024 MK7B Hardware BOM REV 025 Mk7B NCM Card B Rev 003
IP Rating	IP54
Insulation Protective Class	Class II
LED Pulse Constant	1000imp/ kWh
Impulse Voltage Rating	12kV
AC Voltage Rating	4kV
Main Cover Sealing Type	Ultrasonically Welded
Integrity of meter	Sealed for life
Intended Location of the Meter	Outdoor
Type of Register	LCD
Terminal Arrangement(s)	BS

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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:

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

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	0.10	0.20	-0.21	-0.04	0.31
Itr	1.0	0.04	0.17	-0.34	-0.04	0.38
10Itr	1.0	0.02	0.16	-0.18	-0.03	0.24
Imax	1.0	0.02	0.19	-0.12	0.02	0.23
Itr	0.5ind	0.05	0.16	-0.24	-0.02	0.29
10Itr	0.5ind	0.08	0.15	-0.15	-0.11	0.25
Imax	0.5ind	0.08	0.22	-0.10	0.16	0.30
Itr	0.8cap	0.04	0.17	-0.44	-0.04	0.48
10Itr	0.8cap	0.04	0.17	-0.17	-0.06	0.25
Imax	0.8cap	0.12	0.29	0.02	0.16	0.35

Ambient Temperature Range -10 to 40 Degrees C						
Current	PF Cos	e(lcos)	e(Tlcos)	e(Ulcos)	e(flcos)	%MPE
Imin	1.0	0.10	0.32	-0.21	-0.04	0.40
Itr	1.0	0.04	0.31	-0.34	-0.04	0.46
10Itr	1.0	0.02	0.29	-0.18	-0.03	0.34
Imax	1.0	0.02	0.30	-0.12	0.02	0.32
Itr	0.5ind	0.05	0.26	-0.24	-0.02	0.36
10Itr	0.5ind	0.08	0.28	-0.15	-0.11	0.35
Imax	0.5ind	0.08	0.33	-0.10	0.16	0.39
Itr	0.8cap	0.04	0.30	-0.44	-0.04	0.54
10Itr	0.8cap	0.04	0.30	-0.17	-0.06	0.35
Imax	0.8cap	0.12	0.41	0.02	0.16	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	0.10	0.48	-0.21	-0.04	0.53
Itr	1.0	0.04	0.46	-0.34	-0.04	0.57
10ltr	1.0	0.02	0.43	-0.18	-0.03	0.47
Imax	1.0	0.02	0.44	-0.12	0.02	0.46
Itr	0.5ind	0.05	-0.45	-0.24	-0.02	0.51
10ltr	0.5ind	0.08	0.44	-0.15	-0.11	0.48
Imax	0.5ind	0.08	0.44	-0.10	0.16	0.49
Itr	0.8cap	0.04	0.45	-0.44	-0.04	0.63
10ltr	0.8cap	0.04	0.45	-0.17	-0.06	0.49
Imax	0.8cap	0.12	0.54	0.02	0.16	0.58


Ambient Temperature Range -40 to 70 Degrees C (OUTDOOR ONLY)						
Current	PF Cos	e(lcos)	e(Tlcos)	e(Ulcos)	e(flcos)	%MPE
Imin	1.0	0.10	-0.61	-0.21	-0.04	0.65
Itr	1.0	0.04	-0.63	-0.34	-0.04	0.72
10ltr	1.0	0.02	-0.63	-0.18	-0.03	0.66
Imax	1.0	0.02	0.54	-0.12	0.02	0.55
Itr	0.5ind	0.05	-0.67	-0.24	-0.02	0.71
10ltr	0.5ind	0.08	-0.59	-0.15	-0.11	0.62
Imax	0.5ind	0.08	0.55	-0.10	0.16	0.59
Itr	0.8cap	0.04	-0.63	-0.44	-0.04	0.77
10ltr	0.8cap	0.04	-0.60	-0.17	-0.06	0.63
Imax	0.8cap	0.12	0.68	0.02	0.16	0.71

4. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
7B * * - * * * - * * * * - * - * * * - *	<p>Accuracy 1 = Class 1 2 = Class 2</p> <p>Series 0 = Standard config (MCU4618) 3 = Series 3 (MCU6459)</p> <p>Current Range A = 10(100)A B = 5(100)A</p> <p>Terminal O/P and Phase Current Measurement 1 = ANNA (CT) Not available 2 = ANNA (Shunt) 3 = ANNA (Shunt) with shorter shrouds ? = ANNBA 2 Element [Not Available]</p> <p>Button option 0 = Standard Buttons</p> <p>Memory Option F = 2 1MB SPI Flash H = 2MB Micron Flash (Series 3)</p> <p>Local Communications (Optical Port) 1 = IEC Flag (Non-Magnetized Washer) 2 = ANSI C12 18 (standard)</p> <p>Battery Options 0 = None 2 = 3V 950mAh internal battery</p> <p>LCD Display 1 = Standard LCD w/o backlight, \$, £, € sign 2 = Standard LCD with backlight, \$, £, € sign 3 = Bold LCD w/o backlight, \$, £, € sign (higher Industrial grade polarizer) 4 = Bold LCD with backlight, \$, £, € sign (higher Industrial grade polarizer)</p> <p>Standard I/O Options 0 = None 1 = 1 x 2A Relay Output 2 = 1 x S0 Output [Under Testing] 3 = 1x BosFet Output</p> <p>Disconnect Terminal Relay O/P options 0 = None 1 = Disconnect Relay</p> <p>Magnetic Tamper option 0 = None 1 = Magnetic tamper detection</p> <p>Open cover detection option 1 = Terminal cover detection 2 = Lid cover detection (Not implemented)</p> <p>Neutral Current Measurement 0 = None 1 = Neutral current Measurement [Series 3 only]</p> <p>Pod Module option 0 = No pod module fitted 1 = Dummy pod fitted 2 = Fitted pod module (Pod options need to be ordered separately)</p> <p>POD Phase Power Option Y = Yes (For SSN (S2) and PLC) X = No (For Modems / RF PODs)</p>

Modifications to the meter(s) described according to approval No.0120/ SGS0077 must be notified to the issuing body to confirm the meter(s) continuing compliance to the relevant pattern approval standard(s).

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5. Document Revision History

Issue	Date	Comments
1	02/03/2011	Initial Issue
2	15/06/2011	PCB Rev C Firmware Update to 1.431
3	26/03/2012	Hardware updated from PCB Rev C to Rev G and Firmware Update to 1.432. Non Metrology Firmware Updates to 1.45 & 1.502 also included.
4	04/04/2012	Minor Modification to Hardware. PCB updated from Rev G to Rev H.
5	17/04/2012	Corrected Cert for Outdoor Status and Sealing Type
6	16/05/2012	Non Metrology Firmware Update to 1.505
7	10/01/2013	Non Metrology Firmware Update to 1.451
8	15/01/2013	Also as above Main PCB revised from Rev H to Rev I
9	04/04/2013	Non Metrology Firmware Update to 2.01
10	11/10/2013	Non Metrology Firmware Update to 1.458
11	07/07/2014	Non Metrology Firmware Update to 2.031 & 2.041
12	12/11/2014	Non Metrology Firmware Update to 2.04B
13	29/06/2015	Non Metrology Firmware Update to 1.49
14	3/11/2015	Non Metrology Firmware Update to 2.900
15	17/11/2015	Non Metrology Firmware Update to 2.910
16	17/11/2016	Non Metrology Firmware Updates 2.911, 2.912, 2.914 added. Checksum included in technical data. Neutral measurement option added to approval.
17	18/04/2018	Non metrology firmware update V2.260.06 and hardware BOM revision 024 added. New meter codification table.
18	29/10/2018	Non metrology firmware update V2.916. New model code table. New BOM version number.