EU Type Examination Certificate Number: **0120/SGS0045/R1**

EDMI Limited

47 Yishun Industrial Park A
Singapore
768724

Instrument Identification:
Mk10A
Whole Current or Transformer Operated, Poly Phase, Credit, Active Import/ Export, Multi-rate, Electricity Meter

Instrument Traceable Number
0120/SGS0045
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 for 10 years from 7th January 2020 until 6th January 2030
Issue 2

Certification is based on report number(s): EMA131076 dated 7th January 2010, EMA151672 dated 17th April 2012 EMA276023/1 dated 7th January 2020, EMA276023/1/TR50579 dated January 7th 2020

Authorised Signature

SGS United Kingdom Limited, Notified Body 0120
Unit 202B Worle Parkway, Weston-super-Mare, BS22 6WA, UK
t +44 (0)1934 522917 f +44 (0)1934 522137 www.sgs.com

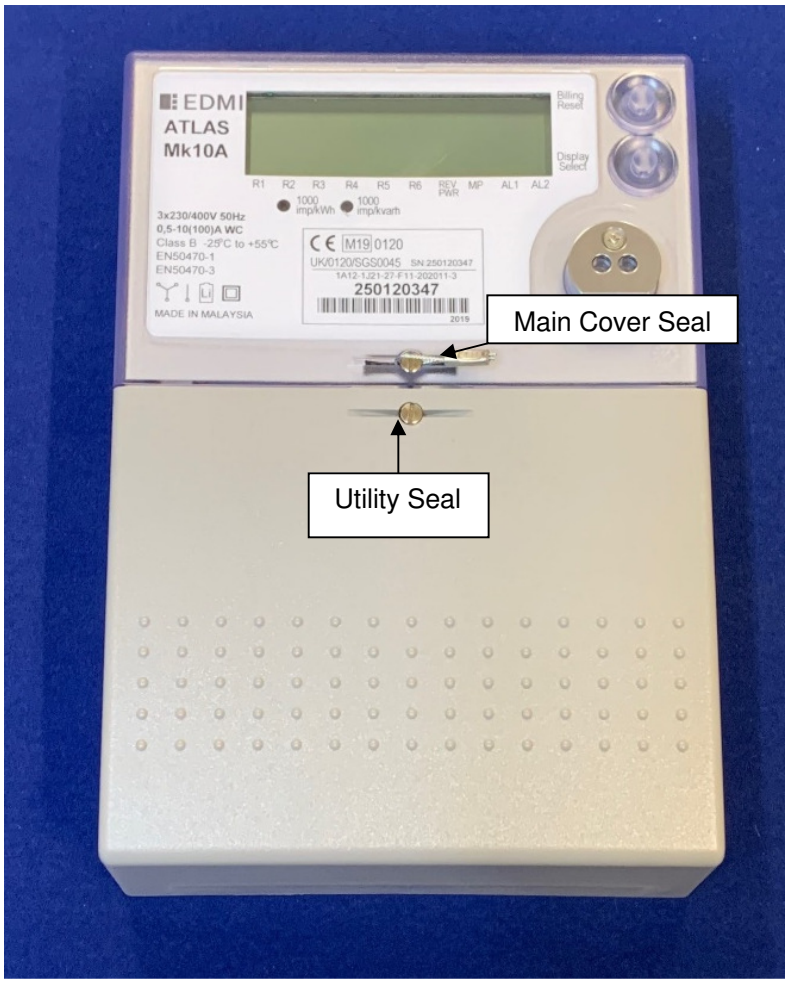
Contact Address
SGS United Kingdom Limited, Units 12A & 12B, South Industrial Estate, Bowburn, Durham, DH6 5AD, UK
t +44 (0)191 377 2000 f +44 (0)191 377 2020 www.sgs.com

	EU-Type Examination Certificate Number:	
	0120/SGS0045/R1	
	Issue Number: 2	Date: 10th September 2020

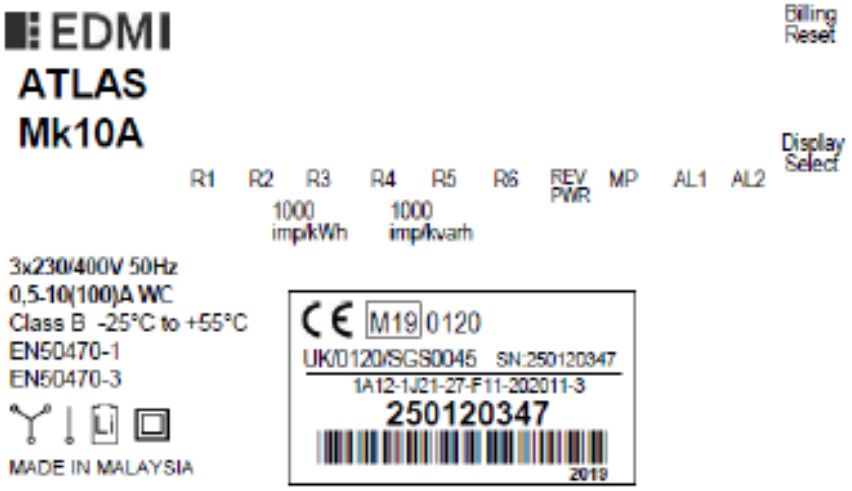
1. Technical Data

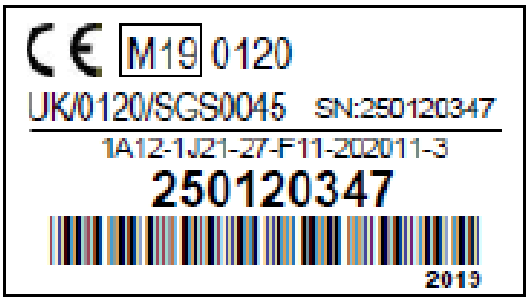
Manufacturer	EDMI Limited
Meter Type	Mk10A
Voltage Rating *(Un)*	220-240V
Current Rating *(Imin – Iref (Imax))*	0,01-1(6)A, or 0,05-5(20)A or 0,5-10(100)A
Frequency *(Fn)*	50Hz
Active Accuracy Class *(kWh)*	A or B (kWh)
Type of circuit	1p2w, 1p3w, 2p3w, 3p3w, 3p4w
Temperature Range	-25 ºC to +55 ºC
Software/ Firmware Version No.'s **Identification Location**	1.402, 1.41 to 1.417, 1.42, 1.43 to 1.434, 1.45 to 1.45O 1.465 to 1.467, 1.502 LCD
Bill of Materials No's	BOM - MK10A CPU Card Rev B Rev 029 BOM - Mk10A Base Card Rev B Rev 013 BOM - Mk10A CPU Card Rev E Rev 008 BOM - MK10A Base Card Rev E Rev 004
IP Rating	IP54
Insulation Protective Class	Class II
LED Pulse Constant	1 imp/ kWh 10 imp/ kWh 500 imp/ kWh 1000 imp/ kWh 5000 imp/kWh 10,000 imp/ kWh
Impulse Voltage Rating	10kV
AC Voltage Rating	4kV
Main Cover Sealing Type	Wire & Crimp
Integrity of meter	Inaccessible without breaking seals
Intended Location of the Meter	Outdoor
Type of Register	LCD
Terminal Arrangement(s)	BS
Location of Manufacturers Address	Nameplate

2. Photograph of Meter and Sealing Plan



3. Example of Nameplates/Labels





4. Calculation of the composite error/ MPE

During the type approval examination the influence factors for temperature, frequency and voltage are determined per load point. The table below represents 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

		Influence Factors for Temperature. Frequency & Voltage					
Current	**PF Cos**	-25℃	-10℃	5℃	30℃	40℃	55℃
Imin	1.0	*0.12*	*0.06*	*0.01*	*0.05*	*0.10*	*0.19*
Itr	1.0	*0.08*	*0.01*	*0.03*	*0.03*	*0.08*	*0.17*
10Itr	1.0	*0.23*	*0.14*	*0.05*	*0.02*	*0.02*	*0.06*
Imax	1.0	*0.13*	*0.04*	*0.04*	*0.08*	*0.05*	*0.02*
Itr	0.5ind	*1.35*	*1.12*	*0.69*	*0.06*	*0.43*	*0.89*
10Itr	0.5ind	*1.05*	*0.85*	*0.50*	*0.12*	*0.43*	*0.79*
Imax	0.5ind	*1.30*	*1.07*	*0.69*	*1.60*	*0.30*	*0.70*
Itr	0.8cap	*0.75*	*0.52*	*0.28*	*0.01*	*0.06*	*0.11*
10Itr	0.8cap	*0.83*	*0.57*	*0.29*	*0.09*	*0.14*	*0.25*
Imax	0.8cap	*0.75*	*0.48*	*0.20*	*1.21*	*0.26*	*0.38*
L1							
Itr	1.0	*0.14*	*0.05*	*0.00*	*0.03*	*0.08*	*0.17*
10Itr	1.0	*0.27*	*0.17*	*0.07*	*0.01*	*0.00*	*0.03*
Imax	1.0	*0.23*	*0.11*	*0.01*	*0.06*	*0.04*	*0.01*
Itr	0.5ind	*1.47*	*1.10*	*0.69*	*0.11*	*0.47*	*0.93*
10Itr	0.5ind	*1.11*	*0.80*	*0.49*	*0.16*	*0.45*	*0.80*
Imax	0.5ind	*1.27*	*0.95*	*0.60*	*1.16*	*0.34*	*0.74*
L2							
Itr	1.0	*0.05*	*0.01*	*0.04*	*0.03*	*0.10*	*0.21*
10Itr	1.0	*0.18*	*0.09*	*0.01*	*0.00*	*0.02*	*0.08*
Imax	1.0	*0.10*	*0.00*	*0.06*	*0.07*	*0.05*	*0.01*
Itr	0.5ind	*1.44*	*1.05*	*0.64*	*0.13*	*0.47*	*0.97*
10Itr	0.5ind	*1.18*	*0.85*	*0.48*	*0.16*	*0.42*	*0.82*
Imax	0.5ind	*1.43*	*1.07*	*0.69*	*0.05*	*0.34*	*0.78*
L3							
Itr	1.0	*0.13*	*0.04*	*0.01*	*0.01*	*0.07*	*0.18*
10Itr	1.0	*0.24*	*0.13*	*0.04*	*0.00*	*0.01*	*0.06*
Imax	1.0	*0.15*	*0.05*	*0.06*	*0.09*	*0.08*	*0.03*
Itr	0.5ind	*1.38*	*0.66*	*0.61*	*0.13*	*0.49*	*0.96*
10Itr	0.5ind	*1.13*	*0.82*	*0.48*	*0.15*	*0.48*	*0.88*
Imax	0.5ind	*1.39*	*1.06*	*0.36*	*0.01*	*0.29*	*0.72*

5. Annex of Variants

Product Variant Identification Details:

Type Designation **Description of meter**

Mlk10A 1A ** - **** - ** - *** - ****** - **

Accuracy
1 = Class B / Class 1Active Energy
3 = Class A / Class 2 Active Energy

Series
1 = Standard

-

Voltage Range
1 = 220/380-240/415V (140-290V limit)

Current Range
D = 0,01-1(6)A CT
H = 0,05-5(20)A CT
I=0,25-5(100)A WC
J = 0,5-10(100)A WC
K = 1-20(100)A WC
L = 1,25-25(100)A WC

Terminal Configuration
1 = AABBCC (Standard CT)
2 = AABBCCNN (Standard WC)

Terminal Covers
0 = None
1 = Standard Terminal Cover
2 = Short Terminal Cover
3 = Standard Terminal Cover with Bracket ass'y for SAM2 Modem.

-

Local Communications (Optical Port)
1 = Standard IEC Flag Port
2 = ANSI port
3 = Standard IEC Flag Port with non magnetized flag washer

Remote Communications (Modem & SCADA Ports)
0 = None
1 = Modem: RS232 (RJ45 TB1, with DTR)
2 = SCADA: RS485 4-wire (2xRJ45 , TB9 &TB1)
5 = Modem: RS232 (RJ45 TB1, with DTR)
7 = Modem: RS232 (RJ45 TB1); SCADA: RS232 (RJ45 TB1, pins 7&8)
9 = Modem: RS232 (RJ45 TB1); SCADA: RS232 (Slave RJ45 TB9, pins 5&6)
G = Modem: RS232 (RJ45 TB9); SCADA: RS485 4-wire (Slave RJ45 TB1)
S = Modem: RS232 (RJ45 TB9); SCADA: RS485 2-wire (Screw Terminal TB1)
T = SCADA: RS485 4-wire (2x RJ45, TB9 &TB1)
U = Modem: RS232 (RJ45 TB1); SCADA: RS485 2-wire (RJ45 TB1, pins 7&8)
V = Modem: RS232 (RJ45 TB1); SCADA: RS485 2-wire
(RJ45 TB1, pins 7&8 + Slave RJ45 TB9, pins 7&8)
W = SCADA: RS485 2-wire (Screw Terminals TB1)

-

EEPROM Memory & MCU Option
A = 64kB
C = 16KB + 1MB SPI Flash
1 = 16KB + 1MB SPI Flash (SL955) Different memory & page size.
New firmware v1.416 and above needed
F = 16KB + 2.1MB SPI Flash
2 = 16KB + 2.11MB SPI Flash (Numonyx) Different memory & page size.
New firmware v1.416 and above needed

Battery Type
1 = 950mAh internal battery (10 year+)
2 = 950mAh external battery (10 year+)

LCD Type
1 = Standard VDEW Display
2 = Standard VDEW with white backlight

-

Pulsing LEDs
0 = None
1 = LED1

2 = LED1, 2

Passive Inputs

0 = None
A = 1 x 240V
B = 1 x 110V
C = 1 x 048V
D = 1 x 012V
E = 1 x 005V
F = 2 x 240V
G = 2 x 110V
H = 2 x 048V
I = 2 x 012V
J = 2 x 005V
K = 3 x 240V
L = 3 x 110V
M = 3 x 048V
N = 3 x 012V
P = 3 x 005V
Q = 4 x 240V
R = 4 x 110V
S = 4 x 048V
T = 4 x 012V
U = 4 x 005V

Note: Maximum 4 I / O available only.

Active Inputs

0 = None
1 = 1 x 012V Active
2 = 2 x 012V Active
3 = 3 x 012V Active
4 = 4 x 012V Active

BOSFET Outputs

0 = None
1 = 1 x 240V FET
2 = 2 x 240V FET
3 = 3 x 240V FET
4 = 4 x 240V FET

S0 Outputs

0 = None
1 = 1 x S0
2 = 2 x S0
3 = 3 x S0
4 = 4 x S0

Relay Outputs

0 = None
1 = 1 x 2-A Relay
2 = 2 x 2-A Relay (Not available for Flag with Magnetic washer)

-

Tamper Detection Options

0 = None
1 = Magnetic Tamper Detection (High sensitivity, 2xReed Sensor) +Magnetically immune CT
3 = Terminal Cover Tamper Detection
4 = Lid Cover Tamper Detection
5 = Magnetic (High Sensitivity) + Terminal Cover Tamper Detection + Magnetically immune CT
7 = Terminal Cover + Lid Cover Tamper Detection
8 = Magnetic (High Sensitivity) + Terminal Cover + Lid Tamper Detection+ Magnetically immune CT
A = Magnetic (High Sensitivity) + Lid Cover Tamper Detection + Magnetically immune CT
B = Magnetic Tamper Detection (High sensitivity)
C = Magnetic (High Sensitivity) + Terminal Cover Tamper Detection
D = Magnetic (High Sensitivity) + Terminal Cover + Lid Tamper Detection
E = Magnetic(High Sensitivity) + Lid Cover Tamper Detection

Special Option

<Blank> = No special option
P = Terminal block with Combined Pozi Head M8 Grub screw

6. Document Revision History

Issue	Date	Comments
1	07/01/2020	Initial Issue
2	10/09/2020	BoM versions corrected

END OF CERTIFICATE