



SGS

EU Type Examination Certificate Number: 0120/ SGS0009/R1

EDMI Limited

47 Yishun Industrial Park A
Singapore
768724

Instrument Identification
Mk10D

Description

Polyphase, Credit/ Pre-payment, Active Import/ Export, Multi-rate, Electricity Meter

Instrument Traceable Number
0120/ SGS0009

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 28th November 2018 until 27th November 2028
Issue 1

Certification is based on report number(s)
EMA110673 dated 28th November 2008
EMA153707 dated 23rd November 2011
EMA263831/1 dated 27th November 2018, EMA263831/TR50579 dated 2th November 2018

Authorised Signature

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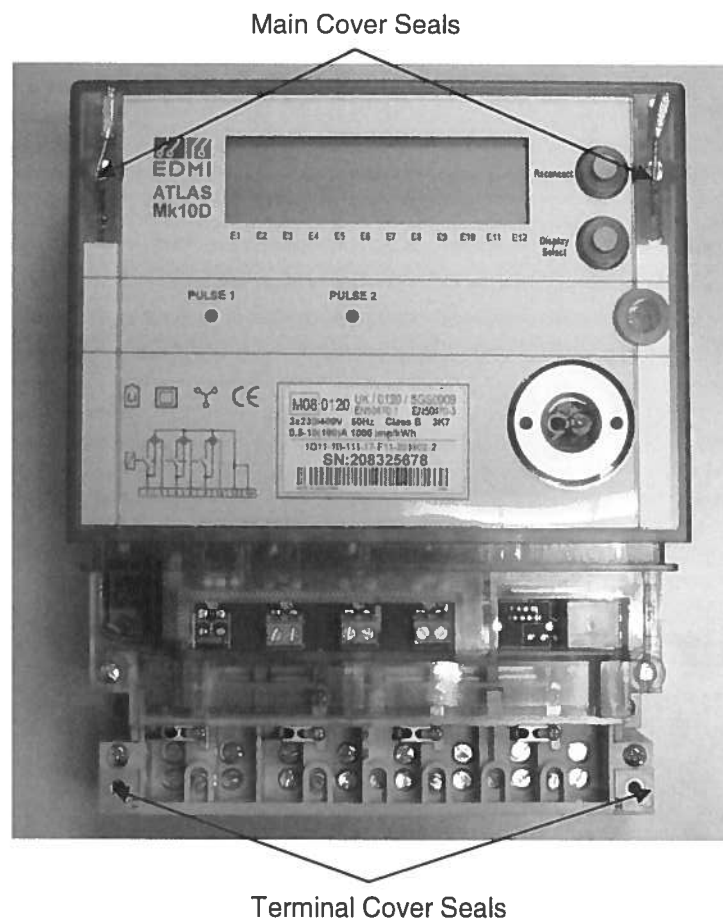
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1. Technical Data

Manufacturer	EDMI Limited
Meter Type	MK10D
Voltage Rating (U_n)	220-240V, 3x220/380-3x240/415V
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, 3p4w
Temperature Range	-40°C to +70°C
Software/ Firmware Version No's	1.27 to 1.36, 1.36 to 1.366 1.40 to 1.402, 1.41 to 1.417 1.42, 1.43 to 1.434, 1.45, 1.464, 1.502
CRC Checksum No's	V1.417: 0xA16E
Identification Location	LCD
Bill Of Materials No's	BOM MK10D Base Card Rev D Rev 004 BOM MK10D CPU Card Rev D Rev 007
IP Rating	IP54
Insulation Protective Class	Class II
LED Pulse Constant	10imp/kWh, 500imp/kWh, 1000imp/kWh
Impulse Voltage Rating	6kV
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)	DIN
Location of Manufacturers Address	Associated Documents

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2. Photograph of Meter and Sealing Plan



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3. 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:-

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

where

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




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		Influence Factors for temperature, frequency and voltage							
Current	PF Cos	-40°C	-25°C	-10°C	5°C	30°C	40°C	55°C	70°C
I _{min}	1.0	0.29	0.26	0.18	0.16	0.19	0.25	0.32	0.46
I _{tr}	1.0	0.26	0.22	0.15	0.14	0.17	0.22	0.31	0.44
10I _{tr}	1.0	0.15	0.15	0.15	0.15	0.19	0.26	0.37	0.53
I _{max}	1.0	0.14	0.13	0.14	0.14	0.18	0.25	0.37	0.54
I _{tr}	0.5ind	1.75	1.51	1.14	0.81	0.09	0.45	0.94	1.50
10I _{tr}	0.5ind	1.74	1.46	1.06	0.67	0.22	0.58	1.08	1.64
I _{max}	0.5ind	1.93	1.61	1.15	0.76	0.21	0.57	1.10	1.70
I _{tr}	0.8cap	1.17	0.95	0.64	0.28	0.27	0.25	0.24	0.24
10I _{tr}	0.8cap	0.81	0.66	0.42	0.30	0.15	0.13	0.13	0.13
I _{max}	0.8cap	0.79	0.64	0.40	0.25	0.12	0.11	0.12	0.12
L1						0.00	0.00	0.00	0.00
I _{tr}	1.0	0.12	0.13	0.16	0.14	0.16	0.24	0.41	0.59
10I _{tr}	1.0	0.22	0.24	0.24	0.17	0.19	0.28	0.47	0.67
I _{max}	1.0	0.25	0.25	0.25	0.19	0.22	0.30	0.50	0.71
I _{tr}	0.5ind	1.52	1.28	1.07	0.67	0.36	0.76	1.40	2.11
10I _{tr}	0.5ind	1.54	1.25	1.03	0.60	0.43	0.86	1.50	2.19
I _{max}	0.5ind	1.69	1.37	1.08	0.66	0.49	0.92	1.58	2.29
L2									
I _{tr}	1.0	0.70	0.45	0.23	0.16	0.18	0.25	0.33	0.50
10I _{tr}	1.0	0.43	0.30	0.17	0.16	0.21	0.31	0.43	0.61
I _{max}	1.0	0.37	0.26	0.15	0.15	0.21	0.29	0.42	0.64
I _{tr}	0.5ind	1.63	1.30	0.92	0.57	0.18	0.51	0.96	1.54
10I _{tr}	0.5ind	1.66	1.27	0.87	0.49	0.45	0.77	1.19	1.75
I _{max}	0.5ind	1.85	1.38	0.94	0.53	0.47	0.81	1.27	1.81
L3									
I _{tr}	1.0	0.19	0.16	0.15	0.13	0.12	0.14	0.17	0.24
10I _{tr}	1.0	0.14	0.14	0.15	0.15	0.16	0.19	0.24	0.33
I _{max}	1.0	0.13	0.13	0.13	0.14	0.16	0.18	0.24	0.35
I _{tr}	0.5ind	1.84	1.54	0.21	0.52	0.16	0.43	0.92	1.40
10I _{tr}	0.5ind	1.86	1.52	0.94	0.47	0.26	0.52	1.00	1.50
I _{max}	0.5ind	2.57	2.19	1.61	1.05	0.31	0.60	0.83	1.20

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4. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
MK 10D 2000-1Dxx-xx-xxx-xx-xxx-xxxxxx-xx	<p>Accuracy 1 = Class B Active Energy 2 = Class A Active Energy</p> <p>Series 0 = Standard Config (MCU449) 1 = Standard Config (MCU4618)</p> <p>Voltage Range 1 = 220-240V</p> <p>Current Range A = 0,25-5(100)A B = 0,5-10(100)A</p> <p>Terminal Block Options 0 = Terminal block with Internal CT-VT link 1 = Terminal block with External CT-VT link</p> <p>Terminal Cover Configuration 0 = No Terminal Cover fitted 1 = Standard Terminal Cover 2 = Short Terminal Cover 3 = Long Terminal Cover 5 = Long Terminal Cover with Intercel SAM2 6 = Long terminal cover for SSN</p> <p>Base Box & Relay Type 1 = Base Box with 3-phase Disconnect relays 2 = Neutral current Base Box with 3x Disconnect Relays(double switching capacity)</p> <p>Optical Communications 1 = IEC Flag</p> <p>Modem Communications 0 = None 1 = Modem: RS232 with DTR (TB10) 2 = SCADA: RS485 (4-wire) with 2xRJ45 4 = SCADA: RS485 (2-wire) with 2xRJ45 5 = Modem: RS232 (RJ45 TB10) (5W from new version onwards) 7 = Modem: RS232 (RJ45 TB10); SCADA: RS232 (RJ45 TB10 Pin 7 & 8) 9 = Modem: RS232 (RJ45 10); SCADA: RS232 (Slave RJ45 TB9 Pin 5 & 6) G= Modem: RS232 (RJ45 TB9); SCADA: RS485 4-wire (Slave RJ45 TB10) S = Modem: RS232 (RJ45 TB9); SCADA: RS485 2-wire (Screw Terminal TB10) T= SCADA: RS485 4-wire (2x RJ45, TB9 & TB10); (5W from new version onwards) U= Modem: RS232 (RJ45 TB10); SCADA: RS485 2-wire (RJ45 TB10, pins 7&8); V= Modem: RS232 (RJ45 TB10); SCADA: RS485 2-wire W = SCADA: RS485 2-wire (Screw Terminals TB1)</p> <p>EEPROM Memory & MCU Option Base Box & Relay Type = 1 -----> A = 64kB Base Box & Relay Type = 1 -----> C = 16kB+1MB SPI Flash Base Box & Relay Type = 2 -----> D = 1MB SPI Flash Base Box & Relay Type = 1 -----> 1 = 16kB+1MB SPI Flash (SL955) Different memory size and page size. New firmware v1.416 and above needed Base Box & Relay Type = 1 -----> F = 16kB+2.1MB SPI Flash Base Box & Relay Type = 2 -----> G = 2.1MB SPI Flash Base Box & Relay Type = 1 -----> 2 = 16kB+2.1MB SPI Flash (Numonyx) Different memory size and page size. New firmware v1.416 and above needed</p> <p>Battery Type 1 = 950mAh internal battery (10 year+)</p> <p>LCD Type 1 = Standard VDEW Display 3 = Standard VDEW Display with White Backlight [Consult Engineering before order]</p> <p>Pulsing LEDs 0 = None 1 = LED1 2 = LED1, 2</p> <p>Passive Inputs (Note:- Different IO combinations can be chosen only up to max. of 4) 0 = None</p>

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A = 1x240V
 B = 1x110V
 C = 1x048V
 D = 1x012V
 E = 1x005V
 F = 2x240V
 G = 2x110V
 H = 2x048V
 I = 2x012V
 J = 2x005V
 K = 3x240V
 L = 3x110V
 M = 3x048V
 N = 3x012V
 P = 3x005V
 Q = 3x240V
 R = 3x110V
 S = 3x048V
 T = 3x012V
 U = 3x005V

Active Inputs

0 = None
 1 = 1 x 005V Active
 2 = 2 x 005V Active
 3 = 3 x 005V Active
 4 = 4 x 005V 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
 3 = 3 x 2-A Relay
 4 = 4 x 2-A Relay


Tamper Detection Features

0 = None
 1 = Magnetic Tamper Detection (High sensitivity, 2xReed relay)
 2 = Terminal Cover Tamper Detection
 3 = Lid Cover Tamper Detection [Reserved]
 4 = Magnet Tamper + Terminal Cover Tamper Detection

Special Option

<Blank> = No special option
 N = Neutral Current Measurement [Consult Engineering before order]

Modifications to the meter(s) described according to approval No. **0120/ SGS0009/R1** 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	28/11/2018	Re approval initial issue

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