

EU Type Examination Certificate Number: **0120/SGS0381**

# Eetarp Engineering Pte. Ltd

11 Woodlands Close  
#08-13 Woodlands 11  
Singapore 737853

Instrument Identification:  
**GEM230-D Series**

**Single Phase, Active Import/Export (kWh), Indoor, Electricity Meter**

Instrument Traceable Number  
**0120/SGS0381**

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 until 29<sup>th</sup> September 2025  
Issue 1


Certification is based on report number(s) SHES141200649301 issued 16<sup>th</sup> April 2015  
EMA207767 issued 9<sup>th</sup> October 2015  
EMA257887

Authorised Signature




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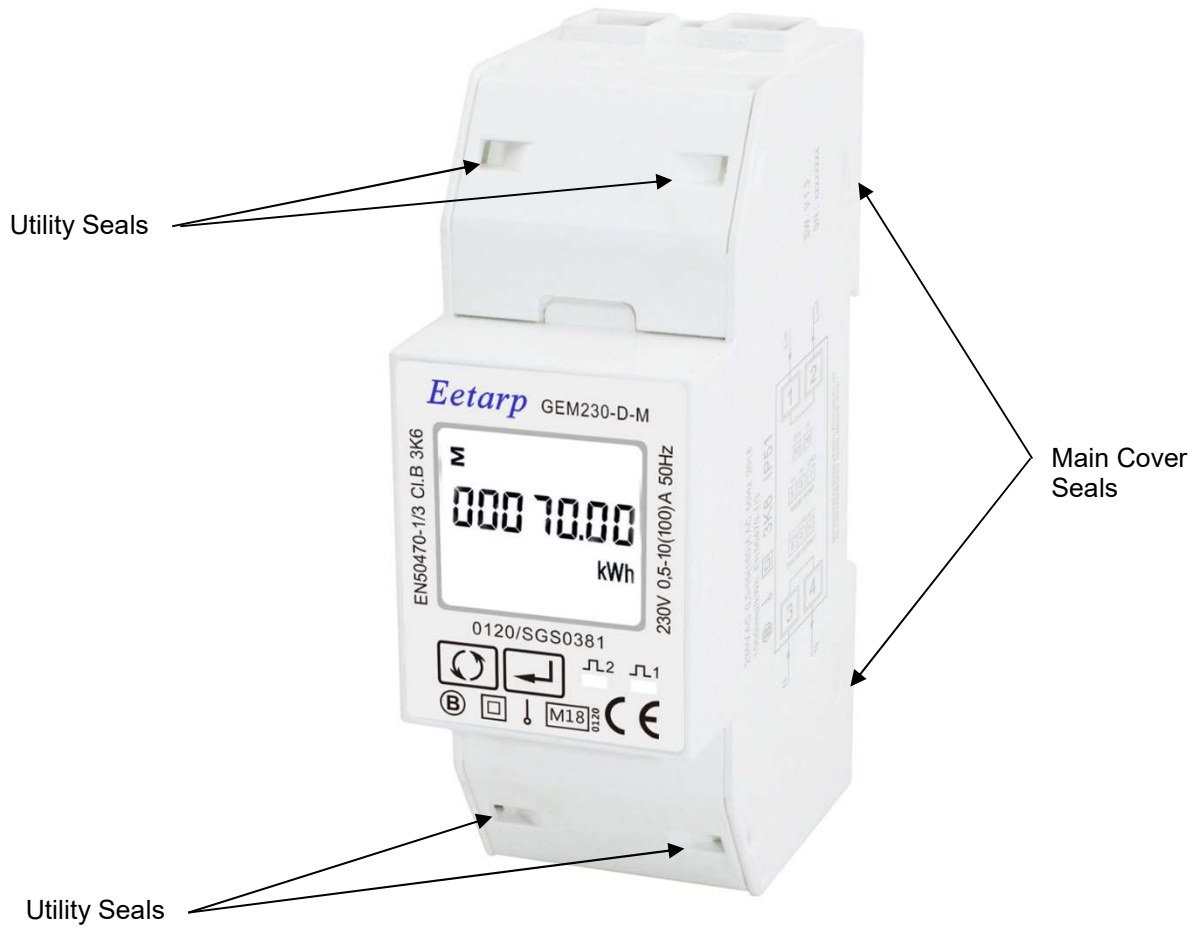
	EU-Type Examination Certificate Number:	
	<b>0120/SGS0381</b>	
	Issue Number: 1	Dated: 24 <sup>th</sup> August 2018


## 1. Technical Data

<b>Manufacturer</b>	Eetarp Engineering Pte. Ltd
<b>Meter Type</b>	GEM230-D-M, GEM230-D-MB, GEM230-D-P, GEM230-D-DR, GEM230-D-Bi, GEM230-D
<b>Voltage Rating (<math>U_n</math>)</b>	230V
<b>Current Rating (<math>I_{min} - I_{ref} (I_{max})</math>)</b>	0.5-10(100)A
<b>Frequency (<math>F_n</math>)</b>	50Hz
<b>Active Accuracy Class (kWh)</b>	A or B (kWh)
<b>Type of circuit</b>	1p2w
<b>Temperature Range</b>	-25°C to +55°C
<b>Software/ Firmware Version No</b>	GEM230-D-M, GEM230-D-MB, GEM230-D-P, GEM230-D-DR, GEM230-D-Bi: V1.2 GEM230-D: V1.3
<b>CRC Checksum</b>	GEM230-D-M, GEM230-D-MB, GEM230-D-P, GEM230-D-DR, GEM230-D-Bi: 0x000052F2 GEM230-D: 0x00001AD5
<b>Identification Location</b>	Side of meter
<b>Bill Of Materials Number</b>	GEM230-D-M, GEM230-D-MB, GEM230-D-P, GEM230-D-DR, GEM230-D-Bi: 20150929 GEM230-D: DH-JS-180009-1.0
<b>IP Rating</b>	IP51
<b>Insulation Protective Class</b>	Class II
<b>LED Pulse Constant</b>	1000imp/kWh
<b>Impulse Voltage Rating</b>	6kV
<b>AC Voltage Rating</b>	4kV
<b>Main Cover Sealing Type</b>	4 x Wire & Crimp
<b>Integrity of meter</b>	Inaccessible without breaking seals
<b>Intended Location of the Meter</b>	Indoor
<b>Type of Register</b>	LCD
<b>Terminal Arrangement(s)</b>	DIN
<b>Location of Manufacturers Address</b>	Side of meter

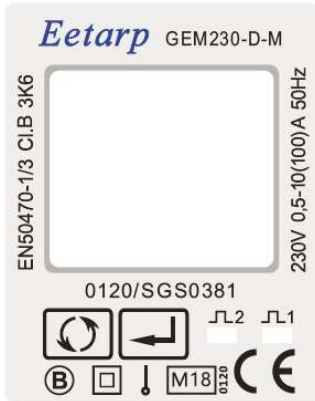
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**2. Photograph of Meter and Sealing Plan**



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### 3. Examples of Nameplates



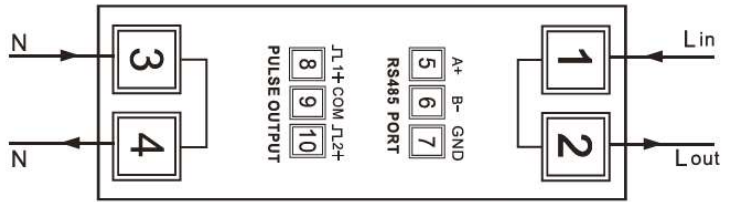
**GEM230-D-M Art. Number: GEMXMC512XX1**

**Single Phase Energy Meter-0120/SGS0381**

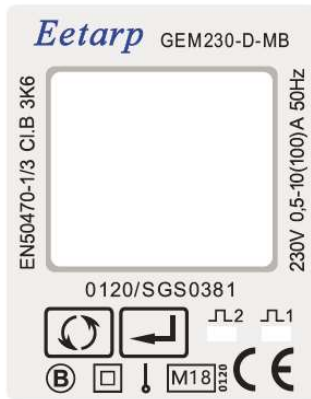
230V AC 0,5-10(100)AAC 50Hz 2018

1000imp/kWh EN50470-1/3 IP51 SW:V1.2

CE M18 0120 B ⚡ □ 3K6



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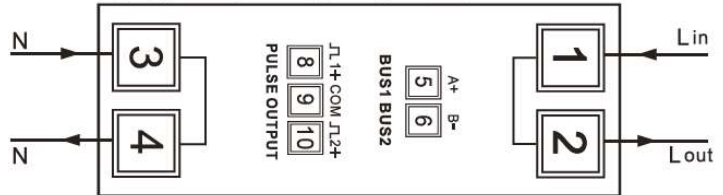
**GEM230-D-MB Art. Number: GEMXMM512XX1**

**Single Phase Energy Meter-0120/SGS0381**

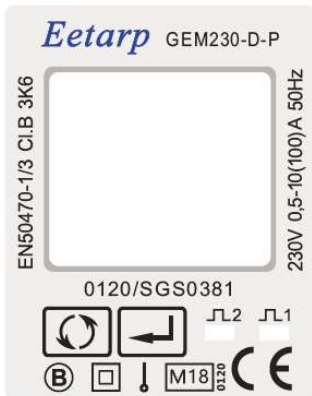
230V AC 0,5-10(100)AAC 50Hz 2018

1000imp/kWh EN50470-1/3 IP51 SW:V1.2

CE M18 0120 B ⚡ □ 3K6



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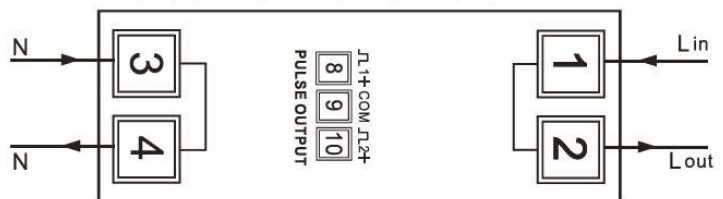
**GEM230-D-P Art. Number: GEMXMX1X2X1**

**Single Phase Energy Meter-0120/SGS0381**

230V AC 0,5-10(100)AAC 50Hz 2018

1000imp/kWh EN50470-1/3 IP51 SW:V1.2

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# SGS

EU-Type Examination Certificate Number:

## 0120/SGS0381

Issue Number: 1

Dated: 24<sup>th</sup> August 2018



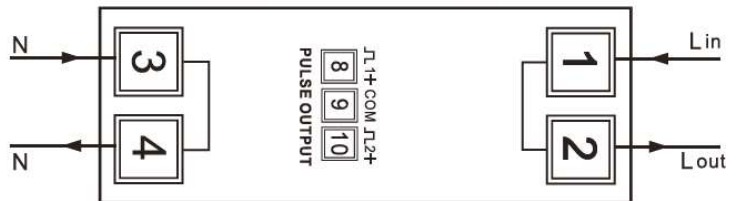
**GEM230-D-DR**

**Single Phase Energy Meter-0120/SGS0381**

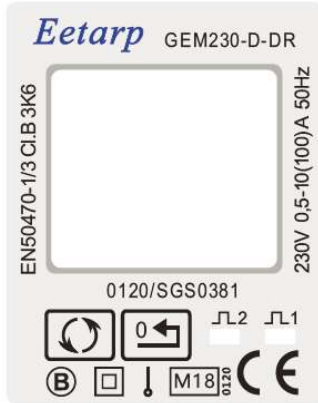
230V AC 0,5-10(100)AAC 50Hz 2018

1000imp/kWh EN50470-1/3 IP51 SW:V1.2

CE M18 0120 B ⚡ 3K6



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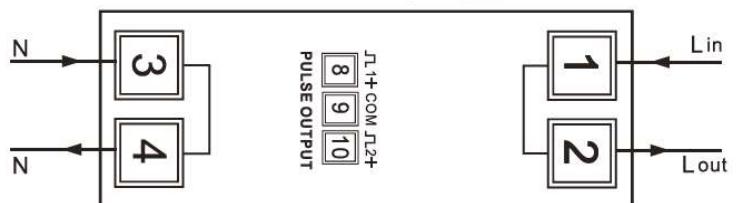
**GEM230-D-Bi**

**Single Phase Energy Meter-0120/SGS0381**

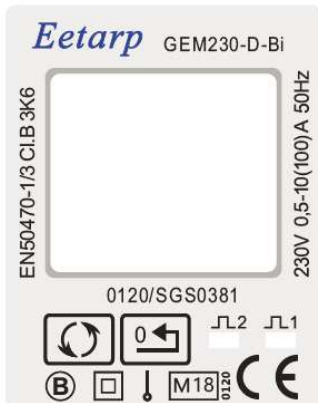
230V AC 0,5-10(100)AAC 50Hz 2018

1000imp/kWh EN50470-1/3 IP51 SW:V1.2

CE M18 0120 B ⚡ 3K6



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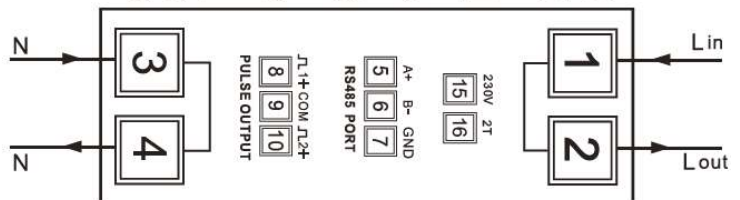
**GEM230-D Art. Number: GEMXMC512221**

**Single Phase Energy Meter-0120/SGS0381**

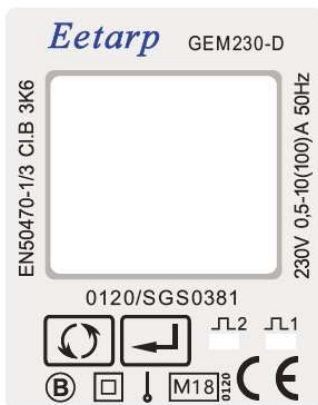
230V AC 0,5-10(100)AAC 50Hz 2018


1000imp/kWh EN50470-1/3 IP51 SW: V1.3

CE M18 0120 B ⚡ 3K6



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#### 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:-

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

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

		<b>Influence Factors for Temperature, Voltage &amp; Frequency</b>					
Current	PF Cos	-25°C	-10°C	5°C	30°C	40°C	55°C
I <sub>min</sub>	1.0	0.45	0.33	0.23	0.15	0.17	0.23
I <sub>tr</sub>	1.0	0.44	0.31	0.19	0.07	0.10	0.18
10I <sub>tr</sub>	1.0	0.42	0.29	0.18	0.03	0.08	0.16
I <sub>max</sub>	1.0	0.27	0.19	0.12	0.03	0.06	0.12
I <sub>tr</sub>	0.5ind	0.48	0.36	0.27	0.17	0.18	0.22
10I <sub>tr</sub>	0.5ind	0.41	0.28	0.17	0.03	0.08	0.17
I <sub>max</sub>	0.5ind	0.27	0.18	0.12	0.04	0.07	0.13
I <sub>tr</sub>	0.8cap	0.45	0.31	0.20	0.09	0.12	0.18
10I <sub>tr</sub>	0.8cap	0.40	0.27	0.16	0.04	0.10	0.19
I <sub>max</sub>	0.8cap	0.26	0.19	0.11	0.05	0.08	0.15


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## 5. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
GEM230-D-M:	Single tariff, total active energy, resettable active energy, import active energy, export active energy, total reactive energy, import reactive energy, export reactive energy, active power, reactive power, voltage, current, frequency, power factor, power demand, RS485 Modbus communication
GEM230-D-MB	Single tariff, total active energy, resettable active energy, import active energy, export active energy, total reactive energy, import reactive energy, export reactive energy, active power, reactive power, voltage, current, frequency, power factor, power demand, Mbus communication
GEM230-D-P:	Single tariff, total active energy, resettable active energy, import active energy, export active energy total reactive energy import reactive energy export reactive energy active, power reactive, power, voltage, current, frequency, power factor, power demand.
GEM230-D-DR:	Single tariff, total active energy, resettable energy, active power
GEM230-D-Bi:	Single tariff, import active energy, export active energy, import active power, export active power, total active energy, total active power
GEM230-D:	Two tariff, total active energy, resettable active energy, import active energy, export active energy, total reactive energy, import reactive energy, export reactive energy, active power, reactive power, voltage, current, frequency, power factor, power demand, RS485 Modbus communication

Modifications to the meter(s) described according to approval No.**0120/SGS0381** 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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## 6. Document Revision History

Issue	Date	Comments
1	24/08/2018	Initial Issue

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested *and such sample(s) are retained for 28 days only*.

***END OF CERTIFICATE***