



EU Type Examination Certificate Number: **0120/SGS0380**

## **Eetarp Engineering Pte. Ltd**

11 Woodlands Close  
#08-13 Woodlands 11  
Singapore 737853

Instrument Identification:  
**GEM630-D Series**

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

Instrument Traceable Number  
**0120/SGS0380**

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 5<sup>th</sup> January 2025  
Issue 1

Certification is based on report number(s) SHES130800321501 dated 26<sup>th</sup> December 2014  
EMA198278/1 dated 26<sup>th</sup> December 2014  
EMA198278/2 dated 21<sup>st</sup> June 2016  
EMA257887

Authorised Signature


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	Issue Number: 1	Dated: 24 <sup>th</sup> August 2018


## 1. Technical Data

Manufacturer	Eetarp Engineering Pte. Ltd
Meter Type	GEM630-D-MT, GEM630-D-M, GEM630-D-MB, GEM630-D-P, GEM630-D-B, GEM630-D
Voltage Rating ( $U_n$ )	3x230/400V
Current Rating ( $I_{min} - I_{ref} (I_{max})$ )	0.5-10(100)A
Frequency ( $F_n$ )	50Hz
Active Accuracy Class (kWh)	A or B (kWh)
Type of circuit	3p4w, 3p3w, 1p2w
Temperature Range	-25°C to +55°C
Software/ Firmware Version No	GEM630-D-MT, GEM630-D-M, GEM630-D-MB, GEM630-D-P, GEM630-D-B: V1.3 GEM630-D: V1.4
CRC Checksum	GEM630-D-MT, GEM630-D-M, GEM630-D-P, GEM630-D-B: 0x0000AFF9 GEM630-D-MB: 0x00003C02 GEM630-D: 0x00009DF4
Identification Location	Nameplate
Bill Of Materials Number	GEM630-D-MT, GEM630-D-M, GEM630-D-MB, GEM630-D-P, GEM630-D-B: V1.4 GEM630-D: DH-JS-180008-1.0
IP Rating	IP51
Insulation Protective Class	Class II
LED Pulse Constant	400imp/kWh
Impulse Voltage Rating	6kV
AC Voltage Rating	4kV
Main Cover Sealing Type	1 x Wire & Crimp
Integrity of meter	Inaccessible without breaking seals
Intended Location of the Meter	Indoor
Type of Register	LCD
Terminal Arrangement(s)	DIN
Location of Manufacturers Address	Side of meter

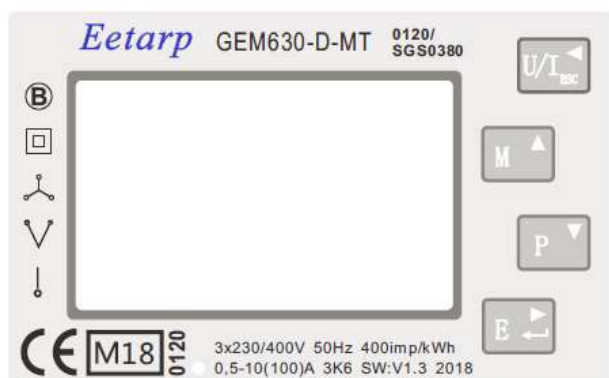
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## 2. Photograph of Meter and Sealing Plan



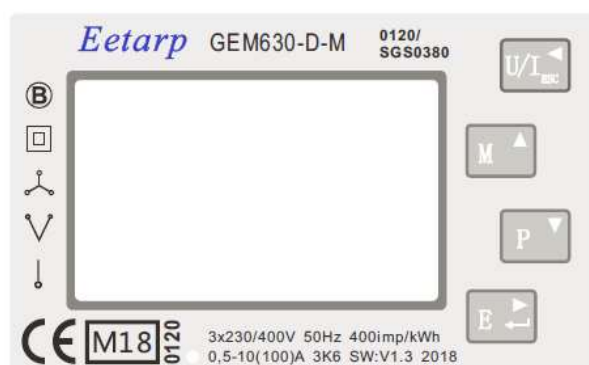
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### 3. Examples of Nameplates



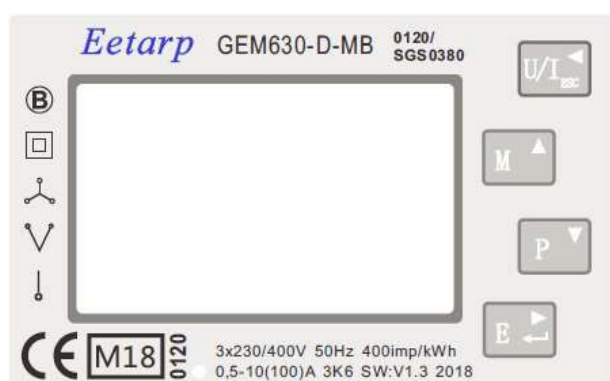
Model: GEM630-D-MT  
Art. Number: GEMXMC522241  
Measurement range: Direct Connection up to 100A  
4 Tariff Port: RS485 Protocol: Modbus  
Accuracy: MID Class B

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Model: GEM630-D-M  
Art. Number: GEMXMC522XX1  
Measurement range: Direct Connection up to 100A  
Port: RS485 Protocol: Modbus  
Accuracy: MID Class B

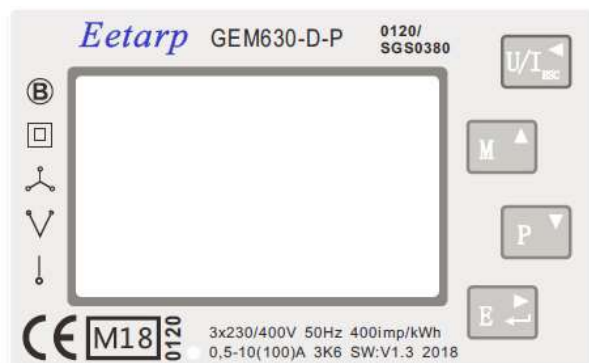
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Model: GEM630-D-MB  
Art. Number: GEMXMM522XX1  
Measurement range: Direct Connection up to 100A  
Port: M-BUS Protocol: M-BUS  
Accuracy: MID Class B

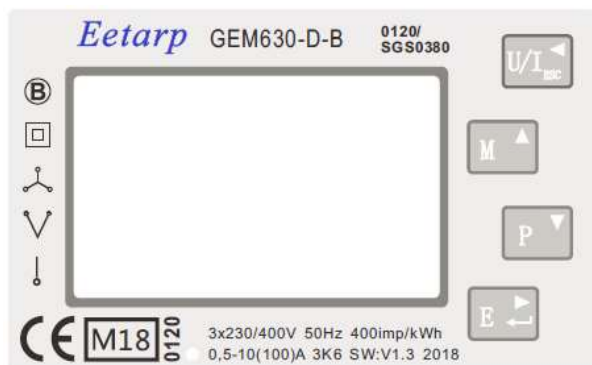
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Model: GEM630-D-P  
 Art. Number: GEMXMX2X2X1  
 Measurement range: Direct Connection up to 100A  
 Two Pulse outputs  
 Accuracy: MID Class B

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Model: GEM630-D-B  
 Art. Number: GEMXMC521XX1  
 Measurement range: Direct Connection up to 100A  
 Port: RS485 Protocol: Modbus  
 Accuracy: MID Class B

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Model: GEM630-D  
 Art. Number: GEMXMC522221  
 Measurement range: Direct Connection up to 100A  
 2 Tariff Port: RS485 Protocol: Modbus  
 Accuracy: MID Class B

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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

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		Influence Factors for Temperature. Frequency & Voltage					
Current	PF Cos	-25°C	-10°C	5°C	30°C	40°C	55°C
I <sub>min</sub>	1.0	0.46	0.34	0.14	0.18	0.29	0.52
I <sub>tr</sub>	1.0	0.57	0.39	0.19	0.11	0.24	0.46
10I <sub>tr</sub>	1.0	0.64	0.45	0.25	0.06	0.20	0.42
I <sub>max</sub>	1.0	0.75	0.60	0.44	0.26	0.23	0.30
I <sub>tr</sub>	0.5ind	0.56	0.40	0.20	0.14	0.24	0.49
10I <sub>tr</sub>	0.5ind	0.60	0.43	0.23	0.11	0.23	0.45
I <sub>max</sub>	0.5ind	0.62	0.47	0.30	0.05	0.10	0.28
I <sub>tr</sub>	0.8cap	0.65	0.46	0.27	0.11	0.21	0.43
10I <sub>tr</sub>	0.8cap	0.62	0.44	0.24	0.12	0.24	0.46
I <sub>max</sub>	0.8cap	0.69	0.55	0.37	0.16	0.14	0.28
L1							
I <sub>tr</sub>	1.0	0.84	0.60	0.32	0.08	0.20	0.48
10I <sub>tr</sub>	1.0	0.97	0.71	0.46	0.10	0.13	0.36
I <sub>max</sub>	1.0	0.93	0.70	0.48	0.16	0.06	0.25
I <sub>tr</sub>	0.5ind	0.60	0.32	0.09	0.25	0.42	0.66
10I <sub>tr</sub>	0.5ind	0.79	0.56	0.29	0.12	0.27	0.53
I <sub>max</sub>	0.5ind	0.84	0.63	0.40	0.10	0.11	0.33
L2							
I <sub>tr</sub>	1.0	0.40	0.26	0.09	0.08	0.16	0.37
10I <sub>tr</sub>	1.0	0.42	0.31	0.19	0.08	0.17	0.36
I <sub>max</sub>	1.0	0.44	0.36	0.25	0.08	0.08	0.23
I <sub>tr</sub>	0.5ind	0.20	0.09	0.24	0.27	0.35	0.53
10I <sub>tr</sub>	0.5ind	0.43	0.30	0.17	0.10	0.20	0.40
I <sub>max</sub>	0.5ind	0.46	0.35	0.25	0.09	0.06	0.20
L3							
I <sub>tr</sub>	1.0	0.55	0.37	0.15	0.14	0.30	0.51
10I <sub>tr</sub>	1.0	0.51	0.33	0.11	0.20	0.33	0.56
I <sub>max</sub>	1.0	0.55	0.39	0.21	0.10	0.21	0.52
I <sub>tr</sub>	0.5ind	0.41	0.24	0.06	0.32	0.46	0.66
10I <sub>tr</sub>	0.5ind	0.41	0.22	0.04	0.31	0.46	0.67
I <sub>max</sub>	0.5ind	0.43	0.30	0.34	0.17	0.30	0.53

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## 5. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
GEM630-D-MT:	Three phase, multi-function, multi-tariff, 2 pulse outputs and 1 RS485 Modbus communication port
GEM630-D-M:	Three phase, multi-function, 2 pulse outputs and 1 RS485 communication port
GEM630-D-MB:	Three phase, multi-function, 2 pulse outputs and 1 Mbus communication port
GEM630-D-P:	Three phase, multi-function, 2 pulse outputs
GEM630-D-B:	Three phase, 2 pulse outputs and 1 RS485 communication port
GEM630-D:	Three phase, multi-function, 2 pulse outputs and 1 RS485 communication port

Modifications to the meter(s) described according to approval No.**0120/SGS0380** 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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**END OF CERTIFICATE**