



EU Type Examination Certificate Number: **0120/SGS0292**

## **ZELEC FRANCE**

1652 Avenue Paul Jullien  
13100 Le Tholonet  
France

Instrument Identification:  
**EM3100 Series**

Instrument Traceable Number  
**0120/SGS0292**

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

has been assessed and certified as meeting the requirements of

## **EU Directive 2014/32/EU**

**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  
EMA237965

Authorised Signature


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## 1. Technical Data

<b>Manufacturer</b>	ZELEC FRANCE
<b>Meter Types</b>	EM31000PURSM EM31000PUMBM EM31000PSHTM EM31000PUM
<b>Voltage Rating (<math>U_n</math>)</b>	3x230/400V
<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 (<math>kWh</math>)</b>	A or B ( $kWh$ )
<b>Type of circuit</b>	3p4w, 3p3w, 1p2w
<b>Temperature Range</b>	-25°C to +55°C
<b>Software Version No.</b>	V1.3
<b>Identification Location</b>	Nameplate
<b>Bill Of Materials</b>	EM31000PURSM: V1.4 EM31000PUMBM: V1.4 EM31000PSHTM: V1.4 EM31000PUM: V1.4
<b>IP Rating</b>	IP51
<b>Insulation Protective Class</b>	Class II
<b>LED Pulse Constant</b>	400imp/ kWh
<b>Impulse Voltage Rating</b>	6kV
<b>AC Voltage Rating</b>	4kV
<b>Main Cover Sealing Type</b>	1 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>Location of Distributors Name and Address</b>	Side of the meter and associated documentation

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## 2. Photograph of Meters and Sealing Plans



**Photograph of EM3100PURSM**



**Photograph of EM3100PUMBM**


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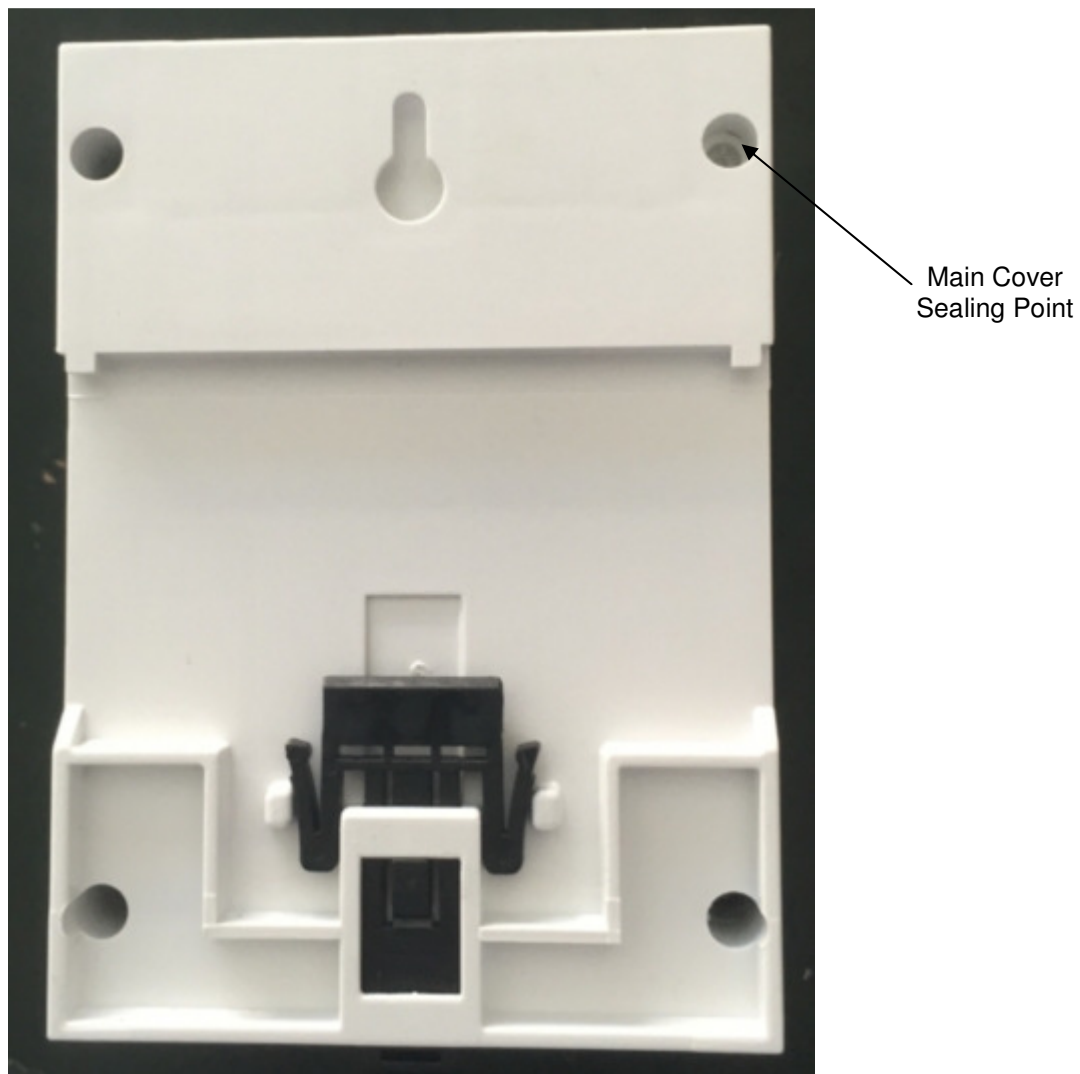



**Photograph of EM3100PUM**



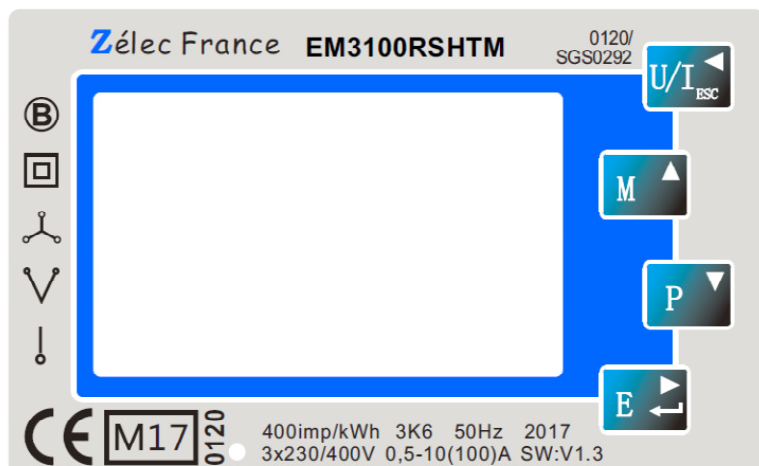
**Photograph of EM3100RSHTM**






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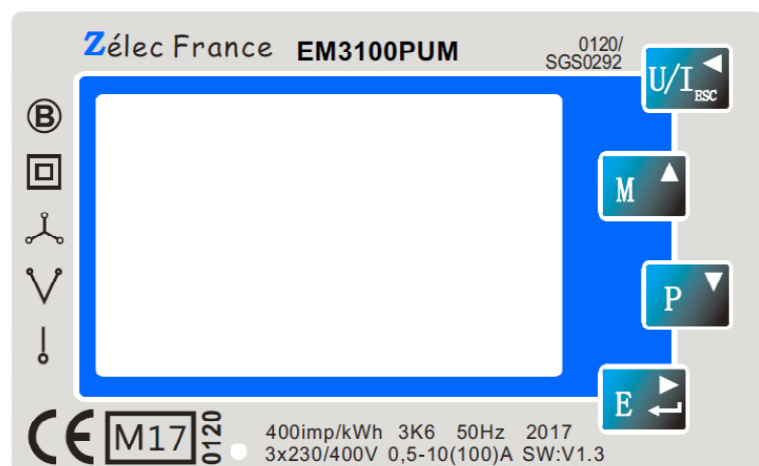







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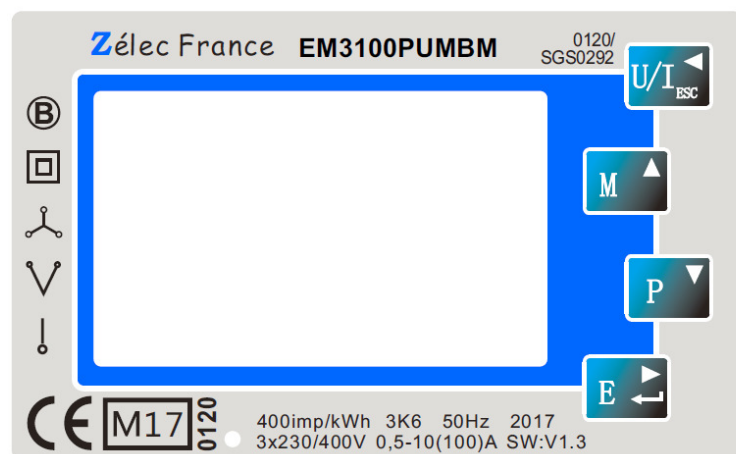
### 3. Examples of Nameplates









**Zélec France** 0120/SGS0292  
**EM3100RSHTM**   0120  
**COMPTEUR D'ENERGIE MID**  
 3x230/400V 0,5-10(100)A 50Hz 2017  
 400imp/kWh EN50470-1/3 SW:V1.3  
   **3K6 IP51**  
**Zélec France**  
 1652 Avenue Paul Jullien 13100 LE THOLONET FRANCE

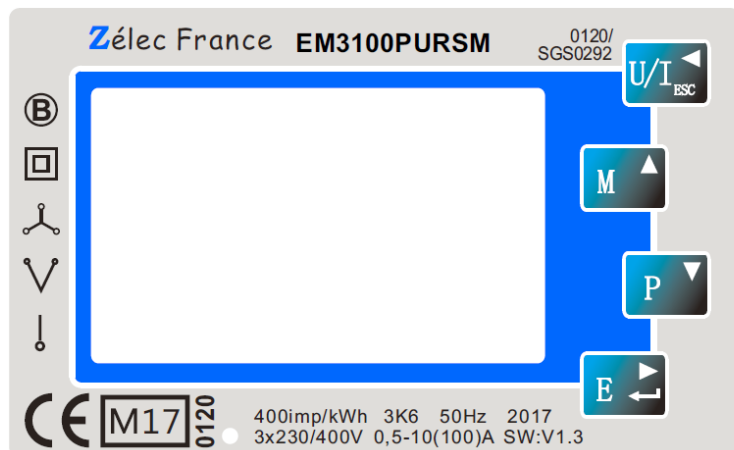




**Zélec France** 0120/SGS0292  
**EM3100PUM**   0120  
**COMPTEUR D'ENERGIE MID**  
 3x230/400V 0,5-10(100)A 50Hz 2017  
 400 imp/kWh EN50470-1/3 SW:V1.3  
   **3K6 IP51**  
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**Zélec France** 0120/SGS0292  
**EM3100PUMBM**   0120  
**COMPTEUR D'ENERGIE MID**  
 3x230/400V 0,5-10(100)A 50Hz 2017  
 400imp/kWh EN50470-1/3 SW:V1.3  
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**Zélec France** 0120/SGS0292  
**EM3100PURSM**   0120


**COMPTEUR D'ENERGIE MID**

3x230/400V 0,5-10(100)A 50Hz 2017  
400 imp/kWh EN50470-1/3 SW:V1.3

   **3K6 IP51**

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#### 4. Influence factors for temperature, frequency and voltage

		Influence Factors for Temperature. Frequency & Voltage					
Current	PF Cos	-25	-10	5	30	40	55
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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During the type approval examination the influence factors for temperature, frequency and voltage are determined per load point. The table above 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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## 5. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
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EM3100PSHTM:	Three phase, multi-function, multi-tariff, 2 pulse outputs and 1 RS485 Modbus communication port
EM3100PURSM:	Three phase, multi-function, 2 pulse outputs and 1 RS485 communication port
EM3100PUMBM:	Three phase, multi-function, 2 pulse outputs and 1 Mbus communication port
EM3100PUM:	Three phase, multi-function, 2 pulse outputs

Modifications to the meter(s) described according to approval No.**0120/SGS0292** 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	27/04/2017	Initial Issue

END OF TEST CERTIFICATE