EU Type Examination Certificate Number: **0120/SGS0448**

# SIA “Pawbol Baltic”

Katlakalna iela 9
Riga
Latvia

Instrument Identification:
**ESM3100 Series**

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

Instrument Traceable Number
**0120/SGS0448**

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 5th January 2025
Issue 1

Certification is based on report number(s) SHES130800321501 dated 26th December 2014
EMA198278/1 dated 26th December 2014
EMA198278/2 dated 21st June 2016
EMA282352

Authorised Signature

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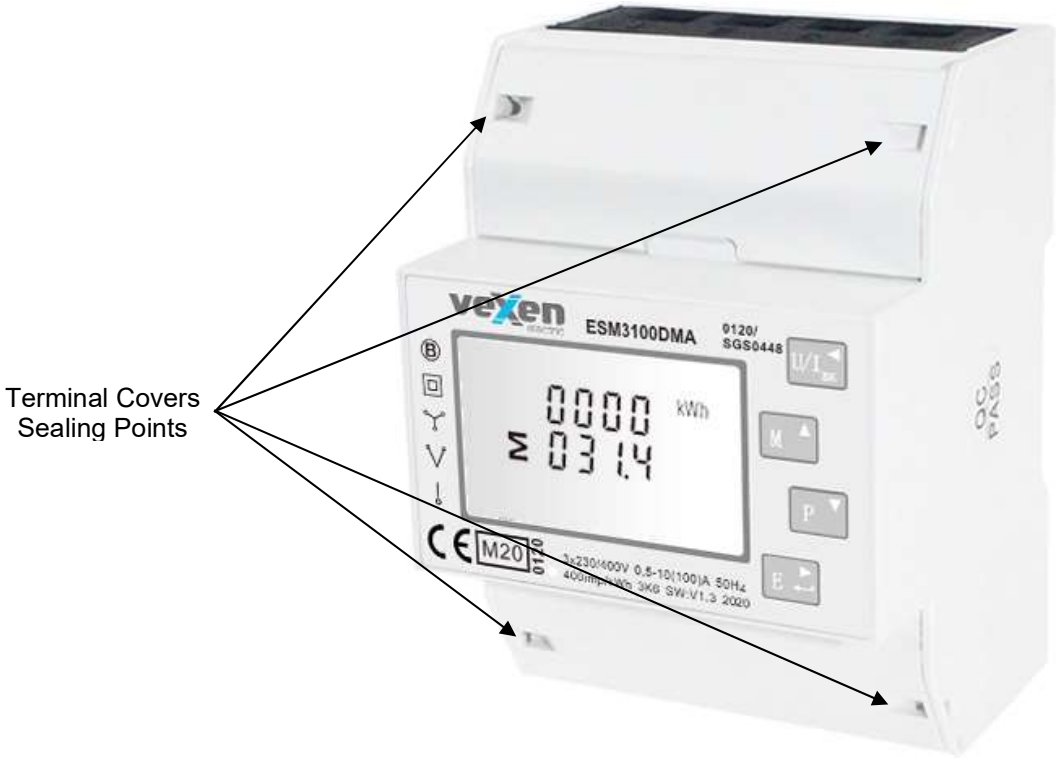
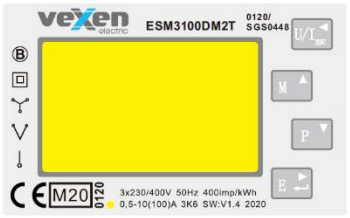
## 1. Technical Data

| | |
|---|---|
| **Manufacturer** | SIA "Pawbol Baltic" |
| **Meter Type** | ESM3100DP, ESM3100DMA, ESM3100DMM, ESM3100DMB, ESM3100DMMT, ESM3100DM2T, ESM3100DMB2T |
| **Voltage Rating *(Un)*** | 3x230/400V |
| **Current Rating *(Imin – Iref (Imax))*** | 0.5-10(100)A |
| **Frequency *(Fn)*** | 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**<br><br>**CRC Checksum**<br><br>**Identification Location** | ESM3100DMA, ESM3100DMMT, ESM3100DMM<br>ESM3100DMB, ESM3100DP: V1.3<br>ESM3100DM2T: V1.4<br>ESM3100DMB2T: V1.6<br><br>ESM3100DMMT, ESM3100DMM, ESM3100DMA,<br>ESM3100DP:0x0000AFF9<br>ESM3100DMB: 0x00003C02<br>ESM3100DM2T: 0x00009DF4<br>ESM3100DMB2T: 0x000075BC<br><br>Nameplate |
| **Bill Of Materials Number** | ESM3100DMA, ESM3100DMMT, ESM3100DMM, ESM3100DMB, ESM3100DP, ESM3100DM2T: DH-JS-180008-1.0<br>ESM3100DMB2T: DH-JS-190020-1.0 |
| **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** | On nameplate and accompanying documentation |

## 2. Photograph of Meter and Sealing Plan

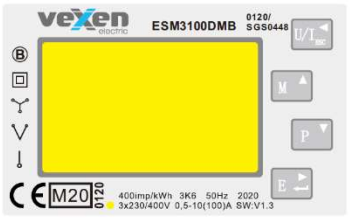


## 3. Examples of Nameplates

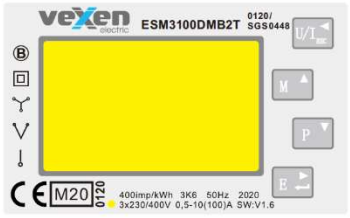



**ESM3100DM2T 0120/SGS0448**
**Three Phase Energy Meter**
3x230/400V AC 0,5-10(100)A AC 50Hz 2020
400imp/kWh EN50470-1/3 IP51 SW:1.4 CAT III
M20 0120 3K6
**SIA "Pawbol Baltic"**
Rīga, Katlakalna iela 9, LV-1073


**ESM3100DMA 0120/SGS0448**
**Three Phase Energy Meter**
3x230/400V AC 0,5-10(100)A AC 50Hz 2020
400imp/kWh EN50470-1/3 IP51 SW:1.3 CAT III
M20 0120 3K6
**SIA "Pawbol Baltic"**
Rīga, Katlakalna iela 9, LV-1073




**ESM3100DMB 0120/SGSS0448**
**Three Phase Energy Meter**
3x230/400V AC 0,5-10(100)A AC 50Hz 2020
400imp/kWh EN50470-1/3 IP51 SW:1.3 CAT III
M20 0120 3K6
**SIA "Pawbol Baltic"**
Rīga, Katlakalna iela 9, LV-1073




**ESM3100DMB2T 0120/SGS0448**
**Three Phase Energy Meter**
3x230/400V AC 0,5-10(100)A AC 50Hz 2020
400imp/kWh EN50470-1/3 IP51 SW:1.6 CAT III
M20 0120 3K6
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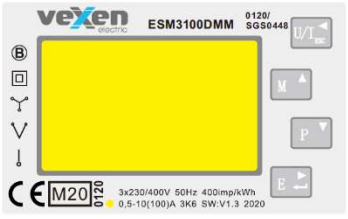
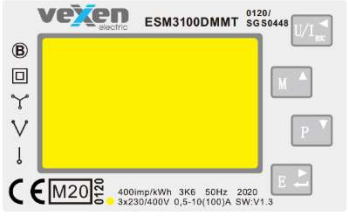
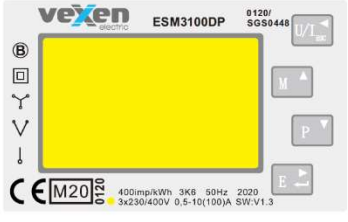



**ESM3100DMM 0120/SGS0448**
**Three Phase Energy Meter**
3x230/400V AC 0,5-10(100)A AC 50Hz 2020
400imp/kWh EN50470-1/3 IP51 SW:1.3 CAT III
M20 0120 3K6
**SIA "Pawbol Baltic"**
Rīga, Katlakalna iela 9, LV-1073




**ESM3100DMMT 0120/SGS0448**
**Three Phase Energy Meter**
3x230/400V AC 0,5-10(100)A AC 50Hz 2020
400imp/kWh EN50470-1/3 IP51 SW:1.3 CAT III
M20 0120 3K6
**SIA "Pawbol Baltic"**
Rīga, Katlakalna iela 9, LV-1073




**ESM3100DP 0120/SGS0448**
**Three Phase Energy Meter**
3x230/400V AC 0,5-10(100)A AC 50Hz 2020
400imp/kWh EN50470-1/3 IP51 SW:1.3 CAT III
M20 0120 3K6
**SIA "Pawbol Baltic"**
Rīga, Katlakalna iela 9, LV-1073

## 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 | 0.46 | 0.34 | 0.14 | 0.18 | 0.29 | 0.52 |
| Itr | 1.0 | 0.57 | 0.39 | 0.19 | 0.11 | 0.24 | 0.46 |
| 10Itr | 1.0 | 0.64 | 0.45 | 0.25 | 0.06 | 0.20 | 0.42 |
| Imax | 1.0 | 0.75 | 0.60 | 0.44 | 0.26 | 0.23 | 0.30 |
| | | | | | | | |
| Itr | 0.5ind | 0.56 | 0.40 | 0.20 | 0.14 | 0.24 | 0.49 |
| 10Itr | 0.5ind | 0.60 | 0.43 | 0.23 | 0.11 | 0.23 | 0.45 |
| Imax | 0.5ind | 0.62 | 0.47 | 0.30 | 0.05 | 0.10 | 0.28 |
| | | | | | | | |
| Itr | 0.8cap | 0.65 | 0.46 | 0.27 | 0.11 | 0.21 | 0.43 |
| 10Itr | 0.8cap | 0.62 | 0.44 | 0.24 | 0.12 | 0.24 | 0.46 |
| Imax | 0.8cap | 0.69 | 0.55 | 0.37 | 0.16 | 0.14 | 0.28 |
| | | | | | | | |
| L1 | | | | | | | |
| Itr | 1.0 | 0.84 | 0.60 | 0.32 | 0.08 | 0.20 | 0.48 |
| 10Itr | 1.0 | 0.97 | 0.71 | 0.46 | 0.10 | 0.13 | 0.36 |
| Imax | 1.0 | 0.93 | 0.70 | 0.48 | 0.16 | 0.06 | 0.25 |
| | | | | | | | |
| Itr | 0.5ind | 0.60 | 0.32 | 0.09 | 0.25 | 0.42 | 0.66 |
| 10Itr | 0.5ind | 0.79 | 0.56 | 0.29 | 0.12 | 0.27 | 0.53 |
| Imax | 0.5ind | 0.84 | 0.63 | 0.40 | 0.10 | 0.11 | 0.33 |
| | | | | | | | |
| L2 | | | | | | | |
| Itr | 1.0 | 0.40 | 0.26 | 0.09 | 0.08 | 0.16 | 0.37 |
| 10Itr | 1.0 | 0.42 | 0.31 | 0.19 | 0.08 | 0.17 | 0.36 |
| Imax | 1.0 | 0.44 | 0.36 | 0.25 | 0.08 | 0.08 | 0.23 |
| | | | | | | | |
| Itr | 0.5ind | 0.20 | 0.09 | 0.24 | 0.27 | 0.35 | 0.53 |
| 10Itr | 0.5ind | 0.43 | 0.30 | 0.17 | 0.10 | 0.20 | 0.40 |
| Imax | 0.5ind | 0.46 | 0.35 | 0.25 | 0.09 | 0.06 | 0.20 |
| | | | | | | | |
| L3 | | | | | | | |
| Itr | 1.0 | 0.55 | 0.37 | 0.15 | 0.14 | 0.30 | 0.51 |
| 10Itr | 1.0 | 0.51 | 0.33 | 0.11 | 0.20 | 0.33 | 0.56 |
| Imax | 1.0 | 0.55 | 0.39 | 0.21 | 0.10 | 0.21 | 0.52 |
| | | | | | | | |
| Itr | 0.5ind | 0.41 | 0.24 | 0.06 | 0.32 | 0.46 | 0.66 |
| 10Itr | 0.5ind | 0.41 | 0.22 | 0.04 | 0.31 | 0.46 | 0.67 |
| Imax | 0.5ind | 0.43 | 0.30 | 0.34 | 0.17 | 0.30 | 0.53 |

## 5. Annex of Variants

Product Variant Identification Details:

| Type Designation | Description of meter |
|---|---|
| ESM3100DMMT: | Three phase, multi-function, multi-tariff, 2 pulse outputs and 1 RS485 Modbus communication port |
| ESM3100DMM: | Three phase, multi-function, 2 pulse outputs and 1 RS485 communication port |
| ESM3100DMB: | Three phase, multi-function, 2 pulse outputs and 1 Mbus communication port |
| ESM3100DP: | Three phase, multi-function, 2 pulse outputs |
| ESM3100DMA: | Three phase, 2 pulse outputs and 1 RS485 communication port |
| ESM3100DM2T: | Three phase, multi-function, dual tariffs, 2 pulse outputs and 1 RS485 communication port |
| ESM3100DMB2T: | Three phase, multi-function, dual tariffs, 2 pulse outputs and 1 Mbus communication port |

Modifications to the meter(s) described according to approval No.**0120/SGS0448** must be notified to the issuing body to confirm the meter(s) continuing compliance to the relevant pattern approval standard(s).

## 6. Document Revision History

| Issue | Date | Comments |
|---|---|---|
| 1 | 14/12/2020 | Initial Issue |
| | | |



***END OF CERTIFICATE***