



EU Type Examination Certificate Number: **0120/SGS0475**

SIA “Pawbol Baltic”

Katlakalna iela 9
Riga
Latvia

Instrument Identification:
ES140 Series

Single Phase, Active Import (kWh) Indoor, Electricity Meter

Instrument Traceable Number
0120/SGS0475

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 17th February 2024
Issue 1

Certification is based on report number(s) SHES130800321401 dated 18th February 2014
EMA185897
EMA241425
EMA282352

Authorised Signature


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	0120/SGS0475	
	Issue Number: 1	Dated: 9 th December 2020


1. Technical Data

Manufacturer	SIA "Pawbol Baltic"
Meter Type	ES140A, ES140D, ES140DB, ES140DM, ES140DMB, ES140DP, ES140DCTM, ES140DCTMB, ES140DCTP
Voltage Rating (U_n)	230V
Current Rating ($I_{min} - I_{ref} (I_{max})$)	Direct Connected 0.25-5(45)A CT Connected 0.25-5(6)A
Frequency (F_n)	50Hz
Active Accuracy Class (kWh)	A or B (kWh)
Type of circuit	1p2w
Temperature Range	-25°C to +55°C
Software/ Firmware Version No	ES140A, ES140D, ES140DB, ES140DM, ES140DMB, ES140DP: V2.4 ES140DCTM, ES140DCTMB, ES140DCTP: V2.5
CRC Checksum	ES140A, ES140D, ES140DB, ES140DM, ES140DMB, ES140DP: 0x0000272C ES140DCTM, ES140DCTMB, ES140DCTP: 0x0000B594
Identification Location	Meter Case
Bill Of Materials Number	ES140A: DH-JS-190006-1.0 ES140DM: DH-JS-170009-1.2 ES140DMB: DH-JS-170026-1.0 ES140DCTM: DH-JS-170014-1.1 ES140DCTP: DH-JS-170025-1.0 ES140D: DH-JS-180033-1.0 ES140DB: DH-JS-190009-1.0 ES140DP: DH-JS-170021-1.0 ES140DCTMB: DH-JS-170027-1.0
IP Rating	IP51
Insulation Protective Class	Class II
LED Pulse Constant	1000imp/ kWh & 100imp/kWh
Impulse Voltage Rating	6kV
AC Voltage Rating	4kV
Main Cover Sealing Type	4 x Wire & Crimp
Integrity of meter	Inaccessible without breaking seals
Intended Location of the Meter	Indoor
Type of Register	LCD: ES140D, ES140DB, ES140DM, ES140DMB, ES140DP, ES140DCTM, ES140DCTMB, ES140DCTP Mechanical: ES140A
Terminal Arrangement(s)	DIN
Location of Manufacturers Address	Nameplate

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2. Photograph of Meter and Sealing Plan



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3. Examples of Nameplates



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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

		Influence Factors for Temperature, Voltage & Frequency					
Current	PF Cos	-25°C	-10°C	5°C	30°C	40°C	55°C
I _{min}	1.0	0.12	0.12	0.12	0.13	0.12	0.12
I _{tr}	1.0	0.16	0.16	0.16	0.16	0.16	0.16
10I _{tr}	1.0	0.17	0.16	0.16	0.16	0.16	0.16
I _{max}	1.0	0.13	0.13	0.13	0.13	0.13	0.13
I _{tr}	0.5ind	0.29	0.29	0.29	0.29	0.29	0.29
10I _{tr}	0.5ind	0.40	0.40	0.40	0.40	0.40	0.40
I _{max}	0.5ind	0.16	0.16	0.16	0.16	0.16	0.16
I _{tr}	0.8cap	0.24	0.24	0.24	0.24	0.24	0.24
10I _{tr}	0.8cap	0.31	0.31	0.31	0.31	0.31	0.31
I _{max}	0.8cap	0.09	0.09	0.09	0.09	0.09	0.09


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5. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
ES140D	Single Phase, 230V, 0.25-5(45)A
ES140DB	Single Phase, 230V, 0.25-5(45)A, Backlight
ES140A	Single Phase, 230V, 0.25-5(45)A, Mechanical register
ES140DM	Single Phase, 230V, 0.25-5(45)A, RS485 Modbus
ES140DP	Single Phase, 230V, 0.25-5(45)A
ES140DMB	Single Phase, 230V, 0.25-5(45)A, Mbus EN13757-3
ES140DCTP	Single Phase, 230V, 0.25-5(6)A
ES140DCTM	Single Phase, 230V, 0.25-5(6)A, RS485, Modbus
ES140DCTMB	Single Phase, 230V, 0.25-5(6)A, M-Bus EN13757-3

Modifications to the meter(s) described according to approval No.**0120/SGS0475** 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	09/12/2020	Initial Issue

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