



EU Type Examination Certificate Number: **0120/SGS0333**

**Controlin BV**

Glasblazerstraat 1,  
Ridderkirk,  
2984 BL  
The Netherlands

Instrument Identification:  
**SKD-500-M**

**Polyphase, Active Import/Export (kWh), Indoor, Transformer Operated, Multi-function,  
Electricity Meter**

Instrument Traceable Number  
**0120/SGS0333**

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 23<sup>rd</sup> April 2027  
Issue 1

Certification is based on report number(s): EMA234440/2 dated 24<sup>th</sup> April 2017  
EMA246377

Authorised Signature


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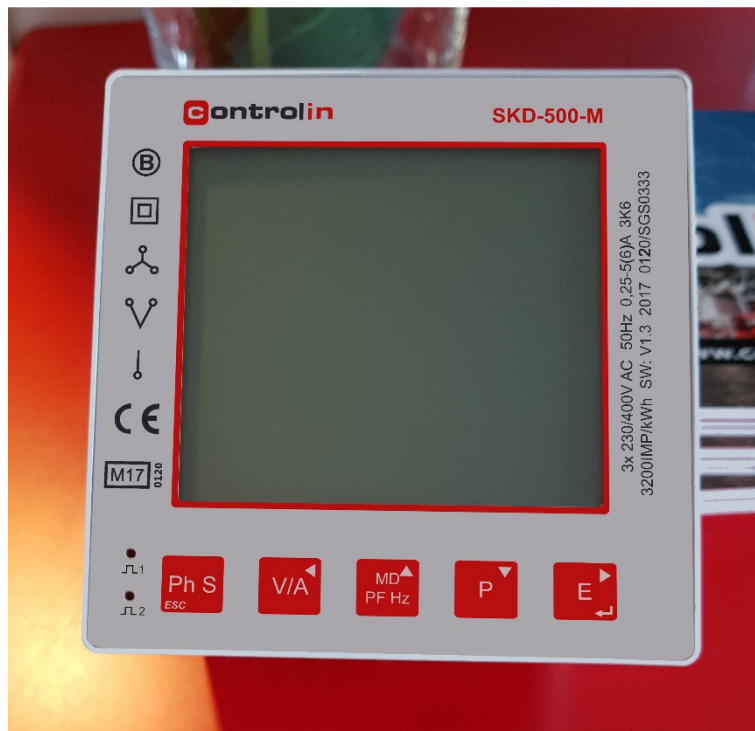
	EU-Type Examination Certificate Number:	
	<b>0120/SGS0333</b>	
	Issue Number: 1	Dated: 3 <sup>rd</sup> November 2017

## 1. Technical Data


<b>Manufacturer</b>	Controlin BV
<b>Meter Type</b>	SKD-500-M
<b>Voltage Rating (<math>U_n</math>)</b>	1P2W: 230V 3P3W: 3x230V 3P4W: 3 x 230/400V
<b>Current Rating (<math>I_{min} - I_{ref} (I_{max})</math>)</b>	0.25-5(6)A
<b>Frequency (<math>F_n</math>)</b>	50Hz
<b>Active Accuracy Class (<math>kWh</math>)</b>	B or C (kWh)
<b>Type of circuit</b>	1p2w, 3p3w, 3p4w
<b>Temperature Range</b>	-25°C to +55°C
<b>Software/ Firmware Version No</b>	V1.3
<b>CRC Checksum</b>	0x0059DD5E
<b>Identification Location</b>	LCD
<b>Bill Of Materials Number</b>	DH-JS-160010-1.3
<b>IP Rating</b>	IP51 Front Display Meter body not rated. Must be installed in a suitable IP rated enclosure
<b>Insulation Protective Class</b>	Class I / Class II
<b>LED Pulse Constant</b>	3200imp/kWh
<b>Impulse Voltage Rating</b>	6kV
<b>AC Voltage Rating</b>	4kV
<b>Terminal Cover Sealing Type</b>	Wire & Crimp
<b>Main Cover Sealing Type</b>	Laser Welded
<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 Manufacturers Address</b>	Associated Documents

	EU-Type Examination Certificate Number:	
	<b>0120/SGS0333</b>	
	Issue Number: 1	Dated: 3 <sup>rd</sup> November 2017

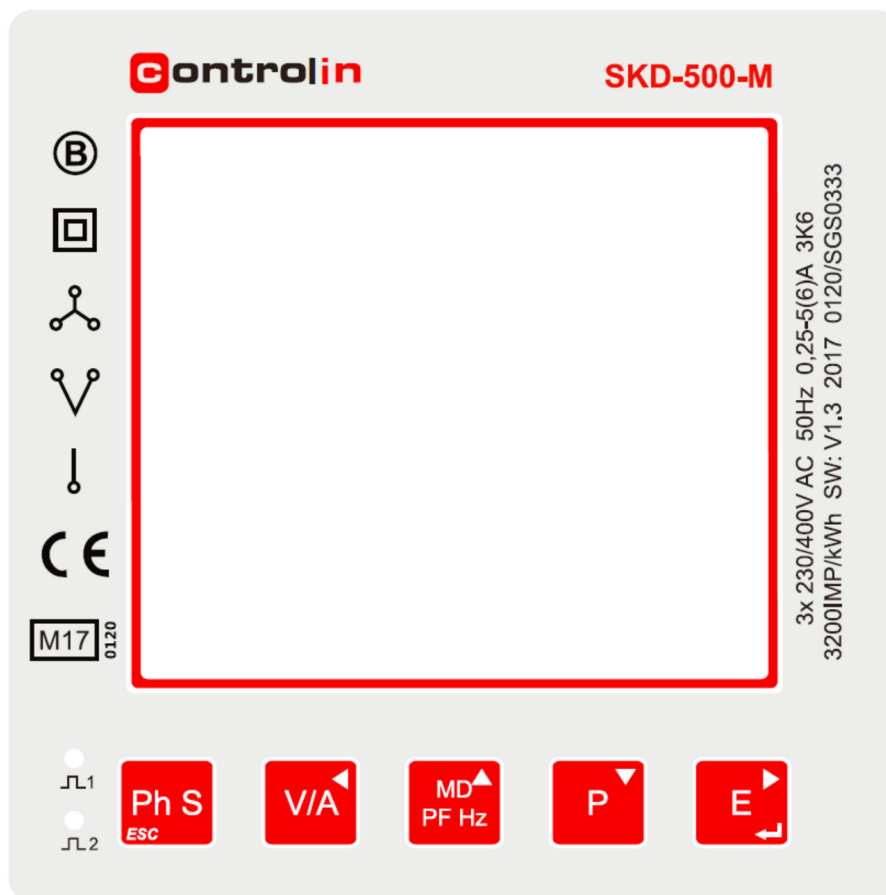
## 2. Photographs of Meter and Sealing Plan




Terminal cover sealing points

	EU-Type Examination Certificate Number:	
	<b>0120/SGS0333</b>	
	Issue Number: 1	Dated: 3 <sup>rd</sup> November 2017

### 3. Example of Nameplate



	EU-Type Examination Certificate Number:	
	<b>0120/SGS0333</b>	
	Issue Number: 1	Dated: 3 <sup>rd</sup> November 2017


#### 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

	EU-Type Examination Certificate Number:	
	<b>0120/SGS0333</b>	
	Issue Number: 1	Dated: 3 <sup>rd</sup> November 2017

		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	0.21	0.20	0.14	0.07	0.19	0.39
I <sub>tr</sub>	1.0	0.25	0.24	0.20	0.10	0.17	0.37
10I <sub>tr</sub>	1.0	0.24	0.23	0.19	0.10	0.20	0.39
I <sub>max</sub>	1.0	0.24	0.24	0.18	0.10	0.18	0.39
I <sub>tr</sub>	0.5ind	0.25	0.25	0.21	0.10	0.19	0.44
10I <sub>tr</sub>	0.5ind	0.20	0.06	0.11	0.31	0.56	0.70
I <sub>max</sub>	0.5ind	0.23	0.19	0.10	0.36	0.51	0.51
I <sub>tr</sub>	0.8cap	0.25	0.25	0.20	0.12	0.18	0.37
10I <sub>tr</sub>	0.8cap	0.35	0.30	0.23	0.09	0.11	0.33
I <sub>max</sub>	0.8cap	0.33	0.29	0.27	0.16	0.18	0.30
L1							
I <sub>tr</sub>	1.0	0.19	0.17	0.11	0.08	0.19	0.40
10I <sub>tr</sub>	1.0	0.18	0.17	0.11	0.10	0.20	0.41
I <sub>max</sub>	1.0	0.18	0.16	0.10	0.10	0.20	0.40
I <sub>tr</sub>	0.5ind	0.21	0.19	0.13	0.07	0.20	0.45
10I <sub>tr</sub>	0.5ind	0.23	0.22	0.17	0.12	0.18	0.39
I <sub>max</sub>	0.5ind	0.19	0.17	0.13	0.09	0.19	0.41
L2							
I <sub>tr</sub>	1.0	0.35	0.35	0.31	0.19	0.21	0.40
10I <sub>tr</sub>	1.0	0.29	0.30	0.25	0.16	0.22	0.47
I <sub>max</sub>	1.0	0.30	0.30	0.27	0.15	0.20	0.43
I <sub>tr</sub>	0.5ind	0.31	0.32	0.28	0.16	0.16	0.35
10I <sub>tr</sub>	0.5ind	0.74	0.14	0.33	0.77	0.46	0.92
I <sub>max</sub>	0.5ind	0.33	0.34	0.37	0.63	0.47	1.19
L3							
I <sub>tr</sub>	1.0	0.16	0.15	0.10	0.08	0.19	0.40
10I <sub>tr</sub>	1.0	0.18	0.16	0.10	0.10	0.20	0.41
I <sub>max</sub>	1.0	0.17	0.16	0.10	0.11	0.21	0.41
I <sub>tr</sub>	0.5ind	0.17	0.20	0.17	0.12	0.26	0.58
10I <sub>tr</sub>	0.5ind	0.18	0.18	0.11	0.36	0.40	0.62
I <sub>max</sub>	0.5ind		0.15	0.08	0.62	0.37	0.57


	EU-Type Examination Certificate Number:	
	<b>0120/SGS0333</b>	
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## 5. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
SKD-500-M	Active Import/Export (kWh), 3x230/400V, 5(6)A, Transformer operated, Multifunction, RS485 Modbus RTU

Modifications to the meter(s) described according to approval No.**0120/SGS0333** 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	03/11/2017	Initial Issue

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**END OF CERTIFICATE**