



SGS

EU Type Examination Certificate Number: **0120/SGS0278**

ORNO-LOGISTIC Sp. Z O.O

Katowicka 134 43-190
Mikolow
Poland

Instrument Identification:
OR-WE-513, OR-WE-516, OR-WE-517

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

Instrument Traceable Number
0120/SGS0278

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 14th March 2027
Issue 1

Certification is based on report number(s) SHES151200818401 Dated 17th March 2017
EMA234429/1
EMA238069/1

Authorised Signature

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MID-B-06F Rev 10

Page 1 of 9

EU Type Examination Cert.

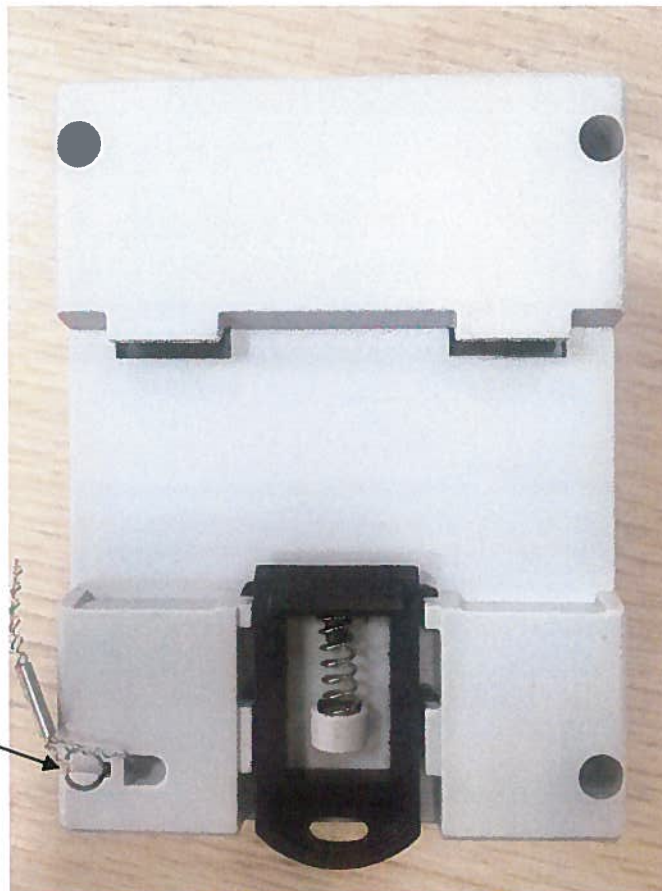
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1. Technical Data

Manufacturer	ORNO-LOGISTIC Sp. Z O.O.
Meter Types	OR-WE-513 OR-WE-516 OR-WE-517
Voltage Rating (U_n)	3x230/400V
Current Rating ($I_{min} - I_{ref} (I_{max})$)	0.25-5(30)A, 0.25-5(32)A, 0.25-5(40)A, 0.25-5(45)A, 0.25-5(50)A, 0.25-5(80)A,
Frequency (F_n)	50Hz
Active Accuracy Class (kWh)	A or B (kWh)
Type of circuit	3P4W
Temperature Range	-25°C to +55°C
Software/ Firmware Version No's	OR-WE-513: V1.01 OR-WE-516: V1.01 OR-WE-517: V1.01
Checksum	91E4
Identification Location	LCD & Nameplate
Bill Of Materials Numbers	OR-WE-513: D519032 OR-WE-516: D519033 OR-WE-517: D519024
IP Rating	IP51
Insulation Protective Class	Class II
LED Pulse Constant	1000imp/ kWh
Impulse Voltage Rating	6kV
AC Voltage Rating	4kV
Main Cover Sealing Type	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	User Manual

2. Photograph of Meter and Sealing Plan



	EU-Type Examination Certificate Number:	
	0120/SGS0278	
	Issue Number: 1	Dated: 16 th May 2017

3. Examples of Nameplates




ORNO[®]
OR-WE-513
EN50470-1/3

CE


M17


0120



0120/SGS0278

kWh
 -25°C to 55°C
 3X230/400V
 0,25-5(80)A
 S.W.1.0
 50Hz


 A
 1000imp/kWh


 B
 1000imp/kvarh




ORNO[®]
OR-WE-516
EN50470-1/3

CE


M17


0120



0120/SGS0278

kWh
 -25°C to 55°C
 3X230/400V
 0,25-5(80)A
 S.W.1.0
 50Hz


 A
 1000imp/kWh


 B
 1000imp/kvarh

SGS

EU-Type Examination Certificate Number:

0120/SGS0278

Issue Number: 1

Dated: 16th May 2017

ORNO[®]

OR-WE-517

EN50470-1/3



CE M17 0120

  
0120/SGS0278

kWh
-25°C to 55°C
3X230/400V
0,25-5(80)A
S.W.1.0
50Hz

A 


1000imp/kWh

B 

1000imp/kvarh





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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. Frequency & Voltage					
Current	PF Cos	-25°C	-10°C	5°C	30°C	40°C	55°C
I _{min}	1.0	0.38	0.25	0.13	0.08	0.17	0.29
I _{tr}	1.0	0.38	0.27	0.14	0.07	0.16	0.31
10I _{tr}	1.0	0.37	0.25	0.13	0.08	0.18	0.33
I _{max}	1.0	0.32	0.22	0.16	0.06	0.15	0.28
I _{tr}	0.5ind	0.38	0.27	0.13	0.06	0.14	0.31
10I _{tr}	0.5ind	0.36	0.24	0.11	0.09	0.19	0.35
I _{max}	0.5ind	0.30	0.21	0.14	0.05	0.15	0.31
I _{tr}	0.8cap	0.37	0.26	0.14	0.07	0.17	0.33
10I _{tr}	0.8cap	0.35	0.23	0.11	0.11	0.20	0.36
I _{max}	0.8cap	0.30	0.21	0.13	0.07	0.16	0.31
L1							
I _{tr}	1.0	0.39	0.26	0.12	0.07	0.17	0.26
10I _{tr}	1.0	0.39	0.25	0.11	0.09	0.18	0.29
I _{max}	1.0	0.30	0.21	0.13	0.06	0.15	0.26
I _{tr}	0.5ind	0.39	0.26	0.12	0.09	0.15	0.30
10I _{tr}	0.5ind	0.38	0.25	0.11	0.10	0.19	0.33
I _{max}	0.5ind	0.30	0.21	0.13	0.06	0.15	0.28
L2							
I _{tr}	1.0	0.52	0.37	0.20	0.10	0.24	0.46
10I _{tr}	1.0	0.51	0.35	0.17	0.12	0.26	0.49
I _{max}	1.0	0.45	0.33	0.21	0.08	0.21	0.42
I _{tr}	0.5ind	0.54	0.36	0.20	0.08	0.22	0.44
10I _{tr}	0.5ind	0.51	0.35	0.17	0.11	0.25	0.47
I _{max}	0.5ind	0.47	0.34	0.22	0.08	0.20	0.41
L3							
I _{tr}	1.0	0.17	0.12	0.08	0.07	0.12	0.28
10I _{tr}	1.0	0.15	0.12	0.06	0.05	0.13	0.27
I _{max}	1.0	0.09	0.09	0.07	0.04	0.10	0.23
I _{tr}	0.5ind	0.16	0.12	0.06	0.05	0.09	0.26
10I _{tr}	0.5ind	0.12	0.11	0.06	0.08	0.13	0.28
I _{max}	0.5ind	0.06	0.08	0.02	0.05	0.11	0.24


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5. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
OR-WE-513	3x230/400V, 0.25-5(x), energy measurement (kWh & kVarh), IR
OR-WE-516	3x230/400V, 0.25-5(x), energy measurement (kWh & kVarh), IR, RS485 (Modbus Protocol)
OR-WE-517	3x230/400V, 0.25-5(x), energy measurement (kWh & kVarh), IR, RS485 (Modbus Protocol), Multi Tariff

Modifications to the meter(s) described according to approval No. **0120/SGS0278** 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	16/05/2017	Initial Issue

END OF TEST CERTIFICATE