



SGS

EU Type Examination Certificate Number: 0120/SGS0174

Carlo Gavazzi Controls S.p.A

Via Safforze 8
32100 Belluno
Italy

Instrument Identification:
EM112 Series

Instrument Traceable Number
0120/SGS0174

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

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 13th May 2025
Issue 4

Certification is based on report number(s) SHES141200635401 dated 14th May 2015,
SHES160200092501 dated 16th March 2016
EMA203792

Authorised Signature

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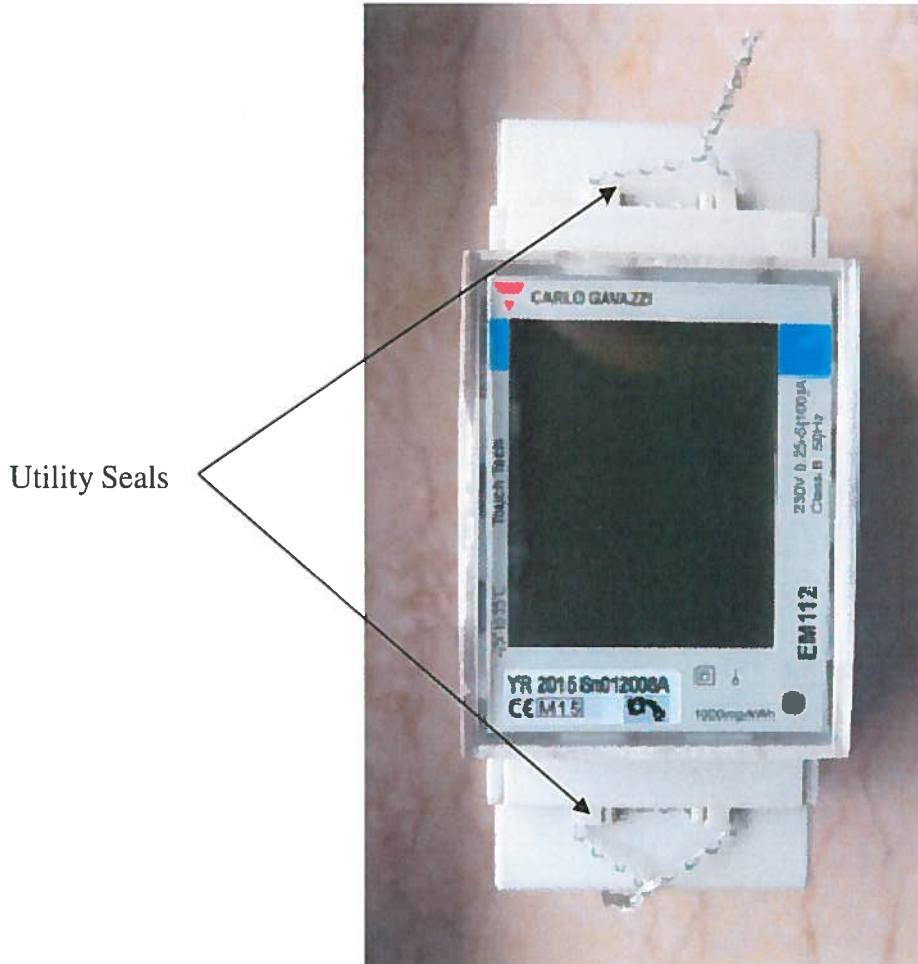
Issue Number: 4

Dated: 26th June 2018**1. Technical Data**

Manufacturer	Carlo Gavazzi Controls S.p.A
Meter Type(s)	EM112-DIN.AV0.1.X.O1.PF.A EM112-DIN.AV0.1.X.S1.PF.A EM112-DIN.AV0.1.X.M1.PF.A EM112-DIN.AV0.1.X.O1.PF.B EM112-DIN.AV0.1.X.S1.PF.B EM112-DIN.AV0.1.X.M1.PF.B
Voltage Rating (U_n)	230V
Current Rating ($I_{min} - I_{ref} (I_{max})$)	0.25-5(100)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 Version No.'s.	EM112-DIN.AV0.1.X.O1.PF.A: AA.02 Checksum : CC94H EM112-DIN.AV0.1.X.S1.PF.A: AB.03 Checksum : 9EDAH EM112-DIN.AV0.1.X.M1.PF.A: AC.02 Checksum : 4FD6H EM112-DIN.AV0.1.X.O1.PF.B: BA.04 Checksum : 54E0H EM112-DIN.AV0.1.X.S1.PF.B: BB.05 Checksum : 419BH EM112-DIN.AV0.1.X.M1.PF.B: BC.04 Checksum : 90BDH
Identification Location	LCD
Bill Of Materials No.'s	EM112-DIN.AV0.1.x.O1.PF.B: D116014-01 V.01 EM112-DIN.AV0.1.x.M1.PF.B: D116015-01 V.02 EM112-DIN.AV0.1.x.S1.PF.B: D116016-01 V.01
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	2 x Wire & Crimp
Integrity of meter	Inaccessible without breaking seals
Intended Location of the Meter	Indoor
Type of Register	LCD

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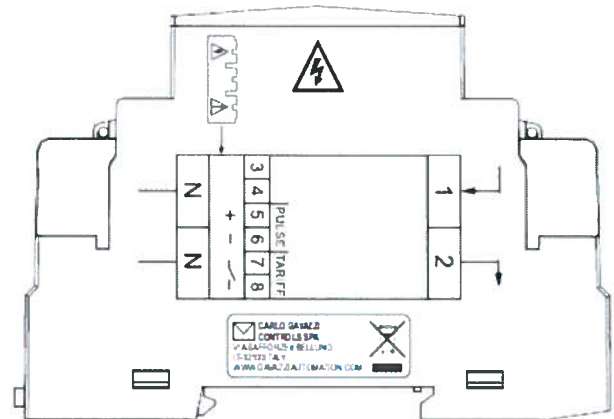
2. Photograph of Meter and Sealing Plan



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3. Name-plates

EM112-DIN.AVO.1.X.O1.PF.A



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EM112-DIN.AVO.1.X.S1.PF.A

CARLO GAVAZZ



Touch Touch



230V 0.25/5/100mA
Class B 50Hz

-25 to 55°C

YR 2016 1160001A

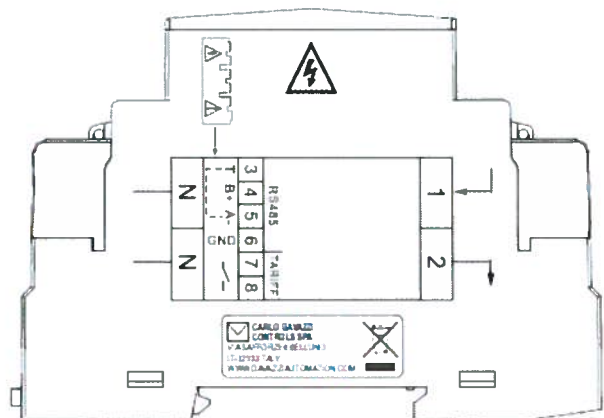
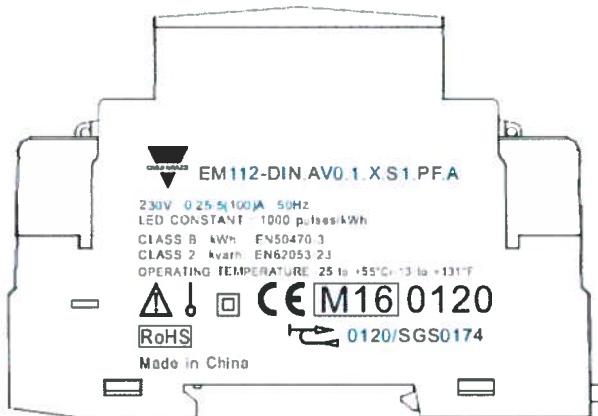


1000 pulses/kWh

EM112



2016116001A



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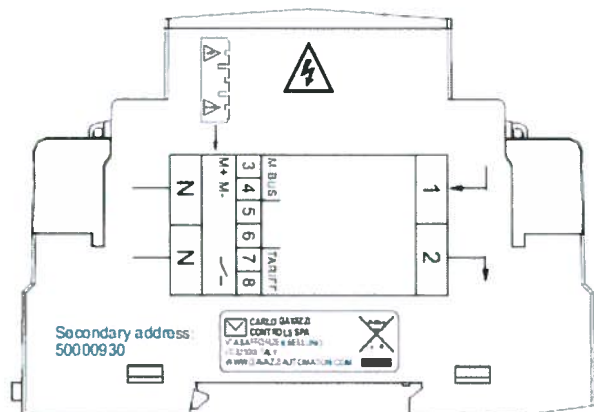
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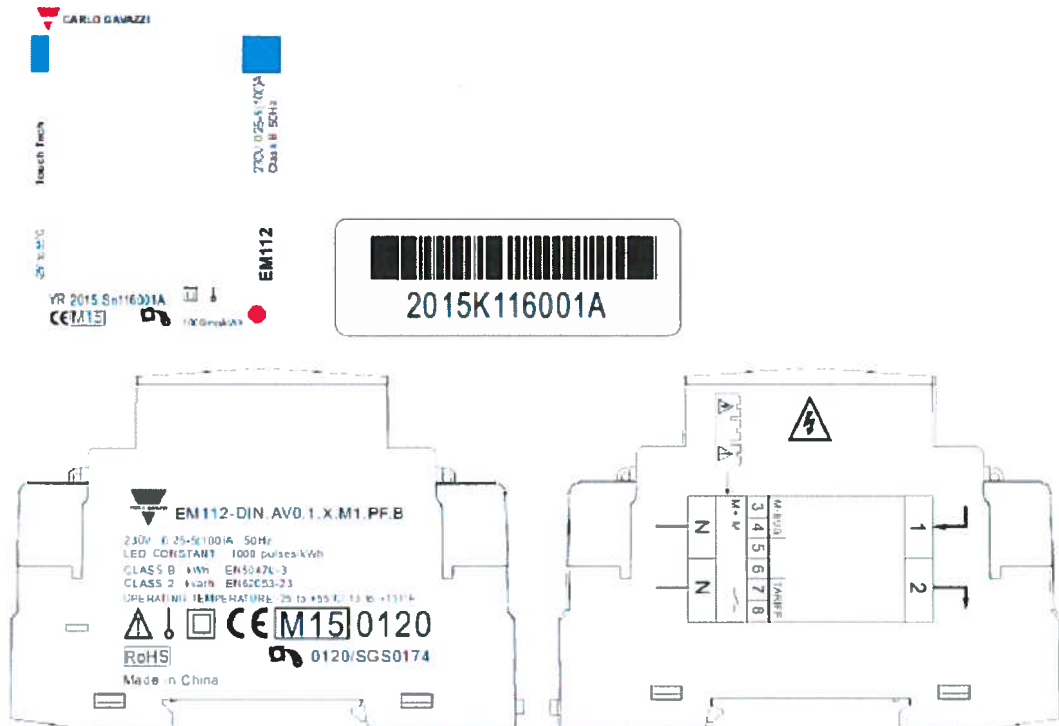
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4. Influence factors for temperature, frequency and voltage


Current	PF Cos	-25 °C	-10 °C	5 °C	30 °C	40 °C	55 °C
I _{min}	1.0	0.80	0.50	0.34	0.17	0.29	0.56
I _{tr}	1.0	0.74	0.53	0.33	0.20	0.36	0.66
10I _{tr}	1.0	0.78	0.54	0.30	0.17	0.33	0.62
I _{max}	1.0	1.06	0.88	0.70	0.42	0.37	0.43
I _{tr}	0.5ind	0.82	0.60	0.18	0.19	0.38	0.62
10I _{tr}	0.5ind	0.78	0.55	0.30	0.20	0.34	0.63
I _{max}	0.5ind	0.96	0.78	0.58	0.26	0.20	0.35
I _{tr}	0.8cap	0.78	0.55	0.35	0.21	0.32	0.61
10I _{tr}	0.8cap	0.77	0.53	0.29	0.23	0.38	0.67
I _{max}	0.8cap	1.02	0.83	0.63	0.34	0.29	0.39

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
EM112-DIN.AV0.1.X.O1.PF.A	230V, 0,25-5(100)A, Pulse output. Measuring mode:A, Positive energy=positive energy+ negative energy.
EM112-DIN.AV0.1X.S1.PF.A	230V, 0,25-5(100)A, Mbus module. Measuring mode:A Positive energy=positive energy+ negative energy.
EM112-DIN.AV0.1.X.M1.PF.A	230V, 0,25-5(100)A, Modbus module. Measuring mode:A, Positive energy=positive energy+ negative energy.
EM112-DIN.AV0.1.X.O1.PF.B	230V, 0.25-5(100)A, Pulse output
EM112-DIN.AV0.1.X.M1.PF.B	230V, 0.25-5(100)A, Mbus module
EM112-DIN.AV0.1.X.S1.PF.B	230V, 0.25-5(100)A, Modbus module

Modifications to the meter(s) described according to approval No.**0120/ SGS0174** 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	14/05/2015	Initial Issue
2	16/03/2016	Software version change. Minor component change for EM112-DIN.AV0.X.M1.PF.B (Mbus module version).
3	02/11/2016	Additional types added to approval EM112-DIN.AV0.1.X.O1.PF.A EM112-DIN.AV0.1X.S1.PF.A EM112-DIN.AV0.1.X.M1.PF.A
4	26/08/2018	New software versions and checksum numbers

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