



EU Type Examination Certificate Number: **0120/SGS0326**

COMADAN A/S

Messingvej 60,
Randers,
8940
Denmark

Instrument Identification:

EM3-100-Z, EM3-100-Modbus, EM3-100-MT-Modbus-Z, EM3-100-Mbus-Z, EM3-100-Modbus-Z

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

Instrument Traceable Number

0120/SGS0326

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


EMA242783

Authorised Signature

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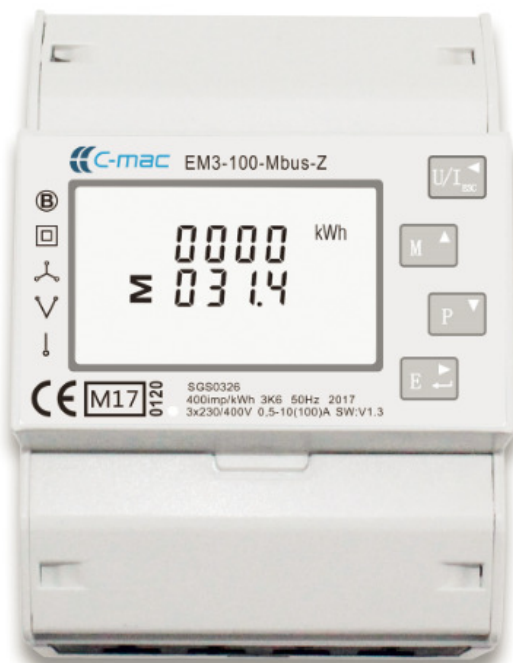
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1. Technical Data

Manufacturer	COMADAN A/S
Meter Type	EM3-100-MT-Modbus-Z, EM3-100-Modbus-Z EM3-100-Mbus-Z, EM3-100-Z, EM3-100-Modbus
Voltage Rating (U_n)	3x230/400V
Current Rating ($I_{min} - I_{ref} (I_{max})$)	0.5-10(100)A
Frequency (F_n)	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	V1.3
CRC Checksum	EM3-100-MT-Modbus-Z: 0x00007F55 EM3-100-Modbus-Z: 0x0000AFF9 EM3-100-Mbus-Z : 0x00003C02 EM3-100-Z : 0x00008043 EM3-100-Modbus- : 0x0000184F
Identification Location	Nameplate
Bill Of Materials Number	EM3-100-MT-Modbus-Z: SDM630-MT V1.4 EM3-100-Modbus-Z: SDM630-Standard V1.4 EM3-100-Mbus-Z : SDM630-MBUS V1.4 EM3-100-Z : SDM630-Pulse V1.4 EM3-100-Modbus- : SDM630-MODBUS V1.4
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	Side of meter

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2. Photograph of Meters and Sealing Plans



Photograph of EM3-100-Mbus-Z

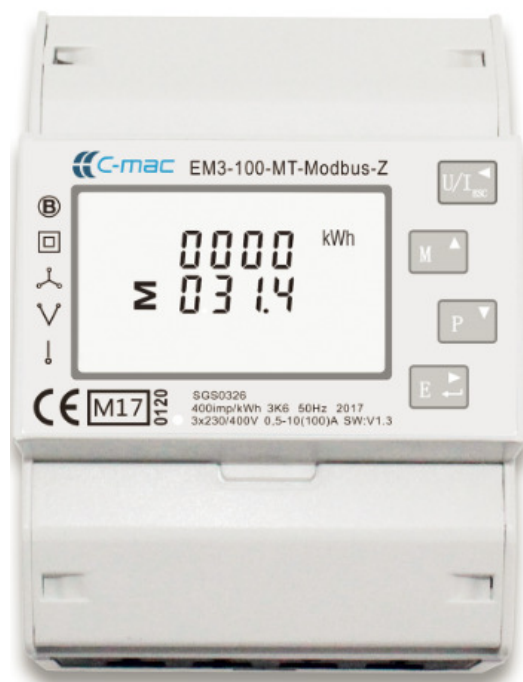


Photograph of EM3-100-Modbus


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Photograph of EM3-100-Modbus-Z

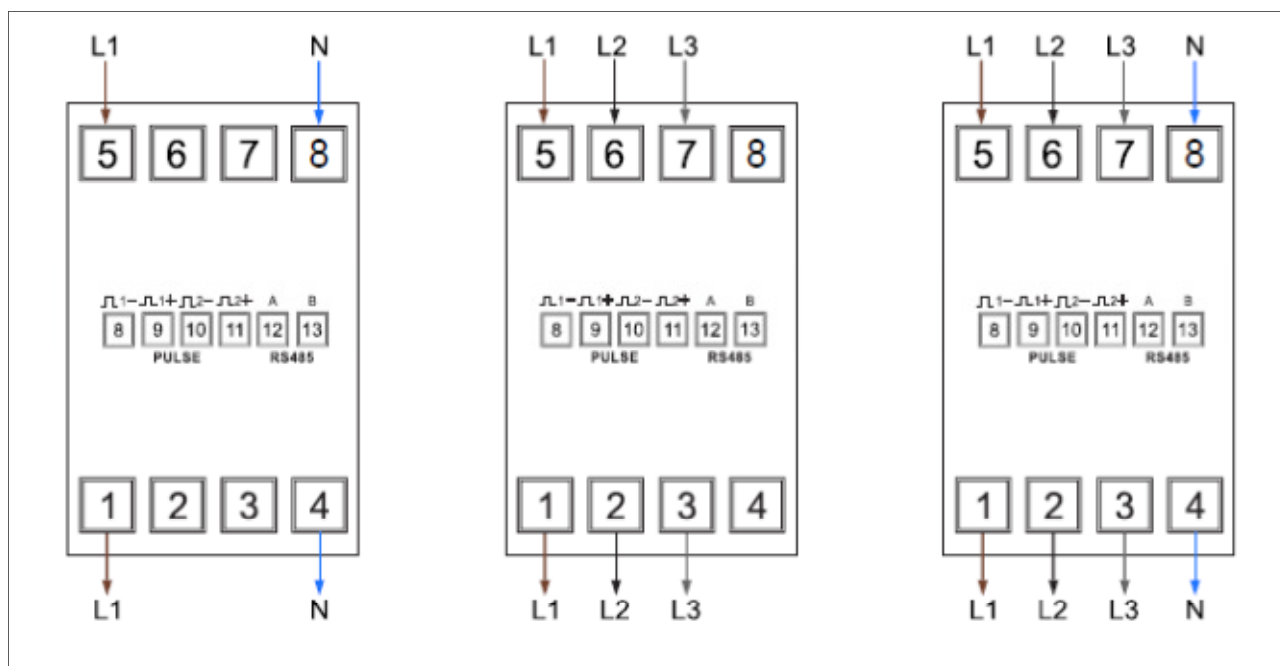


Photograph of EM3-100-MT-Modbus-Z


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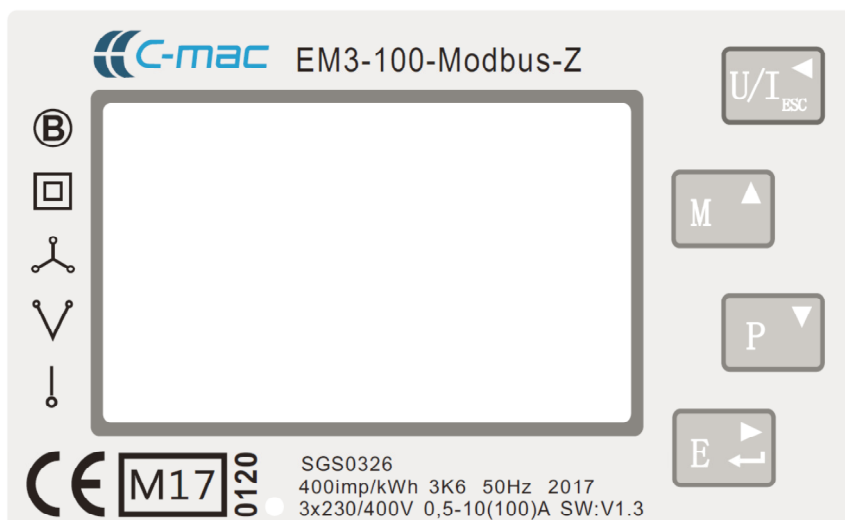
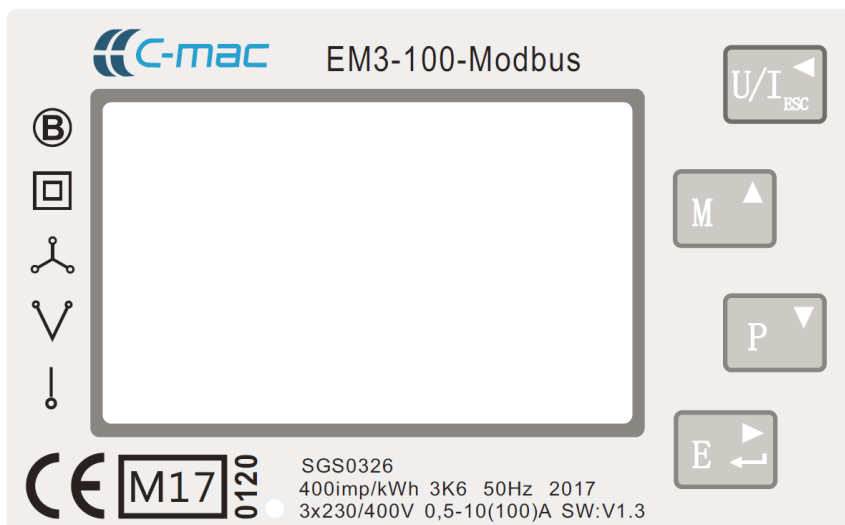
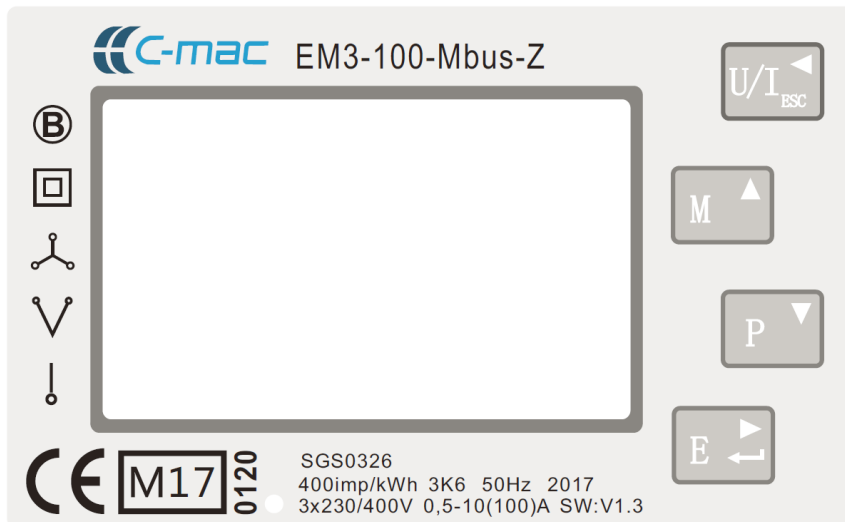
Photograph of EM3-100-Z




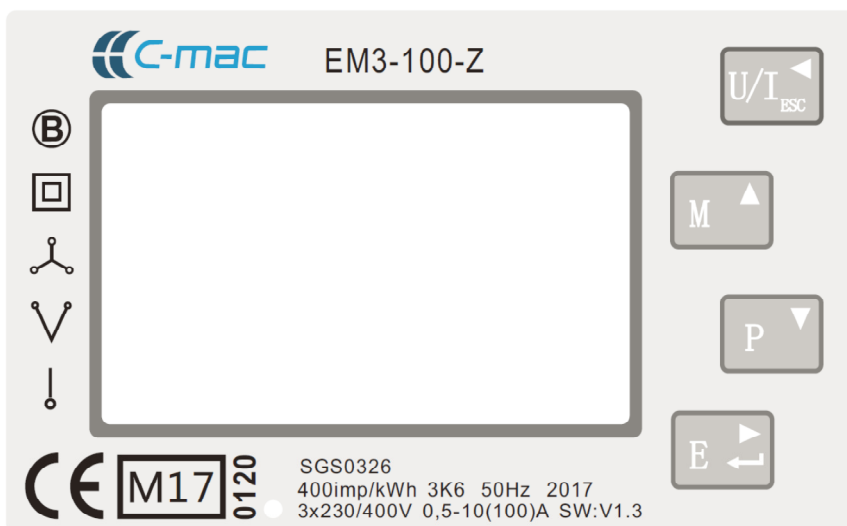
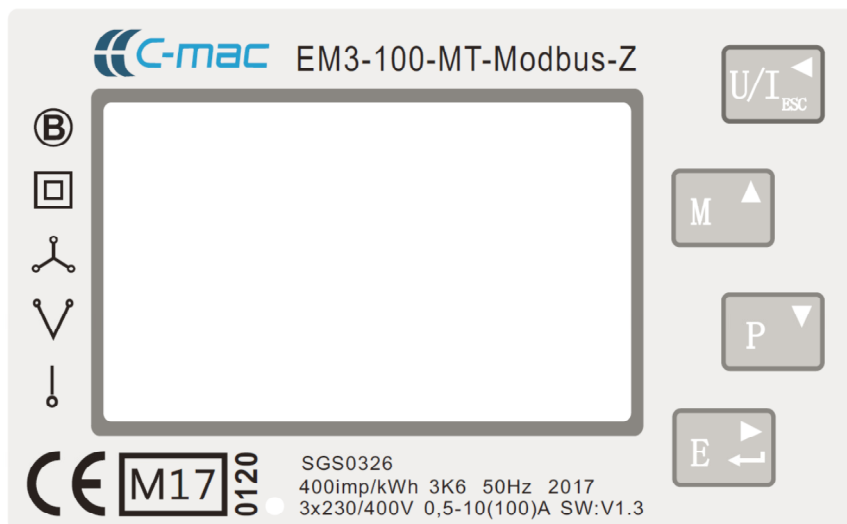
EM3-100 Wiring Diagram


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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

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


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5. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
EM3-100-MT-Modbus-Z:	Three phase, multi-function, multi-tariff, 2 pulse outputs and 1 RS485 Modbus communication port
EM3-100-Modbus-Z:	Three phase, multi-function, 2 pulse outputs and 1 RS485 communication port
EM3-100-Mbus-Z:	Three phase, multi-function, 2 pulse outputs and 1 Mbus communication port
EM3-100-Z:	Three phase, multi-function, 2 pulse outputs
EM3-100-Modbus:	Three phase, 2 pulse outputs and 1 RS485 communication port

Modifications to the meter(s) described according to approval No.**0120/SGS0326** 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	03/10/2017	Initial Issue

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END OF CERTIFICATE