

# EU - Type Examination Certificate

This is to certify that:

Panasonic Eco Solutions Elektrik Sanayi  
Ticaret Anonim Sirketi  
Abdurrahmangazi mah  
Ebubekir cad. No:44 Sancaktepe  
Istanbul  
34887  
Turkey

Holds Certificate Number: 0086/BSI/632147

In respect of:

**Directive reference: MID 2014/32/EU.**

**Annex Item: MI-003 – Active Electrical Energy Meter Product.**

**Description: VEM-C5100DB2M, 3 Phase 230/400V, 0.25-5(100)A, 50Hz, Class B, 3K7, IP54.**

**Software version 1.01.**

**Specified standard: EN 50470-1:2006, EN 50470-3:2006.**

on the basis that BSI carried out the relevant Type Examination procedures for the equipment identified above which was found to be in compliance with the Directive 2014/32/EU of the European Parliament and Council relating to the Measuring Instruments Directive (MID), subject to any conditions in the schedule attached hereto. The attached schedule of approval forms part of this certificate.

For and on behalf of BSI, a Notified  
Body for the above Directive  
(Notified Body Number 0086):



Gary Fenton, Global Product Certification Director

First Issued: 2015-04-21

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## Schedule of Approval

### Technical Data

Manufacturer	<b>Panasonic</b>	Meter Type	<b>VEM-C5100DB2M</b>
Voltage Rating (Un)	<b>3x230/400V</b>	Current Rating (Imin-Iref(Imax))	<b>250mA - 5A - 100A</b>
Frequency (Fn)	<b>50Hz</b>	Active Accuracy Class (kWh)	<b>Class B</b>
Type of Circuit	<b>3p4w</b>	Temperature Range	<b>-40 +70</b>
Software Version No. Identification Location Checksum	<b>Ver 1.01</b> <b>LCD:</b> <b>0xEB26</b>	Bill of Material No.'s	<b>92903708 dated</b> <b>18/04/2014 &amp;</b> <b>23/09/16</b>
IP Rating	<b>IP54</b>	Insulation Protective Class	<b>Class II</b>
LED Pulse Constant	<b>1.000 imp/kWh</b>	Impulse Voltage Rating	<b>6kV</b>
AC Voltage Rating	<b>4kV</b>	Seal for EC Initial Verification Type	<b>Plastic Seal on Top</b> <b>Cover and Seal on</b> <b>Terminal cover</b>
Main Cover Seal Type	<b>Push Fit Plastic seal</b>	Integrity of Meter	<b>Inaccessible</b> <b>without breaking</b> <b>the seal</b>
Intended Location of the Meter	<b>Outdoor</b>	Type of Register	<b>LCD</b>

Certification is based on the Turkey accredited laboratory ELDAS, Report number EL-2101/R1 dated 12/02/2015, EL16-0021 dated 20/07/16 & VDE Report Number EC1-3-194990 and Technical Documentation supplied to BSI, project Ref 8293192 7 8624843

### Condition for Conformity Assessment according to Annex D or F

The influence factors for temperature, frequency and voltage, which are necessary to perform the conformity assessment according to annex D or F, are presented on page 3 of this certificate. Based on WELMEC Guide 11.1 Section 2.5.6, the sum of the square values is presented.

During the type approval examination the influence factors for temperature, frequency and voltage are determined per load point. The table below presents the sum of the square values per load, determined via the following formula

$$\delta e(T, U, f) = \sqrt{\delta e^2(T, I, \cos\varphi) + \delta e^2(U, I, \cos\varphi) + \delta e^2(f, I, \cos\varphi)}$$

With

$\delta e(T, I, \cos\varphi)$  = the additional error due to the variation of the temperature at a certain load

$\delta e(U, I, \cos\varphi)$  = the additional percentage error due to the variation of the voltage at the same load

$\delta e(f, I, \cos\varphi)$  = the additional percentage error due to the variation of the frequency at the same load.

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			Influence Factor for Temperature, Frequency & Voltage							
	Current	PF Cos	-40°C	-25°C	-10°C	+5°C	+30°C	+40°C	+55°C	+70°C
R S T Phase	I <sub>min</sub>	1.0	0.55	0.48	0.39	0.38	0.38	0.40	0.49	0.60
	I <sub>tr</sub>	1.0	0.58	0.49	0.37	0.35	0.34	0.36	0.49	0.56
	10I <sub>tr</sub>	1.0	0.43	0.32	0.20	0.20	0.19	0.21	0.34	0.55
	I <sub>max</sub>	1.0	0.44	0.35	0.16	0.11	0.11	0.20	0.37	0.49
	I <sub>tr</sub>	0.5ind	0.54	0.34	0.32	0.32	0.34	0.34	0.47	0.54
	10I <sub>tr</sub>	0.5ind	0.46	0.23	0.22	0.22	0.25	0.25	0.38	0.51
	I <sub>max</sub>	0.5ind	0.43	0.23	0.18	0.19	0.19	0.25	0.42	0.52
	I <sub>tr</sub>	0.8cap	0.49	0.37	0.23	0.17	0.16	0.19	0.34	0.42
	10I <sub>tr</sub>	0.8cap	0.48	0.38	0.23	0.20	0.21	0.24	0.33	0.42
	I <sub>max</sub>	0.8cap	0.54	0.48	0.32	0.30	0.30	0.32	0.44	0.52
	I <sub>tr</sub>	1.0	0.49	0.38	0.33	0.32	0.32	0.36	0.42	0.49
	10I <sub>tr</sub>	1.0	0.36	0.33	0.28	0.22	0.21	0.5	0.31	0.38
	I <sub>max</sub>	1.0	0.36	0.27	0.26	0.16	0.15	0.24	0.29	0.42
R Phase	I <sub>tr</sub>	0.5ind	0.46	0.38	0.36	0.28	0.29	0.33	0.36	0.44
	10I <sub>tr</sub>	0.5ind	0.46	0.30	0.28	0.23	0.22	0.24	0.34	0.39
	I <sub>max</sub>	0.5ind	0.37	0.30	0.23	0.17	0.15	0.20	0.31	0.39
	I <sub>tr</sub>	1.0	0.44	0.37	0.31	0.30	0.30	0.33	0.37	0.48
	10I <sub>tr</sub>	1.0	0.35	0.31	0.19	0.18	0.18	0.20	0.29	0.38
	I <sub>max</sub>	1.0	0.37	0.24	0.17	0.12	0.13	0.20	0.29	0.38
S Phase	I <sub>tr</sub>	0.5ind	0.50	0.41	0.35	0.33	0.34	0.36	0.39	0.45
	10I <sub>tr</sub>	0.5ind	0.40	0.36	0.24	0.22	0.22	0.25	0.32	0.41
	I <sub>max</sub>	0.5ind	0.33	0.27	0.21	0.16	0.18	0.23	0.27	0.36
	I <sub>tr</sub>	1.0	0.47	0.40	0.37	0.35	0.35	0.38	0.43	0.50
	10I <sub>tr</sub>	1.0	0.41	0.32	0.22	0.18	0.19	0.23	0.30	0.43
	I <sub>max</sub>	1.0	0.35	0.28	0.20	0.18	0.18	0.22	0.32	0.45
T Phase	I <sub>tr</sub>	0.5ind	0.45	0.37	0.32	0.30	0.30	0.32	0.36	0.43
	10I <sub>tr</sub>	0.5ind	0.41	0.32	0.26	0.21	0.21	0.23	0.31	0.40
	I <sub>max</sub>	0.5ind	0.32	0.30	0.17	0.14	0.13	0.18	0.23	0.35

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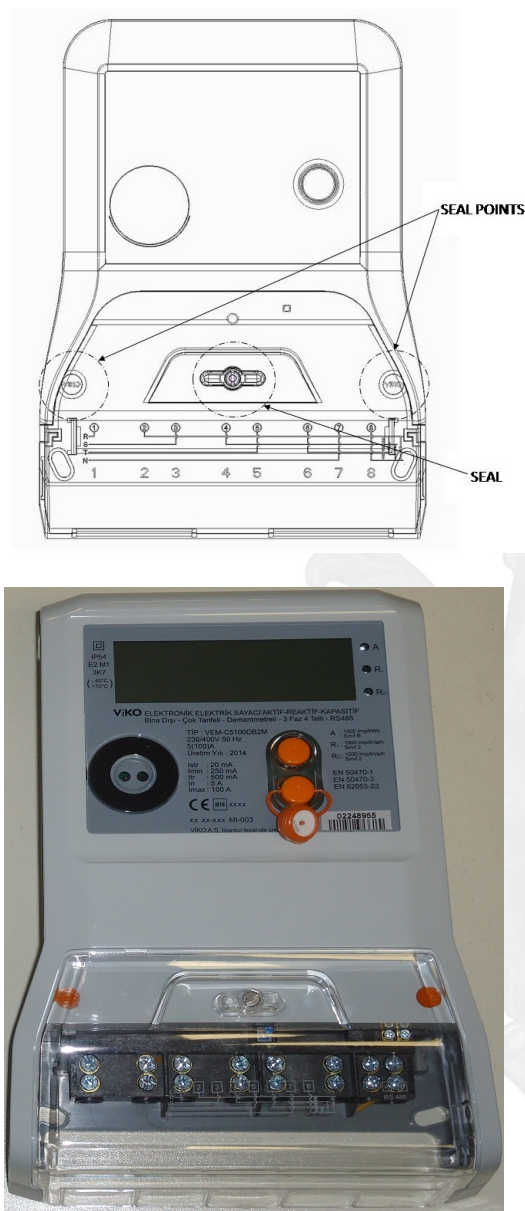
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## Schedule of Approval

### Seal Locations & Photo showing Markings



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### Product Variant Identification Details

METER TYPE CODE TABLE						
PRODUCT CODE	METERING	CURRENT	TYPE OF CONNECTION	METERING CLASS	COMMUNICATION OUTPUT	MODEL
VEM -	X	XXXXX	X	X	X	X
VİKO ENERGY METERING  A = MODEL	M = MONO-PHASE	1080	D = DIRECT CONNECTION	A = CLASS A	0 = NONE	NULL CHARACTER NORMAL
	T = THREE-PHASE	10100	C = WITH CURRENT TRANSFORMER	B = CLASS B	1 = RS232	P = PREPAID
	C = COMBO (INDUSTRIAL)	x5	V = WITH CURRENT/VOLTAGE TRANSFORMER	C = CLASS C	2 = RS485	
		1060 5 (80) 5 (100)			3 = PLC	

### Marking

The following data shall be quoted on the meter name-plate:

- Identification of manufacturer (name or trade mark);
- Type designation;
- "CE" marking and supplementary metrology marking;
- EC-type examination certificate number;
- Serial number and year of production;
- Class index;
- Specified operating temperature range;
- Type of distribution network;
- Reference voltage;
- Reference (rated) current;
- Maximum current;
- Minimum current;
- Reference frequency;
- Constant of meter;
- Sign of double-square for meter of protective class II

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Manufacturer Address:

**Panasonic Eco Solutions Elektrik Sanayi Ticaret Anonim Sirketi**  
Abdurrahmangazi Mah  
Ebubekir Cad. No: 44 34887  
Samandıra  
Istanbul  
Turkey

## Document Revision History

Issue	Date	Comments
1	21/04/2015	Initial Issue.
2	08/11/2016	Minor hardware Changes, Software version updated. BSI project Ref 8624843.
3	08/05/2017	Company Name Change

## Conditions of Certification

- This 0086/BSI/632147 certificate remains valid unless cancelled or revoked, provided the conditions listed below are complied with and the equipment remains satisfactory in service
- This certificate must be used in conjunction with a certificate covering the product certification as required by Annex D or Annex F
- Detailed User instructions are to be provided with each product.
- If the specified standards are amended during the validity of this certificate, this product type is to be re-approved.
- Any modifications to the Meter(s) listed on page 1 must be notified to BSI to confirm the Meter(s) continuing compliance to the relevant pattern approval standard(s).

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