

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/644511

In respect of:

Directive reference: MID 2014/32/EU.

Annex item MI- 003 - ACTIVE ELECTRICAL ENERGY METERS, Models VEM-T5100DB0E, VEM-T5100DB2E.

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

Software Version 1.02.

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: 2015-12-20

Latest Issue: 2017-05-08

Expiry Date: 2025-12-19

Page: 1 of 6

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EU - Type Examination Certificate

No. 0086/BSI/644511

Schedule of Approval

Technical Data

Manufacturer	Panasonic	Meter Type	VEM-T5100DB0E & VEM-T5100DB2E
Voltage Rating (Un)	3x230/400V	Current Rating (Imin-Iref(I _{max}))	250mA - 5A - 100A
Frequency (Fn)	50Hz	Active Accuracy Class (kWh)	Class B
Type of Circuit	3p4w	Temperature Range	-40 +70
Software Version No. Identification Location Checksum PCB/Schematic Ref	Ver 1.02 LCD: 0x0D99 265246R0.2 16/09/15	Bill of Material Nos.	92904003 and 92904004 dated 27/11/15.28/03/16 & 23/09/16
IP Rating	IP54	Insulation Protective Class	Class II
LED Pulse Constant	1.000 imp/kWh	Impulse Voltage Rating	6kV
AC Voltage Rating	4kV	Seal for EC Initial Verification Type	Plastic Seal on Top Cover and Seal on Terminal cover
Main Cover Seal Type	Push Fit Plastic seal	Integrity of Meter	Inaccessible without breaking the seal
Intended Location of the Meter	Outdoor	Type of Register	LCD

Certification is based on the Turkey accredited laboratory ELDAS, Report number EL2501/R1 dated 08/12/2015, EL16-0018 dated 19/07/16 & NMI Report Number 15200719-01 dated 07/12/15 and Technical Documentation supplied to BSI, project Ref 8430961 & 8524843.

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 of 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

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

Where:

$\delta e(T, I, \cos \varphi)$ = 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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Expiry Date: 2025-12-19

Page: 2 of 6

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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 _{min}	1.0	1.40	1.08	0.48	0.08	0.05	0.47	1.08	1.57
	I _{tr}	1.0	1.44	1.07	0.48	0.14	0.04	0.90	0.98	1.54
	10I _{tr}	1.0	1.57	1.07	0.54	0.08	0.07	0.48	0.97	1.47
	I _{max}	1.0	1.54	1.04	0.51	0.07	0.06	0.57	0.98	1.41
	I _{tr}	0.5ind	1.52	0.99	0.49	0.06	0.05	0.54	1.13	1.43
	10I _{tr}	0.5ind	1.48	1.11	0.52	0.05	0.04	0.56	1.11	1.45
	I _{max}	0.5ind	1.49	1.09	0.49	0.06	0.04	0.58	1.17	1.39
	I _{tr}	0.8cap	1.53	1.08	0.50	0.07	0.08	0.61	1.08	1.54
	10I _{tr}	0.8cap	1.58	1.07	0.50	0.04	0.04	0.48	1.05	1.47
	I _{max}	0.8cap	1.55	1.07	0.47	0.04	0.05	0.54	1.03	1.48
	I _{tr}	1.0	1.57	1.00	0.49	0.07	0.04	0.44	1.01	1.43
	10I _{tr}	1.0	1.54	1.01	0.47	0.04	0.05	0.45	1.05	1.47
R Phase	I _{max}	1.0	1.48	0.99	0.42	0.04	0.04	0.47	1.07	1.42
	I _{tr}	0.5ind	1.59	0.98	0.43	0.08	0.07	0.44	1.06	1.48
	10I _{tr}	0.5ind	1.41	0.97	0.47	0.08	0.09	0.41	1.02	1.54
	I _{max}	0.5ind	1.47	1.03	0.45	0.08	0.04	0.49	1.06	1.52
	I _{tr}	1.0	1.54	1.11	0.44	0.05	0.08	0.46	1.12	1.54
	10I _{tr}	1.0	1.47	1.12	0.41	0.05	0.04	0.41	1.08	1.51
S Phase	I _{max}	1.0	1.49	1.04	0.47	0.07	0.06	0.43	1.04	1.48
	I _{tr}	0.5ind	1.44	1.08	0.42	0.05	0.06	0.47	1.06	1.44
	10I _{tr}	0.5ind	1.41	1.09	0.41	0.07	0.04	0.44	1.02	1.41
	I _{max}	0.5ind	1.47	1.01	0.52	0.06	0.08	0.45	1.01	1.47
	I _{tr}	1.0	1.54	1.02	0.41	0.04	0.07	0.42	1.08	1.44
	10I _{tr}	1.0	1.51	1.01	0.48	0.02	0.04	0.44	0.98	1.41
T Phase	I _{max}	1.0	1.57	1.05	0.42	0.05	0.08	0.47	1.02	1.40
	I _{tr}	0.5ind	1.41	1.00	0.43	0.03	0.07	0.43	1.04	1.36
	10I _{tr}	0.5ind	1.46	0.99	0.44	0.05	0.04	0.41	1.04	1.43
	I _{max}	0.5ind	1.43	0.98	0.40	0.03	0.05	0.45	1.02	1.41

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Page: 3 of 6

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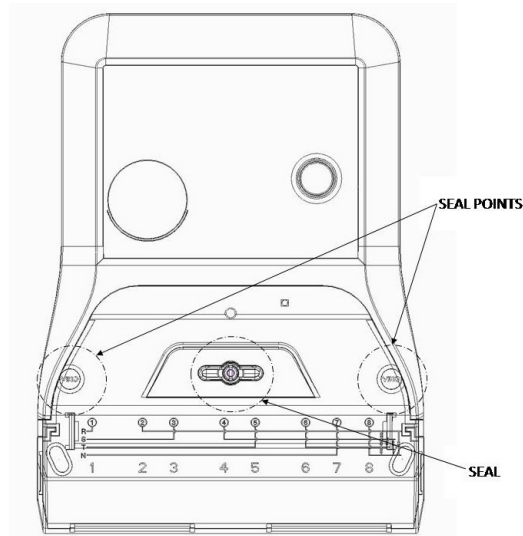
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Seal Locations & Photo showing Markings



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Page: 4 of 6

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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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Page: 5 of 6

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Manufacturer Address: **Panasonic Eco Solutions Elektrik Sanayi Ticaret Anonim Sirketi**
Abdurrahmangazi Mah
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Document Revision History

Issue	Date	Comments
1	20/12/2015	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/644511 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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Page: 6 of 6

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