EU-TYPE EXAMINATION CERTIFICATE

ZIV Aplicaciones y Tecnología S.L.
Parque Tecnológico, 210
48170 Zamudio
Spain

EU-Type Examination
Certificate No.
1438-14
Revision 7

Type 5CTME2C477

Object Electronic single-phase two-wire energy meter.
Direct connected

The object has been assessed and meets the requirements of

EU Directive 2014/32/EU,
Module B

The energy meter(s) meet(s) the essential requirements of Annex V of EU Directive 2014/32/EU, on the harmonization of the laws of Member States relating to the making available on the market of measuring instruments (recast).

This Certification is based on the report(s) listed in the report list in this Certificate.

This Certificate is valid until: October 3, 2034.

This Certificate comprises 8 pages in total.

Issued by KEMA B.V.
Klingelbeekseweg 195,
Arnhem, The Netherlands
Notified Body 2290

Alessandro Bertani
Director,
Services & Smart Technologies

Arnhem, October 3, 2024

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REVISION OVERVIEW

The highest revision always replaces the earlier issued versions.

Rev. No.	Date of issue	Reason
0 (V1)	August 7, 2014	First issue
1 (V2)	July 27, 2017	Software update
2 (V3)	September 15, 2017	Software update
3 (V4)	November 20, 2017	Software update
4 (V5)	March 19, 2021	Software update
6 (V6)	February 16, 2024	Software update
7 (V7)	October 3, 2024	Software update

REPORT LIST

This Certificate is issued based on the following reports.

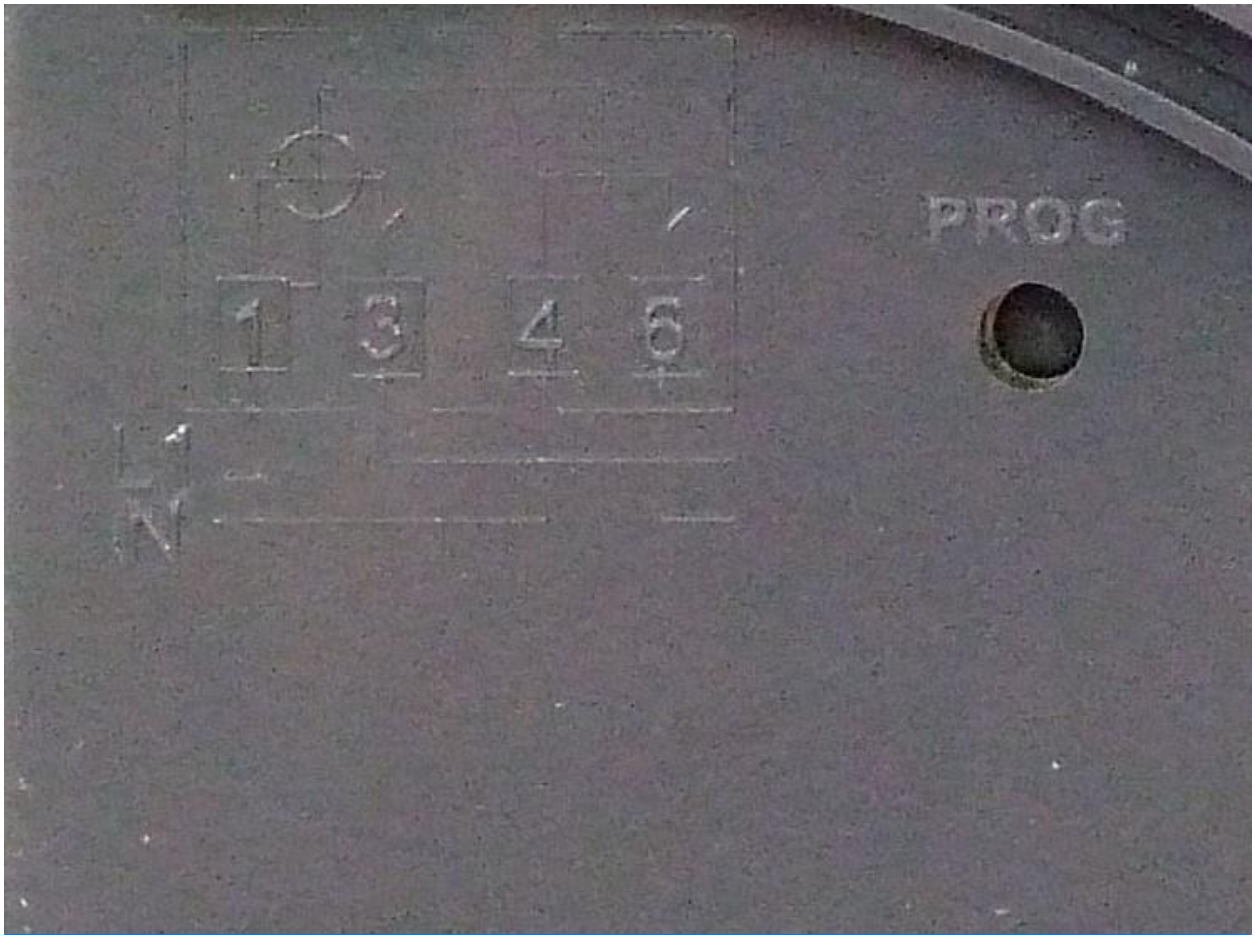
Report number	revision	Firmware version
1195-21	R0	V1028
1517-24	R0	V2038
1691-24	R0	V2040

1 TECHNICAL DATA

Manufacturer	ZIV Aplicaciones y Tecnología S.L. Parque Tecnológico, 210 48170 Zamudio Spain
Production location	ZIV Aplicaciones y Tecnología S.L. Parque Tecnológico, 407 48170 Zamudio Spain
Type	5CTME2C477
Connection	Direct
Type of circuit	1P2W
Accuracy class Wh	1/B
Accuracy class varh	2
Meter constant	1000 imp/kWh 1000 imp/kvarh
V range	127 - 230 V
I range I_{min}-I_n(I_{max})	0,25..5(80) A
Frequency	50 Hz
Temperature range	-25 .. 70 °C
Use	Indoor
IP rating	IP51
Protection Class	II
Impulse voltage	6 kV
Environmental class	M1, M2, E1 and E2, CISPR32 class B
LR Firmware ID	V2040
LR Firmware CRC	20689
Register	LCD
Registry method(s):	bi-directional method with separate registers: received- and delivered energy is added in separate registers.

2 PHOTOGRAPHS AND SEALING

3 EXAMPLES OF NAME PLATES



4 CALCULATION OF THE COMPOSITE ERROR / MPE

During the type approval test the intrinsic errors for temperature, voltage and frequency variation are determined per load point. The composite error is determined with the following formula:

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

Where
$\varepsilon^2(I, cos\varphi)$ = Intrinsic error of the meter at a certain load
$\delta^2(T, I, cos\varphi)$ = Additional error due to the variation of the temperature at the same load
$\delta^2(U, I, cos\varphi)$ = Additional error due to the variation of the voltage at the same load
$\delta^2(f, I, cos\varphi)$ = Additional error due to the variation of the frequency at the same load

Results are in the table below:

I in % of I_{ref}	Composite error %							
	ºC cos φ	-25 ºC	-10 ºC	5 ºC	30 ºC	40 ºC	55 ºC	70 ºC
5	1	0,80%	0,55%	0,39%	0,20%	0,20%	0,23%	0,23%
10	1	0,74%	0,49%	0,24%	0,14%	0,22%	0,22%	0,16%
10	0,5 ind	0,73%	0,49%	0,31%	0,29%	0,30%	0,31%	0,30%
10	0,8 cap	0,77%	0,51%	0,28%	0,16%	0,22%	0,20%	0,17%
I_{max}	1	0,59%	0,36%	0,17%	0,06%	0,10%	0,09%	0,10%
I_{max}	0,5 ind	0,48%	0,29%	0,14%	0,17%	0,20%	0,21%	0,14%
I_{max}	0,8 cap	0,55%	0,35%	0,18%	0,08%	0,10%	0,08%	0,15%

5 OPTIONS AND VARIANTS

Overview of variants with details

Type designation	Details of the meter
5CTME2C477	• Communication options: optical port RS485 PLC • load control switch

END OF DOCUMENT

The laboratories of KEMA Labs are:

- CESI S.p.A., Milan, Italy, accredited by ACCREDIA in accordance with ISO/IEC 17025:2017 under no. 0030L.
- FGH Engineering & Test GmbH, Mannheim, Germany, accredited by DAkkS in accordance with DIN EN ISO/IEC 17025:2018 under no. D-PL-12110-01-00.
- IPH Institut "Prüffeld für elektrische Hochleistungstechnik" GmbH, Berlin, Germany accredited by DAkkS in accordance with DIN EN ISO/IEC 17025: 2018 under nos. D-PL-12107-01-00 and D-K-12107-01-00.
- KEMA B.V., Arnhem, The Netherlands, accredited by RvA in accordance with EN ISO/IEC 17025:2017 under nos. L020, L218 and K006.
- KEMA Labs, Zkušebnictví, a.s., Prague, the Czech Republic, testing laboratory no. 1035 accredited by CAI in accordance with ČSN EN ISO/IEC 17025:2018.
- KEMA-Powertest, LLC, Chalfont, United States, accredited by A2LA in accordance with ISO/IEC 17025:2017 under no. 0553.01.

Tests are carried out under the scope of accreditation, unless otherwise indicated in the chapter 'Tests carried out'.