

EU-TYPE EXAMINATION CERTIFICATE

Qingdao Comcore Technologies Co., Ltd.
8 Floor, Block A, International Innovation Park, No.1
Keyuanweiyi Rd, Laoshan District, 266061, Qingdao
China

EU-Type Examination
Certificate No.
103680905-25
Revision 0



Type TC25
Object Electronic three-phase four-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: May 20, 2035.

This Certificate comprises 8 pages in total.

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


Marten Dekker
Operations Director Netherlands

Arnhem, May 20, 2025



REVISION OVERVIEW

The edition with the highest revision number always replaces the earlier issued editions.

Rev. No.	Date of issue	Reason
0	May 20, 2025	First issue

REPORT LIST

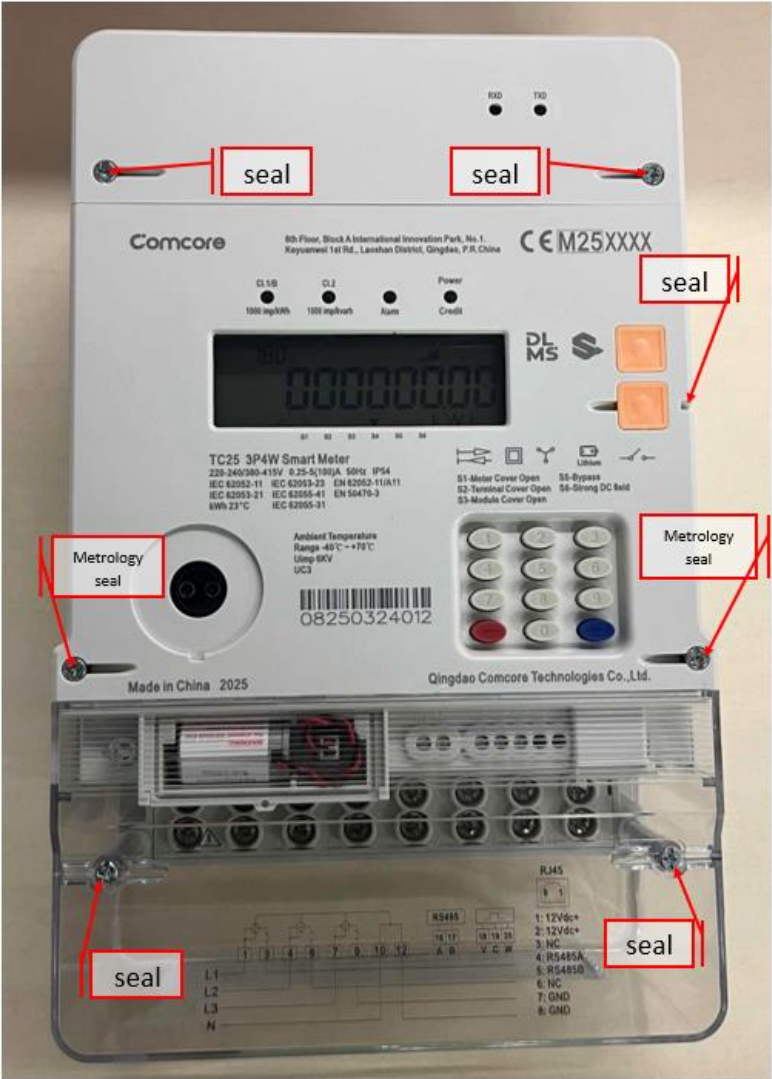
This Certificate is issued based on the following reports.

Report number	Revision	Firmware version
103680901-25	0	TC19KV0134RFKE24071004
103680902-25	0	TC19KV0134RFKE24071004
103680903-25	0	TC19KV0134RFKE24071004

1 TECHNICAL DATA

Manufacturer	Qingdao Comcore Technologies Co., Ltd. 8 Floor, Block A, International Innovation Park, No.1 Keyuanweiyi Rd, Laoshan District, Qingdao, 266061, China
Production location	Qingdao Comcore Technologies Co., Ltd. 8 Floor, Block A, International Innovation Park, No.1 Keyuanweiyi Rd, Laoshan District, Qingdao, 266061, China
Type	TC25
Model	-
Connection	Direct
Type of circuit	3P4W
Accuracy class Wh	1/B
Accuracy class varh	2
Meter constant	1000 imp/kWh 1000 imp/kvarh
V range	220/380 – 240/415 V
I range $I_{min}-I_n(I_{max})$	0,25 - 5(100)A
Frequency	50 Hz
Temperature range	-40 .. 70 °C
Use	Indoor
IP rating	IP54
Protection Class	II
Impulse voltage	6 kV
Internal clock	Crystal controlled
Environmental class	M1, M2, E1 and E2, CISPR32 class B
Utilisation category	UC3
Token interface	Keypad interface
Payment type	kWh
LR Firmware ID	TC19KV0134RFKE24071004
LR Firmware CRC	03A7C60F
Register	LCD
Registry method	Algebraic computation method. At received and delivered energy the amount of energy is deducted from the remain energy.

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:

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

In which:

$\varepsilon^2(I, \cos\varphi)$ = 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

The results are mentioned in the table below:

Wh, 220/380 V, 0,25-5(100) A, 50 Hz										
			Composite error							
Current	cosφ	Phase	-40°C	-25°C	-10°C	5°C	30°C	40°C	55°C	70°C
I _{min}	1	3ph	0,04%	0,05%	0,05%	0,03%	0,02%	0,05%	0,13%	0,21%
I _{tr}	1	3ph	0,04%	0,06%	0,06%	0,04%	0,01%	0,05%	0,11%	0,18%
I _{tr}	1	1ph,1	0,03%	0,05%	0,05%	0,03%	0,01%	0,06%	0,12%	0,18%
I _{tr}	1	1ph,2	0,02%	0,05%	0,06%	0,03%	0,01%	0,03%	0,09%	0,15%
I _{tr}	1	1ph,3	0,05%	0,06%	0,07%	0,05%	0,03%	0,06%	0,13%	0,21%
I _{tr}	0,5i	3ph	0,11%	0,12%	0,11%	0,11%	0,11%	0,14%	0,20%	0,33%
I _{tr}	0,5i	1ph,1	0,17%	0,17%	0,17%	0,16%	0,15%	0,17%	0,24%	0,35%
I _{tr}	0,5i	1ph,2	0,11%	0,12%	0,12%	0,11%	0,11%	0,11%	0,15%	0,27%
I _{tr}	0,5i	1ph,3	0,07%	0,08%	0,09%	0,07%	0,05%	0,09%	0,20%	0,33%
I _{tr}	0,8c	3ph	0,05%	0,07%	0,06%	0,05%	0,05%	0,06%	0,10%	0,16%
I _n	1	3ph	0,04%	0,06%	0,06%	0,04%	0,02%	0,04%	0,10%	0,17%
I _n	1	1ph,1	0,04%	0,05%	0,05%	0,04%	0,03%	0,05%	0,11%	0,17%
I _n	1	1ph,2	0,03%	0,05%	0,05%	0,04%	0,02%	0,05%	0,09%	0,15%
I _n	1	1ph,3	0,06%	0,08%	0,07%	0,06%	0,04%	0,07%	0,13%	0,19%
I _n	0,5i	3ph	0,02%	0,04%	0,05%	0,03%	0,02%	0,07%	0,14%	0,23%
I _n	0,5i	1ph,1	0,04%	0,05%	0,05%	0,04%	0,04%	0,10%	0,16%	0,26%
I _n	0,5i	1ph,2	0,02%	0,04%	0,04%	0,04%	0,02%	0,04%	0,09%	0,17%
I _n	0,5i	1ph,3	0,05%	0,06%	0,07%	0,05%	0,04%	0,07%	0,15%	0,25%
I _n	0,8c	3ph	0,07%	0,08%	0,08%	0,07%	0,06%	0,08%	0,11%	0,16%
I _{max}	1	3ph	0,05%	0,07%	0,07%	0,06%	0,05%	0,07%	0,11%	0,18%
I _{max}	1	1ph,1	0,05%	0,07%	0,07%	0,05%	0,04%	0,06%	0,09%	0,16%
I _{max}	1	1ph,2	0,06%	0,07%	0,07%	0,06%	0,06%	0,07%	0,12%	0,17%
I _{max}	1	1ph,3	0,09%	0,10%	0,09%	0,08%	0,06%	0,09%	0,13%	0,19%
I _{max}	0,5i	3ph	0,20%	0,20%	0,20%	0,19%	0,19%	0,20%	0,23%	0,28%
I _{max}	0,5i	1ph,1	0,17%	0,17%	0,17%	0,17%	0,16%	0,18%	0,21%	0,27%
I _{max}	0,5i	1ph,2	0,21%	0,22%	0,22%	0,21%	0,21%	0,22%	0,24%	0,28%
I _{max}	0,5i	1ph,3	0,21%	0,22%	0,21%	0,21%	0,20%	0,21%	0,24%	0,31%
I _{max}	0,8c	3ph	0,05%	0,07%	0,06%	0,04%	0,02%	0,05%	0,09%	0,15%

5 OPTIONS AND VARIANTS

Overview of variants with details

Type designation	Details of the meter
TC25	• Communication options: optical port RS485 RJ45 Pulse output • Supply 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 and with EN ISO/IEC 17065:2012 under no. C685.
- 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'.