

# EU-TYPE EXAMINATION CERTIFICATE

**Shenzhen Clou Electronics Co.,Ltd.**  
13-24th Floor, Clou Building, Baoshen Road South,  
Hi-tech Industrial Park North, Nanshan District, Shenzhen  
China

EU-Type Examination

Certificate No.

**1446-21**

Revision 6



**Type** CL730S22 and CL730S24  
**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: November 12, 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, November 12, 2024



### REVISION OVERVIEW

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

Rev. No.	Date of issue	Reason
0 (V1)	July 30, 2021	First issue
1 (V2)	August 5, 2021	Report revision added
2 (V3)	August 27, 2021	Report revision added
3	January 18, 2022	Report added
4	August 26, 2024	Report 1657-24 added
5	September 18, 2024	- Type name corrected, front page and chapter 1
6	November 12, 2024	- Typo in report list and chapter 1 corrected - Report 1657-24 revised

### REPORT LIST

This Certificate is issued based on the following reports.

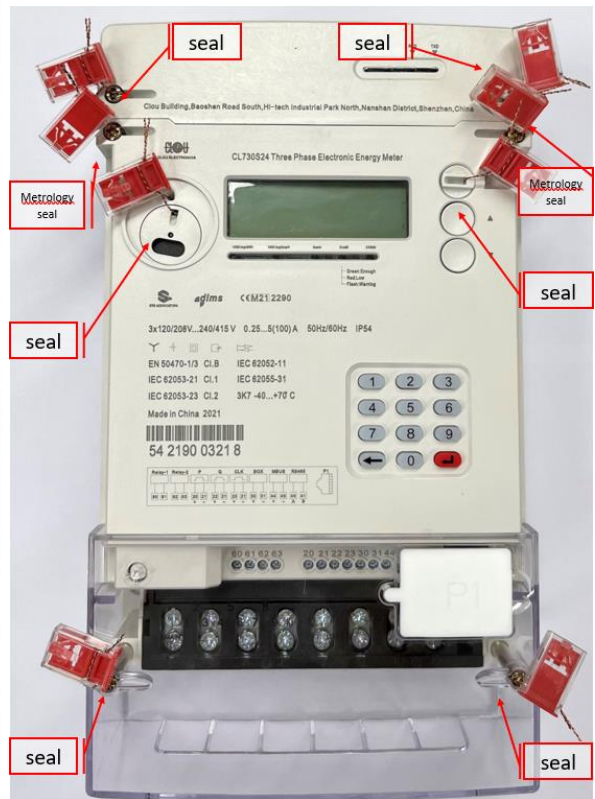
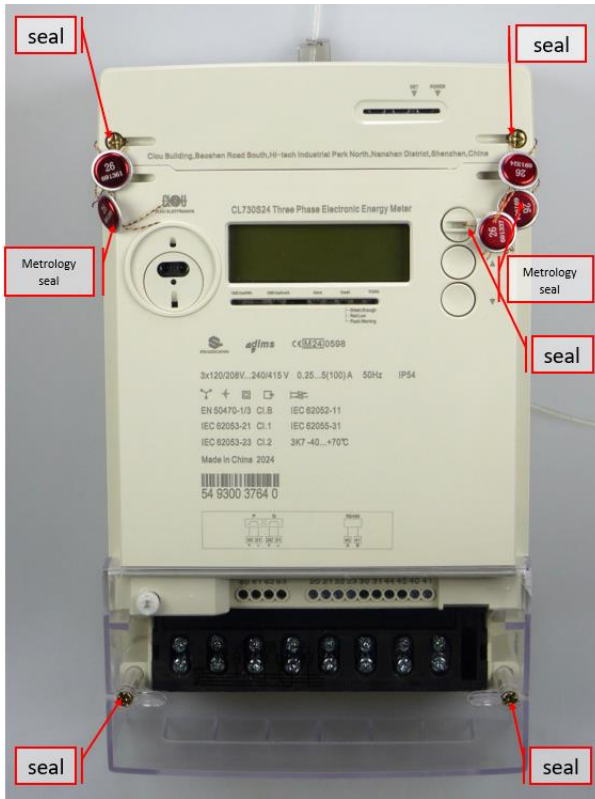
Report number	Revision	Firmware version
1501-22	0	0404
1657-24	1	

## 1 TECHNICAL DATA

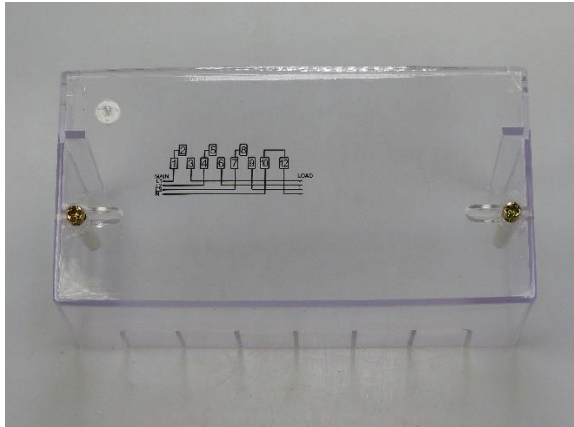
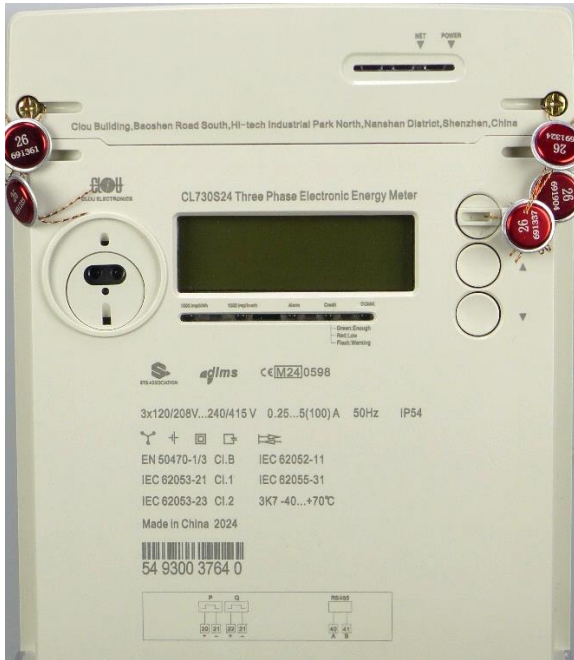
Manufacturer	Shenzhen Clou Electronics Co.,Ltd., 13-24th Floor, Clou Building, Baoshen Road South, Hi-tech Industrial Park North, Nanshan District, Shenzhen, China
Production location	Shenzhen Clou Electronics Co., Ltd. Foshan Branch Floor 3, Building 1, No.1, Xinhui Road, Wusha Community, Daliang Street, ShundeDistrict, Foshan City, Guangdong Province, China
Type	CL730S22 and CL730S24*
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	3x120/208 – 3x240/415 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
LR Firmware ID	0404
LR Firmware CRC	0xCCFE
Register	LCD
Registry method(s):	Option 1: Bi-directional method separate registers: received- and delivered energy of the whole connection is added in separate registers Option 2: Algebraic sum method with reversal preventing device (semi-Ferraris with reversal preventing device)

\* same product is marketed with different type names

**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 <sub>ref</sub>	cos φ	Phase	Composite error %							
			-40 °C	-25 °C	-10 °C	5 °C	30 °C	40 °C	55 °C	70 °C
5	1	RST	0,33%	0,20%	0,11%	0,06%	0,03%	0,05%	0,06%	0,07%
10	1	RST	0,32%	0,19%	0,09%	0,03%	0,02%	0,04%	0,05%	0,07%
10	0,5 ind.	RST	0,32%	0,20%	0,10%	0,02%	0,02%	0,02%	0,03%	0,04%
10	0,8 cap.	RST	0,33%	0,20%	0,11%	0,05%	0,02%	0,04%	0,06%	0,09%
10	1	R	0,40%	0,25%	0,14%	0,05%	0,02%	0,06%	0,08%	0,11%
10	0,5 ind.	R	0,41%	0,26%	0,14%	0,05%	0,04%	0,05%	0,08%	0,09%
10	1	S	0,30%	0,19%	0,09%	0,03%	0,02%	0,03%	0,05%	0,06%
10	0,5 ind.	S	0,31%	0,19%	0,09%	0,03%	0,01%	0,02%	0,02%	0,02%
10	1	T	0,26%	0,15%	0,08%	0,04%	0,03%	0,03%	0,03%	0,03%
10	0,5 ind.	T	0,25%	0,15%	0,07%	0,02%	0,01%	0,01%	0,02%	0,01%
I <sub>max</sub>	1	RST	0,32%	0,20%	0,10%	0,05%	0,01%	0,03%	0,03%	0,03%
I <sub>max</sub>	0,5 ind.	RST	0,34%	0,26%	0,21%	0,20%	0,20%	0,20%	0,20%	0,20%
I <sub>max</sub>	0,8 cap.	RST	0,33%	0,22%	0,12%	0,06%	0,05%	0,06%	0,07%	0,08%
I <sub>max</sub>	1	R	0,40%	0,25%	0,13%	0,06%	0,03%	0,06%	0,08%	0,10%
I <sub>max</sub>	0,5 ind.	R	0,43%	0,32%	0,26%	0,23%	0,22%	0,22%	0,23%	0,22%
I <sub>max</sub>	1	S	0,28%	0,16%	0,08%	0,03%	0,02%	0,04%	0,04%	0,04%
I <sub>max</sub>	0,5 ind.	S	0,26%	0,17%	0,15%	0,14%	0,14%	0,14%	0,14%	0,15%
I <sub>max</sub>	1	T	0,26%	0,16%	0,11%	0,08%	0,07%	0,07%	0,07%	0,08%
I <sub>max</sub>	0,5 ind.	T	0,35%	0,30%	0,27%	0,27%	0,27%	0,27%	0,27%	0,27%

## 5 OPTIONS AND VARIANTS

Overview of variants with details

CL730S22/CL730S24	<ul style="list-style-type: none"><li>• Communication options:<ul style="list-style-type: none"><li>optical port</li><li>RS485</li><li>G3-PLC</li><li>WiFi 4G</li><li>MBUS</li><li>P1 port</li></ul></li><li>• Pulse output (active and reactive)</li><li>• Supply control switch</li><li>• external relay (2x)</li><li>• BOX port</li><li>• Clock output</li></ul>
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## 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'.