

# EU-TYPE EXAMINATION CERTIFICATE

**Ningbo Sanxing Smart Electric Co., Ltd.**  
No.16 Fengwan Road, Cicheng Town, Jiangbei District, Ningbo City,  
Zhejiang Province, 315034  
China

EU-Type Examination

Certificate No.

**1671-22**

Revision 14



**Type** S34U28  
**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,** a CESI brand  
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: December 11, 2034.

This Certificate comprises 11 pages in total.

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

Alessandro Bertani  
Director,  
Services & Smart Technologies

Arnhem, December 11, 2024



## REVISION OVERVIEW

The highest revision always replaces the earlier issued versions.

Rev. No.	Date of issue	Reason
0	November 2, 2022	First issue
1	November 14, 2023	New variant of the meter added
2	November 14, 2023	New variant of the meter added
3	November 27, 2023	<ul style="list-style-type: none"> <li>• Software version corrected (page 3)</li> <li>• Registration method description updated (page 3)</li> </ul>
4	December 4, 2023	<ul style="list-style-type: none"> <li>• Model name added (page 3)</li> <li>• Picture with model name added (page 5)</li> <li>• Revision of report 1668-23 and 1669-23 upgraded</li> </ul>
5	December 22, 2023	Report 1698-23 and 1709-23 added
6	December 22, 2023	Report 1700-23 and 1706-23 added
7	February 16, 2024	<ul style="list-style-type: none"> <li>• Report 1522-24 and 1523-24 added</li> <li>• Impulse voltage level increased to 8 kV</li> </ul>
8	March 27, 2024	Typo in report list corrected
9	June 6, 2024	Report 1615-24 and 1616-24 added
10	July 10, 2024	Report 1633-24 and 1634-24 added
11	July 25, 2024	<ul style="list-style-type: none"> <li>• Revision of report 1633-24 upgraded</li> <li>• Revision of report 1634-24 upgraded</li> <li>• Typo page 3 corrected</li> </ul>
12	August 12, 2024	<ul style="list-style-type: none"> <li>• Corrected photo page 6 and 7 - 1667-23 R10</li> <li>• Corrected photo page 6 and 7</li> </ul>
13	September 17, 2024	• Report 1661-24 and 1662-24 added
14	December 11, 2024	<ul style="list-style-type: none"> <li>• Report 1749-24 added</li> <li>• Pre-payment information removed from chapter 1</li> </ul>

**REPORT LIST**

This Certificate is issued based on the following reports.

Report number	Revision	Firmware version
1696-22	R0	
1697-22	R0	
1659-23	R0	
1668-23	R2	
1669-23	R1	
1698-23	R0	V0.10.10
1709-23	R0	
1700-23	R1	V0.09.11
1706-23	R0	
1522-24	R0	
1523-24	R0	
1615-24	R0	
1616-24	R0	
1633-24	R1	
1634-24	R1	V0.10.10
1661-24	R0	V0.03.02
1662-24	R0	
1749-24	R0	V0.09.11

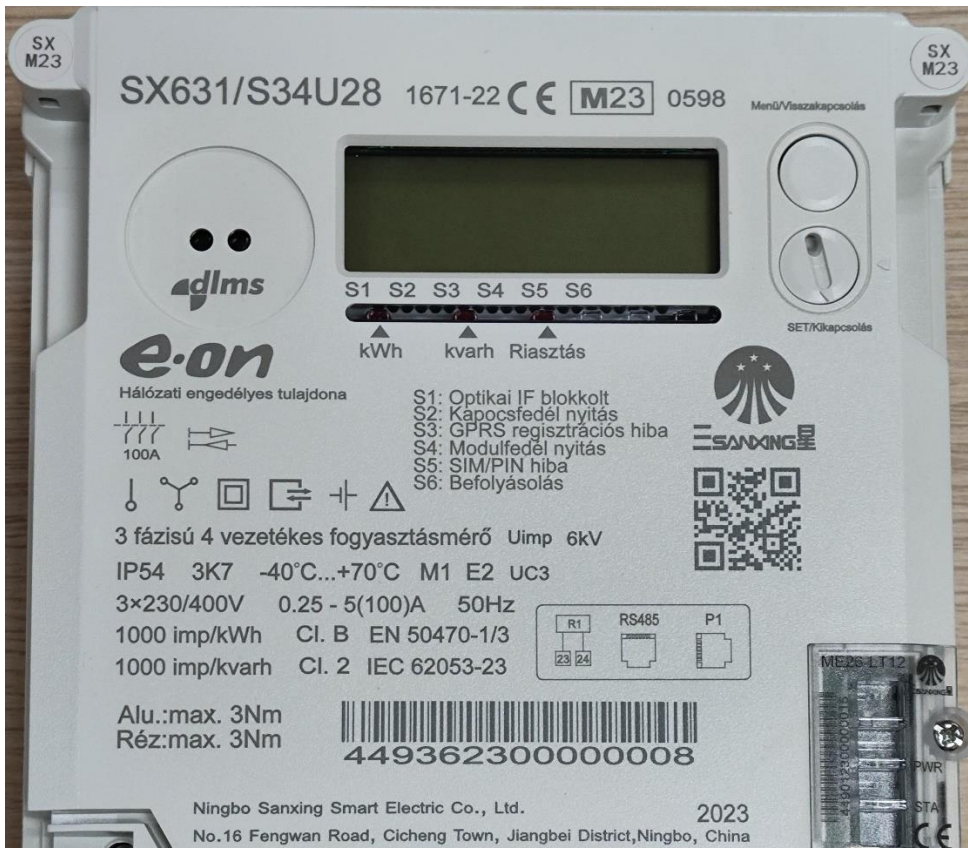
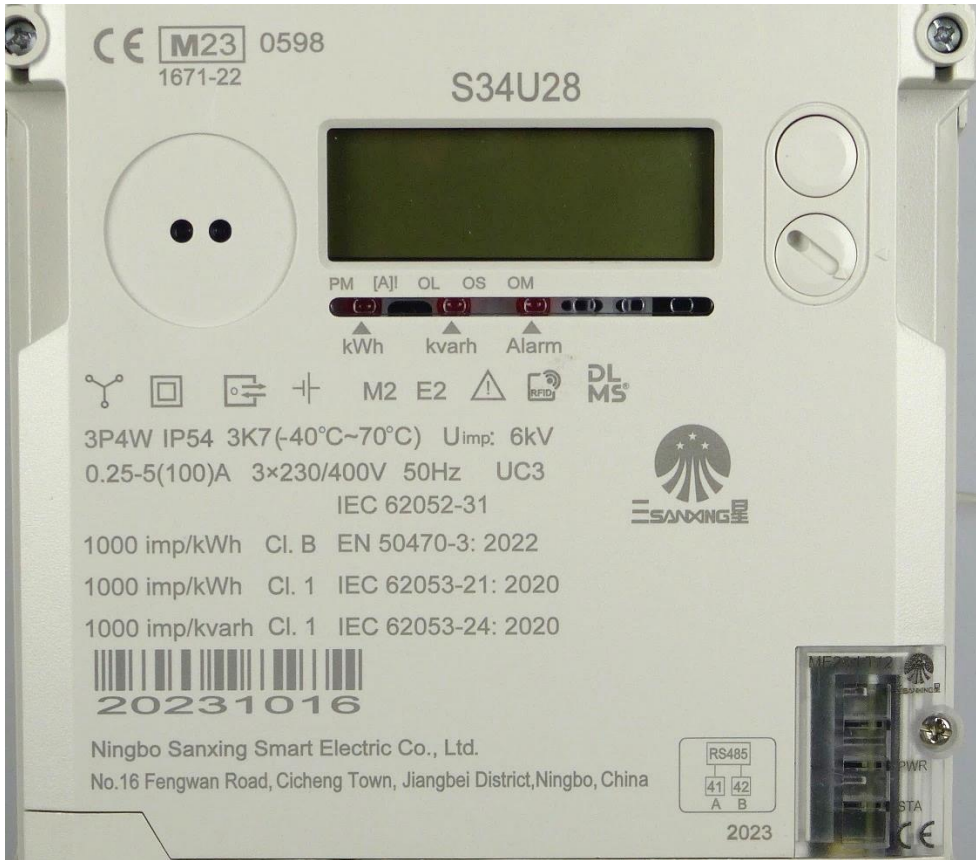
## 1 TECHNICAL DATA

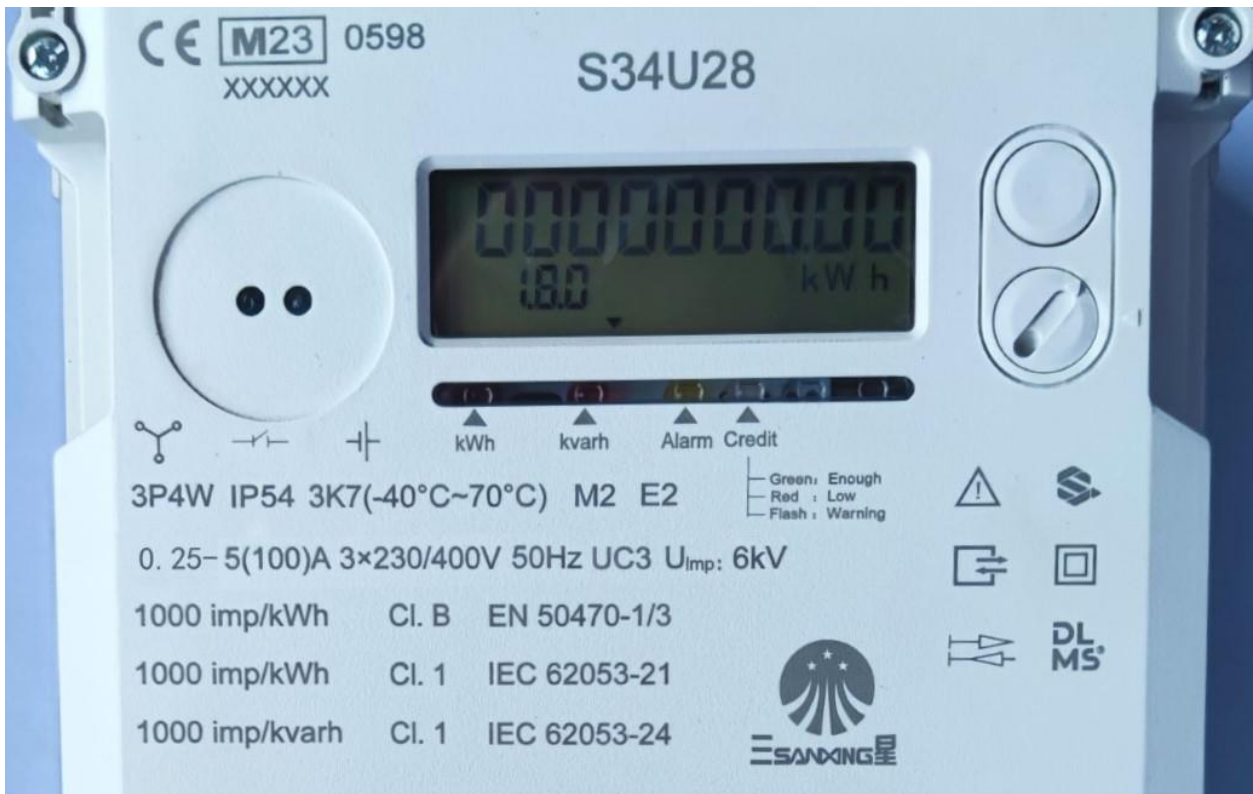
Manufacturer	Ningbo Sanxing Smart Electric Co., Ltd., No.16 Fengwan Road, Cicheng Town, Jiangbei District, Ningbo City, Zhejiang Province, 315034, China	
Production location	Ningbo Sanxing Smart Electric Co., Ltd., No.16 Fengwan Road, Cicheng Town, Jiangbei District, Ningbo City, Zhejiang Province, 315034, China	
Type	S34U28	Pre-payment
Connection	Direct	
Type of circuit	3P4W	
Accuracy class Wh	1/B	
Accuracy class varh	1 and 2	
Meter constant	1000 imp/kWh 1000 imp/kvarh	
V range	3*220/380 V 3*230/400 V 3*240/415 V	
I range $I_{min}$ - $I_n$ ( $I_{max}$ )	0,25-5(60) A 0,5-10(60) A 0,25-5(80) A 0,25-5(100) A 0,5-10(100) A	
Frequency	50 Hz	
Temperature range	-40 .. 70 °C	
Use	Indoor	
IP rating	IP54	
Protection Class	II	
Impulse voltage	8 kV	
Internal clock	Crystal controlled	
Environmental class	M1, M2, E1 and E2, CISPR32 class B	
Utilisation category	UC3	
LR Firmware ID	V0.09.11	V0.09.11
LR Firmware CRC	D337	D337
Register	LCD	
Registry method(s):	Vectoral computation method and Algebraic computation method	

**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:

Current	cosφ	Phase	Composite error							
			-40°C	-25°C	-10°C	5°C	30°C	40°C	55°C	70°C
Imin	1	3ph	0,33%	0,23%	0,14%	0,10%	0,10%	0,10%	0,14%	0,21%
Itr	1	3ph	0,33%	0,22%	0,13%	0,10%	0,09%	0,10%	0,13%	0,20%
Itr	1	1ph,1	0,31%	0,20%	0,13%	0,10%	0,09%	0,10%	0,13%	0,20%
Itr	1	1ph,2	0,31%	0,22%	0,14%	0,11%	0,11%	0,12%	0,16%	0,23%
Itr	1	1ph,3	0,35%	0,23%	0,12%	0,08%	0,06%	0,07%	0,11%	0,17%
Itr	0,5i	3ph	0,32%	0,22%	0,11%	0,07%	0,06%	0,08%	0,14%	0,24%
Itr	0,5i	1ph,1	0,32%	0,23%	0,11%	0,06%	0,05%	0,07%	0,13%	0,22%
Itr	0,5i	1ph,2	0,30%	0,18%	0,11%	0,07%	0,07%	0,09%	0,16%	0,25%
Itr	0,5i	1ph,3	0,34%	0,22%	0,10%	0,03%	0,02%	0,03%	0,09%	0,18%
Itr	0,8c	3ph	0,36%	0,27%	0,20%	0,17%	0,17%	0,17%	0,20%	0,24%
In	1	3ph	0,32%	0,22%	0,14%	0,10%	0,09%	0,10%	0,14%	0,21%
In	1	1ph,1	0,32%	0,22%	0,13%	0,10%	0,09%	0,10%	0,14%	0,21%
In	1	1ph,2	0,32%	0,22%	0,15%	0,11%	0,11%	0,12%	0,16%	0,24%
In	1	1ph,3	0,35%	0,23%	0,13%	0,09%	0,08%	0,09%	0,13%	0,19%
In	0,5i	3ph	0,32%	0,21%	0,11%	0,07%	0,06%	0,07%	0,13%	0,22%
In	0,5i	1ph,1	0,32%	0,21%	0,10%	0,07%	0,06%	0,07%	0,12%	0,21%
In	0,5i	1ph,2	0,30%	0,20%	0,11%	0,08%	0,08%	0,10%	0,15%	0,24%
In	0,5i	1ph,3	0,33%	0,21%	0,10%	0,06%	0,04%	0,05%	0,10%	0,18%
In	0,8c	3ph	0,33%	0,23%	0,15%	0,12%	0,11%	0,11%	0,15%	0,21%
Imax	1	3ph	0,33%	0,22%	0,14%	0,11%	0,10%	0,11%	0,15%	0,22%
Imax	1	1ph,1	0,32%	0,21%	0,14%	0,12%	0,11%	0,12%	0,16%	0,22%
Imax	1	1ph,2	0,34%	0,25%	0,18%	0,16%	0,15%	0,16%	0,20%	0,26%
Imax	1	1ph,3	0,35%	0,23%	0,15%	0,11%	0,10%	0,11%	0,14%	0,21%
Imax	0,5i	3ph	0,37%	0,31%	0,25%	0,22%	0,25%	0,25%	0,26%	0,39%
Imax	0,5i	1ph,1	0,34%	0,26%	0,21%	0,20%	0,19%	0,20%	0,24%	0,31%
Imax	0,5i	1ph,2	0,29%	0,32%	0,23%	0,24%	0,25%	0,28%	0,24%	0,39%
Imax	0,5i	1ph,3	0,38%	0,29%	0,24%	0,23%	0,23%	0,23%	0,25%	0,34%
Imax	0,8c	3ph	0,34%	0,17%	0,14%	0,11%	0,10%	0,10%	0,15%	0,19%
<b>Requirements</b>										
Imin	1	3ph	4,00%	3,50%	2,50%	2,00%	2,00%	2,50%	3,50%	4,00%
>Imin	Any	3ph	4,00%	3,50%	2,50%	2,00%	2,00%	2,50%	3,50%	4,00%
>Imin	Any	1ph	4,50%	4,00%	3,00%	2,50%	2,50%	3,00%	4,00%	4,50%

## 5 OPTIONS AND VARIANTS

Overview of variants and options with details

Type designation	Details of the meter
S34U28	<ul style="list-style-type: none"><li>• Pre-payment version</li><li>• Communication options:<ul style="list-style-type: none"><li>optical port</li><li>RS485</li><li>PLC</li><li>4G module</li></ul></li><li>• Supply control switch</li></ul>

## END OF DOCUMENT

The laboratories of KEMA Labs are:

- CESI S.p.A., Milan, Italy.
- FGH Engineering & Test GmbH, Mannheim, Germany.
- IPH Institut "Prüffeld für elektrische Hochleistungstechnik" GmbH, Berlin, Germany.
- KEMA B.V., Arnhem, The Netherlands.
- KEMA Labs, Zkušebnictví, a.s., Prague, the Czech Republic.
- KEMA-Powertest, LLC, Chalfont, United States.