

EU-TYPE EXAMINATION CERTIFICATE

Shenzhen Star Instrument Co., Ltd.
Star Industry Park, Baolong Industry City
518116, Shenzhen
China

EU-Type Examination

Certificate No.

1534-18

Revision 4



Type DTS27, DTSY23 and DTS27, DTSY23S
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 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 7, 2035.

This Certificate comprises 8 pages in total.

Issued by KEMA B.V.

Marten Dekker
Operations Director Netherlands

Arnhem, May 7, 2025



REVISION OVERVIEW

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

Rev. No.	Date of issue	Reason
0 (V1)	12 October 2018	First issue
1 (V2)	15 October 2018	Typo correction
2	July 9, 2024	Report 1626-24 added
3	July 17, 2024	- Report 1624-24 revision upgraded - Options and variants table corrected
4	May 7, 2025	- Production location added - Report 103896402-25 added - Signature on the front sheet was adapted

REPORT LIST

This Certificate is issued based on the following reports.

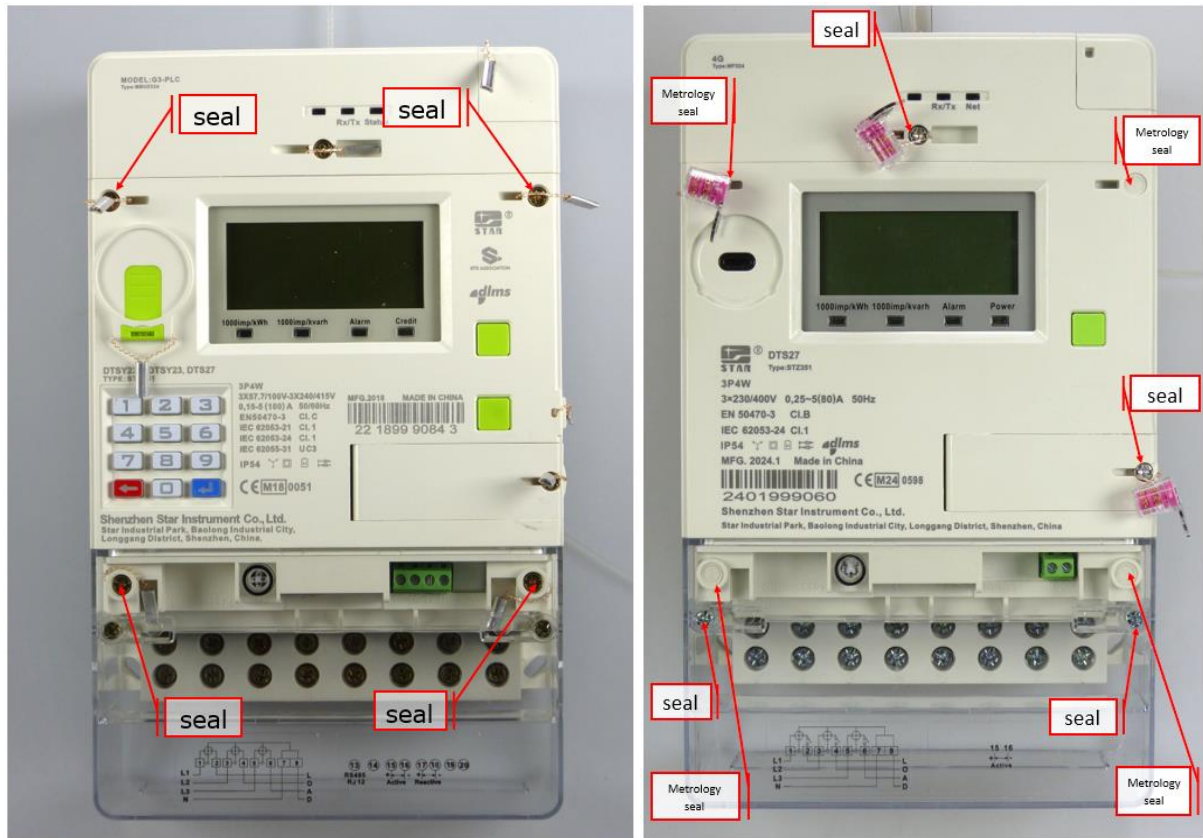
Report number	Revision	Firmware version
1533-18	V3	V0104
1626-24	1	V1007110
103896402-25	0	

1 TECHNICAL DATA

Manufacturer	Shenzhen Star Instrument Co., Ltd. Star Industry Park, Baolong Industry City, 518116, Shenzhen China	
Production location 1	Shenzhen Star Instrument Co., Ltd. Star Industry Park, Baolong Industry City, 518116, Shenzhen China	
Production location 2	4S4 Production Ltd. 3, Str. Eng. Marin Marinov Botevgrad, 2140 Bulgaria	
Type	DTS27*, DTSY23 and DTS27, DTSY23S	
Model	STZ351* and STK351	
Connection	Direct	
Type of circuit	3P4W	
Accuracy class Wh	1/B*	C
Accuracy class varh	1* and 2	
Meter constant	1000 imp/kWh 1000 imp/kvarh	
V range	3x57,7/100, 3x230/400 V* and 3x240/415 V	
I range $I_{min}-I_n(I_{max})$	0,25-5(80) A* and 0,25-5(100) A	0,15 - 5(100) A
Frequency	50* and 60 Hz	
Temperature range	-40 .. 70 °C	
Use	Outdoor	
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	V1007110*	V0104
LR Firmware CRC	0x9886A09A*	94676D3A
Register	LCD	
Registry method(s):	Algebraic computation method	Bi-directional method separate registers: received- and delivered energy of the whole connection is added in separate registers

Production location 2 produces meters with ratings marked with *

2 PHOTOGRAPHS AND SEALING



Note: Metrology Seals with security features are be made of plastic

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:

			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	0,30%	0,22%	0,12%	0,06%	0,05%	0,08%	0,12%	0,14%
I _{tr}	1	3ph	0,42%	0,30%	0,20%	0,11%	0,06%	0,08%	0,13%	0,15%
I _{tr}	1	1ph,1	0,40%	0,29%	0,18%	0,08%	0,03%	0,07%	0,12%	0,15%
I _{tr}	1	1ph,2	0,44%	0,31%	0,23%	0,16%	0,13%	0,14%	0,17%	0,19%
I _{tr}	1	1ph,3	0,46%	0,34%	0,21%	0,13%	0,08%	0,11%	0,15%	0,19%
I _{tr}	0,5i	3ph	0,40%	0,28%	0,20%	0,11%	0,10%	0,11%	0,12%	0,12%
I _{tr}	0,5i	1ph,1	0,41%	0,31%	0,23%	0,11%	0,11%	0,11%	0,12%	0,11%
I _{tr}	0,5i	1ph,2	0,40%	0,29%	0,21%	0,14%	0,14%	0,14%	0,16%	0,15%
I _{tr}	0,5i	1ph,3	0,45%	0,36%	0,18%	0,10%	0,07%	0,09%	0,11%	0,12%
I _{tr}	0,8c	3ph	0,50%	0,31%	0,21%	0,11%	0,06%	0,08%	0,14%	0,18%
I _n	1	3ph	0,44%	0,32%	0,21%	0,12%	0,07%	0,09%	0,13%	0,18%
I _n	1	1ph,1	0,42%	0,30%	0,19%	0,10%	0,03%	0,07%	0,12%	0,16%
I _n	1	1ph,2	0,44%	0,32%	0,22%	0,13%	0,09%	0,11%	0,14%	0,18%
I _n	1	1ph,3	0,48%	0,34%	0,22%	0,12%	0,08%	0,11%	0,16%	0,20%
I _n	0,5i	3ph	0,41%	0,29%	0,19%	0,10%	0,06%	0,07%	0,11%	0,12%
I _n	0,5i	1ph,1	0,38%	0,27%	0,16%	0,08%	0,04%	0,06%	0,08%	0,10%
I _n	0,5i	1ph,2	0,41%	0,30%	0,19%	0,10%	0,06%	0,07%	0,11%	0,13%
I _n	0,5i	1ph,3	0,45%	0,33%	0,19%	0,10%	0,05%	0,08%	0,12%	0,15%
I _n	0,8c	3ph	0,47%	0,34%	0,23%	0,14%	0,08%	0,10%	0,16%	0,20%
I _{max}	1	3ph	0,44%	0,31%	0,20%	0,09%	0,04%	0,08%	0,13%	0,18%
I _{max}	1	1ph,1	0,42%	0,30%	0,20%	0,11%	0,06%	0,09%	0,14%	0,19%
I _{max}	1	1ph,2	0,43%	0,31%	0,21%	0,11%	0,06%	0,08%	0,14%	0,18%
I _{max}	1	1ph,3	0,47%	0,33%	0,21%	0,11%	0,04%	0,08%	0,13%	0,18%
I _{max}	0,5i	3ph	0,40%	0,29%	0,19%	0,10%	0,08%	0,12%	0,16%	0,19%
I _{max}	0,5i	1ph,1	0,40%	0,28%	0,20%	0,11%	0,09%	0,11%	0,14%	0,16%
I _{max}	0,5i	1ph,2	0,41%	0,29%	0,19%	0,12%	0,08%	0,10%	0,15%	0,18%
I _{max}	0,5i	1ph,3	0,44%	0,31%	0,21%	0,13%	0,11%	0,12%	0,15%	0,19%
I _{max}	0,8c	3ph	0,46%	0,33%	0,22%	0,12%	0,09%	0,08%	0,14%	0,19%

5 OPTIONS AND VARIANTS

Overview of variants with details

Type designation	Details of the meter
STZ351	• Communication options: optical port RS485 Wi-SUN/4G/3G/GPRS G3-PLC WMBUS • Pulse output • Supply control switch
STK351	• Communication options: optical port RS485 Wi-SUN/4G/3G/GPRS G3-PLC WMBUS • Pulse output • Supply control switch • Keypad

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'.