

# EU-TYPE EXAMINATION CERTIFICATE

**Holley Technology Ltd.,**  
No.181 Wuchang Avenue, Yuhang District,  
310023 HANGZHOU,  
China

EU-Type Examination

Certificate No.

**1647-24**

Revision 0



**Type** DTSY541  
**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: September 18, 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, September 18, 2024



### REVISION OVERVIEW

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

Rev. No.	Date of issue	Reason
0	September 18, 2024	First issue

### REPORT LIST

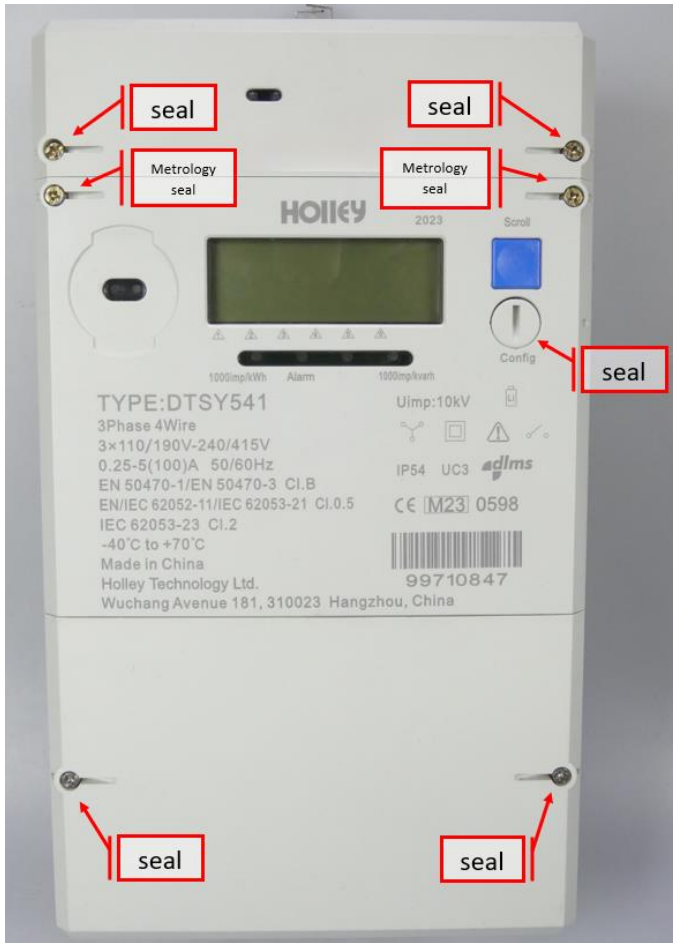
This Certificate is issued based on the following reports.

Report number	Revision	Firmware version
1643-24	0	11.00.00.00
1644-24	0	11.00.00.00
1645-24	0	11.00.00.00

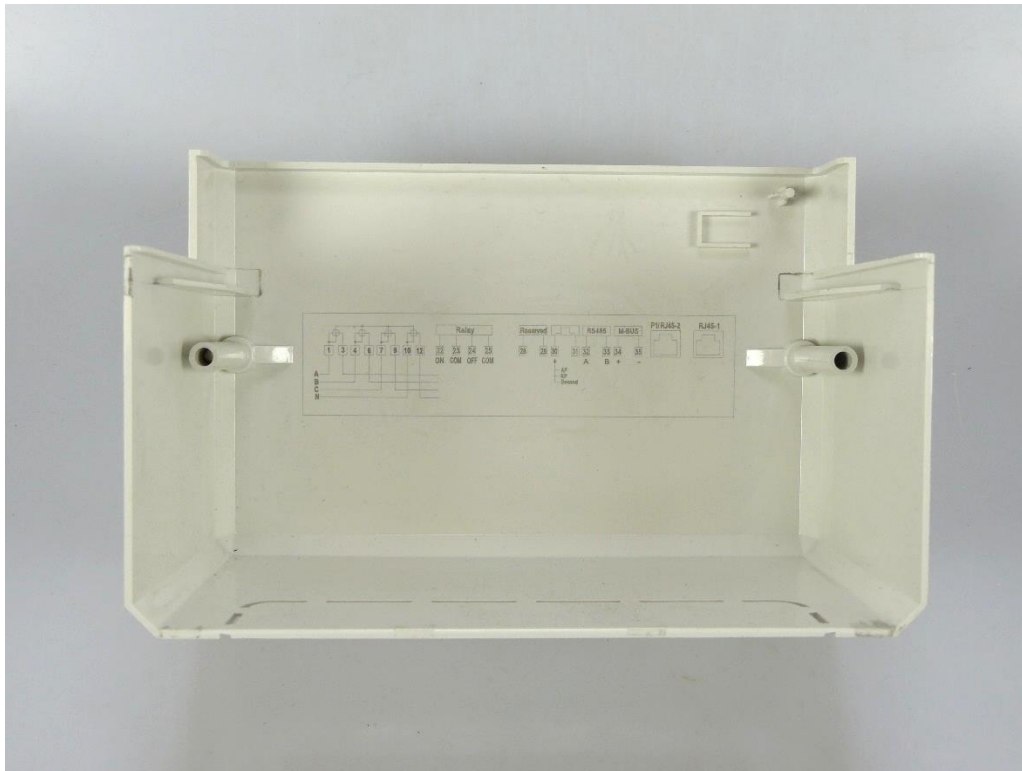
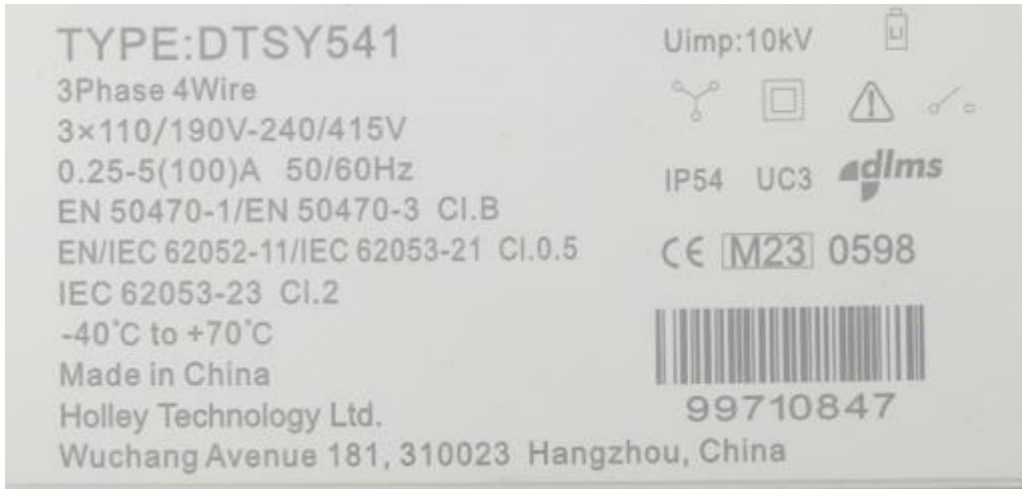
## 1 TECHNICAL DATA

Manufacturer	Holley Technology Ltd., No.181 Wuchang Avenue, Yuhang District, 310023 HANGZHOU, China		
Production location	Holley Technology Ltd., No.181 Wuchang Avenue, Yuhang District, 310023 HANGZHOU, China		
Type	DTSY541		
Model	-		
Connection	Direct		
Type of circuit	3P4W		
Accuracy class Wh	0,5/B		
Accuracy class varh	2		
Meter constant	1000 imp/kWh 1000 imp/kvarh		
V range	3*110/190 V to 3*240/415 V		
I range $I_{min}$ - $I_n$ ( $I_{max}$ )	0,25-5(100) A		
Frequency	50 and 60 Hz		
Temperature range	-40 – 70 °C		
Use	Indoor		
IP rating	IP54		
Protection Class	II		
Impulse voltage	6 and 10 kV		
Internal clock	Crystal controlled		
Environmental class	M1, M2, E1 and E2, CISPR32 class B		
Utilisation category	UC3		
LR Firmware ID	11.00.00.00		
LR Firmware CRC	d21ECE1C		
Registry method(s):	Vectoral 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:

Wh, 240/415 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 <sub>min</sub>	1	3ph	1,04%	0,82%	0,54%	0,33%	0,18%	0,36%	0,46%	0,88%
I <sub>tr</sub>	1	3ph	1,01%	0,78%	0,54%	0,31%	0,12%	0,31%	0,41%	0,85%
I <sub>tr</sub>	1	1ph,1	0,98%	0,76%	0,53%	0,31%	0,14%	0,33%	0,42%	0,86%
I <sub>tr</sub>	1	1ph,2	1,08%	0,84%	0,57%	0,33%	0,17%	0,36%	0,44%	0,91%
I <sub>tr</sub>	1	1ph,3	0,95%	0,72%	0,50%	0,29%	0,13%	0,31%	0,40%	0,82%
I <sub>tr</sub>	0,5i	3ph	1,04%	0,80%	0,57%	0,33%	0,17%	0,35%	0,48%	0,92%
I <sub>tr</sub>	0,5i	1ph,1	1,04%	0,81%	0,58%	0,38%	0,24%	0,40%	0,49%	0,93%
I <sub>tr</sub>	0,5i	1ph,2	1,13%	0,88%	0,63%	0,42%	0,30%	0,44%	0,53%	0,98%
I <sub>tr</sub>	0,5i	1ph,3	0,99%	0,75%	0,54%	0,35%	0,21%	0,36%	0,48%	0,89%
I <sub>tr</sub>	0,8c	3ph	0,99%	0,76%	0,53%	0,31%	0,14%	0,34%	0,42%	0,86%
I <sub>n</sub>	1	3ph	0,99%	0,76%	0,52%	0,29%	0,13%	0,32%	0,42%	0,86%
I <sub>n</sub>	1	1ph,1	0,97%	0,74%	0,52%	0,29%	0,13%	0,32%	0,41%	0,85%
I <sub>n</sub>	1	1ph,2	1,08%	0,83%	0,56%	0,31%	0,14%	0,33%	0,43%	0,79%
I <sub>n</sub>	1	1ph,3	0,95%	0,73%	0,51%	0,29%	0,11%	0,29%	0,38%	0,80%
I <sub>n</sub>	0,5i	3ph	1,01%	0,77%	0,53%	0,30%	0,13%	0,33%	0,43%	0,88%
I <sub>n</sub>	0,5i	1ph,1	0,99%	0,76%	0,53%	0,31%	0,13%	0,34%	0,42%	0,88%
I <sub>n</sub>	0,5i	1ph,2	1,07%	0,83%	0,56%	0,31%	0,14%	0,33%	0,44%	0,91%
I <sub>n</sub>	0,5i	1ph,3	0,95%	0,74%	0,52%	0,30%	0,12%	0,31%	0,41%	0,84%
I <sub>n</sub>	0,8c	3ph	1,00%	0,76%	0,53%	0,29%	0,13%	0,31%	0,40%	0,84%
I <sub>max</sub>	1	3ph	1,01%	0,78%	0,54%	0,32%	0,17%	0,33%	0,42%	0,85%
I <sub>max</sub>	1	1ph,1	0,99%	0,77%	0,54%	0,33%	0,17%	0,33%	0,42%	0,84%
I <sub>max</sub>	1	1ph,2	1,09%	0,84%	0,59%	0,34%	0,19%	0,36%	0,45%	0,89%
I <sub>max</sub>	1	1ph,3	0,96%	0,74%	0,52%	0,31%	0,15%	0,32%	0,39%	0,81%
I <sub>max</sub>	0,5i	3ph	0,91%	0,75%	0,55%	0,31%	0,14%	0,31%	0,41%	0,89%
I <sub>max</sub>	0,5i	1ph,1	1,02%	0,79%	0,55%	0,32%	0,13%	0,31%	0,42%	0,87%
I <sub>max</sub>	0,5i	1ph,2	1,13%	0,87%	0,60%	0,34%	0,14%	0,33%	0,42%	0,93%
I <sub>max</sub>	0,5i	1ph,3	0,74%	0,58%	0,48%	0,26%	0,18%	0,27%	0,35%	0,77%
I <sub>max</sub>	0,8c	3ph	1,03%	0,80%	0,57%	0,36%	0,24%	0,37%	0,45%	0,85%

## 5 OPTIONS AND VARIANTS

Overview of variants with details

Type designation	Details of the meter
DTSY541	<ul style="list-style-type: none"><li>• Communication options:<ul style="list-style-type: none"><li>- optical port</li><li>- RS485</li><li>- WiFi 4G</li><li>- PLC</li><li>- M-Bus</li></ul></li><li>• Pulse output</li><li>• Supply control switch</li><li>• external relay</li><li>• RJ45/P1</li></ul>

## 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'.