

EU-TYPE EXAMINATION CERTIFICATE

Basic Electronics Company Limited, CR # 2050129466
Al Hassan Al Basri Street, Al Khaldiah Al Janobiah District, Dammam,
Kingdom of Saudi Arabia

EU-Type Examination

Certificate No.

1654-23

Revision 2



Type BE3100WC
BE3160WC

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

a **CESI** brand

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: January 26, 2034.

1927 ·
Gold

This Certificate comprises 10 pages in total.

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

Alessandro Bertani
Director,
Services & Smart Technologies

Arnhem, January 26, 2024



REVISION OVERVIEW

The highest revision always replaces the earlier issued versions.

Rev. No.	Date of issue	Reason
0	October 19, 2023	First issue
1	November 30, 2023	Photo (type plate) update.
2	January 26, 2024	Correction on production locations listed

REPORT LIST

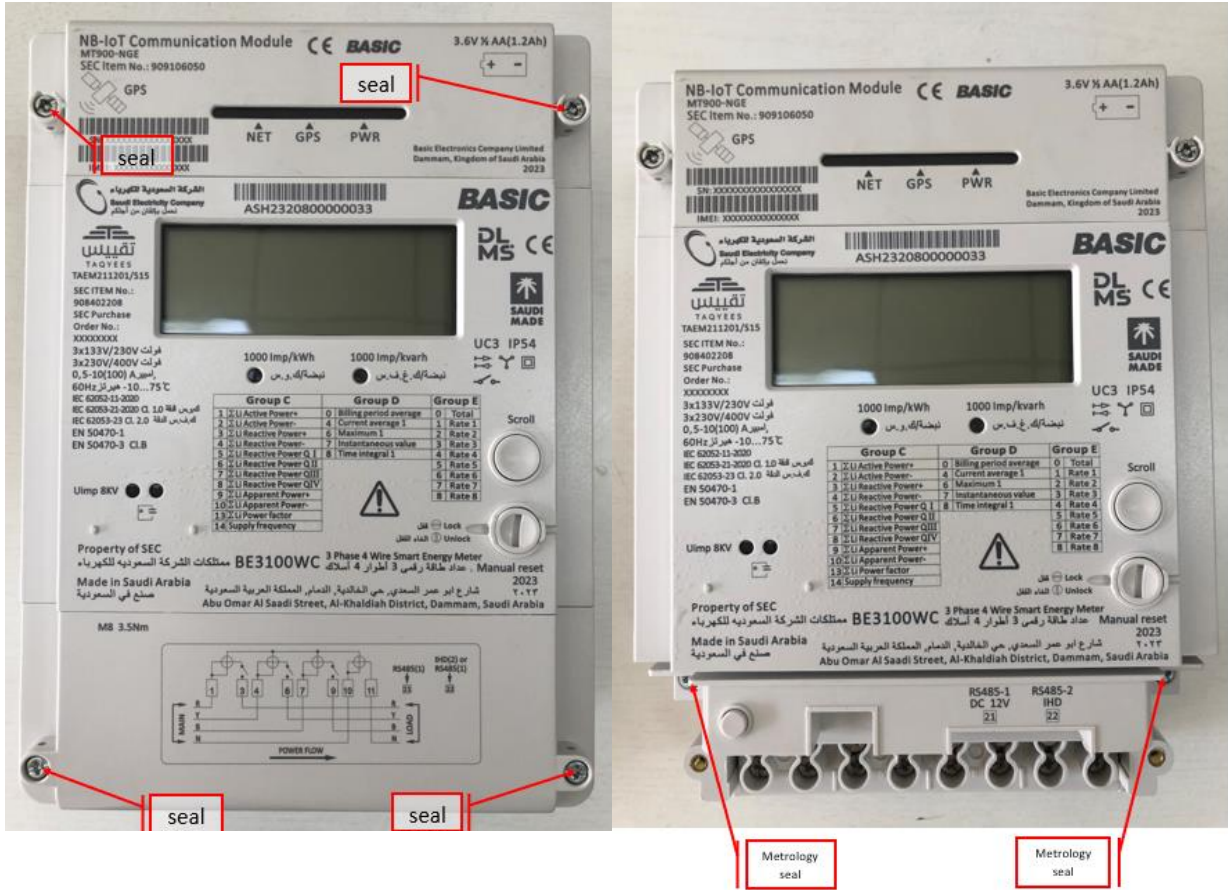
This Certificate is issued based on the following reports.

Report number	Revision
1652-23	2
1655-23	0

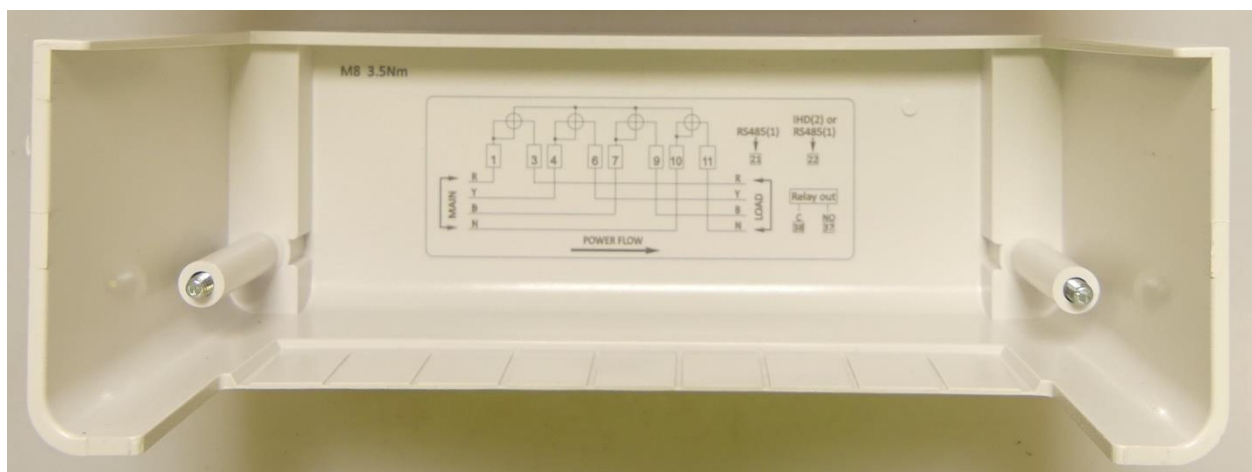
1 TECHNICAL DATA

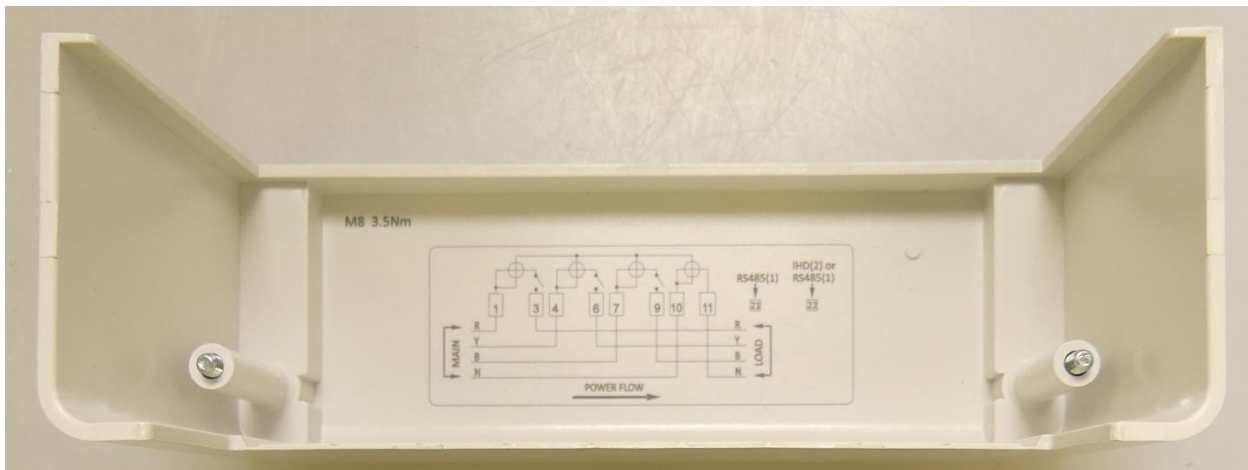
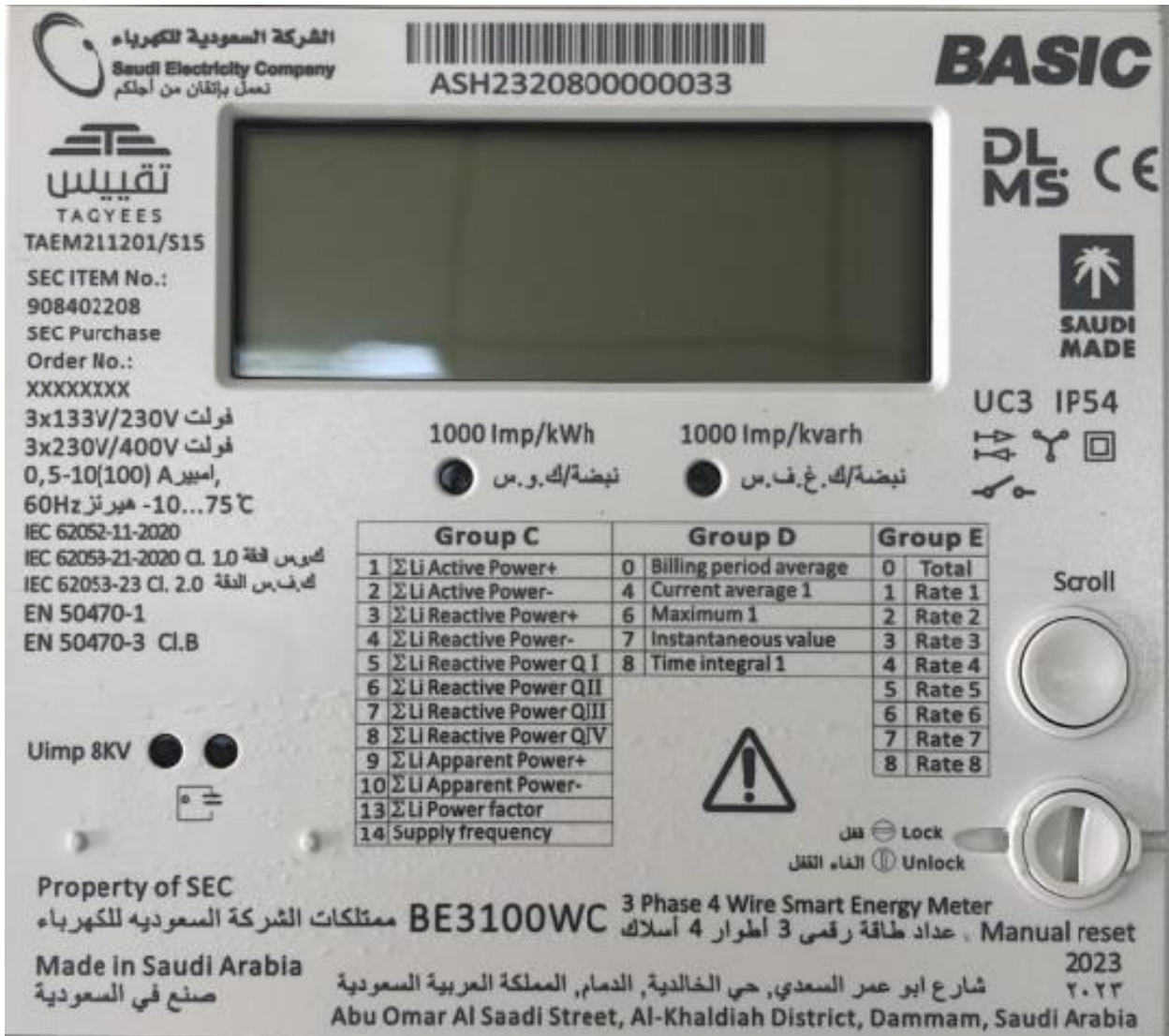
Manufacturer	Basic Electronics Company Limited, CR # 2050129466 Al Hassan Al Basri Street, Al Khaldiah Al Janobiah District, Dammam, Kingdom of Saudi Arabia	
Production location 1	Basic Electronics Company Limited, CR # 2050129466 Al Hassan Al Basri Street, Al Khaldiah Al Janobiah District, Dammam, Kingdom of Saudi Arabia	
Production location 2	Hangzhou Meteronic Technology Co., Ltd. Building 3, No. 2620 Yuhangtang Road, Cangqian street, Yuhang District, Hangzhou 311100 Zhejiang China	
Type	BE3100WC	BE3160WC
Connection	Direct	
Type of circuit	3P4W	
Accuracy class Wh	1/B	
Accuracy class varh	2	
Standard	IEC 62053-21/23 EN 50470-3	
Meter constant	1000 imp/kWh 1000 imp/kvarh	
V range	133/230 V - 230/400 V	
I range $I_{min}-I_n(I_{max})$	0,5..10(100) A	1..20(160) A
Frequency	60 Hz	
Temperature range	-40 .. 75 °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	NA
LR Firmware ID	P0024	P0017
Register	LCD	
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:

Serial number:		ASH2320700000505								
Wh, 230/400 V, 1-20(160) A, 60 Hz										
			Composite error							
Current	cosφ	Phase	-40°C	-25°C	-10°C	5°C	30°C	40°C	55°C	75°C
I _{min}	1	3ph	0,04%	0,04%	0,04%	0,04%	0,04%	0,04%	0,05%	0,05%
I _{tr}	1	3ph	0,02%	0,03%	0,04%	0,04%	0,03%	0,02%	0,03%	0,04%
I _{tr}	1	1ph,1	0,17%	0,11%	0,07%	0,05%	0,06%	0,07%	0,12%	0,18%
I _{tr}	1	1ph,2	0,17%	0,08%	0,03%	0,03%	0,04%	0,04%	0,03%	0,04%
I _{tr}	1	1ph,3	0,30%	0,28%	0,21%	0,13%	0,05%	0,10%	0,22%	0,32%
I _{tr}	0,5i	3ph	0,12%	0,12%	0,13%	0,13%	0,12%	0,12%	0,12%	0,13%
I _{tr}	0,5i	1ph,1	0,19%	0,16%	0,15%	0,13%	0,12%	0,14%	0,18%	0,28%
I _{tr}	0,5i	1ph,2	0,21%	0,16%	0,14%	0,13%	0,13%	0,13%	0,14%	0,13%
I _{tr}	0,5i	1ph,3	0,36%	0,35%	0,29%	0,24%	0,20%	0,22%	0,30%	0,37%
I _{tr}	0,8c	3ph	0,06%	0,07%	0,07%	0,07%	0,06%	0,06%	0,07%	0,09%
I _n	1	3ph	0,02%	0,03%	0,05%	0,03%	0,02%	0,02%	0,04%	0,05%
I _n	1	1ph,1	0,17%	0,13%	0,08%	0,03%	0,01%	0,02%	0,08%	0,12%
I _n	1	1ph,2	0,17%	0,09%	0,05%	0,02%	0,02%	0,02%	0,02%	0,02%
I _n	1	1ph,3	0,29%	0,27%	0,21%	0,11%	0,05%	0,12%	0,22%	0,34%
I _n	0,5i	3ph	0,12%	0,13%	0,13%	0,13%	0,12%	0,12%	0,13%	0,13%
I _n	0,5i	1ph,1	0,21%	0,16%	0,13%	0,12%	0,11%	0,12%	0,16%	0,20%
I _n	0,5i	1ph,2	0,20%	0,16%	0,14%	0,13%	0,13%	0,14%	0,14%	0,14%
I _n	0,5i	1ph,3	0,34%	0,33%	0,26%	0,19%	0,14%	0,17%	0,25%	0,35%
I _n	0,8c	3ph	0,06%	0,07%	0,07%	0,07%	0,06%	0,06%	0,07%	0,09%
I _{max}	1	3ph	0,09%	0,09%	0,08%	0,04%	0,02%	0,03%	0,06%	0,10%
I _{max}	1	1ph,1	0,03%	0,03%	0,03%	0,03%	0,04%	0,04%	0,05%	0,06%
I _{max}	1	1ph,2	0,06%	0,06%	0,07%	0,07%	0,06%	0,06%	0,06%	0,07%
I _{max}	1	1ph,3	0,45%	0,38%	0,28%	0,16%	0,09%	0,16%	0,28%	0,41%
I _{max}	0,5i	3ph	0,21%	0,20%	0,18%	0,15%	0,13%	0,14%	0,15%	0,18%
I _{max}	0,5i	1ph,1	0,13%	0,13%	0,13%	0,13%	0,13%	0,13%	0,14%	0,15%
I _{max}	0,5i	1ph,2	0,13%	0,13%	0,13%	0,13%	0,12%	0,12%	0,13%	0,13%
I _{max}	0,5i	1ph,3	0,53%	0,46%	0,35%	0,24%	0,18%	0,23%	0,33%	0,45%
I _{max}	0,8c	3ph	0,22%	0,20%	0,16%	0,11%	0,09%	0,11%	0,14%	0,17%
Requirements										
I _{min}	1	3ph	4,00%	3,50%	2,50%	2,00%	2,00%	2,50%	3,50%	4,00%
>I _{min}	Any	3ph	4,00%	3,50%	2,50%	2,00%	2,00%	2,50%	3,50%	4,00%
>I _{min}	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 with details

Type designation	Details of the meter
BE3100WC	With UC3 SCS
BE3160WC	With Latching relay

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.