

# Unit Certificate

**Hoymiles Power Electronics Inc.**  
**No.18 Kangjing Road, Hangzhou,**  
**Zhejiang Province,**  
**P.R.China**

Type of equipment	Micro Storage System (type 2)	
Product Name	HB-4020-X, HB-4020-X-1, HB-4020-X-2, HB-4020-X-3 HB-4020-XM, HB-4020-XM-1, HB-4020-XM-2, HB-4020-XM-3 HB-4020-AC, HB-4020-AC-1, HB-4020-AC-2, HB-4020-AC-3 HB-4020-ACM, HB-4020-ACM-1, HB-4020-ACM-2, HB-4020-ACM-3	
Technical data	rated active power:	$P_{rE}$ = 0.8-2.5 kW
	maximum active power:	$P_{E\max}$ = 0.8-2.5 kW
	max. apparent power:	$S_{E\max}$ = 0.8-2.5 kVA
	rated voltage:	$U_r$ = 230 V
	Rated current (AC):	$I_r$ = 3.48-10.87 A
	Initial short-circuit AC current:	$I_{k''}$ = 3.48-10.87 A
Certification scheme	P30VA01 Rev. 11/10.25	TÜV NORD Certification Process for Grid Integration Certification
Network connection rule	VDE-AR-N 4105 2018-11	Generators connected to the low-voltage distribution network customer installations to the medium voltage network operation with low- voltage distribution networks
Test requirement	DIN VDE V 0124-100 2020-06	Grid integration of generator plants - Low-voltage Test requirements for generator units to be connected to and operated in parallel with low-voltage distribution networks

The power generating units comply with the requirements of the network connection rule specified above, with a restriction. For further details and technical specifications, please refer to Annex 1, which consists of 5 pages.

Certificate Registration No. 4479823053476      valid from 2026-04-29  
 Evaluation Report No. 35421949                      Type 1a Certificate

Essen, 2026-04-29  
 Rev. 1.0



Certification body of TÜV NORD CERT GmbH



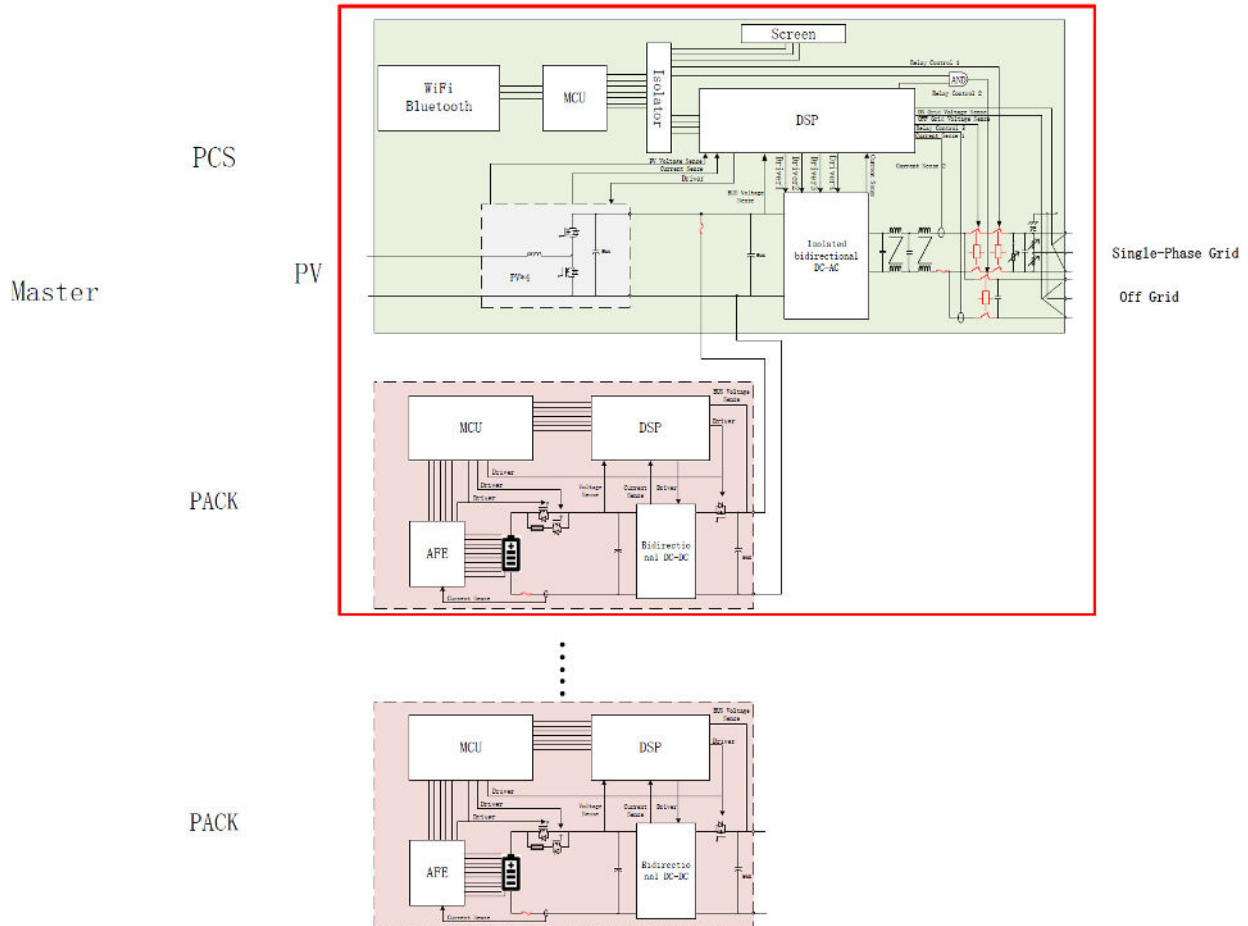
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**Schematic structure of the power generating units:**

**HB-4020-X, HB-4020-X-1, HB-4020-X-2, HB-4020-X-3,**  
**HB-4020-XM, HB-4020-XM-1, HB-4020-XM-2, HB-4020-XM-3**



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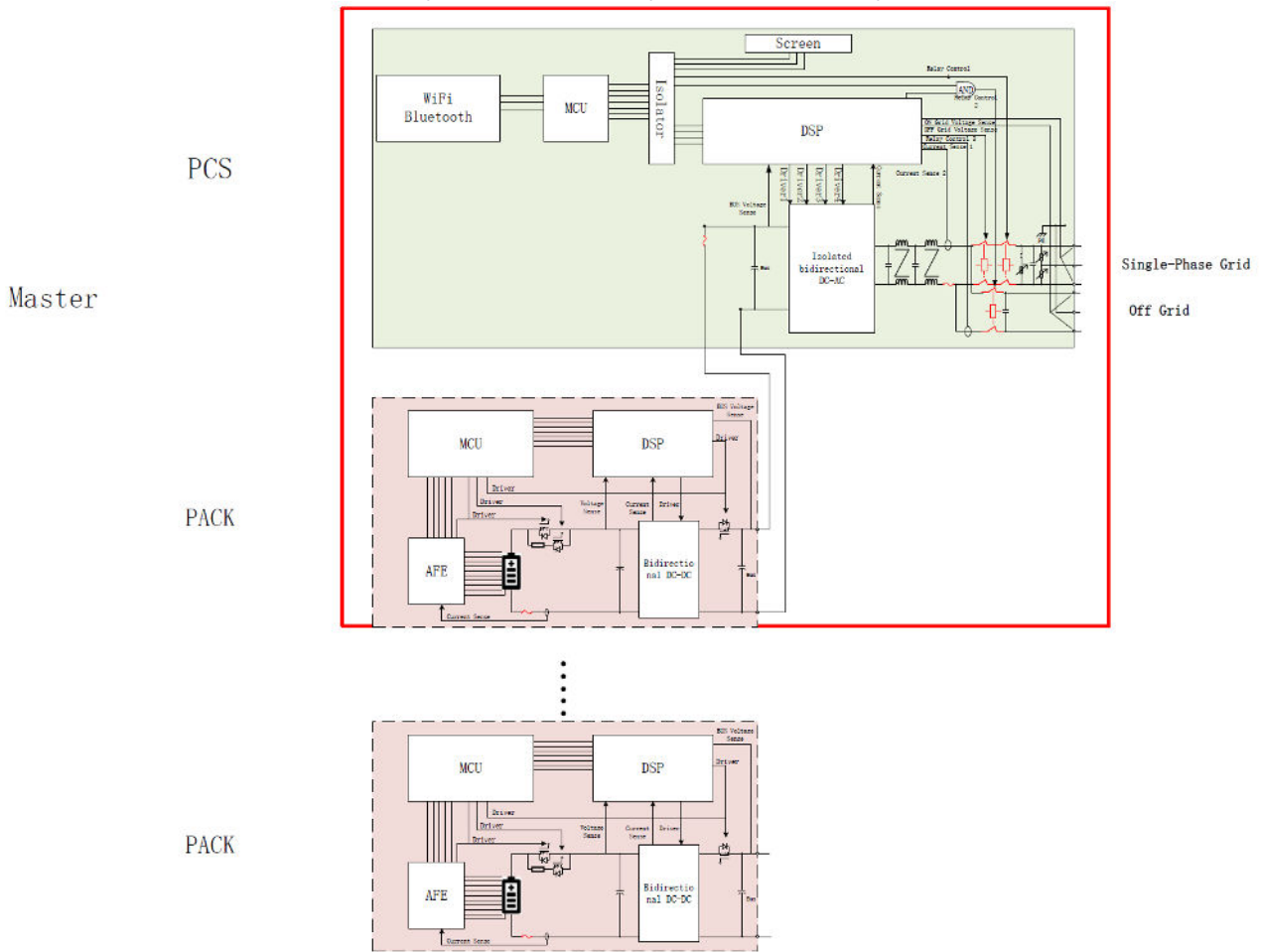
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**HB-4020-AC, HB-4020-AC-1, HB-4020-AC-2, HB-4020-AC-3,  
HB-4020-ACM, HB-4020-ACM-1, HB-4020-ACM-2, HB-4020-ACM-3**



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## Technical data of the power generating units

General				
Type of EZE	Type 2 / Micro Storage System			
Designation	HB-4020-AC	HB-4020-ACM	HB-4020-X	HB-4020-XM
	HB-4020-AC-1	HB-4020-ACM-1	HB-4020-X-1	HB-4020-XM-1
	HB-4020-AC-2	HB-4020-ACM-2	HB-4020-X-2	HB-4020-XM-2
	HB-4020-AC-3	HB-4020-ACM-3	HB-4020-X-3	HB-4020-XM-3
On-grid variables				
Rated apparent power $S_{rE}$	800 VA 800VA(max)	2500 VA 2500VA(max)	800 VA 800VA(max)	2500 VA 2500VA(max)
Rated effective power $P_{rE}$	800 W 800 W (max)	2500 W 2500 W (max)	800 W 800 W (max)	2500 W 2500 W (max)
Max. effective power $P_{E_{max}}$	797.3 W (0.997 $P_{E_{max}}$ )	2480.6 W (0.992 $P_{E_{max}}$ )	797.3 W (0.997 $P_{E_{max}}$ )	2480.6 W (0.992 $P_{E_{max}}$ )
Max. apparent power $S_{E_{max}}$	797.8 VA (0.997 $S_{E_{max}}$ )	2498.6 VA (0.999 $S_{E_{max}}$ )	797.8 VA (0.997 $S_{E_{max}}$ )	2498.6 VA (0.999 $S_{E_{max}}$ )
Rated voltage $U_r$	230V			
Rated current $I_r$	3.48A	10.87A	3.48A	10.87A
Initial short-circuit alternating current $I_{"k}$	3.48A	10.87A	3.48A	10.87A
Reactive power adjustment range $\cos \varphi$	>0.99 (0.8 leading – 0.8 lagging)			
Rated frequency $f_n$	50Hz			
PV – Input Variables				
Min. MPP voltage	--		16 V	
Max. MPP voltage	--		60 V	
Max. DC input voltage	--		60 V	
Number of MPPT	--		4	

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Max. input current	--	4*32A
Isc PV	--	4*40A
<b>Battery Variables</b>		
Min. Battery voltage		11.2V
Max. Battery voltage		14.6V
Max. charge/discharge current		180A
<b>DC – Input variables</b>		
Type /IGBT module		IKW40N120H3/IKW50N65ES5
Quantity DC Link Capacitor		10
Clock frequency		200MHz
Type of power control		SPWM
Max. Output current (only for IGBT)		17.4A
Software versions		PCS: V01.00.08; PACK: V01.00.07; ARM: V1.00.01; WIFI: V1.00.01
<b>Generation unit Control</b>		
Manufacturer		Hoymiles Power Electronics Inc.
Software version		PCS: V01.00.08; PACK: V01.00.07; ARM: V1.00.01; WIFI: V1.00.01
<b>Protection device</b>		
Manufacturer		XIAMEN HONGFA ELECTROACOUSTIC CO., LTD.
Type		Integrated guard
Switch-off unit (AC)		HF140FF-G
Software versions		PCS: V01.00.08; PACK: V01.00.07; ARM: V1.00.01; WIFI: V1.00.01

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**Remarks**

Additional technical data is given in the evaluation report (appendix A1).

The use of a modified software version is permitted if the changes to the above-mentioned software versions have been checked by TÜV NORD CERT GmbH. The validity of a new software version is confirmed to the manufacturer in writing. This confirmation then forms part of the certificate.

**Quality Management System**

The manufacturer has proven for the manufacturing facility of the power generating units a certification of its quality management system according to ISO 9001. The manufacturer confirmed in a manufacturer declaration that the certification of the management system will be valid parallel to the period of this unit certificate.

**Restrictions**

P<sub>AV.E</sub> monitoring function is not integrated in the unit. The function can be implemented according to the specifications of the VDE-AR-N 4105 Chapter 5.5.2 in a stand-alone equipment.

Please note that the HB-4020-X, HB-4020-X-1, HB-4020-X-2, HB-4020-X-3, HB-4020-XM, HB-4020-XM-1, HB-4020-XM-2, HB-4020-XM-3, HB-4020-AC, HB-4020-AC-1, HB-4020-AC-2, HB-4020-AC-3, HB-4020-ACM, HB-4020-ACM-1, HB-4020-ACM-2, HB-4020-ACM-3 does not have a display. As a result, the protection settings of the decoupling protection and the connection conditions cannot be read or set via a display on the component. As a result, a readout function must be implemented on the PGU.

**Appendix to the Certificate**

- A1. Evaluation report no. 35421949 version 1.0
- A2. Extracts from the test report VDE-AR-N 4105 Annex E.5  
Dongguan BALUN Testing Technology Co., Ltd. Extract No. BL-DG2640057-201  
A1 from Apr.13,2026
- A3. Extracts from the test report VDE-AR-N 4105 Annex E.7  
Dongguan BALUN Testing Technology Co., Ltd. Extract No. BL-DG2640057-201  
A2 from Apr.13,2026

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