

# Hydra BM-20

## Liquid-cooled Bidirectional Modular Grid Interface

The Hydra BM-20 offers maximum flexibility to implement a scalable and bidirectional grid interface into your high-power application, ideally suited for fast charging, electrolysis, or other high-power applications. Working side by side, these highly efficient and robust modules can be used in closed-loop water cooled cabinets for low operational and maintenance costs, at very high availability over the years.



### Versatility

The Hydra BM-20 module is very versatile. It lends itself well to various system sizes as it can be stacked together to enable up to one MW of power. The wide output voltage range of the module keeps systems working as the loads change over time in performance and characteristics, e.g. due to ageing. The bidirectionality allows the system to be started from either the grid or from the load. The design lends itself well for closed-loop liquid cooling, which means that the IP54 module is capable of operating in environments where aircooled modules would require costly conditioned air.

### Reliability

Availability of power when needed is critical to many operations. The Hydra BM-20 module is designed as fully PCB-based and almost completely produced on automated production lines with in-line automated quality control and tests, therefore eliminating the risk of human error. Its intrinsically robust design guarantees a long lifetime, while a module that finally fails does not affect the other modules in the stack, thereby ensuring continuity of operation of the larger system.

### Electrical performance

Input voltage	380-480Vac, 50/60Hz
Input Power Factor	>0.99, adjustable to $\pm 0.8$
Input Harmonics	IEC 61000-3-12
Output voltage/ current	Isolated from input/ Range on demand
Output power	$\pm 20$ kW
Efficiency	>96%

### Mechanical

Dimensions	105 x 222 x 600 mm
Weight	19 kg
Acoustical noise	<42 dBA

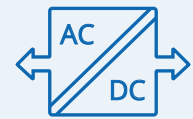
### Environmental

Ambient temperature	-25 to +60°C
Cooling	Water/Glycol, max 50°C
IP rating	IP54
Relative humidity	5-95%, non condensing
Altitude	0-2000m
EMC immunity	IEC 61000-6-2
EMC emission	IEC 61000-6-4
MTBF	>500kHr

### Interfaces

CAN	Control and full diagnosis
Paralleling	Up to 50 modules

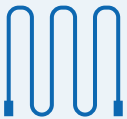
### Product features



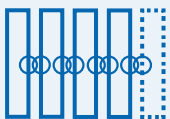
Bidirectional power conversion with galvanic isolation



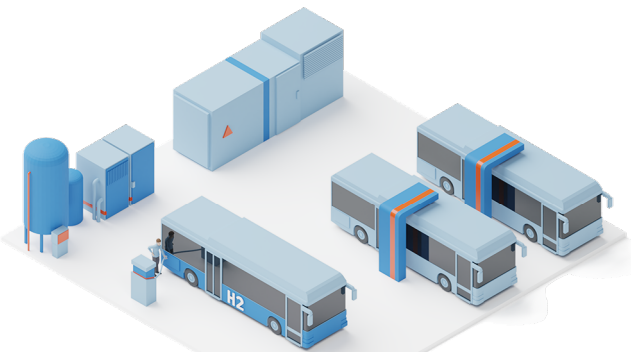
Wide output voltage range



Liquid-cooled



Stackable 20 kW modules working side-by-side



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