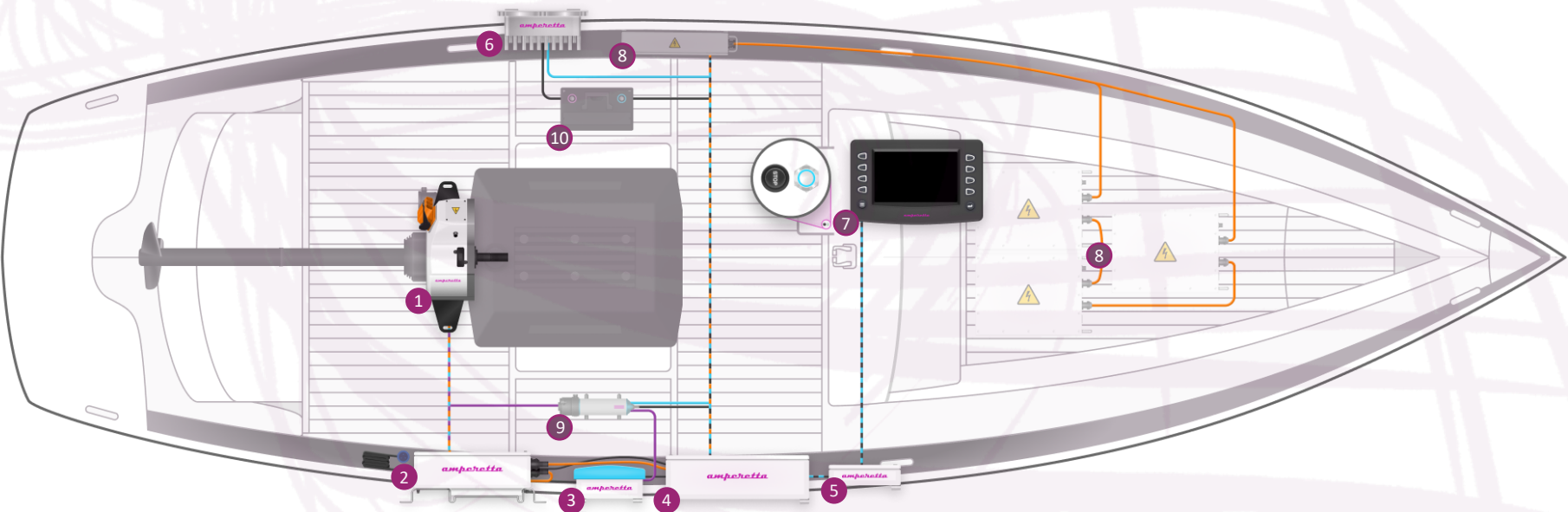




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Amperetta 20kW Mk4 system details

Overview boat with components

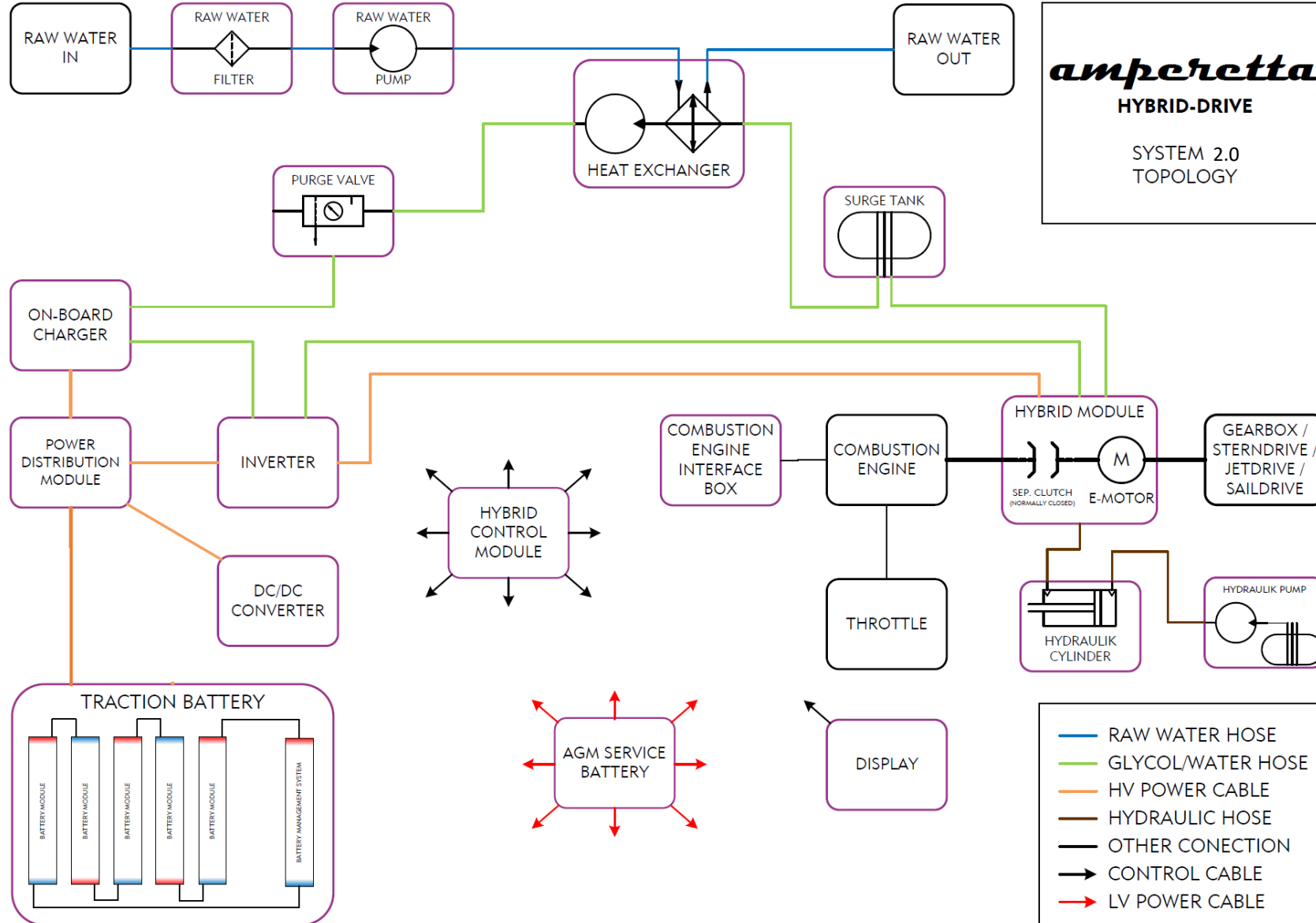


- Basic system
- Optionale components

1	Hybrid-Drive
2	Inverter
3	OBC
4	PDM
5	HCM
6	DCDC
7	Display
8	Batteries and BMS
9	Cooling
10	Service Battery

View more details on www.amperetta.com

HYBRID-DRIVE system topology.



Components list 20 kW Mk4

ITEM	COMPONENT	WEIGHT [kg] ²⁾		Dimensions [mm] ²⁾			Volume [dm ³] ²⁾	
				Length	width	height		
1	Hybrid Module Mk4	46,1		342,0	319,0	214,5	11,7	
2	Hybrid Control Module	0,5		179,0	95,1	39,3	0,7	
3	Combustion Engine Interface Box	2,5		255,0	180,0	150,0	6,9	
4	Power Distribution Module Mk4	10,0		400,0	300,0	129,0	15,4	
5	Inverter Mk4	8,5		352,0	330,0	145,0	16,8	
6	On-Board Charger 3,3kW	3,4		300,0	200,0	102,3	6,1	
7	DC/DC Converter	2,0		272,0	175,0	94,0	4,5	
8	Traction Battery (5 Modules + 1 BMS = 10kWh)	118,0		442,2 ³⁾	310,0 ³⁾	115,2 ³⁾	79,0	
9	AGM Service Battery 60 Ah	20,0		229,0	138,0	227,0	6,9	
10	Heat Exchanger	2,2		260,0	105,0	177,0	2,9	
11	Raw Water Pump	3,5		269,1	129,3	120,0	0,8	
12	Raw Water Filter	0,3		107,0	107,0	111,0	1,0	
13	Glycol Pump	0,7		80,0	65,0	82,0	0,4	
14	Glycol Water Reservoir	0,45		170,0	170,0	170,0	2,5	
15	Hydraulic Pump Assembly	4,0		215,0	107,0	129,0	1,7	
16	Hydraulic Cylinder	3,0		270,0	45,0	45,0	0,2	
17	Display	0,4		247,7	158,2	65,5	1,3	
TOTAL ¹⁾		81,5	225,9				66,9	158,8

1) excl. cables, connectors, mounting material and liquids, 2) rounded, 3) per unit

Example Boat

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Operation Modes

Electric Mode



Silent operation for cruising
600 RPM – 3000 RPM
Best up to 12km/h or 6,5 kn
(depending on preference and boat)

Transition Mode



Transition freely between
Electric and Combustion Mode
with one lever in set RPM ranges

Freeze option → to freeze a
Mode you are currently in

Combustion Mode



Recuperation with up to 19 kW

Slow and Fast Charge*

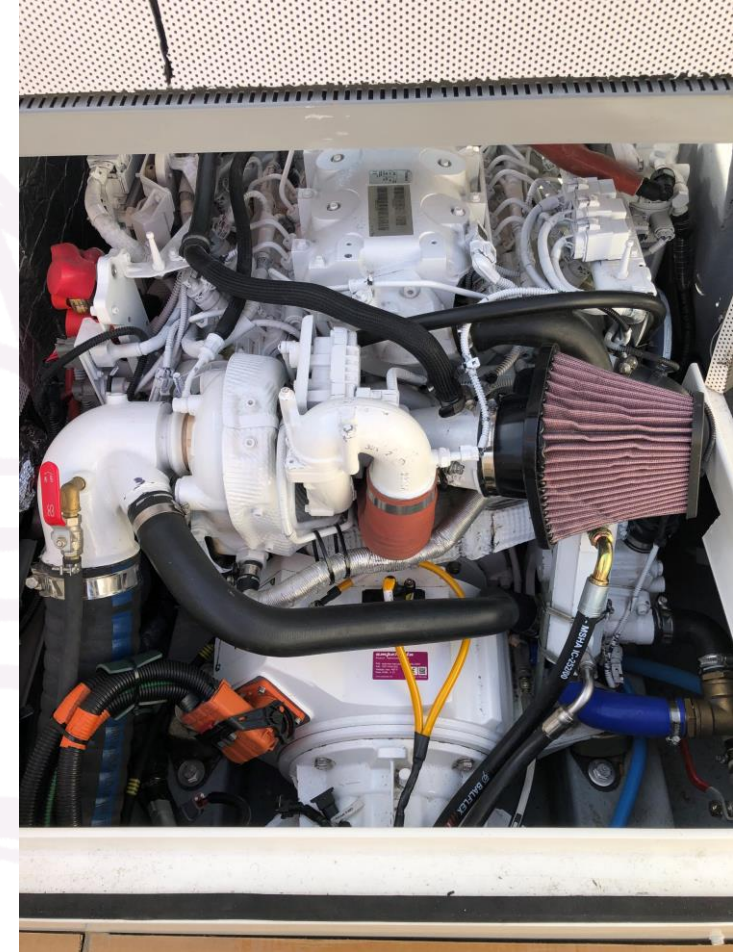


Slow Charge → 1,5 kW
Fast Charge → 3,3 kW

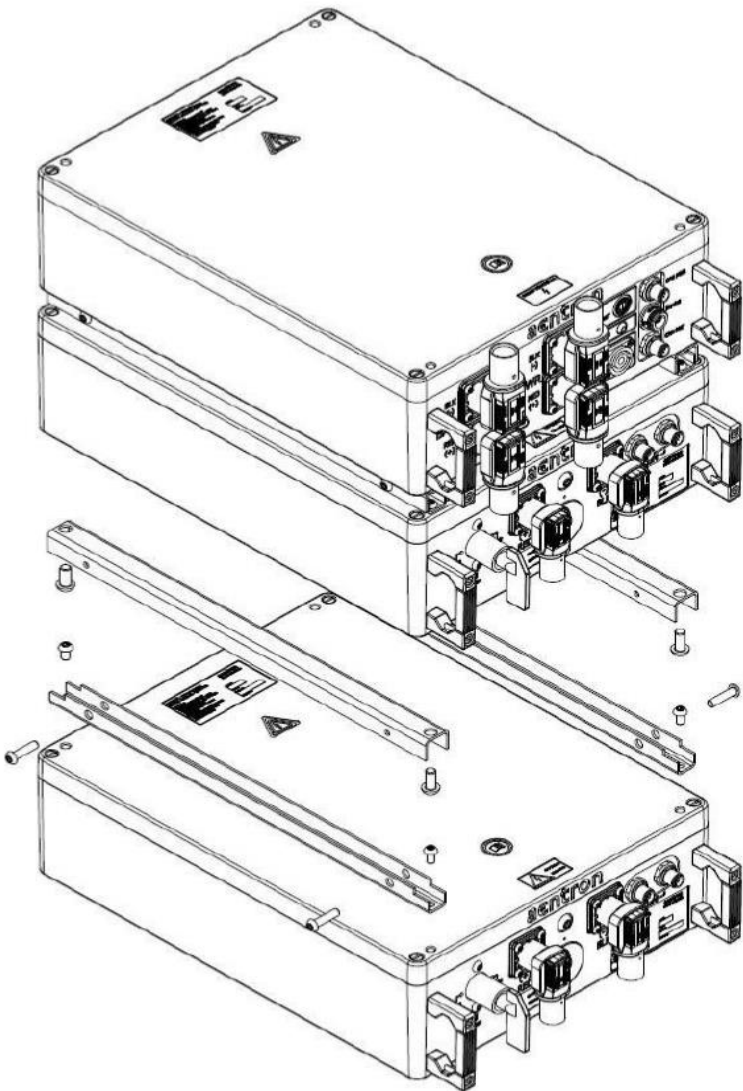
* Project based, other solutions would be possible

Example Boats

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Traction battery.



- modular design and rail mounting system allows stacking and flexible allocation
- 360° mountable

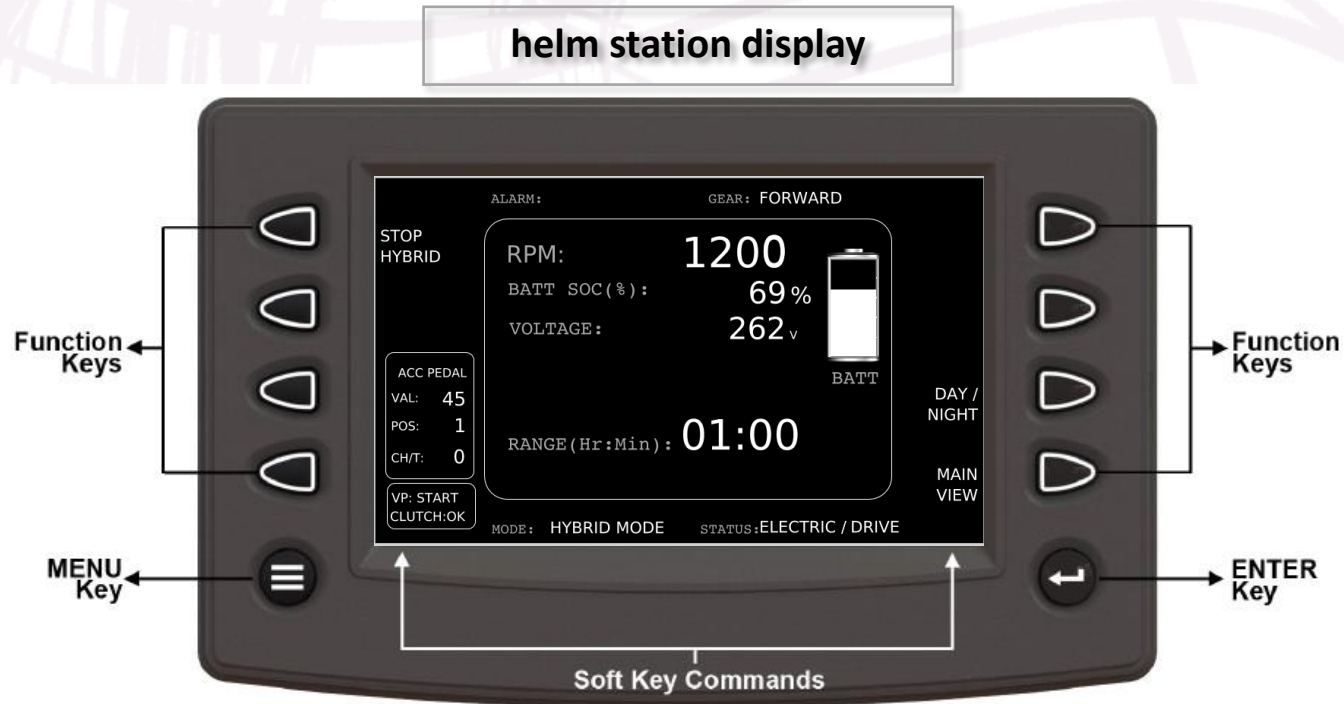


key specifications:

	1 module	5 modules (serial)
technology	Li-NiCoMnO ₂	
nominal voltage	48V	240V
capacity	42Ah	210Ah
energy	2kWh	10kWh
coolingconcept	passive	
approvals	UN 38.3, CE, RoHS, DNV-GL	
IP class	IP66	
dimensions (LxWxH)	44,2x31x11,5cm	-
weight	21kg	105kg

- self discharge < 0,05W or 1-2% per month at inactive state
- capacity increase up to 7/7n (ser./par.) modules
- active venting recommended for installations up to 10kWh, above mandatory
- associated fire extinguishing system available and mandatory for installations > 10kWh

Periphery.



key specifications:

- display 7" (178mm), color TFT LCD
16:9 Landscape
WVGA(800x480p)
- backlight LED, max. 1000cd/m²
- power consumpt. 10W full backlight
22W full backlight w/ heater
- protocols J1939, NMEA 2000GPS
- mounting options gimbal, front panel or back mount
- dimensions 247,7x158,2mm unit depth
65,5mm
- operating temp. -40°C to 85°C
- IP protection front IP66, back IP67
- vibration random, 7,86Grms, 3 axes
- shock 50G in 3 axes

- main operating element of the amperetta Hybrid-Drive system, along with the throttle lever and the steering wheel of the vessel

- additional operating instruments such as an on/off button and an emergency stop button are also provided

Exemplary Engine Overview for 20kW Mk4



	VOLVO	YANMAR	MERCURY	HYUNDAI	NANNI
300	D6-380	8LV-370		SeasAll G350	N6.360
	D6-340	8LV-350	4.2l-350		
	D4-320		TDI 4.2l-335		
	D6-300	8LV-320	4.2l-320		
200	D4-300	4LHA	4.2l-270		T4.270
	D4-270	4LV-250	TDI 3.0l-260	SeasAll S270	N5.230
	D4-230	4LV-230	3.0l-230		T4.230
	D3-220		TDI 3.0l-230		T4.205
150	D3-200	4LV-195	2.8l	SeasAll R200	
	D4-175		2.0l-170		
	D3-170		3.0l-150	SeasAll D170	
		4LV-170	TDI 3.0l-150		N5.150
100	D3-150	4LV-150	2.0l-150	SeasAll D150	N4.140
	D3-140		2.0l-130		
	D3-110				
		4JH-110		SeasAll M130	N4.115
0	D2	4JH-80		SeasAll M100 SeasAll M70	N4.80 N4.65 N4.50 N3.30
	D1	3JH-40			

These are examples to
give a rough kW and
Nm range.



<http://www.amperetta.com>

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