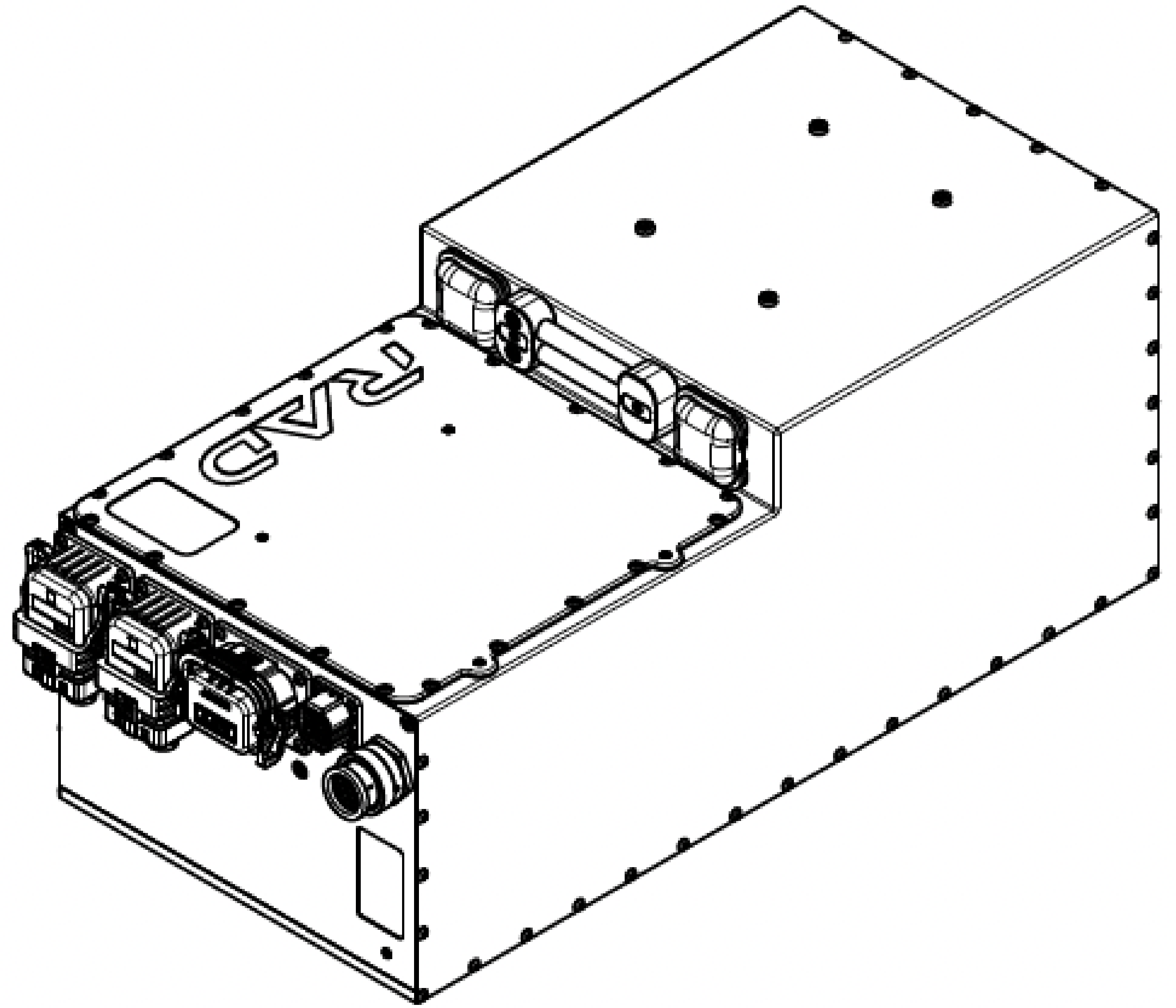


RAD21CCS

RAD Battery Pack 21kWh

POWER UNDER OR ON THE DECK

On or under deck battery system with advanced thermal management and sustained power delivery to get your electric boat moving fast.



CAPACITY	NOMINAL VOLTAGE	PEAK DISCHARGE	PROTECTION	WEIGHT
21kWh	390V	80kW	IP67	130kg

Fits in (almost) anything

Compact, high density battery pack to fit on or under the deck of most boats including ribs, canal boats and cursers.

Fast Input, Big Output

21kWh gives up to 30nm of range, with recharge in under 45 Minutes via CCS DC charging or 3.5 hours via 6.6kW AC charging. Built in contactor control, pre-charge, battery management and safety systems. 2 x 25 amp auxiliary outputs for HVAC and other systems.

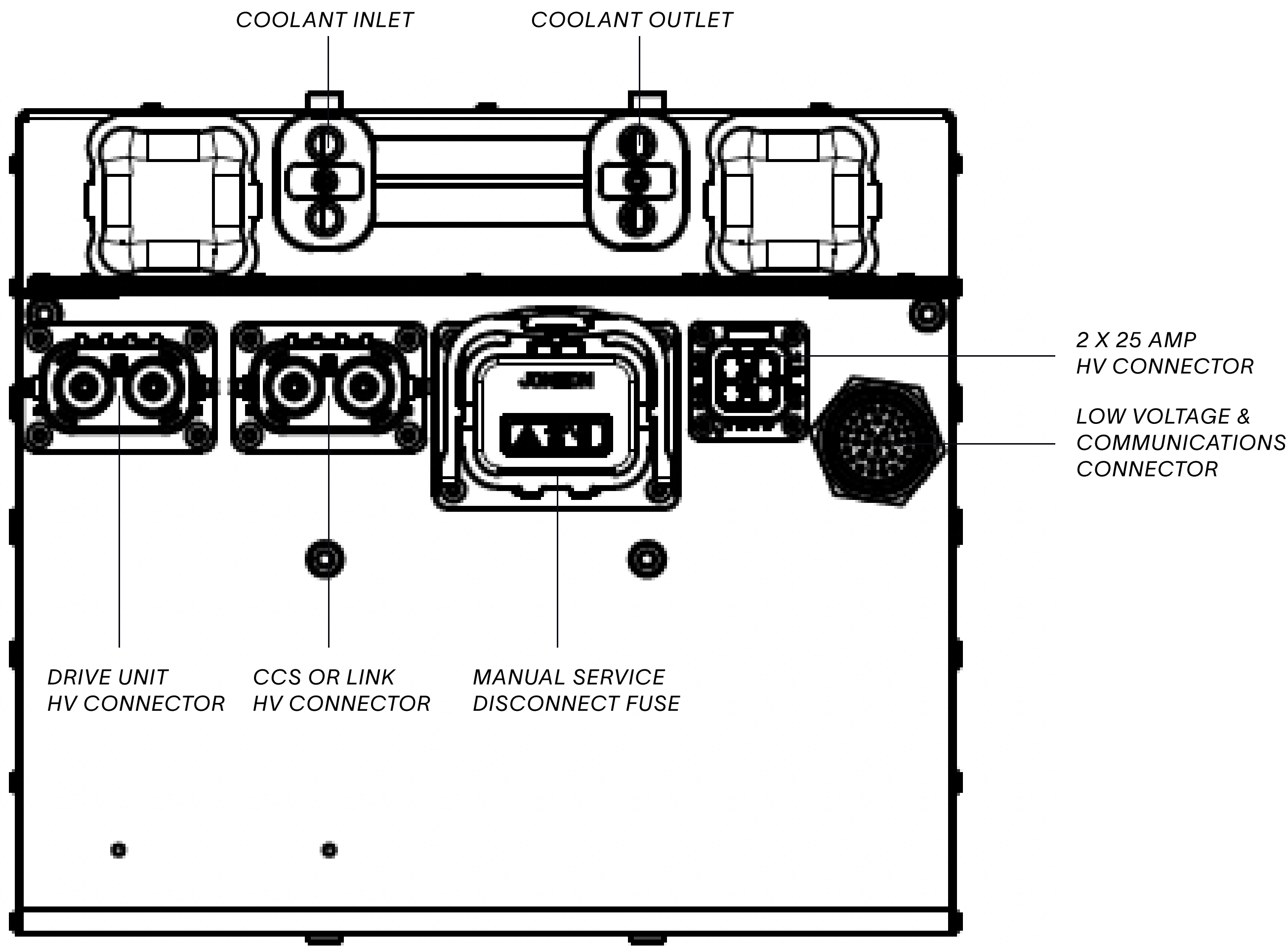
Just Add A Motor & Charger

Nominal 390 volts and 80kW peak output mean sustained energy for the RAD propulsion marine outboards.

SPECIFICATIONS

ELECTRICAL	Capacity	21 kWh	MECHANICAL	Main Dimensions (mm)	377W x 832.5D x 332.2H
	Nominal Voltage	390 volts		Weight	130 kg
	Max Voltage	453 volts		Enclosure Materials	Stainless Steel and Aluminium
	Max Charge Voltage	442 volts	ENVIRONMENTAL	Thermal Management	Aluminium Cold Plates
	Min Voltage	345 volts		Coolant Requirements	50% Glycol / 50% Water
	Min Voltage Under Load	302 volts		Coolant Pressure/ Flow MAX	18 psi - 23 Ltr/min
	CCS Charging Rate	21 kW		Stationary Temp	-20°C to 65°C
	Main Fuse	1 x 200 amp		Operational Temp	-10°C to 55°C
	Auxiliary HV Outputs	2 x 25 amp	OTHER	Battery Chemistry/ Spec	NMC-DFD-VDA355
	Continuous Discharge	35 kW - 40kW (with liquid cooling)		Battery Cell Configuration	1P108S
Discharge 3 Seconds	80 kW	Data Connection		Deutsch HDP24-24-35PE	
Discharge 10 Seconds	60 kW	Regulation		EU R100.1 Compliant AU VSB14 Compliant	

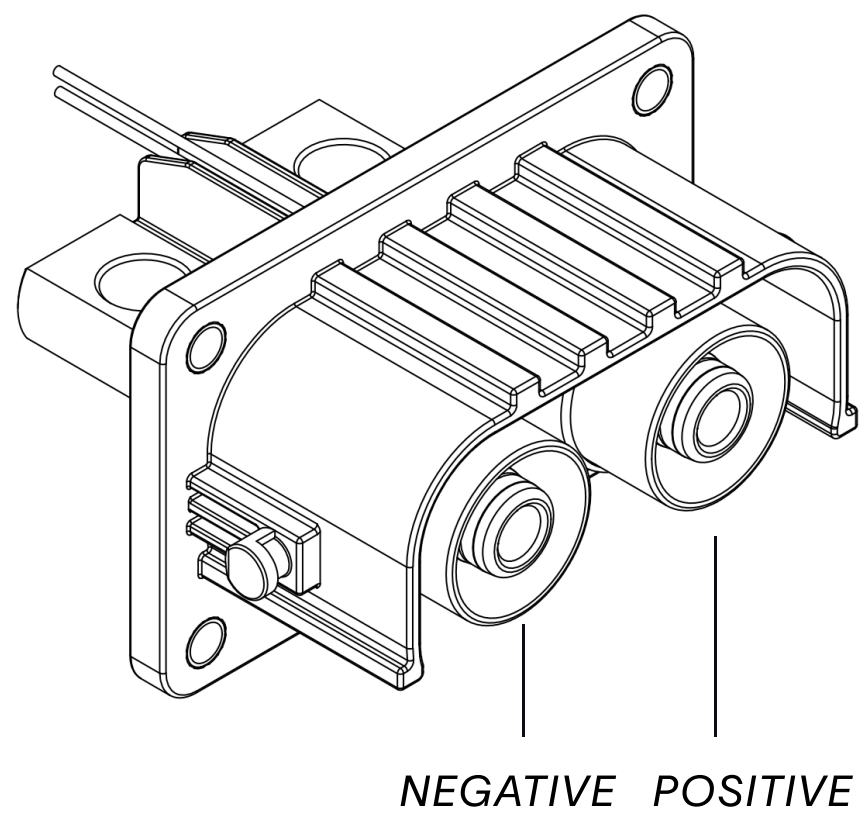
KEY COMPONENTS



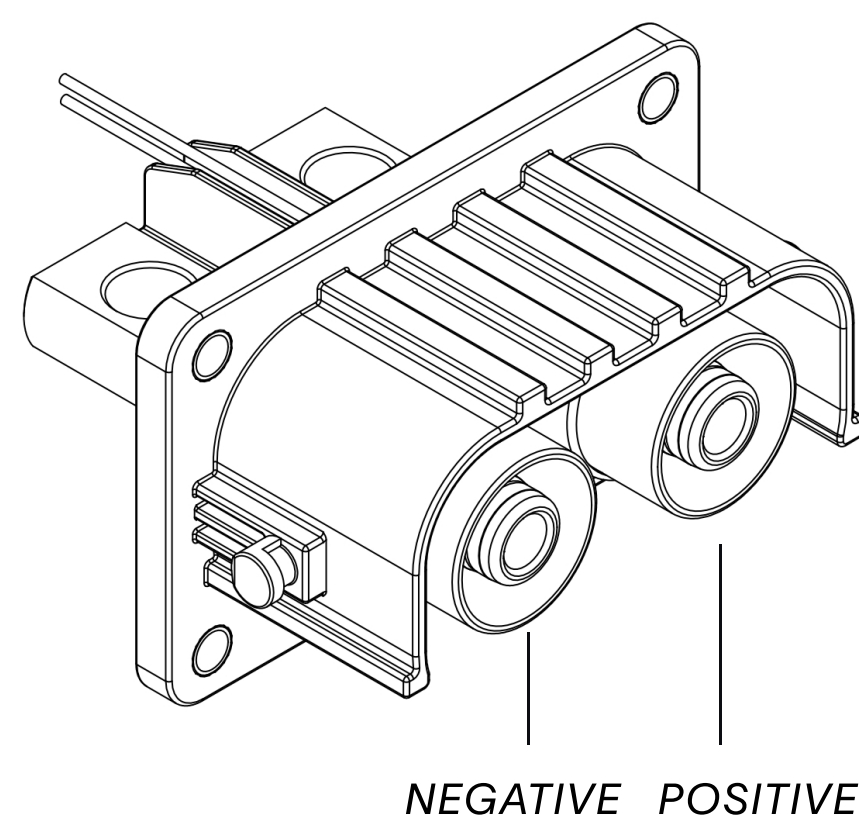
HIGH VOLTAGE CONNECTIONS POLARITY

LOW VOLTAGE CONNECTIONS

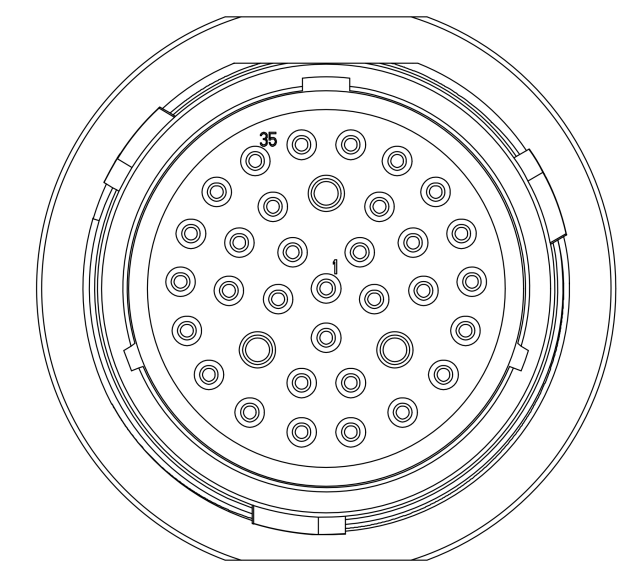
DRIVE UNIT HV CONNECTOR



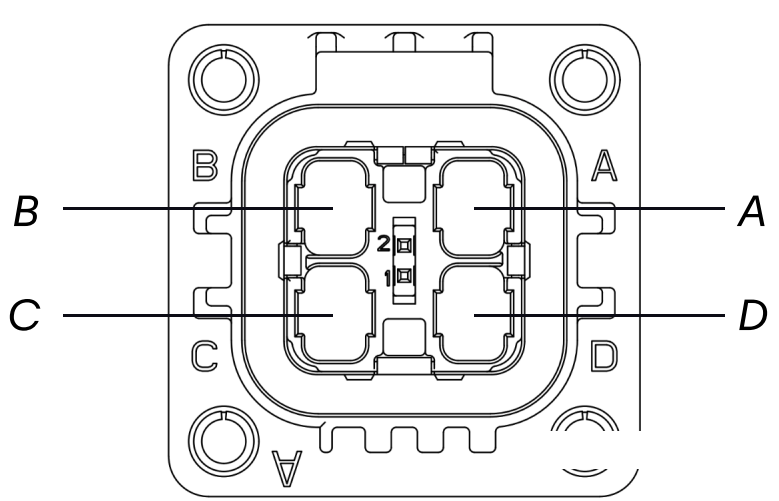
CCS/ LINK HV CONNECTOR



DEUTSCH DT+DTM 35 PIN PLUG HDP24-24-35PE

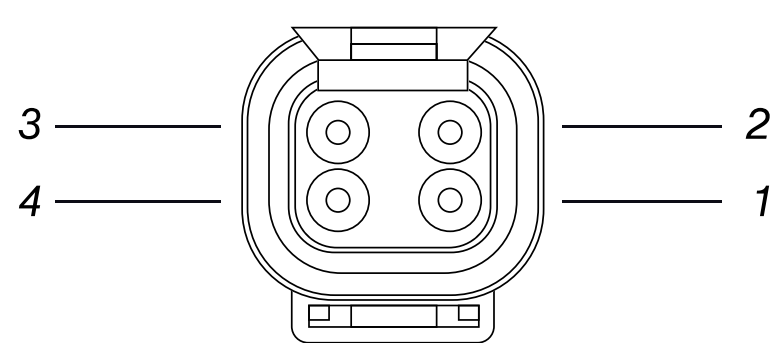


25 AMP AUX HV CONNECTOR



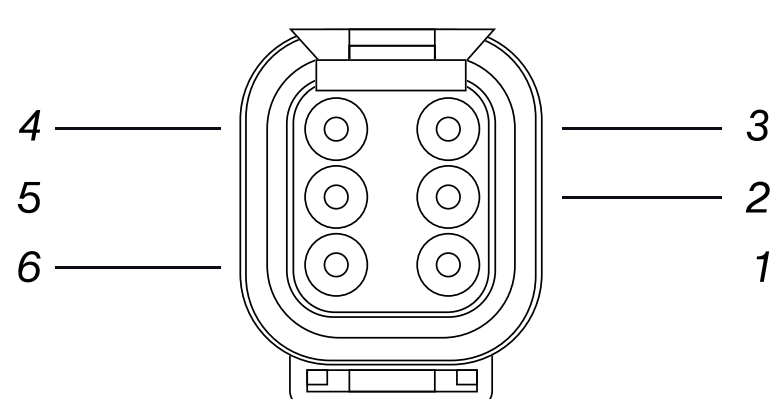
PIN	DESCRIPTION	NAME
A	Positive output 1	HV25APO1
B	Negative output 1	HV25ANO1
C	Negative output 2	HV25ANO2
D	Positive output 2	HV25APO2

LOCK MOTOR PLUG



PIN	DESCRIPTION	NAME	COLOUR
1	Lock motor out -	FB_OUT0	Red
2	Lock motor out +	FB_OUT1	White
3	Lock motor Input - Inverted	LOCKMOTOR_SW	Yellow
4	Constant 12V	12V_CONSTANT	Blue

CHARGE STATUS/LOCK BUTTON PLUG



PIN	DESCRIPTION	NAME	COLOUR
1	Charge Stop Switch	STOP_SW	Yellow
2	Constant 12V	12V_CONST	White
3	Ground	GROUND	Black
4	Charge Status LED - Red	LED0	Red
5	Charge Status LED - GREEN	LED1	Green
6	Charge Status LED - Blue	LED2	Blue

PIN	DESCRIPTION	NAME	FUNCTION
1	Switched 12V - Charge	CHARGE	Voltage output
2	BMS CAN 1	CAN1_H	Comms
3	BMS CAN 1	CAN1_L	Comms
4	BMS CAN 2 & Contactor Control	CAN2_L	Comms
5	BMS CAN 2 & Contactor Control	CAN2_H	Comms
6	BMS Secondary Control	REMOTE +	Comms
7	Switched 12V - Ignition	IGN	Voltage Input
8	BMS Secondary Control	REMOTE -	Comms
9	BMS Secondary Control	REMOTE_SHIELD	Comms
10	Charge Status LED - Green	LED1	Signal Output
11	Ground	GND	Voltage Input
12	Contactor Control 12V supply	CONT_CONT_SUPPLY	Voltage Input
13	Charge Status LED - Red	LED0	Signal Output
14	Constant 12V	12V_CONST	Voltage Input
15	BMS Discharge Enable	DISCHARGE_EN	Signal Output
16	BMS Charge Enable	CHARGE_EN	Signal Output
17	Lock motor out -	FB_OUT0	Signal Output
18	Lock motor out +	FB_OUT1	Signal Output
19	Charge Port Temp 0 +	PTC0+	Signal Input
20	BMS MPO3 - Fan enable	FAN_EN/MPO3	Signal Output
21	Charge Port Temp 0 -	PTC0-	Signal Input
22	BMS MPI1 - J1772 Pilot	CP	Signal Input
23	Charge Port Temp 1 +	PTC1+	Signal Input
24	Charge Port Temp 1 -	PTC1-	Signal Input
25	Charge Status LED - Blue	LED2	Signal Output
26	Lockmotor Input	POS_FB	Signal Input
27	Lockmotor Input - Inverted	LOCKMOTOR_SW	Signal Input
28	BMS MPI2 - J1772 Proximity	PP	Signal Input
29	Charge Stop Switch	STOP_SW	Signal Input
30	High Voltage Interlock	HVIL	Signal I/O
31	High Voltage Interlock	HVIL	Signal I/O
32	High Voltage Present	HV_PRESENT	Signal Output
33	-	-	-
34	-	-	-
35	-	-	-

