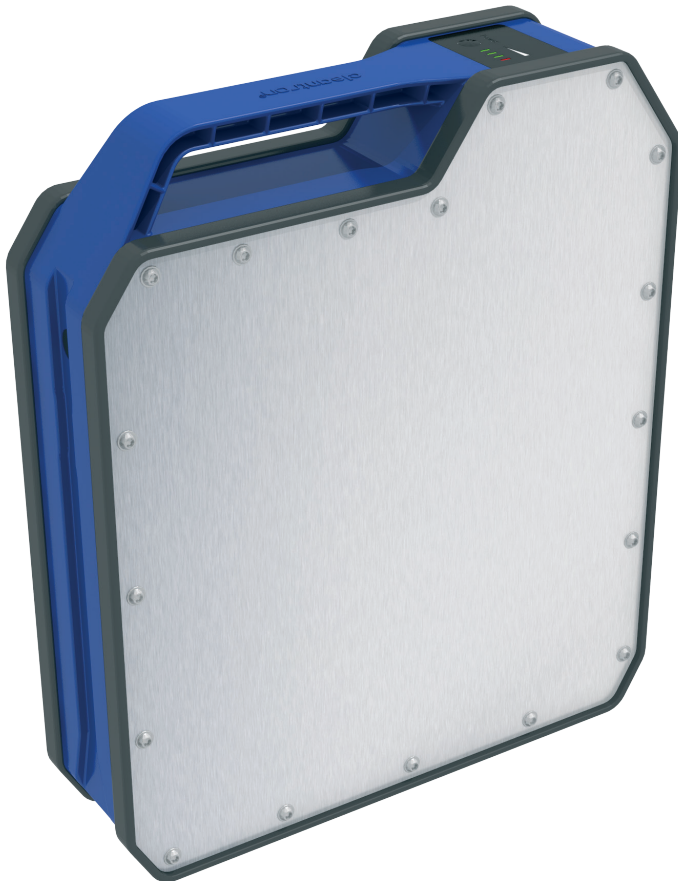


cleantron®

System Module CLP

48V Portable Battery System



CLP Charging Cabinet

Module

Capacity *	1,7 kWh
Weight	9 kg
Power Output	2 kW Peak Power

Typical System (8P)

Max Capacity	13,6 kWh
Messages	SOC, SOH, SOF (max. Power)

* max. rated Cell Capacity

The compact light portable (CLP) 48V Module is most suitable for modern electric mobility & industrial applications requiring high up-times by means of “battery swapping”.

As the CLP weighs only 9 Kg. and is equipped with a “blind mating” connector, the CLP can be exchanged very quick & easy.

The CLP can be used as a building block in a Modular Battery System up to 26 Modules in parallel. (for higher Current & Capacity)). The CLP comes with a Docking Station, that can be integrated in the application, and a Charging Station. Cleantron offers Charging Station for a single CLP or a Charging Cabinet for multiple CLP's, that can charge 12 CLP's sequentially or in parallel.



CLP Charging Station

General Electric Specification : 48V Compact Light Portable Pack CLP

Cells Capacity @ 1 A Discharge	40	Ah	+ 1 / - 2	@ 0 cycles
Nominal Capacity @ 10 A Discharge	36	Ah	+ 1 / - 2	@ 0 cycles
Minimal Cycle Life (standard setting)	1000	#	full cycles	min. 70% rated capacity
Minimal Cycle Life (long life setting)	2000	#	full cycles	min. 70% rated capacity
Nominal Voltage	47	V		
Charge Voltage Limit	53	V	+ 0.0 / - 0.28	not for long life settings
Nominal Charge Current	15	A		recommended : "CC" and "CV" model
End of Charge Current Limit	0,5	A		advised
Discharge Voltage Limit	39	V	+/- 1	drive system should shutdown at this Voltage
Nominal Discharge Current	35	A		
Peak Discharge Current	50	A		@ T =25°C / 10 sec
Fast Charging	No			
Parallel Switching	Yes (MPC)**			max 26 P
Serie Switching (High Voltage)	No			
Certification	UN 38.3; IEC62133			for at least one Cell type
Functional Safety Compliance	IEC61508 - SIL 2			Certified for at least one cell type
Light Electric Vehicle Compliance*	EN50604-1			design suitable for Certification
Compatibility with North America	ANSI/CAN/UL/ULC 2271			design suitable for Certification
Ingress Protection level	IP65			blind mating Docking Station
Dimensions	346 x 292 x 83	mm.		excluding Docking Station
Weigth	9	Kg.		
*) Outer Protective Casing required				
**) Multi Pack Configuration				

Safety

- Short Circuit Protection
- Over & Under Voltage Protection & Recovery
- Over-Current Protection & Recovery (Charging & Discharge Currents)
- Over-Temperature Protection & Recovery
- Warning messages (for PLC/SIL 2 compliance)
- Active blowable Fuse (for PLC/SIL 2)

Electronic

- Cell Balancing
- CAN-BUS Communication
- Data Storage
- Key Switch Function
- Firmware Customization:
 - » Long Life Settings
 - » Tailored Communication Protocols
 - » Sleep Function Settings

Modularity

- Parallel Switching up to 26 Modules
- Options:

Parallel Dis-/Charging



Hot Swap
Cycle Intelligent
Charging

Safety

By Redundancy

Benefit

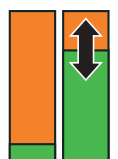
Higher Currents *or*

Longer Cycle Life

Application

Fixed

Sequential Dis-/Charging



Hot Swap
Cycle Intelligent
Charging

Safety

By Redundancy

Benefit

Less Packs Needed

Less Chargers Needed

Application

Portable

Dimensions

Height	Width	Thickness	Weight
346 mm.	292 mm.	83 mm.	9 kg