



cleantron[®]
cleantech batteries

CLP XL
48V Portable Power

TECHNICAL SPECIFICATIONS

Usable Capacity	2.3	kWh
Nominal Capacity @ 10 A Discharge	50	Ah
Minimal Cycle Life (long life setting)	2000	#
Nominal Voltage	51.1	V
Nominal Charge Current	23	A
Max Charge Current	47	A
Nominal Discharge Current	50	A
Peak Discharge Current	50 / 75 / 100	A
Parallel Series Connection	Yes (MPC)	
Series Connection (High Voltage)	Yes (96V)	
Ingress Protection level	IP65	
Dimensions	463 x 365 x 100	mm.
Weight	15.2	Kg.
Chemistry	NMC	

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CLP XL OVERVIEW

The **Cleantron CLP XL** is a portable battery module designed for **on the spot battery swapping**, to maximize machine uptime. Engineered for **harsh outdoor working environments**, the CLP XL reliably operates in conditions involving **dust, dirt, and humidity**. With a weight of 15.2 kg and a blind mating connector, the CLP XL allows quick, **single-handed placement**. The system includes an **On-board Docking Station** for discharging and on-board charging, as well as an optional **Off-board Charging Station**.

SAFETY

- Short Circuit Protection
- Over & Under Voltage Protection & Recovery
- OverCurrent Protection & Recovery (Charging & Discharge Currents)
- Over-Temperature Protection & Recovery
- Warning messages (PLC compliant)
- Controlled Fuse

ELECTRONICS

- Cell Balancing
- CANBUS Communication
- Data Storage
- Key switch and wakeup on CAN function

PARALLEL DIS-/CHARGING



Hot Swap
Cycle Intelligent
Charging

Safety
By Redundancy

Benefit
Higher Currents or
Longer Cycle Life

Application
Fixed

SEQUENTIAL DIS-/CHARGING

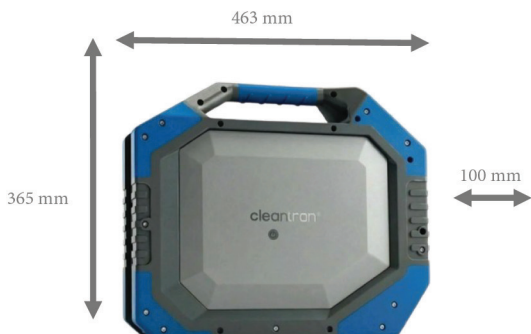


Hot Swap
Cycle Intelligent
Charging

Safety
By Redundancy

Benefit
Less Packs Needed
Less Chargers Needed

Application
Portable



PARTNERSHIP & PORTFOLIO

Partnership with TVH

Through the partnership between **TVH, system integrator** and **distributor** of Cleantron, OEMs gain access to a scalable battery ecosystem that reduces complexity, risk, and time to market.



Faster development, lower R&D risk

- Modular building blocks allow OEMs to prototype in weeks instead of years
- Same battery modules scalable across multiple machine sizes, simplifying design and sourcing

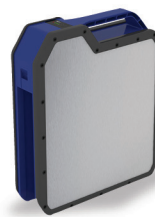
Engineering support beyond components

- Engineering consultancy to define energy profiles and select the optimal module configuration
- Prefested prototyping kits including batteries, chargers, motors, and controllers
- Telematics and track and trace solutions to optimise performance and monitor prototypes globally

Global availability, local support

- Stocked Cleantron modules in key TVH distribution hubs
- One-stop sourcing of the complete electric drive-train through the TVH ecosystem
- Long-term lifecycle support, including repair, re-manufacturing, and data-driven

Other Cleantron Products - Customization available on request



CLP
Portable and easy to swap



P4P
Portable with single connector



P4X
Scalable with busbars