

# cleantron®

## GX High Voltage

Tailored Scalable High Voltage System



BMU

### System

Scalable Voltage	24 to 1000 V DC
Scalable Capacity	230Ah * 3 HV Strings
Active Cooling	Immersion Cooling
Chemistry	NMC or LFP
Options Funsaf	ISO 13849 PL-C IEC 61508 SIL-1 ASIL-C

The Cleantron GX is an advanced 24V Battery Module, built for scalability and modularity in voltage and capacity. The GX Module is designed for applications with more far-reaching requirements in the area of mechanical integrity, IP rating, C-rates and Parallel or Series (HV) Modularity.

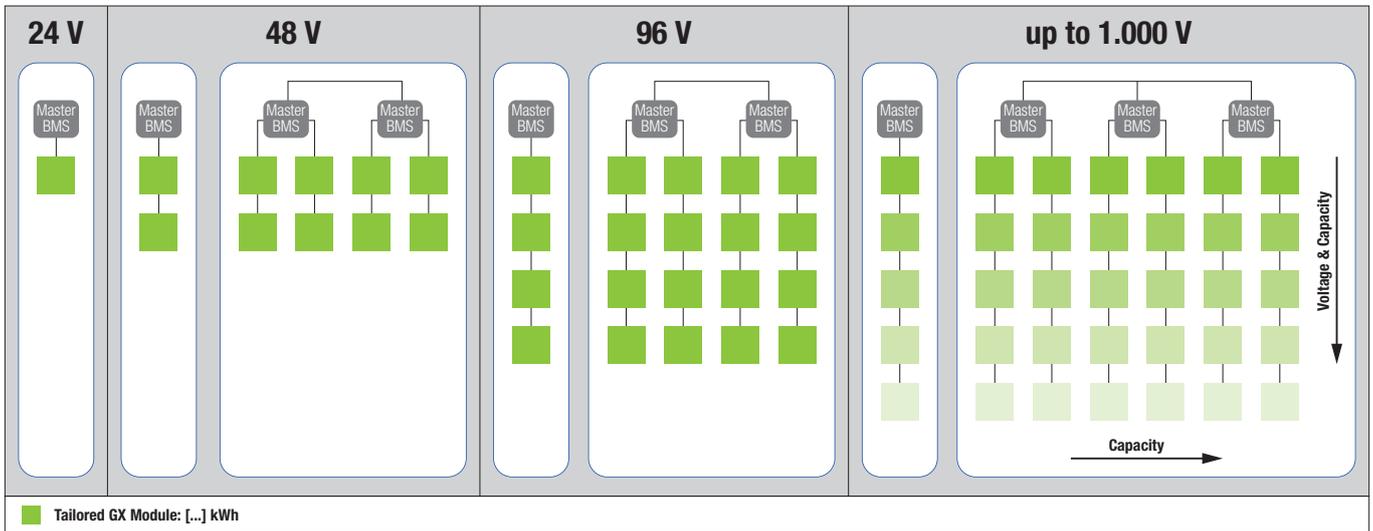
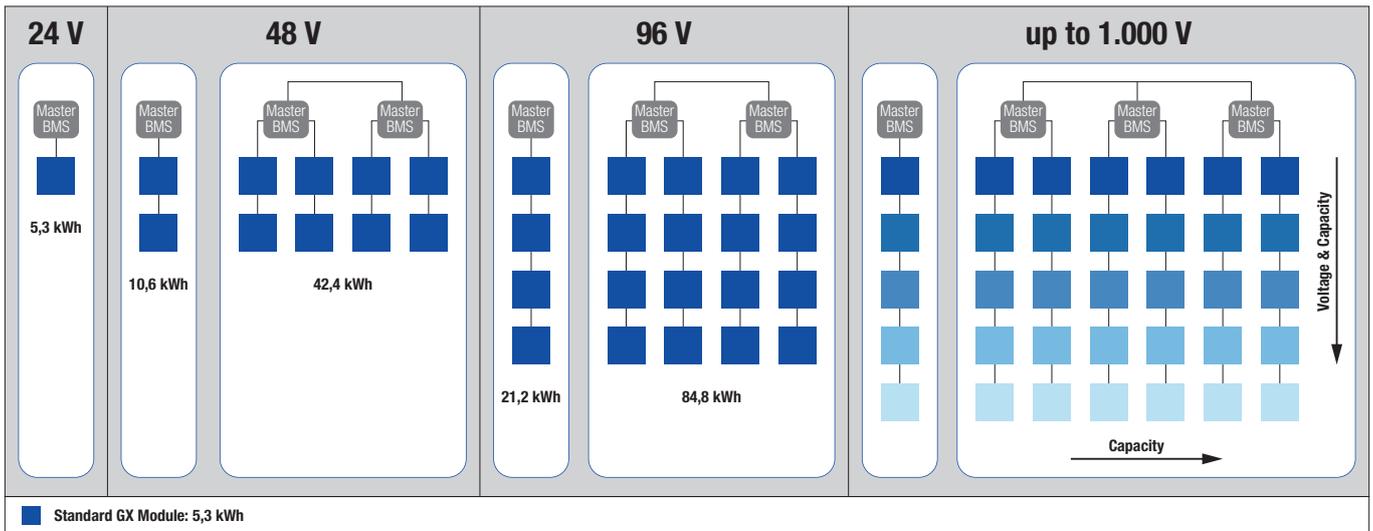
The Cleantron GX is mostly used in Electric Vehicles, Industrial & Non-Road applications. The GX module is the ideal building block for modular systems up to 16 modules in parallel for higher currents and capacity and 32 modules in series for higher voltage.

**GX Modules are available in different capacities:**

- HD (High Energy Density) 3.8 kWh
- UHD (Ultra-High Density) 5.5 kWh

The GX modules are enabled with the latest immersion cooling technology. The cells are immersed in a coolant liquid that runs through a channel between the cells. This coolant liquid can also be used for heating the cells. Alternatively, the modules can also use resistive heater elements for heating the cells. This largely depends on the application and the use case of the battery system.

# Cleantron GX System : Scalable in Voltage & Capacity



## Safety

- Short Circuit Protection
- Over & Under Voltage Protection & Recovery
- Over-Current Protection & Recovery (Charging & Discharge Currents)
- Over-Temperature Protection & Recovery

## Electronic

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

## Modularity

- Options:

### Parallel Dis-/Charging



Hot Swap  
Cycle Intelligent  
Charging

#### Safety

By Redundancy

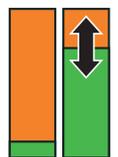
#### Benefit

Higher Currents *or*  
Longer Cycle Life

#### Application

Fixed

### Sequential Dis-/Charging



#### Safety

By Redundancy

#### Benefit

Less Packs Needed  
Less Chargers Needed

#### Application

Portable

Hot Swap  
Cycle Intelligent  
Charging