



wise-integration



# POWER CUBE

*FOR SMALLER, LIGHTER AND MORE EFFICIENT E-BIKE CHARGER*

## **+ WHAT IS POWER CUBE ?**

Power supplies play a major role in our lives: Most of the mobile devices we use need to be charged every day. Customers are seeking high power, fast, integrated power supplies. Today's power electronics technologies, however, do not offer the levels of performance required for a number of use cases. Wise-Integration's Power Cube contains innovative technologies to enable the world's smallest power supply ever. And, with record-breaking 96% efficiency, it Power Cube allows power supplies to be integrated into electrical devices or directly into walls without overheating, eliminating today's bulky external chargers. Using two integrated GaN power inverter legs and a patented architecture with proprietary control software, wise-integration reduces the number of components inside a 100W charger.

User benefits:

- 3x smaller
- 4x lighter
- 96% of efficiency

## **DEMO @ CES 2021**

Power Cube 100W e-bike charger. It is 3x smaller, more efficient, and 4x lighter than a conventional charger. Two Power Cubes can be used to deliver 200W.

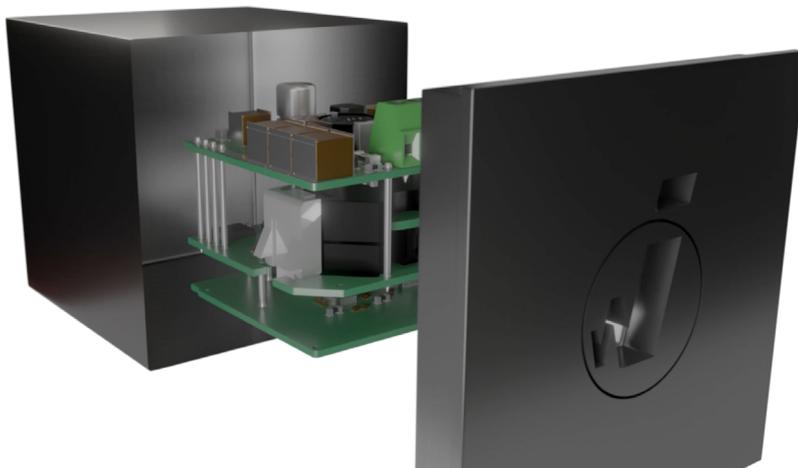
The Power Cube is so small and lightweight that could potentially be integrated into the e-bike itself, which could substantially increase e-bike range.

## + WHAT'S NEW?

Wise-Integration built on a decade of Leti R&D on the monolithic integration of GaN on silicon power functions to:

- Implement new system architectures to get the most out of the performance offered by GaN power components.
- Deliver high-frequency operation with integrated GaN components (GaN integrated circuits) to make electronic systems smaller.
- Minimize transformer losses with planar and new magnetic transformers.
- Use soft switching (ZVS, ZCS) to reduce energy losses.
- Improve energy efficiency: 98% vs. 94% at the state of the art.
- Increase power densities with integrated GaN circuits that operate at high frequency (>1MHz).

CHARACTERISTICS	Wise-Integration	COMPETITORS
System architecture range of power	+++	+
Lightness	+++	+
Compactness	++	+
Energy efficiency	++	+
Cost	+	+



## APPLICATIONS

- **Consumer/mobile:**  
High-power-density and efficiency AC/DC chargers and adapters, 20W to 100W USB-PD chargers.
- **Industrial:**  
High-power density wall plug adapters, AC/DC power supplies from 60W to 500W.

### KEY FEATURES

- **3x** smaller
- **4x** lighter
- 98% efficient (target)
- No overheating

## + WHAT'S NEXT?

Wise-Integration is working actively with charger and e-bike manufacturers to bring consumers the 200W Power Cube by year's end. The company is also developing a 100W USB-C charger.

Once the Power Cube has been released, Wise-Integration plans to develop a 500W power supply for OLED 8K TVs. In a more distant future, the company would like to develop power supply solutions for data centers.

## INTERESTED IN THIS TECHNOLOGY?

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Wise-Integration



Wise-Integration is a CEA spinoff.