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Product Carbon

Footprint:

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11.52 kg CO₂e

Total PCF per unit

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System Boundary

Factory Gate

Production Country

China

GHG Standard

GHG Protocol

Carbon Intensity

11.52 kgCO₂e/unit

Lifecycle Emission Breakdown

Materials (Scope 3)	5.80 kg CO2e (50.3% of Total PCF)
Manufacturing (Scope 2)	2.79 kg CO2e (24.2% of Total PCF)
Transport (Scope 3)	0.46 kg CO2e (4.0% of Total PCF)
Use Phase (Scope 3)	20.00 kg CO2e (173.6% of Total PCF)
Note: Use Phase emissions significantly contribute to the overall footprint.	
End-of-Life (Scope 3 - Credit)	-3.94 kg CO2e (-34.2% of Total PCF)
Note: Negative percentage indicates a carbon credit/avoided emissions due to high recyclability.	

Material Carbon Impact

Metal Frame	3.20 kg CO2e
Plastic Casing	1.25 kg CO2e
Electronic Components	0.70 kg CO2e
Circuit Board	0.45 kg CO2e
Packaging	0.20 kg CO2e

Key Emission Hotspots

- The **Use Phase** is the most significant emission hotspot, contributing 20.00 kg CO₂e, which is 173.6% of the total PCF due to strong End-of-Life credits. This highlights high energy consumption during the product lifespan.
- **Materials** account for 5.80 kg CO₂e (50.3% of total PCF), with the Metal Frame being the largest contributor within this category (3.20 kg CO₂e).
- The **End-of-Life** stage provides a substantial carbon credit of -3.94 kg CO₂e (-34.2% of total PCF) due to high recyclability (85%) and circular programs.

Decarbonization Action Plan

- **Optimize Use Phase Energy:** Focus on designing for greater energy efficiency and extending the product's lifespan to reduce significant use-phase emissions.
- **Material Innovation:** Explore lower-carbon alternatives for key components, particularly for the metal frame and plastic casing.
- **Strengthen Circularity:** Continue to invest in and expand take-back and recycling programs, potentially aiming for higher recyclability rates.
- **Supply Chain Engagement:** Work with suppliers to reduce upstream emissions, especially for high-impact materials and logistics.