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Product Carbon Footprint for tgkzztroux

carboncalcpcf.com

Total PCF: **16.897 kg CO₂e**

Net Carbon Footprint

16.897 kg CO₂e

Total emissions across all lifecycle stages.

Carbon Intensity

16.897 kg CO₂e / unit

Emissions per functional unit of the product.

Top Material Hotspot

Plastic Casing

Largest contributor within material acquisition.

Primary Emission Scope

Scope 3

Dominant source from indirect value chain activities.

Lifecycle Stage Breakdown (Net Impact)

Materials Acquisition	3.59 kg CO2e (21.25%)
Manufacturing (Scope 2)	2.10 kg CO2e (12.43%)
Transport & Distribution	0.867 kg CO2e (5.13%)
Use Phase	12.50 kg CO2e (73.98%)
End-of-Life Treatment (Reduction)	-2.16 kg CO2e (-12.78%)

Material Composition Carbon Impact

Plastic Casing	1.25 kg CO2e (34.82%)
Metal Connectors	1.20 kg CO2e (33.43%)
Wiring & Cables	0.60 kg CO2e (16.71%)
Printed Circuit Board (PCB)	0.30 kg CO2e (8.36%)
Packaging (Cardboard)	0.24 kg CO2e (6.69%)

Highlights: Carbon Hotspots

The **Use Phase** accounts for the largest share of emissions (12.50 kg CO₂e), emphasizing energy consumption during product lifespan.

Materials Acquisition is a significant contributor (3.59 kg CO₂e), with plastic and metal components being key areas.

Manufacturing emissions from purchased electricity (2.10 kg CO₂e) also represent a notable footprint from the production country, China.

Recommendations for Emission Reduction

Enhance Use Phase Efficiency: Invest in R&D to significantly reduce the product's energy consumption during its lifespan.

Sustainable Material Sourcing: Explore alternative materials with lower embodied carbon and increase recycled content.

Renewable Energy in Manufacturing: Accelerate the transition to 100% renewable energy for manufacturing operations in China.

****Optimized Logistics:**** Continuously optimize transportation routes, consolidate shipments, and prioritize lower-emission modes.

****Strengthen Circular Economy Initiatives:**** Expand and promote take-back programs to maximize actual recycling rates.