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# Smart IoT Sensor Carbon Footprint

**Product:** idlreindfy | **Company:** EcoSolutions Corp.

**Standard:** GHG Protocol | **Date:** May 24, 2026

**Total PCF: 24.564 kg CO<sub>2</sub>e / unit**

TOTAL FOOTPRINT

**24.564 kg CO<sub>2</sub>e**

per 1.0 unit

CARBON INTENSITY

**20.47 kg CO<sub>2</sub>e/kg**

for 1.2 kg product

TOP MATERIAL HOTSPOT

**Aluminum Casing**

3.75 kg CO<sub>2</sub>e

PRIMARY EMISSION SCOPE

**Scope 3**

22.156 kg CO<sub>2</sub>e (90.2%)

# Lifecycle Stage Breakdown

Use Phase 15.75 kg CO2e (64.1%)

Upstream Materials 6.16 kg CO2e (25.1%)

Manufacturing (Scope 2) 2.41 kg CO2e (9.8%)

Product Distribution 0.63 kg CO2e (2.6%)

End-of-Life (Net Credit) -0.38 kg CO2e



(Credit: -0.384 kg CO2e)

# Material Carbon Impact

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Aluminum Casing

3.75 kg CO<sub>2</sub>e

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Circuit Board

1.20 kg CO<sub>2</sub>e

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Plastic Enclosure

0.75 kg CO<sub>2</sub>e

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Copper Wire

0.30 kg CO<sub>2</sub>e

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Packaging Cardboard

0.16 kg CO<sub>2</sub>e

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## Key Emission Highlights

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- Use Phase is the most significant contributor, accounting for 64.1% of the total PCF due to 7 years of energy consumption.
- Upstream Materials contribute substantially (25.1%), with Aluminum Casing being the primary material hotspot.
- Manufacturing emissions (9.8%) are notable despite 60% renewable energy use in China.
- A net credit is achieved at End-of-Life due to strong recyclability (70%) and circular programs.

## Action Plan for Reduction

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- ☐ Enhance product energy efficiency during the 7-year use phase to significantly lower overall impact.
- ☐ Explore lower-impact alternative materials or increase recycled content for key components like aluminum and plastics.
- ☐ Further invest in renewable energy sources and optimize manufacturing processes to reduce Scope 2 emissions.
- ☐ Optimize logistics for finished product distribution, focusing on more efficient transport modes and localized supply chains.