Product Environmental Profile

# AIDOO CONTROLLER

| | | | |
|---|---|---|---|
| Registration no.: AIRZ-00002-V01.01-EN | | Drafting rules: PCR-ed4-EN-2021 09 06<br>Supplemented by: PSR-0005-ed3.1-EN-2023 12 08 | |
| Verifier accreditation number: VH39 | | Information and reference documents:<br>www.pep-ecopassport.org | |
| Date of issue: | 04-2024 | Validity period: | 5 years |
| Independent verification of the declaration and data, in compliance with ISO 14025: 2023<br>Internal: External: **X** | | | |
| The PCR review was conducted by a panel of experts chaired by:<br>Julie Orgelet (DDemain) | | | |
| PEP is compliant with XP C08-100-1:2016 or EN 50693:2019 or<br>NF E38-500 :2022<br>The components of the present PEP may not be compared with components from any other program | | | |
| Document in compliance with ISO 14025: 2010<br>“Environmental labels and declarations. Type III environmental declarations” | | | |


This document complies with the ISO 14020 standard for the general principles of environmental declarations, and with the ISO 14025 standard for type III environmental declarations.

## Company information

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## References Covered

**Aidoo Pro Wi-Fi Controller (AZAI6WSP[XXX])**

**Aidoo Wi-Fi Controller (AZAI6WSC[XXX])**

**Aidoo KNX Controller (AZAI6KNX[XXX])**

**Aidoo Z-Wave Controller (AZAI6ZWE[XXX])**

**Aidoo Zigbee Controller (AZAI6ZBE[XXX])**

## Methodology

The PEP has been performed according to PCR version ed4-EN-2021 09 06 and PSR version PSR-0005-ed3-EN-2023 06 06 issued by the PEP Ecopassport program. For further information, please see the website of the program www.pep-ecopassport.org

## Reference product

Reference product identification: **AZAI6 Aidoo Controller**

Product category: Small Professional Elec. Equip. (Medical & Building & Industry & Research)

Device to manage and integrate air-to-water HP units remotely from the Cloud. Online control with the “Airzone Cloud” App (available for iOS and Android). Wireless Wi-Fi connection. Self-powered by external power supply provided.

## Functional unit

Measure and control by time programming the ambient temperature(s) set by the user in a range of X, with a temperature step of Y, in N zones, according to and characterized by a closed contact current IL, according to the appropriate use scenario, and for the reference service life of the product of 20 years. The reference service life is set at 20 years. However, when electronic functions are introduced, the reference lifetime to be considered is 10 years.

X ='0 °C - 35°C'; Y = '0.5°C'; IL = 2 A; N = 1; Volt. range: Low voltage; Current type: Mains

## Materials and substances

All relevant measures have been adopted to ensure that the materials used in the composition of the product do not contain any substances banned by the legislation in force at the time of marketing*.

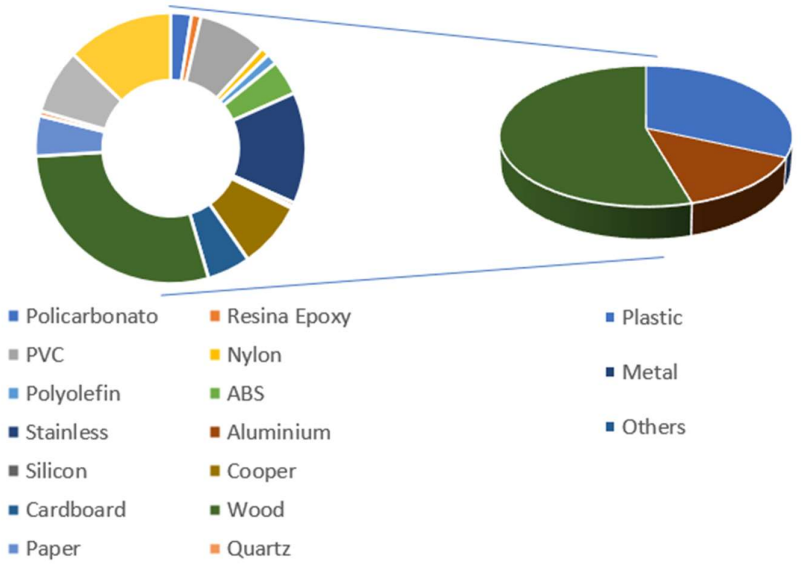
The total weight of the product + packaging is: **0.406 kg**.

| PLASTIC | | | | | | |
|---|---|---|---|---|---|---|
| PC | Epoxy Resin | PVC | Nylon | Phenolic Resin | Polyester Resin | ABS |
| 2.50% | 1.13% | 8.20% | 1.03% | 1.30% | 4.18% | 13.30% |

| METAL | | | |
|---|---|---|---|
| Stainless steel | Aluminum | Brass | Copper |
| 0.44% | 0.28% | 7.99% | 5.15% |

| OTHER | | | | |
|---|---|---|---|---|
| Cardboard | Paper | Quartz | Wood | Other |
| 28.58% | 4.82% | 0.58% | 7.75% | 12.78% |

*Table 1. Raw material composition*



## Manufacturing A1 – A3

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in production as well as packaging materials. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

The reference product is one Aidoo Controller. The industrial processes for manufacturing and assembling of the parts are carried out at the Mades Factory. The transportation of raw material to the manufacturing site is accounted for based on PCR-ed4-EN2021 09 06. The transportation distance is 1000 km by truck and 19000 km by boat from Asia for the Electronic part. The transportation distance is 3500 km by truck from Europe for the Mechanical product and packaging. The manufacturing energy is considered based on the country's grid mix and the electricity generation of the manufacturing site (Spain).

The last logistics platform, certified according to the ISO 14001 environmental standard, is located in Malaga, Spain.

## Distribution & Installation A4 – A5

The distribution of the product in its packaging from the manufacturer's last logistics platform (A4) (Spain) to the distributor to the installation place (A5) (Europe).

The packaging has been designed in accordance with current regulations, in particular, with European directive 94/62/CE relative to packaging and packaging waste. The used packaging is 100% recyclable or recoverable. Packaging and logistics flows are continuously improved to reduce their impact.

The final installation sites are in Europe and the transportation of the final product to the installation sites is considered based on this.

Installation resources and energy are considered based on the country's grid and the electricity generation of the installation site (Europe).

The treatment of packaging waste is calculated as follows:

| MATERIAL | RECYCLING | INCINERATION WITHOUT ENERGY RECOVERY | LANDFILL |
|---|---|---|---|
| Cardboard | 90% | 5% | 5% |
| PE Film | - | 75% | 25% |
| Wood | - | 75% | 25% |

*Table 2. Treatment of packaging waste*

The collection transport is carried out over 100 km with a 17.3t truck.

### Installation processes

The processes to install the product are not considered in this study because of their low impact compared to the other life cycle steps.

Installation elements (not-delivered with the product)

The element not-delivered with the product and needed to install the product is a screwdriver

## Product Use (B1-B7)

The reference product does not generate environmental pollution (noise, emissions), so it does not require special precautionary measures under standard use.

For the considered scenario, the product has a consumption when the **closed contact** during 10% of the time, while for 90% of the time, the device remains in **Stand-by Mode** or when the **contact opened**. This corresponds to a total energy consumption of 409.89 kWh for the use span of 10 years. This use-stage scenario is calculated based on the methodology given in PSR -0005-ed3.1-EN-2023 12 08.

Energy model of the use stage: Europe

Consumables and maintenance: None

## Product End of Life C1 – C4

Considering the complexity and the lack of knowledge regarding the electric and electronic recycling channel and processes, the standard scenario set in the PCR-ed4-EN-2021 09 06 is considered. The net benefits and loads beyond the system boundaries are also included in the PEP. The net benefits and loads beyond the system boundaries are calculated using substitution point [0:100] by PCR ed.4 in EIME Software and this is correctly applied and modeled in that way.

## Homogeneous Environmental Families

Extrapolation coefficients are given for the environmental impact at the level of the product and of the functional unit. For each stage of the life cycle, the environmental impact of the product concerned is calculated by multiplying the impacts of the reference product by the extrapolation coefficient.

| Product | AIDOO CONTROLLER | | | | |
|---|---|---|---|---|---|
| Technology | AIDOO PRO | AIDOO WIFI | AIDOO KNX | AIDOO Z-WAVE | AIDOO ZIGBEE |
| Product Reference | **AZAI5WSP** | **AZAI6WSC** | **AZAI6KNX** | **AZAI6ZWE** | **AZAI6ZBE** |
| Consumption (W) | 1.85 | 0.85 | 0.85 | 0.31 | 0.31 |
| RLT (year) | 10 | 10 | 10 | 10 | 10 |
| Product mass (kg) | 0,249 | 0,161 | 0,149 | 0,211 | 0,211 |
| Aidoo Controller mass (kg) | 0,130 | 0,087 | 0,090 | 0,088 | 0,088 |
| User Manual mass (kg) | 0,013 | 0,013 | 0,013 | 0,013 | 0,013 |
| Accessories mass (kg) | 0,066 | 0,061 | 0,046 | 0,109 | 0,109 |
| AC/DC power supply mass (kg) | 00,039 | 0,000 | 0,000 | 0,000 | 0,000 |
| Packaging mass (kg) | 0,139 | 0,139 | 0,139 | 0,139 | 0,139 |
| Ctot (kWh) | 162.06 | 74.46 | 74.46 | 27.16 | 27.16 |

*Table 3. Data Information for Aidoo Controller*

| Product | AIDOO CONTROLLER | | | | |
|---|---|---|---|---|---|
| Technology | AIDOO PRO | AIDOO WIFI | AIDOO KNX | AIDOO Z-WAVE | AIDOO ZIGBEE |
| Product Reference | **AZAI6WSP** | **AZAI6WSC** | **AZAI6KNX** | **AZAI6ZWE** | **AZAI6ZBE** |
| Manufacturing | 1.00 | 0.77 | 0.74 | 0.90 | 0.90 |
| Distribution | 1.00 | 0.77 | 0.74 | 0.90 | 0.90 |
| Installation | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Use | 1.00 | 0.46 | 0.46 | 0.17 | 0.17 |
| End of Life | 1.00 | 0.65 | 0.60 | 0.85 | 0.85 |

*Table 4. Extrapolation coefficients at FUNCTIONAL unit level*

| Technology | Product Reference | Manufacturing | Distribution | Installation | Use | End of Life |
|---|---|---|---|---|---|---|
| AIDOO PRO | AZAI6WSPDA0 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPDA1 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPFU2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPFUJ | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPHI2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPHIT | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPLGE | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPMEL | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPPA0 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPPAN | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPFAN | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPMD1 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPMHI | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPSA2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPHI3 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPHS2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPHS1 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPTOS | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPGR1 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

| Technology | Product Reference | Manufacturing | Distribution | Installation | Use | End of Life |
|---|---|---|---|---|---|---|
| AIDOO PRO | AZAI6WSPGRE | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPGR2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPMD2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPGM2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPGM1 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPGG1 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPGG2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPGG3 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPMD4 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPGM4 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPDA2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPMD3 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPHAI | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPPA2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPME2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPHI4 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPGM3 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPDK2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPML2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

| Technology | Product Reference | Manufacturing | Distribution | Installation | Use | End of Life |
|---|---|---|---|---|---|---|
| AIDOO PRO | AZAI6WSPGH1 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPGH2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPDN2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPDN0 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPDN1 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPPN0 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPPN2 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPPN1 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPMPN | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | AZAI6WSPDA4 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

*Table 5. Aidoo Pro*

| Technology | Product Reference | Manufacturing | Distribution | Installation | Use | End of Life |
|---|---|---|---|---|---|---|
| Wi-Fi | AZAI6WSCTOS | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCSA2 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCPAN | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCPA0 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCMHI | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCMEL | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCMD2 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCMD1 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCLGE | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCHS2 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCHIT | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCHI2 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCGRE | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCGR2 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCGR1 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCFUJ | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCFU2 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCDA2 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCDA1 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |

| Technology | Product Reference | Manufacturing | Distribution | Installation | Use | End of Life |
|---|---|---|---|---|---|---|
| | AZAI6WSCDA0 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCGG1 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCGG2 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCGG3 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCGM1 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCGM2 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCHT2 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCMG3 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCMD4 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCGM4 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCGH2 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCDN0 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCDN1 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCPN0 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |
| | AZAI6WSCPN1 | 0.77 | 0.77 | 1.00 | 0.46 | 0.65 |

*Table 6. Aidoo Wi-Fi*

| Technology | Product Reference | Manufacturing | Distribution | Installation | Use | End of Life |
|---|---|---|---|---|---|---|
| KNX | AZAI6KNXTOS | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXSA2 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXPAN | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXPA0 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXMHI | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXMEL | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXMD2 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXMD1 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXLGE | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXHS2 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXHS1 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXHIT | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXHI3 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXHI2 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXGRE | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXGR2 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXGR1 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXFUJ | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |

| Technology | Product Reference | Manufacturing | Distribution | Installation | Use | End of Life |
|---|---|---|---|---|---|---|
| KNX | AZAI6KNXFU2 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXDA1 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXDA0 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXBAX | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXBA1 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXGG1 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXGG2 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXGG3 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXGM1 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXGM2 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXHT2 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXHT3 | 0.74 | 0.74 | 1.00 | 0.46 | 0,60 |
| | AZAI6KNXMG3 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXMD4 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXGM4 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXGH1 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXGH2 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXPN0 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |
| | AZAI6KNXPN1 | 0.74 | 0.74 | 1.00 | 0.46 | 0.60 |

*Table 7. Aidoo KNX*

| Technology | Product Reference | Manufacturing | Distribution | Installation | Use | End of Life |
|---|---|---|---|---|---|---|
| Z-WAVE | AZAI6ZWEDA0 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEDA1 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEFUJ | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEFU2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEHIT | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEHI2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWELGE | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEMEL | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEPAN | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEPA0 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEMD4 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWETOS | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEGG1 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEGG2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEGG3 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEGM1 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEGM2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEGM4 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEGR1 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |

| Technology | Product Reference | Manufacturing | Distribution | Installation | Use | End of Life |
|---|---|---|---|---|---|---|
| Z-WAVE | AZAI6ZWEGR2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEGRE | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEMD1 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEMD2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEMHI | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEHS1 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEHS2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWESA2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEHI3 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEHAI | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEGH1 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZWEGH2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |

*Table 8. Aidoo Z-Wave*

| Technology | Product Reference | Manufacturing | Distribution | Installation | Use | End of Life |
|---|---|---|---|---|---|---|
| ZIGBEE | AZAI6ZBEDA0 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEDA1 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEFUJ | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEFU2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEHI2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEHIT | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBELGE | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEMEL | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEPA0 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEPAN | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEMHI | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEGRE | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEGG1 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEGR1 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEGG2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEGR2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEGG3 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEHI3 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEHS1 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEGH1 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |

| Technology | Product Reference | Manufacturing | Distribution | Installation | Use | End of Life |
|---|---|---|---|---|---|---|
| ZIGBEE | AZAI6ZBEHS2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEGH2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEMD1 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEGM1 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEMD2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEGM2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEMD4 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBEGM4 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBETOS | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |
| | AZAI6ZBESA2 | 0.90 | 0.90 | 1.00 | 0.17 | 0.85 |

*Table 9. Aidoo ZigBee*

## Environmental impacts

The evaluation of the environmental impact covers the following life cycle stages: manufacturing, distribution, installation, use, and end of life.

Energy model for the manufacturing, installation, use and end of life:

Energy model for manufacturing: ELCD - Electricity Mix; 1kV - 60kV; 2008; Spain, ES.

Energy model for installation, use, and end of life: Electricity Mix; Low voltage; 2018; Europe, EU-27

All calculations are done with EIME software version 6.2-11.

The product category and use scenario will be in Europe.

**Resource use**

| NAME | UNIT | SUM | A1 - A3 MANUFACTURING | A4 DISTRIBUTION | A5 INSTALLATION | B1 - B7 USE | C1 - C4 END OF LIFE |
|---|---|---|---|---|---|---|---|
| Net use of freshwater | ($m^3$) | 2,21E-01 | 8,19E-02 | 7,33E-07 | -1,43E-04 | 1,38E-01 | 7,46E-04 |
| Total Primary Energy | (MJ) | 5,34E+03 | 2,38E+02 | 1,16E-01 | 1,65E+00 | 5,10E+03 | 2,78E-01 |
| Total use of non-renewable primary energy resources | (MJ) | 4,50E+03 | 2,22E+02 | 1,16E-01 | 1,28E+00 | 4,28E+03 | 2,65E-01 |
| Total use of renewable primary energy resources | (MJ) | 8,38E+02 | 1,58E+01 | 1,54E-04 | 3,64E-01 | 8,22E+02 | 1,29E-02 |
| Contribution to use of non-renewable primary energy excluding non-renewable primary energy used as raw material | (MJ) | 4,50E+03 | 2,17E+02 | 1,16E-01 | 1,28E+00 | 4,28E+03 | 2,65E-01 |
| Use of non-renewable primary resources used as raw material | (MJ) | 5,38E+00 | 5,38E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of non-renewable secondary fuels | (MJ) | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |

| NAME | UNIT | SUM | A1 - A3 MANUFACTURING | A4 DISTRIBUTION | A5 INSTALLATION | B1 - B7 USE | C1 - C4 END OF LIFE |
|---|---|---|---|---|---|---|---|
| Use of renewable primary energy excluding renewable primary energy used as raw material | (MJ) | 8,35E+02 | 1,31E+01 | 1,54E-04 | 3,64E-01 | 8,22E+02 | 1,29E-02 |
| Use of renewable primary energy resources used as raw material | (MJ) | 2,65E+00 | 2,65E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable secondary fuels | (MJ) | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of secondary material | (kg) | 1,66E-02 | 1,66E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Hazardous waste disposed | (kg) | 1,10E+01 | 7,81E+00 | 0,00E+00 | 3,14E-03 | 3,14E+00 | 6,14E-02 |
| Non-hazardous waste disposed | (kg) | 2,84E+01 | 4,00E+00 | 2,91E-04 | 6,31E-02 | 2,42E+01 | 1,40E-01 |
| Radioactive waste disposed | (kg) | 6,93E-03 | 1,86E-03 | 2,07E-07 | 7,70E-06 | 5,06E-03 | 4,81E-06 |
| Components for reuse | (kg) | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported Energy | (MJ) | 4,98E-02 | 3,76E-03 | 0,00E+00 | 2,04E-04 | 0,00E+00 | 4,58E-02 |
| Materials for energy recovery | (kg) | 1,72E-09 | 1,72E-09 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Materials for recycling | (kg) | 3,97E-02 | 3,01E-03 | 0,00E+00 | 1,51E-02 | 0,00E+00 | 2,16E-02 |

## Impact Indicators

| NAME | UNIT | SUM | A1 - A3 MANUFACTURING | A4 DISTRIBUTION | A5 INSTALLATION | B1 - B7 USE | C1 - C4 END OF LIFE |
|---|---|---|---|---|---|---|---|
| Acidification | (mol H+ eq.) | 1,07E+00 | 1,06E-01 | 5,25E-05 | 4,08E-04 | 9,59E-01 | 2,85E-04 |
| Climate change | (kg $CO_2$ eq.) | 1,84E+02 | 1,61E+01 | 8,30E-03 | 1,65E-01 | 1,68E+02 | 2,69E-01 |
| Climate change - biogenic | (kg $CO_2$ eq.) | 4,15E-01 | 1,78E-01 | 0,00E+00 | 8,33E-03 | 2,24E-01 | 4,82E-03 |
| Climate change - fossil | (kg $CO_2$ eq.) | 1,84E+02 | 1,59E+01 | 8,30E-03 | 1,57E-01 | 1,68E+02 | 2,64E-01 |
| Contribution to climate change - land use and land use change | (kg CO2 eq.) | 5,64E-08 | 1,58E-08 | 0,00E+00 | -1,05E-09 | 0,00E+00 | 4,17E-08 |
| Ecotoxicity, freshwater | (CTUe) | 2,11E+03 | 2,79E+02 | 5,59E-03 | 1,55E+00 | 1,81E+03 | 1,78E+01 |
| EF - particulate matter | (Disease occurrence) | 8,04E-06 | 6,01E-07 | 4,27E-10 | 2,41E-09 | 7,44E-06 | 1,98E-09 |
| Contribution to eutrophication, freshwater | (kg P eq.) | 5,49E-04 | 3,01E-05 | 3,11E-09 | 1,84E-06 | 4,60E-04 | 5,74E-05 |
| Contribution to eutrophication, marine | (kg N eq.) | 1,20E-01 | 1,09E-02 | 2,46E-05 | 1,88E-04 | 1,09E-01 | 8,54E-05 |
| Contribution to eutrophication, terrestrial | (mol N eq.) | 1,75E+00 | 1,16E-01 | 2,70E-04 | 1,23E-03 | 1,64E+00 | 6,54E-04 |
| Human toxicity, cancer | (CTUh) | 3,44E-07 | 2,85E-07 | 1,46E-13 | 1,42E-08 | 1,96E-08 | 2,52E-08 |

| NAME | UNIT | SUM | A1 - A3 MANUFACTURING | A4 DISTRIBUTION | A5 INSTALLATION | B1 - B7 USE | C1 - C4 END OF LIFE |
|---|---|---|---|---|---|---|---|
| Human toxicity, non-cancer | (CTUh) | 9,90E-07 | 2,06E-07 | 1,58E-11 | 5,85E-10 | 7,77E-07 | 6,49E-09 |
| Ionizing radiation, human health | (kBq U235 eq.) | 3,02E+02 | 5,20E+01 | 2,02E-05 | 1,97E-02 | 2,50E+02 | 1,51E-03 |
| Land use | (No dimension) | 3,10E+00 | -3,54E-01 | 0,00E+00 | 1,40E-02 | 3,34E+00 | 1,00E-01 |
| Ozone depletion | (kg CFC-11 eq.) | 1,39E-05 | 1,32E-05 | 1,27E-11 | 1,78E-09 | 7,18E-07 | 1,47E-09 |
| Contribution to photochemical ozone formation - human health | (kg NMVOC eq.) | 3,89E-01 | 3,91E-02 | 6,81E-05 | 2,88E-04 | 3,50E-01 | 1,83E-04 |
| Contribution to resource use, fossils | (MJ) | 4,50E+03 | 2,22E+02 | 1,16E-01 | 1,28E+00 | 4,28E+03 | 2,65E-01 |
| Contribution to resource use, minerals and metals | (kg SB eq.) | 8,30E-04 | 8,17E-04 | 3,26E-10 | 3,46E-09 | 1,22E-05 | 1,35E-06 |
| Contribution to water use | ($m^3$ eq.) | 9,51E+00 | 3,54E+00 | 3,15E-05 | -6,14E-03 | 5,94E+00 | 3,20E-02 |

**All the indications mentioned in this document (characteristics and dimensions) are subject to modifications, therefore, they cannot constitute a commitment.*