Statement of Verification

BREG EN EPD No: 000808 Issue: 01

This is to verify that the Environmental Product Declaration provided by:

Apollo Fire Detectors

are in accordance with the requirements of:

EN 15804:2012+A2:2019

and

BRE Global Scheme Document SD207

This declaration is for:
1 unit of interface (XP95 DIN-Rail Mini Switch Monitor Module - Isolating) with a unit weight of 0.0313kg and the service life of 10 years

Company Address

Apollo Fire Detectors
36 Brookside Road
Havant
United Kingdom
PO9 1JR

Signed for BRE Global Limited — Hayley Thomson, Operator

12 June 2026	12 June 2026	11 June 2031
Date of this Issue	Date of First Issue	Expiry Date

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Environmental Product Declaration

EPD Number: 000808

General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE Environmental Profiles 2025 Product Category Rules for Type III environmental product declaration of construction products to EN 15804+A2 PN 514 Rev 3.2
Commissioner of LCA study	**LCA consultant/Tool**
Apollo Fire Detectors 36 Brookside Road Havant United Kingdom PO9 1JR	BRE LINA A2/ Apollo Fire Detectors Limited
Declared/Functional Unit	**Applicability/Coverage**
1 unit of interface (XP95 DIN-Rail Mini Switch Monitor Module - Isolating) with a unit weight of 0.0313kg and the service life of 10 years	Product Specific.
EPD Type	**Background database**
Cradle to Grave	Ecoinvent 3.8

Demonstration of Verification
CEN standard EN 15804 serves as the core PCR [a]
Independent verification of the declaration and data according to EN ISO 14025:2010 ☒Internal ☐ External
(Where appropriate [b]) Third party verifier: Kim Allbury
a: Product category rules b: Optional for business-to-business communication; mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4)

Comparability
Environmental product declarations from different programmes may not be comparable if not compliant with EN 15804:2012+A2:2019. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See Clause 5.3 of EN 15804:2012+A2:2019 for further guidance

Information modules covered

Product			Construction		Use stage							End-of-life					Benefits and loads beyond the system boundary
					Related to the building fabric					Related to the building							
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		D
Raw materials supply	Transport	Manufacturing	Transport to site	Construction – Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal		Reuse, Recovery and/or Recycling potential
☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

Apollo Fire Detectors Ltd,
36 Brookside Road,
Havant,
Hampshire,
United Kingdom,
PO9 1JR

Construction Product:

Product Description

Apollo's XP95 range of devices are forwards compatible with newer generations of Apollo analogue-addressable protocol, providing a wide range of panel compatibility.

This EPD represents 1 unit of the product:

55000-760APO: XP95 DIN-Rail Mini Switch Monitor Module - Isolating

The XP95 DIN-Rail Mini Switch Monitor Module - Isolating is used to monitor one or more single pole, volt free contacts connected on a single pair of cables and report status to fire control panel.

Technical Information

The table below covers the basic technical properties of the XP95 DIN-Rail Mini Switch Monitor Module - Isolating. For further properties, please see the products' pages on Apollo's website.

The reference service life (RSL) of the XP95 DIN-Rail Mini Switch Monitor Module – Isolating is 10 years. This RSL is based on Apollo Fire Detectors published 10-year product warranty and normal operating conditions in accordance with relevant fire detection system standards.

Property	Value, Unit
Weight	0.0313 kg
Quiescent Current	200 µA

Property	Value, Unit
Supply Voltage (Vmin – Vmax)	5 to 9V peak to peak
Standards	EN 54-17, EN 54-18, VdS 2543
Reference Service Life (RSL)	10 years

Main Product Contents

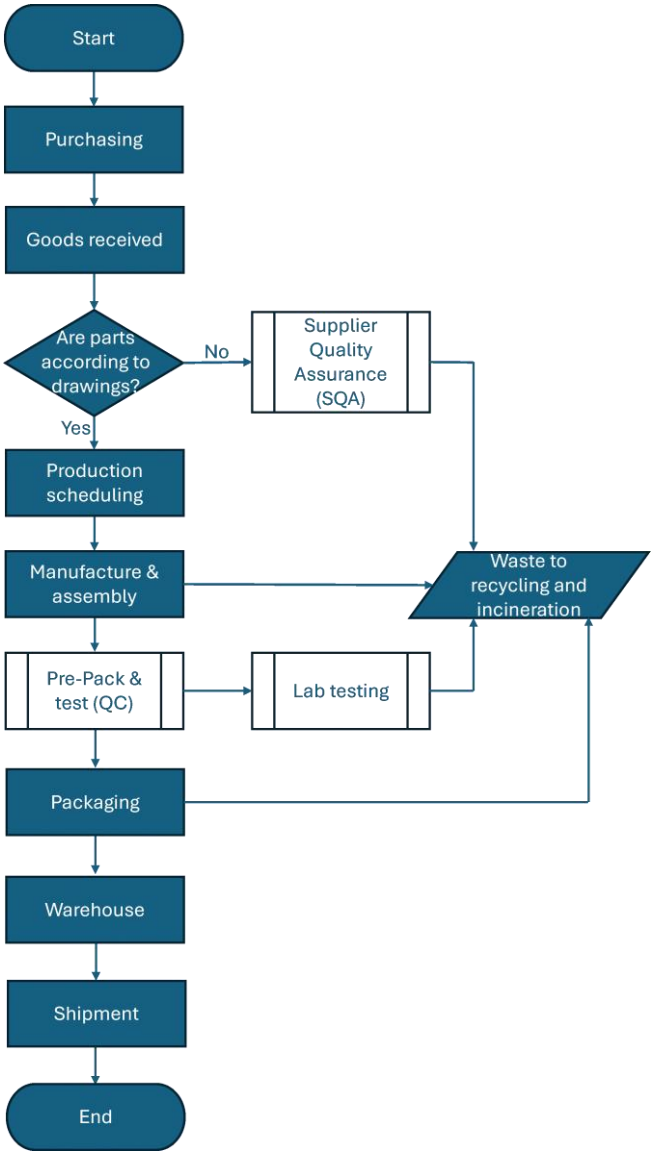
Material Input	%
Plastic Components	35.4
Metal Components	14.2
Electronic Components	50.4

Manufacturing Process

The manufacturing process of Apollo Fire Detectors Ltd involves the assembly of various purchased components and the integration of sophisticated technology to create devices capable of detecting and alerting individuals to the presence of fire. These detectors play a crucial role in safeguarding lives and property by providing early warning in the event of a fire emergency. Our fire detection systems are sold around the world and comply with a variety of different approval bodies to do so.

The assembly process is made up of 3 different value streams which are fully automated, semi-automated and manual assembly. Each process is driven by Apollo's drawings, SOP's and flow charts and 100% of our products are quality tested inline. A set of samples from each batch go through a vigorous lab test to ensure that we are always compliant with various regulatory bodies.

Process flow diagram



Construction Installation

The transport distance to the construction site was set at 120 km by road, based on UK manufacturing, as referenced in the Royal Institution of Chartered Surveyors' 2023 Whole Life Carbon Assessments for the Built Environment. To install the product, only standard tools are necessary. Before proceeding with installation, it is essential to refer to safety, installation and maintenance instructions identified on or with the product. Furthermore, installation must be done by a competent person and adhere to applicable installation codes and standards, such as BS 5839-1 in the UK. All packaging material provided with the product by the manufacturer will be disposed of at the site during installation. Packaging materials are cardboard and plastics, and it is assumed they will be recycled.

Use Information

Under typical usage conditions, the individual product has a life span of 10 years. It remains in quiescent mode over 99% of the time and requires no repairs, part replacements, or refurbishments. Routine maintenance testing is typically the responsibility of the premises' occupier.

However, this product is part of a fire detection and alarm system, for which system maintenance is required. As well as routine testing, Grade A systems should be inspected and serviced at periods not exceeding 6 months in accordance with the recommendations of BS 5839. Typically, this responsibility falls to an external fire alarm servicing organisation, in which case a competent person with specialist knowledge of fire detection and fire alarm systems, will visit the fire system for maintenance twice a year.

This Environmental Product Declaration complies with the additional requirements of EN 15804:2012+A2:2019 for construction products that use energy during the use stage (Module B6). Operational energy use has been modelled and declared in accordance with the standard.

End of Life

This product comes with a 10-year warranty. After this period, in accordance with UK regulations, waste from this product is classified as WEEE (Waste Electrical and Electronic Equipment). Apollo has partnered with a producer compliance scheme to manage all logistics associated with this. When end users reach out to Apollo for product returns, they are directed to the contact details of the compliance scheme we are affiliated with, and arrangements are made for the recycling of the product.

C3 – Waste processing:
in accordance with UK regulations, waste from this product is classified as WEEE (Waste Electrical and Electronic Equipment) and this product falls under category 9, Monitoring and Control Instruments, with a UK target recycling rate of 55%.
C4 – Disposal:
Some of the components can’t be recycled at the waste processing facility. 45% of the electronic waste will end up in landfilling.
D – Benefits & Loads beyond system:
Recycling benefits are modelled using ecoinvent v3.8 recycling datasets representative of UK/EU conditions for plastics and metals. The datasets reflect standard post-consumer recycling processes in line with EN 15804+A2.

Life Cycle Assessment Calculation Rules

Functional unit description

1 unit of interface (XP95 DIN-Rail Mini Switch Monitor Module – Isolating) with a unit weight of 0.0313kg and the service life of 10 years.

System boundary

This cradle-to-grave LCA covers all production stages (A1-A3), use stages (B1-B7), and end- of-life stages (C1- C4 and D) in accordance with EN 15804:2012+A2:2019 and BRE 2023 PCR (PN 514 Rev 3.1). No relevant processes were excluded.

Data sources and allocation

For the Life Cycle Assessment (LCA) and Environmental Product Declaration (EPD), Apollo Fire Detectors utilised specific primary data extracted from its production operations at the Havant, Hampshire factory, modelled using the LINA A2 LCA and the Ecoinvent 3.8 database. In accordance with the requirements of EN 15804:2012+A2:2019, the most current available data has been used. The manufacturer-specific data from Apollo covers a period of one year (01/04/2023 - 31/03/2024).

Specific data has also been used for upstream processes (raw material production) where available. We used primary data from suppliers whose Cradle-to-Gate LCA was externally reviewed by a recognised third-party verifier, and the data quality was certified as 'very good.' The assessments were based on the supplier’s production data, information sourced from their suppliers, and average processes from the GaBi database (Sphera, version 10.7.0.183). The suppliers’ input data came from public/commercial databases, industry averages, specific supplier data, and appropriate proxy data. These were based on industry-standard (or third party defined) assumptions and approximations. The suppliers' assessment was conducted in line with ISO 14040:2021/14044:2021, intended for the creation of an Environmental Product Declaration (EPD) by a third party or customer. As a result, the certified scope included a detailed evaluation of environmental impacts, with impact categories assessed according to EN 15804+A2 and EF3.0, which have been used in this EPD.

Secondary data was obtained for all upstream and downstream processes outside the manufacturer’s control, such as raw material production, where supplier-specific certified data was unavailable. This data was sourced from the Ecoinvent 3.8 database. All Ecoinvent datasets utilised are carefully selected to be as relevant and precise as possible, incorporating specific elements such as the UK grid for electricity where available.

Manufacturer uses solar panels and the national grid electricity for production, so therefore the national grid electricity dataset has been used for the LCA modelling (Ecoinvent 3.8). The GWP carbon footprint for using 1 kWh of electricity, GB kWh is 0.239 in kgCO2eq/kWh, for using 1 kWh of on-site solar electricity generation is 0.077 kgCo2eq/kWh and for using 1 kWh of natural gas for office heating is 0.265 kgCO2eq/kWh. Location-based approach (UK grid mix) is applied for main results, as per BRE PCR guidance (no market-based instruments considered).

As Apollo Fire Detectors produces other products alongside Soteria Detectors, allocation of fuel consumption, waste production and water consumption were necessary. Due to the nature of their waste collection and handling process, they were unable to distinguish between production and non-production waste.

Consequently, all waste is categorised as “Other,” represented in A3, and included in the waste allocation calculation. This allocation was carried out in accordance with the provisions of BRE PCR PN514 and EN 15804+A2 by using Unit allocation. Actual usage figures were employed for raw materials, ancillary materials, and packaging. Upon data review, it was noted that the mass balance is within the acceptable range, and no data uplift has been performed. Additionally, no proxy datasets have been used. The fuel consumption, waste, and water data are based on the specified period (01/04/2023 - 31/03/2024). The

values for this process in this EPD represent an average, calculated by dividing the total data from that period by the total quantity of products manufactured during that period. Figures for upstream and downstream processes were based on industry regulations, accepted industry-specific assumptions permitted by BRE PCR PN514, EN 15804+A2, and Ecoinvent data. The datasets used for the modelling are comprehensive and meticulously align with the system boundary and exclusion criteria outlined in EN 15804:2012+A2:2019.

All scenarios in modules A4, A5, B, C, and D reflect current practices and are representative of one of the most likely alternatives for the product's life cycle in the UK context, per EN 15804+A2. The scenarios are based on real operating conditions, standard industry practices and regulatory requirements (e.g., WEEE recycling rates, standard maintenance intervals, typical transport distances).

Cut-off criteria

The inventory process within this LCA encompasses comprehensive data pertaining to raw materials, packaging materials, consumables, and their transportation to the manufacturing site. It also accounts for process energy consumption, water usage, and general waste generation. Furthermore, it considers transportation throughout the product's lifecycle, as well as impact from construction, use, and at end-of-life disposal. Upstream extraction and processing of inputs are factored into the inventory through the utilisation of background datasets within LINA and Ecoinvent data, aligning with industry-established standards and practices. No relevant processes were excluded.

Data Quality

European and UK datasets from the Ecoinvent LCI (v3.8, compiled in 2021) were used for this LCA, resulting in a Very Good time representativeness rating, as the data are within five years of the assessment period. Data quality was evaluated in accordance with EN 15804:2012+A2:2019 Annex E using the criteria in Table E.2. All significant foreground data were rated Very Good for time, geographical and technological representativeness, based on 2023–2024 UK-specific production, while generic background data were generally rated Good to Very Good.

Characterisation factors: All ecoinvent datasets (Cut-off, EN 15804+A2) are complete within the context used and conform to the system boundary and the criteria for the exclusion of inputs and outputs, according to the requirements specified in EN15804+A2:2019. BRE LINA+A2 uses the characterisation factors that are specified in annex C of the 15804 A2 standard.

Data quality assessment: The data quality assessment presented above has been carried out in accordance with Table E.1 in the Annex section of the BRE PCR EN 15804+A2 V3.2.

Results Summary

55000-760APO: XP95 DIN-Rail Mini Switch Monitor Module - Isolating

0.99 kgCO2e
GWP total Cradle to Grave Modules: A1-A5, B1-B7, C1-C4

0.88 kgCO2e
GWP total Cradle to Gate Modules: A1-A3

0.42 kWh
Total operational energy use during life of product

LCA Results - 1 unit of interface (XP95 DIN-Rail Mini Switch Monitor Module - Isolating) with a unit weight of 0.0313kg and the service life of 10 years

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts

			GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO_2 eq	kg CO_2 eq	kg CO_2 eq	kg CO_2 eq	kg CFC11 eq	mol H^+ eq	kg $(PO_4)^{3-}$ eq
Product stage	Raw material supply	A1	7.20E-01	7.14E-01	4.24E-03	1.17E-03	4.60E-08	8.41E-03	9.21E-04
	Transport	A2	2.19E-03	2.19E-03	6.10E-07	1.29E-06	4.63E-10	4.55E-05	1.00E-07
	Manufacturing	A3	1.60E-01	1.76E-01	-1.60E-02	5.21E-04	1.54E-08	5.33E-04	4.09E-05
	Total (Consumption grid)	A1-3	8.82E-01	8.92E-01	-1.18E-02	1.69E-03	6.19E-08	8.99E-03	9.62E-04
Construction process stage	Transport	A4	6.25E-04	6.24E-04	5.32E-07	2.45E-07	1.44E-10	2.53E-06	4.02E-08
	Construction	A5	2.44E-03	2.44E-03	-1.56E-06	7.41E-07	3.92E-10	1.21E-05	1.49E-07
Use stage	Use	B1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Maintenance	B2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Repair	B3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Replacement	B4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Refurbishment	B5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Operational energy use	B6	1.00E-01	9.93E-02	9.03E-04	1.04E-04	7.57E-09	2.21E-04	1.36E-05
	Operational water use	B7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	6.25E-04	6.24E-04	5.32E-07	2.45E-07	1.44E-10	2.53E-06	4.02E-08
	Waste processing	C3	5.44E-03	5.43E-03	4.44E-07	1.89E-06	4.86E-11	6.10E-06	4.59E-07
	Disposal	C4	1.92E-03	1.91E-03	1.69E-06	1.61E-07	4.52E-11	1.33E-06	5.98E-07
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-5.50E-01	-5.50E-01	3.97E-04	-9.53E-04	-4.68E-08	-4.50E-03	-7.32E-04

GWP-total = Global warming potential, total;
GWP-fossil = Global warming potential, fossil;
GWP-biogenic = Global warming potential, biogenic;
GWP-luluc = Global warming potential, land use and land use change;

ODP = Depletion potential of the stratospheric ozone layer;
AP = Acidification potential, accumulated exceedance; and
EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts

			EP-marine	EP-terrestrial	POCP	ADP-mineral& metals	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m^3 world eq deprived	disease incidence
Product stage	Raw material supply	A1	1.02E-03	1.13E-02	3.41E-03	2.49E-04	9.95E+00	3.45E-01	5.22E-08
	Transport	A2	1.14E-05	1.26E-04	3.33E-05	4.88E-09	3.00E-02	9.98E-05	1.18E-10
	Manufacturing	A3	2.02E-04	1.56E-03	4.09E-04	9.95E-07	3.50E+00	5.55E-02	6.81E-09
	Total (Consumption grid)	A1-3	1.23E-03	1.30E-02	3.85E-03	2.50E-04	1.35E+01	4.01E-01	5.92E-08
Construction process stage	Transport	A4	7.63E-07	8.34E-06	2.55E-06	2.17E-09	9.44E-03	4.25E-05	5.39E-11
	Construction	A5	4.83E-06	4.99E-05	1.74E-05	5.93E-09	2.96E-02	2.45E-04	2.66E-10
Use stage	Use	B1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Maintenance	B2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Repair	B3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Replacement	B4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Refurbishment	B5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Operational energy use	B6	6.61E-05	7.35E-04	1.80E-04	6.18E-07	2.64E+00	6.05E-03	1.53E-09
	Operational water use	B7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	7.63E-07	8.34E-06	2.55E-06	2.17E-09	9.44E-03	4.25E-05	5.39E-11
	Waste processing	C3	1.70E-06	1.61E-05	4.09E-06	1.30E-08	1.23E-02	3.49E-04	4.92E-11
	Disposal	C4	6.41E-05	4.99E-06	1.80E-06	5.46E-10	3.51E-03	1.58E-04	2.59E-11
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-7.69E-04	-8.47E-03	-2.36E-03	-2.03E-04	-7.24E+00	-2.25E-01	-3.25E-08

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;
EP-terrestrial = Eutrophication potential, accumulated exceedance;
POCP = Formation potential of tropospheric ozone;
ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;
ADP-fossil = Depletion potential of the stratospheric ozone layer;
WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and
PM = Particulate matter.

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts							
			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U^{235} eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	8.71E-02	7.57E+01	1.91E-09	6.59E-08	3.74E+00
	Transport	A2	1.44E-04	2.07E-02	1.12E-12	1.76E-11	1.15E-02
	Manufacturing	A3	7.62E-02	2.79E+00	7.44E-11	1.70E-09	3.47E+00
	Total (Consumption grid)	A1-3	1.63E-01	7.85E+01	1.99E-09	6.76E-08	7.23E+00
Construction process stage	Transport	A4	4.85E-05	7.37E-03	2.39E-13	7.72E-12	6.48E-03
	Construction	A5	1.41E-04	2.06E-02	1.32E-12	1.77E-11	1.07E-02
Use stage	Use	B1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Maintenance	B2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Repair	B3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Replacement	B4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Refurbishment	B5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Operational energy use	B6	8.72E-02	1.14E+00	3.23E-11	7.61E-10	9.84E-01
	Operational water use	B7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	4.85E-05	7.37E-03	2.39E-13	7.72E-12	6.48E-03
	Waste processing	C3	1.22E-04	4.63E-02	1.19E-12	1.40E-10	4.38E-03
	Disposal	C4	1.68E-05	1.62E-02	1.72E-13	5.84E-12	8.35E-03
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-6.55E-02	-5.22E+01	-8.23E-10	-3.10E-08	-3.56E+00

IRP = Potential human exposure efficiency relative to U235;
ETP-fw = Potential comparative toxic unit for ecosystems;
HTP-c = Potential comparative toxic unit for humans;
HTP-nc = Potential comparative toxic unit for humans; and
SQP = Potential soil quality index.

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, primary energy

			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	1.11E+00	1.05E+00	2.16E+00	9.55E+00	4.12E-03	9.55E+00
	Transport	A2	3.02E-04	0.00E+00	3.02E-04	2.95E-02	0.00E+00	2.95E-02
	Manufacturing	A3	4.07E-01	7.97E-01	1.20E+00	3.96E+00	1.93E-01	4.15E+00
	Total (Consumption grid)	A1-3	1.52E+00	1.85E+00	3.36E+00	1.35E+01	1.97E-01	1.37E+01
Construction process stage	Transport	A4	1.33E-04	0.00E+00	1.33E-04	9.27E-03	0.00E+00	9.27E-03
	Construction	A5	-6.28E-01	6.29E-01	1.18E-03	-7.73E-02	1.06E-01	2.88E-02
Use stage	Use	B1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Maintenance	B2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Repair	B3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Replacement	B4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Refurbishment	B5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Operational energy use	B6	6.34E-01	0.00E+00	6.34E-01	3.48E+00	0.00E+00	3.48E+00
	Operational water use	B7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.33E-04	0.00E+00	1.33E-04	9.27E-03	0.00E+00	9.27E-03
	Waste processing	C3	1.53E-03	0.00E+00	1.53E-03	1.42E-02	0.00E+00	1.42E-02
	Disposal	C4	6.86E-05	0.00E+00	6.86E-05	-4.86E-01	4.90E-01	3.45E-03
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-8.37E-01	0.00E+00	-8.37E-01	-7.23E+00	0.00E+00	-7.23E+00

PERE = Use of renewable primary energy excluding renewable primary energy used as raw materials;
PERM = Use of renewable primary energy resources used as raw materials;
PERT = Total use of renewable primary energy resources;
PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials;
PENRM = Use of non-renewable primary energy resources used as raw materials;
PENRT = Total use of non-renewable primary energy resource

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, secondary materials and fuels, use of water						
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m^3
Product stage	Raw material supply	A1	7.81E-03	0.00E+00	0.00E+00	8.50E-03
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	2.47E-06
	Manufacturing	A3	3.92E-02	1.84E-06	0.00E+00	1.67E-03
	Total (Consumption grid)	A1-3	4.70E-02	1.84E-06	0.00E+00	1.02E-02
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	1.05E-06
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	5.93E-06
Use stage	Use	B1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Maintenance	B2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Repair	B3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Replacement	B4	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Refurbishment	B5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Operational energy use	B6	2.96E-04	2.30E-06	0.00E+00	5.78E-04
	Operational water use	B7	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	1.05E-06
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	8.85E-06
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	3.71E-06
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-5.65E-03

SM = Use of secondary material;
RSF = Use of renewable secondary fuels;
NRSF = Use of non-renewable secondary fuels;
FW = Net use of fresh water

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing waste categories					
			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	1.05E-01	1.89E+00	2.65E-05
	Transport	A2	3.70E-05	4.45E-04	2.06E-07
	Manufacturing	A3	7.73E-03	1.61E-01	2.05E-05
	Total (Consumption grid)	A1-3	1.13E-01	2.05E+00	4.73E-05
Construction process stage	Transport	A4	1.04E-05	1.85E-04	6.39E-08
	Construction	A5	1.48E-04	2.88E-03	1.86E-07
Use stage	Use	B1	0.00E+00	0.00E+00	0.00E+00
	Maintenance	B2	0.00E+00	0.00E+00	0.00E+00
	Repair	B3	0.00E+00	0.00E+00	0.00E+00
	Replacement	B4	0.00E+00	0.00E+00	0.00E+00
	Refurbishment	B5	0.00E+00	0.00E+00	0.00E+00
	Operational energy use	B6	3.55E-03	6.12E-02	2.25E-05
	Operational water use	B7	0.00E+00	0.00E+00	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.04E-05	1.85E-04	6.39E-08
	Waste processing	C3	5.61E-04	4.27E-03	5.29E-08
	Disposal	C4	7.17E-06	1.04E-04	2.08E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-6.08E-02	-1.42E+00	-2.07E-05

HWD = Hazardous waste disposed;
NHWD = Non-hazardous waste disposed;
RWD = Radioactive waste disposed

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing output flows – at end of life								
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	2.29E-02	1.41E-08	1.47E-03	0.00E+00	2.69E-04
	Total (Consumption grid)	A1-3	0.00E+00	2.29E-02	1.41E-08	1.47E-03	0.00E+00	2.69E-04
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	8.93E-02	1.49E-09	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Maintenance	B2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Repair	B3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Replacement	B4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Refurbishment	B5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Operational energy use	B6	0.00E+00	3.98E-05	1.70E-08	1.83E-03	0.00E+00	0.00E+00
	Operational water use	B7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	1.43E-02	6.47E-10	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CRU = Components for reuse;
MFR = Materials for recycling

MER = Materials for energy recovery;
EE = Exported Energy

Scenarios and additional technical information

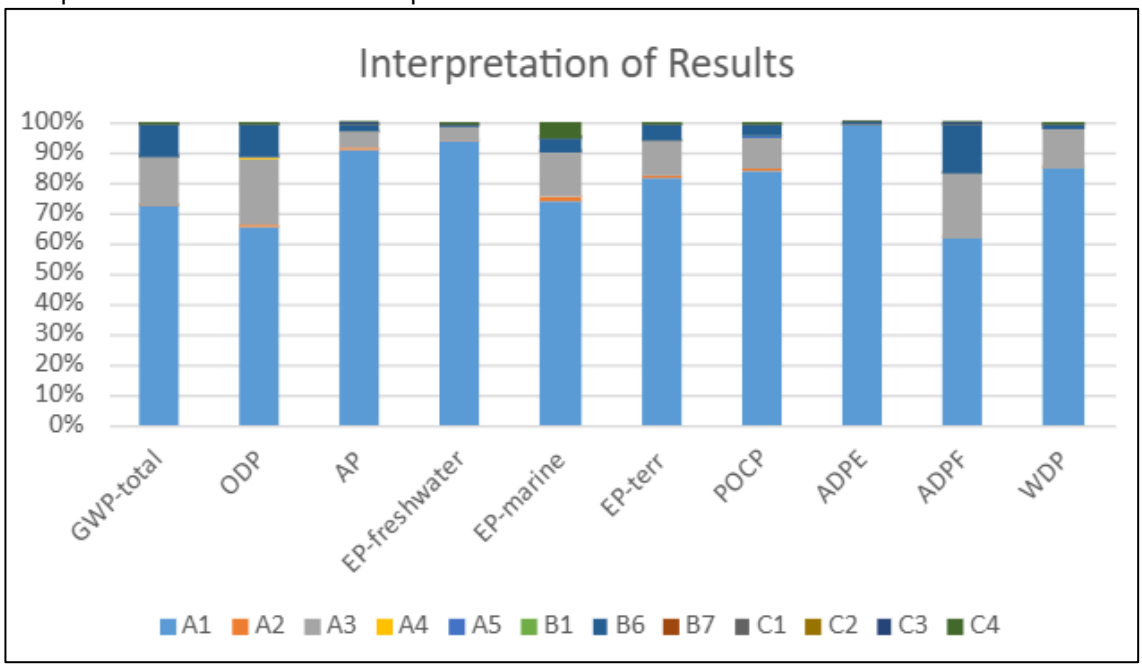
Scenarios and additional technical information			
Scenario	Parameter	Units	Results
A4 – Transport to the building site	The transport distance to the construction site was set at 120 km by road, based on UK manufacturing, as referenced in the Royal Institution of Chartered Surveyors' 2023 Whole Life Carbon Assessments for the Built Environment.		
	Fuel type / Vehicle type	Diesel	Lorry, 16-32 tonne
	Distance:	km	120
	Capacity utilisation (incl. empty returns)	%	26
	Weight of the transported products	kg/unit	0.0313
A5 – Installation in the building	To install the product, only standard tools are necessary. Before proceeding with installation, it is essential to refer to safety, installation and maintenance instructions identified on or with the product. Furthermore, installation must be done by a competent person and adhere to applicable installation codes and standards, such as BS 5839-1 in the UK. All packaging material provided with the product by the manufacturer will be disposed of at the site during installation. Packaging materials are cardboard and plastics, and it is assumed they will be recycled.		
B1 – Use stage	After the installation, the product does not release any emissions to the environment.		
B2 – Maintenance	This product is part of a fire detection and alarm system, for which system maintenance is required. As well as routine testing, Grade A systems should be inspected and serviced at periods not exceeding 6 months in accordance with the recommendations of BS 5839. Typically, this responsibility falls to an external fire alarm servicing organisation, in which case a competent person with specialist knowledge of fire detection and fire alarm systems, will visit the fire system for maintenance twice a year. Due to standards and approvals, if a product was not up to standard the maintenance would change the whole device. No known emissions.		
	Number of maintenance cycles	Per year	2
B3 – Repair	N/A - Repairing the device could invalidate approvals on the product		
B4 – Replacement	N/A - The device has a manufacturer warranty of 10 years, which covers the period of study for this scenario. No replacements are necessary.		
B5 – Refurbishment	N/A – Refurbishment of the device could invalidate approvals on the product.		
Reference service life	10 years		
B6 – Use of energy	Protocol voltage: 5 to 9V peak to peak Quiescent current: 200 µA Quiescent current tested at: 24V DC Power-up surge current 0.8 mA Electricity 0.42048 kWh		
B7 – Use of water	N/A		
C1 - Deconstruction	At the end of its life, it will be dismantled by hand using standard tools. It is assumed that 100% of the product will recover at the end of its life and be sent to a waste processing facility for treatment, therefore, no impact during the deconstruction.		
C2 - Transportation	Disposal may happen anywhere within the country of installation. The transport distance to the waste processing facility was set at 120 km by road, assuming it could take place anywhere nationwide, aligning with A4 assumptions		

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
	Fuel type/ Vehicle type	Diesel	Lorry, 16-32 tonne
	Distance	km	120
C3 – Waste Processing	In accordance with UK regulations, waste from this product is classified as WEEE (Waste Electrical and Electronic Equipment). This product falls under category 9, Monitoring and Control Instruments, with a UK target recycling rate of 55%.		
	XP95 DIN-Rail Mini Switch Monitor Module - Isolating to recycling	kg	0.017215
C4 – Disposal	Some of the products won't be recycled at the waste processing facility. Based on the UK target recycling rate 45% of the electronic waste will be end up in landfill.		
	XP95 DIN-Rail Mini Switch Monitor Module – Isolating to landfill	kg	0.014085
Module D	The pre-existing recycled content is negligible from the overall composition of the product. The benefits have therefore been calculated using the actual weight of the product		

Interpretation of Results

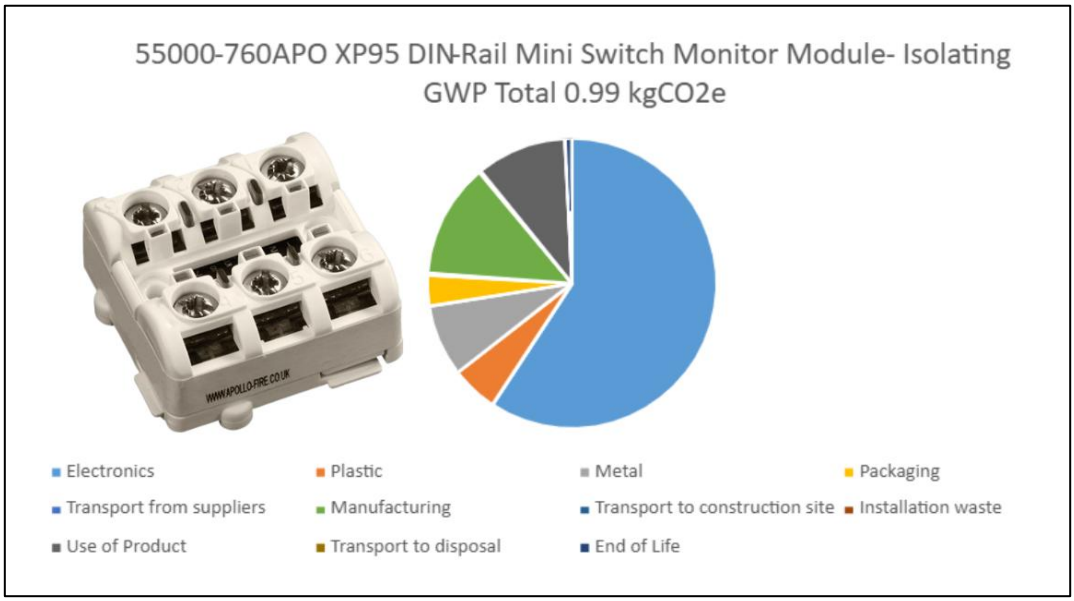
The bulk of the environmental impacts are attributed to the raw material supply, covered by information module A1 of EN 15804:2012+A2:2019. When assessing environmental impacts, electronics have the highest contribution, followed by manufacturing.

Graph 1 impact of core environmental impacts across A1-C4:



Interpretation of Results (continued)

Graph 2 carbon impacts:



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