PRODUCTS FAMILY DECLARATION FOR IP TOUCH OF ABB

PRODUCT ENVIRONMENTAL PROFILE

Environmental Product Declaration

ORGANIZATION	WEBSITE
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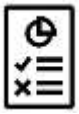
ABB Purpose & Embedding Sustainability

ABB is demonstrating their commitment to sustainability by making themselves sustainable. Across their own operations and value chain, aspiring to become a role model for others to follow. With **ABB Purpose** ABB is focusing on reducing harmful emissions, preserving natural resources, and championing ethical and humane behavior to achieve this. Detail info see the website: Sustainability strategy 2030 — ABB Group (global.abb)



General Information

Reference product	The reference product is one unit of IP touch produced by ABB; the representative product is H8236-5B-03 (2TMA130050B0068).
Description of the product	The IP touch panel is an important device of door entry system and KNX system, which is with impressed industry design. Through video, audio and screen, it acts as the indoor station in door entry system and can also be used as central control panel for building automation.
Functional unit of the representative product	To provide smooth and effective communication with outdoor station for host and visitor during door entry system and to control and cooperate with other devices to realize smart building when being central control panel in KNX system over a reference lifetime of 10 years.
Products concerned	The homogeneous family products covered in this PEP are IP touch which is a important component of the Indoor station. Their composition, functions and use scenarios are almost the same. The main difference among them is: 1) Product colors 2) Product names and article numbers 3) Sizes of the products (7" and 10") The products concerned: H8236-8WG (2TMA130050W0063), H8236-8BG (2TMA130050B0063), H8236-9WG (2TMA130050W0064), H8236-9BG (2TMA130050B0064), H8236-6W (2TMA130051W0006), H8236-6B (2TMA130051B0006), H8236-7W (2TMA130051W0007), H8236-7B (2TMA130051B0007), H8236-4W (2TMA130050W0065), H8236-4B (2TMA130050B0065), H8236-5W (2TMA130050W0067), H8236-5B (2TMA130050B0067), H8236-4W-03 (2TMA130050W0066), H8236-4B-03 (2TMA130050B0066), H8236-5W-03 (2TMA130050W0068), H8236-5B-03 (2TMA130050B0068), H8237-8WG (2TMA130051W0004), H8237-8BG (2TMA130051B0004), H8237-9WG (2TMA130051W0005), H8237-9BG (2TMA130051B0005), H8237-6W (2TMA130051W0002), H8237-6B (2TMA130051B0002), H8237-7W (2TMA130051W0003), H8237-7B (2TMA130051B0003), H8237-4W (2TMA130050W0054), H8237-4B (2TMA130050B0054), H8237-5W (2TMA130050W0055), H8237-5B (2TMA130050B0055), H8237-4W-03 (2TMA130050W0058), H8237-4B-03 (2TMA130050B0058), H8237-5W-03 (2TMA130050W0060), H8237-5B-03 (2TMA130050B0060)

Constituent materials

Total weight of Reference product	Net weight of the product is 567.1 g. The total weight of packaged product is 858.8 g (including product packaging and transportation packaging).

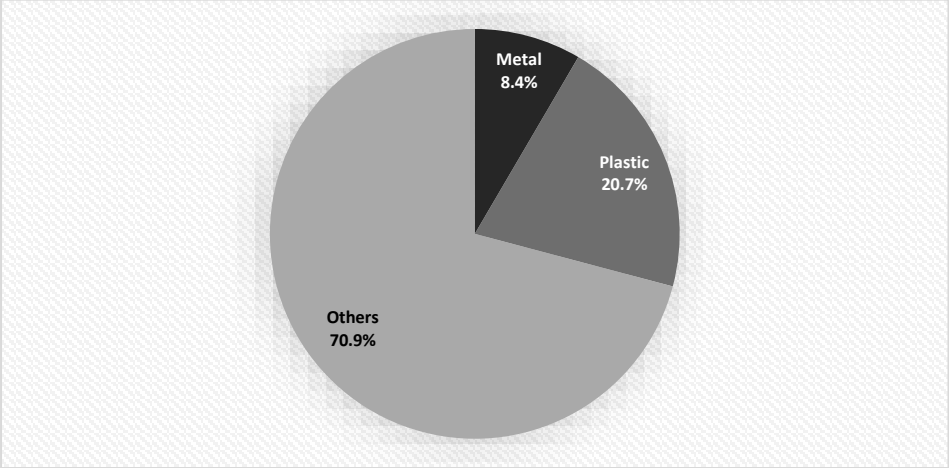


Figure 1 Constituent materials of the reference product (2TMA130050B0068)

Table 1 Information on mass of reference product and its packaging

Components	2TMA130050B0068	Product weight, incl. product pack (kg)	Product weight, incl. product pack and transportation pack (kg)
Product (kg)	0.57	0.85	0.86
Product packaging (kg)	0.28		
Transportation packaging (kg)	0.01		

Detailed constituent materials of the reference product were shown in Figure 1 and then listed in Table 2.

Table 2 Materials distribution of the reference product

Plastics as % of weight		Metals as % of weight		Paper as % of weight		Other as % of weight	
Name and CAS number	Weight-%	Name and CAS number	Weight-%	Name and CAS number	Weight-%	Name and CAS number	Weight-%
PC	16.8%	stainless steel 304	7.5%	Corrugated paper	16.6%	Electronic parts	40.9%
Silicone rubber	3.1%	Low carbon steel	0.7%	Folding boxboard carton	10.5%	Others	< 0.1%
PE	0.5%	Brass	0.2%	Printed paper	2.8%		
Sponge	0.3%						

Environmental impacts

Reference lifetime		10 years
Product category		IP touch module. According to the Specific rules for electrical switchgear and control gear Solutions (PSR-0005-ed3-EN-2023 06 06), the product is covered by other equipment - Category 2: active products.

Installation elements		The product is installed manually. There is no input of materials / accessories and energy during the installation. The main environmental impact was caused by the waste generated in this stage.
Use scenario		The reference product is used in Germany using low voltage electricity.
Geographical representativeness		The studied product is produced in China but used in Germany.
Technological representativeness		In the manufacturing stage, specific data was collected to calculate the environmental impact caused by the manufacturing process. For the production of raw materials and parts, datasets from Ecoinvent 3.8 were used. During the dataset selection, the technological representation was considered carefully. Datasets with the same production processes were preferred. If not available, datasets with similar production processes were chosen.
Software and databases used		Simapro version 9.4.04 & databases ecoinvent 3.8 & EF3.0
Standards applied in ABB		ABB had used many recycling materials, e.g., plastic and metal. The products' standards applied include: EN 62368-1:2014/A11:2017 EN IEC 61000-6-1:2019 EN 61000-6-3:2007/A1:2011

Energy model used	**Manufacturing**	**Distribution**	**Installation**	**Use**	**End of life**
	Average electricity mix in China	Non-applicable	Non-applicable	Germany	Global

Table 3 Environmental impact indicators of life cycle Impact assessment

Compulsory Indicators

Impact indicators	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
Climate change	kg CO2 eq	1.29E+02	3.44E+01	7.78E+00	4.86E-01	8.57E+01	8.81E-01
Climate change - Fossil	kg CO2 eq	1.22E+02	3.42E+01	7.78E+00	8.35E-02	7.89E+01	8.78E-01
Climate change - Biogenic	kg CO2 eq	7.24E+00	1.64E-01	2.49E-03	4.03E-01	6.67E+00	3.01E-03
Climate change - Land use and LU change	kg CO2 eq	1.60E-01	5.16E-02	4.67E-04	5.49E-06	1.08E-01	2.05E-04
Ozone depletion	kg CFC11 eq	5.80E-06	1.81E-06	1.77E-06	1.94E-09	2.16E-06	5.98E-08
Acidification	mol H+ eq	5.00E-01	2.44E-01	4.06E-02	1.08E-04	2.02E-01	1.35E-02
Eutrophication, freshwater	kg P eq	1.50E-01	3.14E-02	9.84E-05	1.59E-06	1.18E-01	3.14E-05
Eutrophication, marine	kg N eq	1.48E-01	6.46E-02	1.49E-02	5.15E-05	5.87E-02	9.55E-03
Eutrophication, terrestrial	mol N eq	1.08E+00	4.81E-01	1.64E-01	4.61E-04	4.24E-01	6.05E-03
Photochemical ozone formation	kg NMVOC eq	2.88E-01	1.36E-01	4.22E-02	1.17E-04	1.08E-01	2.25E-03
Resource use, minerals and metals	kg Sb eq	8.68E-03	7.98E-03	2.17E-06	4.45E-08	6.99E-04	4.47E-07
Resource use, fossils	MJ	1.62E+03	4.18E+02	1.09E+02	1.44E-01	1.09E+03	6.27E+00
Water use	m3 depriv.	1.39E+01	8.59E+00	7.21E-02	1.30E-02	5.05E+00	2.04E-01

Note: the recycled content and the scrape rates of raw materials of the products and products' packaging are adjusted to 0% and 30% respectively according to the PSR.

Table 4 Resource use indicators of life cycle Impact assessment

Compulsory Indicators

Resource use indicators	Unit	Total	Manufac-turing	Distribu-tion	Installa-tion	Use	End of life
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ	3.05E+02	4.94E+01	3.27E-01	3.66E-03	2.55E+02	7.79E-01
Use of renewable primary energy resources as raw materials	MJ	3.08E+00	3.08E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	3.08E+02	5.25E+01	3.27E-01	3.66E-03	2.55E+02	7.79E-01
Use of non-renewable primary energy, excluding renewable pri-mary energy resources used as raw materials	MJ	1.62E+03	4.12E+02	1.09E+02	1.44E-01	1.09E+03	6.26E+00
Use of non-renewable primary energy resources as raw materials	MJ	5.37E+00	5.37E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources	MJ	1.62E+03	4.18E+02	1.09E+02	1.44E-01	1.09E+03	6.26E+00
Use of secondary materials	kg	0.00E+00	0.00E+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 non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Freshwater	m3	8.33E-01	2.93E-01	3.12E-03	4.29E-04	5.31E-01	6.06E-03

Table 5 Waste category indicators of life cycle Impact assessment

Compulsory Indicators

Waste category indicators	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
Hazardous waste disposed	kg	4.96E-03	2.92E-03	2.91E-04	3.59E-07	1.74E-03	7.63E-06
Non-hazardous waste disposed	kg	1.29E+01	4.14E+00	1.75E-01	2.95E-01	5.15E+00	3.10E+00
Radioactive waste disposed	kg	6.44E-03	1.11E-03	7.73E-04	6.40E-07	4.52E-03	3.51E-05

Table 6 Output flow indicators

Compulsory Indicators

Output flow indicators	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
Components for reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	5.70E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.70E+01
Materials for energy recovery	kg	7.36E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.36E+01
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Note: The recovery of materials for materials and energy was calculated according to Annex D of the PCR.

Biogenic Carbon of product and packaging

As no biogenic carbon in the product, thus, only the biogenic carbon in the packaging was calculated. Of the product packaging and packaging for transportation, the materials containing biogenic carbon are wood pallet and paper board.

Table 7 Amount of biogenic carbon of product and packaging

Item	Unit (kg of C)	Total
Biogenic carbon content of the product	0.00E+00	0.00E+00
Biogenic carbon content of the associated packaging	1.06E-01	1.06E-01

Extrapolation to a homogeneous environmental family

To determine the environmental impact of a product covered by the PEP other than the representative product, the following rules apply:

1) Manufacturing stage

The impact for this phase of a product covered by the PEP other than the representative product is proportional to weight of the product, thus, the impacts should be calculated by multiple the coefficients factor_1 in Table 8 by the environmental impact for this phase of the representative product.

2) Distribution

The impact for this phase of a product covered by the PEP other than the representative product is proportional to the packaged product weight, thus, the impacts should be calculated by multiple the coefficients factor_2 inTable 8 Extrapolation rules for by the environmental impact for those phases of the representative product.

3) Installation

The impact for this phase of a product covered by the PEP other than the representative product is proportional to weight of the product packaging, thus, the impacts should be calculated by multiple the coefficients factor_3 in Table 8 by the environmental impact for those phases of the representative product.

4) Use

The environmental impact for B1-B6 stage of a product covered by the PEP other than the representative product should be calculated by multiple the factor_4 in Table 8 by the environmental impact for this phase of the representative product. Factor_4 is proportional to the amount of energy consumption.

5) End of life phases

The impacts of the representing product from the end-of-life are less than 2% of the total impact. However, the impact for this phase of a product covered by the PEP other than the representative product is calculated by multiple the coefficients factor_1 in Table 8 by the environmental impact for this phase of the representative product.

Table 8 Extrapolation rules for homogeneous environmental family products

SAP Number	Article Number	Factor_1	Factor_2	Factor_3	Factor_4
2TMA130050B0068	H8236-5B-03	1.00	1.00	1.00	1.00
2TMA130050B0066	H8236-4B-03	0.91	0.94	1.00	1.00
2TMA130050W0068	H8236-5W-03	1.02	1.01	1.00	1.00
2TMA130050B0064	H8236-9BG	0.88	0.92	1.00	1.00
2TMA130051W0006	H8236-6W	0.88	0.92	1.00	1.00
2TMA130050W0064	H8236-9WG	0.88	0.92	1.00	1.00
2TMA130050B0063	H8236-8BG	0.79	0.86	1.00	1.00
2TMA130050W0063	H8236-8WG	0.79	0.86	1.00	1.00
2TMA130050W0065	H8236-4W	0.91	0.94	1.00	1.00
2TMA130050B0065	H8236-4B	0.91	0.94	1.00	1.00
2TMA130051B0007	H8236-7B	0.97	0.98	1.00	1.00
2TMA130051W0007	H8236-7W	0.97	0.98	1.00	1.00
2TMA130051B0006	H8236-6B	0.88	0.92	1.00	1.00
2TMA130050W0066	H8236-4W-03	0.91	0.94	1.00	1.00
2TMA130050B0067	H8236-5B	1.00	1.00	1.00	1.00
2TMA130050W0067	H8236-5W	1.00	1.00	1.00	1.00
2TMA130050B0060	H8237-5B-03	1.81	1.75	1.62	1.32
2TMA130050W0054	H8237-4W	1.73	1.69	1.62	1.32
2TMA130051B0005	H8237-9BG	1.70	1.67	1.62	1.32
2TMA130050W0060	H8237-5W-03	1.83	1.76	1.62	1.32
2TMA130050B0058	H8237-4B-03	1.73	1.69	1.62	1.32

2TMA130050W0058	H8237-4W-03	1.73	1.69	1.62	1.32
2TMA130051B0003	H8237-7B	1.78	1.73	1.62	1.32
2TMA130051W0003	H8237-7W	1.78	1.73	1.62	1.32
2TMA130051B0004	H8237-8BG	1.62	1.62	1.62	1.32
2TMA130051W0005	H8237-9WG	1.70	1.67	1.62	1.32
2TMA130051W0004	H8237-8WG	1.62	1.62	1.62	1.32
2TMA130050W0055	H8237-5W	1.81	1.75	1.62	1.32
2TMA130050B0054	H8237-4B	1.73	1.69	1.62	1.32
2TMA130051W0002	H8237-6W	1.69	1.67	1.62	1.32
2TMA130051B0002	H8237-6B	1.69	1.67	1.62	1.32
2TMA130050B0055	H8237-5B	1.81	1.75	1.62	1.32

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Independent verification of the declaration and data in compliance with ISO 14025: 2006	
Internal: ☐	External: ☒
The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain)	
PEPs are compliant with XP C08-100-1:2016 or EN 50693:2019 The components of the present PEP may not be compared with components from any other program.	
Document complies with ISO 14025:2006 "Environmental labels and declarations. Type III environmental declarations"	