

FH200S BLOCKS AND DIFFERENTIAL SWITCHES

# PEP ecopassport®

## Product Environmental Profile



Product Environmental Profile - PEP Ecopassport.  
Document in compliance with ISO 14025: 2006 "Environmental labels and declarations. Type III environmental declarations"

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# ABB Purpose & Embedding Sustainability

ABB is committed to continually promoting and embedding sustainability across its operations and value chain, aspiring to become a role model for others to follow. With its ABB Purpose, ABB is focusing on reducing harmful emissions, preserving natural resources and championing ethical and humane behavior.

"other points or for example a QR code or link to ABB website, where more information on the topic"



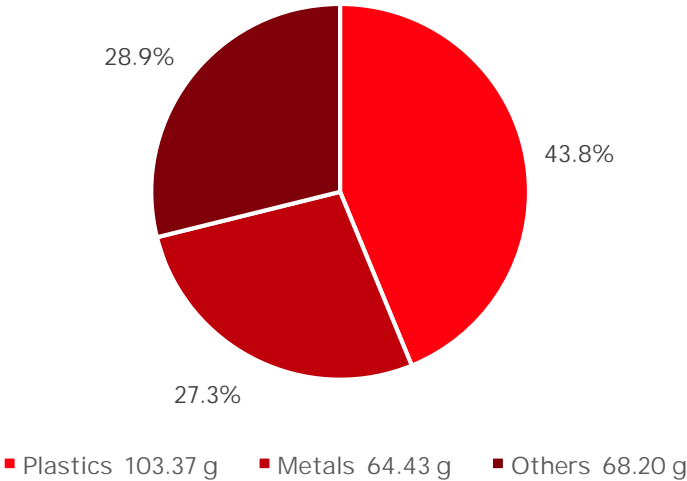
## General Information

Reference product	2CSF202024R1630 FH202s AC-63/0.03
Description of the product	The RCCBs FH200s series assures protection to people and installations against fault current to earth. A large offer for standard instantaneous and selective AC and A types is completed with some configurations for special applications.
Functional unit	The functional unit is to protect the installation against overloads and short circuits and protect people and premises at risk of fire or explosion against insulation defects in a circuit with rated voltage $U_e$ 230V, rated current $I_n = 63A$ , with $N_p = 2$ poles, a rated breaking capacity $I_{cn} = 6kA$ , the sensitivity $S = 30mA$ , and the differential protection type $T_p$ AC, in the Household/Commercial application areas, according to the appropriate use scenario, and during the reference service life of the product of 20 years.
Other products covered	FH200s environmental homogeneous family: Family: FH200s Sizes: 2 poles Rated Current [A]: 25, 40, 63 Rated Sensitivity [A]: 0.03, 0.3 Type of differential protection: A, AC

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# Constituent Materials



Total weight in reference product included packaging (g) 236 g

Plastics as % of weight		Metals as % of weight		Others as % of weight	
Name and CAS number	Weight%	Name and CAS number	Weight%	Name and CAS number	Weight%
Polyamide PA6 part, glass filled	26.0	steel	12.6	Packaging - Carton and corrugated carton box	21.1
PBT part, glass filled	6.0	brass	7.9	Magnetic core	3.9
Polyamide PA66 part, glass filled	5.8	Copper	4.4	Magnetic relay	2.5
Polyphenylene sulfide part, glass filled	3.1	Stainless steel	1.9	Cellulose part	0.6
other plastics	2.9	other metals	0.5	other	0.8

Total weight of the reference product 186 g plus packaging is 236g.

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## Additional Environmental Information

Manufacturing	The manufacturing stage includes the production and transportation to the manufacturer's last logistic platform of FH200s and its packaging. The production occurs at the ABB factory located in Santa Palomba (RM).
Distribution	The transport from ABB Santa Palomba factory to Vignate, Milan was taken into account. For the distribution of the product from Vignate to the final customer, the intracontinental transport scenario provided by PCR-ed4-EN-2021 09 06 standard was adopted, considering the European macro-area.
Installation	The installation phase only implies manual activities and no energy is consumed. This phase also includes the disposal of the packaging of the product. Statistical average data from Eurostat databases were considered for the disposal of the product and its packaging.
Use	FH200s dissipate some electricity due to power losses. The average power loss of the switch has been calculated as follow: - Nominal current load rate as 15% (Household / Commercial); - RSL of 20 years; - Functioning time of 30% of the RSL ( $\alpha$ ). No maintenance is planned for the product.
End of life	As the end-of-life treatment is inherently unknown, the default scenario from the reference PCR was used. This includes the default assumption of transportation of 1000 km by lorry and the assumption that the product components are disposal of via landfill (P.E.P. Association, PCR-ed4-EN-2021 09 06, page 25/78).
Benefits and loads beyond the system boundaries	The potential benefits derives from the impacts prevented by recycling and waste to energy recovery of the packaging in the installation phase

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# Environmental Impacts

Reference lifetime	20 years
Product category	Differential circuit-breakers
Installation elements	No installation materials are required in the life cycle of the product.
Use scenario	<p>The calculation of the use stage electricity consumption from the average power consider the following assumptions:</p> <ul style="list-style-type: none"> <li>- Nominal current load rate as 15% (Household / Commercial);</li> <li>- RSL of 20 years;</li> <li>- Functioning time of 30% of the RSL.</li> </ul> <p>No maintenance is planned for the product</p>
Geographical representativeness	Europe
Technological representativeness	Technological representativeness refers to the specific production process for primary data.
Software and database used	SimaPro 9.5 and ecoinvent 3.9.1

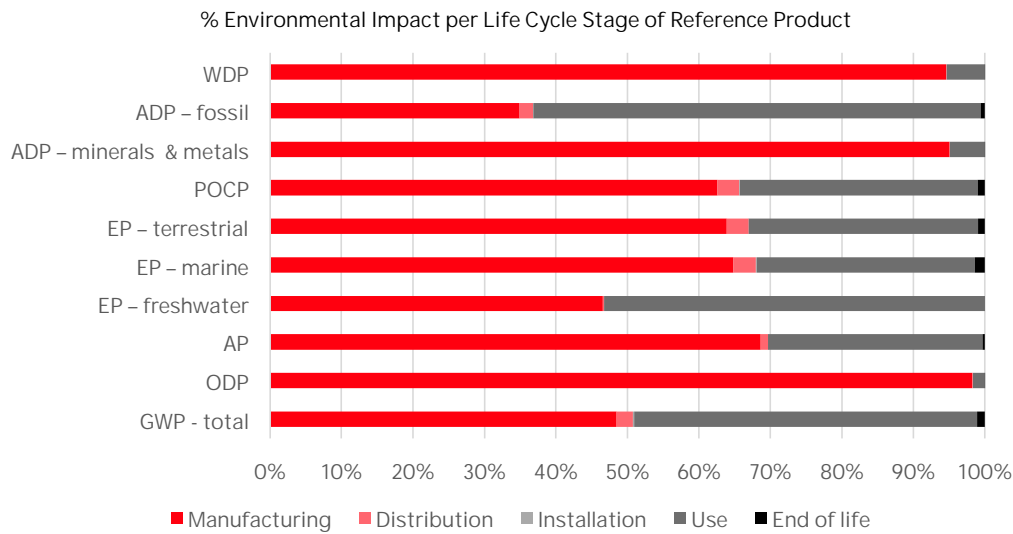
## Energy model used

Manufacturing	ABB GO energy mix 2022. The energy-related processes used for the remaining inputs are those included in the ecoinvent v3.9.1 datasets.
Installation	No energy consumption occur during the installation stage.
Use	Electricity, low voltage {RER}  market group for electricity, low voltage   Cut-off, S
End of life	The energy-related processes used for the inputs of the end-of-life stage are those included in the ecoinvent datasets selected for the analysis.

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## Common base of mandatory indicators

\* if indicator is "0\*", it represents less than 0,01% of the total life cycle of the reference flow



### Environmental impact indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Install- ation	Use	End of life	Bene- fits
GWP-total	kg CO <sub>2</sub> eq.	5.75E+00	2.79E+00	1.31E-01	1.09E-02	2.76E+00	6.36E-02	-3.27E-02
GWP-fossil	kg CO <sub>2</sub> eq.	5.63E+00	2.71E+00	1.31E-01	2.28E-03	2.73E+00	5.40E-02	-2.76E-02
GWP-biogenic	kg CO <sub>2</sub> eq.	1.09E-01	7.31E-02	4.66E-05	8.65E-03	1.72E-02	9.58E-03	-4.55E-03
GWP-luluc	kg CO <sub>2</sub> eq.	1.19E-02	5.06E-03	6.29E-05	1.24E-06	6.71E-03	2.02E-05	-5.50E-04
GWP-fossil = Global Warming Potential fossil fuels GWP-biogenic = Global Warming Potential biogenic GWP-luluc = Global Warming Potential land use and land use change								
ODP	kg CFC-11 eq.	3.09E-06	3.04E-06	2.79E-09	0*	5.12E-08	8.63E-10	-8.13E-10
ODP = Depletion potential of the stratospheric ozone layer								
AP	H+ eq.	5.15E-02	3.53E-02	5.28E-04	9.68E-06	1.54E-02	1.71E-04	-1.11E-04
AP = Acidification potential, Accumulated Exceedance								
EP-freshwater	kg P eq.	5.00E-04	2.33E-04	1.03E-06	0*	2.66E-04	3.37E-07	-2.02E-06
EP-marine	kg N eq.	6.35E-03	4.11E-03	2.00E-04	1.05E-05	1.94E-03	8.78E-05	-9.14E-05
EP-terrestrial	mol N eq.	7.05E-02	4.50E-02	2.15E-03	3.21E-05	2.26E-02	6.91E-04	-3.33E-04
EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment EP-terrestrial = Eutrophication potential, Accumulated Exceedance								
POCP	kg NMVOC eq.	1.74E-02	1.09E-02	5.33E-04	1.04E-05	5.78E-03	1.77E-04	-6.06E-05
POCP = Formation potential of tropospheric ozone								
ADP-minerals & metals	kg Sb eq.	6.68E-04	6.35E-04	4.13E-07	0*	3.26E-05	1.25E-07	-9.59E-08
ADP-fossil	MJ	9.78E+01	3.42E+01	1.82E+00	2.29E-02	6.12E+01	5.78E-01	-3.57E-01
ADP-minerals & metals = Abiotic depletion potential for non-fossil resources ADP-fossil = Abiotic depletion for fossil resources potential								
WDP	m <sup>3</sup> eq. depr.	1.31E+01	1.24E+01	7.27E-03	0*	6.96E-01	4.24E-03	-1.56E-02
WDP = Water Deprivation potential								

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## Common base of mandatory indicators

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### Inventory flows indicator – Resource use indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
PERE	MJ	1.79E+01	4.14E+00	2.83E-02	0*	1.37E+01	9.26E-03	-3,05E-02
PERM	MJ	1.03E+00	1.03E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4,18E-02
PERT	MJ	1.89E+01	5.18E+00	2.83E-02	0*	1.37E+01	9.26E-03	-7,23E-02
PENRE	MJ	1.10E+02	3.63E+01	1.85E+00	2.51E-02	7.14E+01	5.90E-01	-4,14E-01
PENRM	MJ	2.88E+00	2.88E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0,00E+00
PENRT	MJ	1.13E+02	3.91E+01	1.85E+00	2.51E-02	7.14E+01	5.90E-01	-4,14E-01

PERE = Use of renewable primary energy excluding renewable primary energy resources 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 resources

### Inventory flows indicator – Indicators describing the use of secondary materials, water, and energy resources

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m³	3.37E-01	2.87E-01	2.05E-04	0*	4.93E-02	1.10E-04	-4.52E-04

SM = Use of secondary material  
 RSF = Use of renewable secondary fuels  
 NRSF = Use of non-renewable secondary fuels  
 FW = Use of net fresh water

### Inventory flows indicator – Waste category indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
Hazardous waste disposed	kg	2.11E-03	2.11E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non- hazardous waste disposed	kg	2.30E-04	2.30E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radioactive waste disposed	kg	2.01E-06	2.01E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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# Common base of mandatory indicators

\* if indicator is "0\*", it represents less than 0,01% of the total life cycle of the reference flow

## Inventory flows indicator – Output flow indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
Components for re-use	kg	3.13E-03	3.13E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	4.07E-02	0.00E+00	0.00E+00	4.07E-02	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	4.47E-03	0.00E+00	0.00E+00	4.47E-03	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	7.60E-02	0.00E+00	0.00E+00	7.60E-02	0.00E+00	0.00E+00	0.00E+00

## Inventory flow indicator – other indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
Biogenic carbon content of the product	kg of C	2.20E-05	2.20E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon content of the associated packaging	kg of C	2.19E-02	2.19E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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# Optional indicators

\* if indicator is "O\*", it represents less than 0,01% of the total life cycle of the reference flow

## Environmental indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
No Environmental indicators used								

## Extrapolation Factors

For other products than the Reference product covered by this PEP, the environmental impacts of the lifecycle are obtained by a linear correlation with respect to the average power loss for the use phase. For the other categories such as Manufacturing, Distribution and end-of-life phase the impacts of the reference product can be used.

Each environmental indicator value shall be calculated using the following formulas:

For the use stage:  $y = ax + b$   
 where x is the average power loss of the product

Impact category	Use	
	a	b
Climate change - Total	1.94E+01	-3.68E-02
Climate change - Fossil	1.92E+01	-3.65E-02
Climate change - Biogenic standard	1.21E-01	-2.29E-04
Climate change - Land use and LU change	4.72E-02	-8.96E-05
Ozone depletion	3.60E-07	-6.84E-10
Acidification	1.09E-01	-2.06E-04
Eutrophication, freshwater	1.87E-03	-3.55E-06
Eutrophication, marine	1.36E-02	-2.58E-05
Eutrophication, terrestrial	1.59E-01	-3.01E-04
Photochemical ozone formation	4.06E-02	-7.71E-05
Resource use, minerals and metals	2.29E-04	-4.35E-07
Resource use, fossils	4.31E+02	-8.17E-01
Water use	4.90E+00	-9.29E-03
Primary renewable energy (carrier)	9.65E+01	-1.83E-01
Primary renewable energy (feedstock)	0.00E+00	0.00E+00
Primary renewable energy (total)	9.65E+01	-1.83E-01
Primary non-renewable energy (carrier)	5.03E+02	-9.54E-01
Primary non-renewable energy (feedstock)	0.00E+00	0.00E+00
Primary non-renewable energy (total)	5.03E+02	-9.54E-01
Secondary materials	0.00E+00	0.00E+00
Renewable secondary fuels	0.00E+00	0.00E+00
Non-renewable secondary fuels	0.00E+00	0.00E+00
Net use of fresh water (EI3.6)	3.47E-01	-6.58E-04
Hazardous waste disposed	0.00E+00	0.00E+00
Non hazardous waste disposed	0.00E+00	0.00E+00
Radioactive waste disposed	0.00E+00	0.00E+00
Components for re-use	0.00E+00	0.00E+00
Materials for recycling	0.00E+00	0.00E+00
Materials for energy recovery	0.00E+00	0.00E+00
Exported Energy	0.00E+00	0.00E+00

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## Extrapolation Factors

Product ID	Product Type	Total Weight [g]	Average power loss [W]
2CSF202024R1250	FH202 S AC-25/0.03	236	0.05
2CSF202024R1400	FH202 S AC-40/0.03	236	0.11
2CSF202024R1630	FH202 S AC-63/0.03	236	0.14
2CSF202124R1250	FH202 S A-25/0.03	236	0.05
2CSF202124R1400	FH202 S A-40/0.03	236	0.11
2CSF202124R1630	FH202 S A-63/0.03	236	0.14
2CSF202424R1250	FH202 S A-25/0.03 AP-R	236	0.05
2CSF202424R1400	FH202 S A-40/0.03 AP-R	236	0.11
2CSF202424R1630	FH202 S A-63/0.03 AP-R	236	0.14
2CSF202424R3250	FH202 S A-25/0.3 AP-R	236	0.05
2CSF202424R3400	FH202 S A-40/0.3 AP-R	236	0.11
2CSF202424R3630	FH202 S A-63/0.3 AP-R	236	0.14

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# Environmental Impact Indicator Glossary

## Impact indicators

Indicator	Description	Distribution
Global warming potential (GWP) - total	Indicator of potential global warming caused by emissions to air contributing to the greenhouse effect. The total global warming potential (GWP-total) is the sum of three sub-categories of climate change. GWP-total = GWP-fossil + GWP-biogenic + GWP- land use and land use change	kg CO <sub>2</sub> eq.
Ozone depletion (ODP)	Emissions to air that contribute to the destruction of the stratospheric ozone layer	kg CFC-11 eq.
Acidification of soil and water (A)	Acidification of soils and water caused by the release of certain gases to the atmosphere, such as nitrogen oxides and sulphur oxides	H+ eq.
Eutrophication (E)	Indicator of the contribution to eutrophication of water by the enrichment of the aquatic ecosystem with nutritional elements, e.g. industrial or domestic effluents, agriculture, etc. This indicator is divided to three: freshwater, marine and terrestrial.	kg P eq., kg N eq., mole N eq.
Photochemical ozone creation (POCP)	Indicator of emissions of gases that affect the creation of photochemical ozone in the lower atmosphere (smog) because of the rays of the sun.	kg NMVOC eq.
Depletion of abiotic resources – elements (ADPe)	Indicator of the depletion of natural non-fossil resources	kg Sb eq.
Depletion of abiotic resources – fossil fuels (ADPf)	The use of non-renewable fossil resources in an unsustainable way (e.g. from material to waste)	MJ (lower heating value)
Water Deprivation potential (WDP)	Deprivation-weighted water consumption. Assesses the potential of water deprivation, to either humans or ecosystems, building on the assumption that the less water remaining available per area, the more likely another user will be deprived.	m <sup>3</sup> eq. depr.

## Resource use indicators

Indicator	Description	Distribution
Total use of primary energy	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) + Total use of renewable primary energy re-sources (primary energy and primary energy resources used as raw materials)	MJ (lower heating value)

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## References

PEP ecopassport® PROGRAM. PCR-ed4-EN-2021 09 06. Product Category Rules for Electrical. Electronic and HVAC-R Products.

PEP ecopassport® PROGRAM. PSR-0005-ed3-EN-2023 06 06. Specific rules for Electrical switchgear and control gear Solutions.

PRé Consultants. Software Simapro v9.5. 2023 ([www.simapro.com](http://www.simapro.com)).

ISO 14040:2006/Amd 1:2020. Life cycle assessment. Environmental management. Principles and Framework. International Organization for Standardization. 2020.

ISO 14044:2006/Amd 1:2017/Amd 1:2020. Life cycle assessment. Environmental management. Requirements and guidelines. International Organization for Standardization. 2020.

ABB website. <https://global.abb/group/en/about> [accessed 12-01-2023]

ABB website. <https://global.abb/group/en/sustainability/sustainability-strategy-2030> [accessed 12-01-2023].

Ecoinvent. 2023. Swiss Centre for Life Cycle Assessment. v3.9.1 ([www.ecoinvent.ch](http://www.ecoinvent.ch)).

UNI EN 15804:2012+A2:2019: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

Google Maps. <https://www.google.it/maps/preview>.

Sea Rates. <https://www.searates.com/>.

ABB. 2022. Cert GSE GO 2022 ABB SPA

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		Supplemented by:	PSR-0005-ed3-EN-2023 06 06
Verifier accreditation number:	VH50	Information and reference documents:	<a href="http://www.pep-ecopassport.org">www.pep-ecopassport.org</a>
Date of issue:	03/2024	Validity period:	5 years
Independent verification of the declaration and data, in compliance with ISO 14025: 2006			
Internal: <input type="radio"/>		External: <input checked="" type="radio"/>	
The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain)			
PEP 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.			
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