



A39 COMFORTLINE SWITCH CABINET (3PW9R)

PEP ecopassport®

Product Environmental Profile



Document in compliance with ISO 14025: 2006 "Environmental labels and declarations. Type III environmental declarations"

ORGANIZATION		CONTACT INFORMATION			
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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.



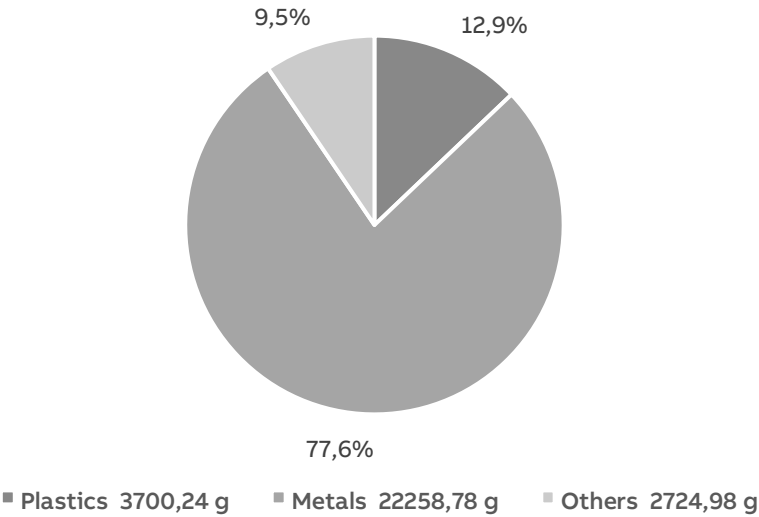
General Information

Reference product	Reference product identification: A39 ComfortLine switch cabinet (3PW9R) PSR product category: Unequipped enclosures and cabinets
Description of the product	The function of the ComfortLine switch cabinet is to protect people against electric shocks by direct contact and the equipment it houses against the penetration of solids and liquids and against mechanical shocks.
Functional unit	Protect people from direct contact with live active parts and ensure the grouping of control, command and protection devices in a cabinet having the following dimensions 1400mm x 800mm x 215mm with rated current 250 A, while protecting them against mechanical impacts (IK 07) and the penetration of solid objects and liquids (IP 44), according to the appropriate use scenario, and for the reference service life of the product of 20 years.
Other products covered	The products of the device series ComfortLine A differ in their number of doors and standardized dimensions. Since the dimensions vary also the weight of this product series is different. In total, the device series contains 35 different products.

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Constituent Materials



Total weight of Reference product incl. packaging:

28684g

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%
Other plastic	11,1	Steel	77,6	Other nec	4,9
PP	1,6	–	x	Cardboard	3,9
GFRP	0,2	–	x	Wood	0,7

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Additional Environmental Information

Manufacturing	The ComfortLine A series is manufactured in Germany, while some sub-assemblies are produced in Slovenia and France. The production is certified according to ISO 14001.
Distribution	The ComfortLine A series is mainly sold within Germany
Installation	No energy is required for the installation of the switch cabinet. Only includes disposal of packaging according to PSR.
Use	The usage of the switch cabinet is not considered according to the PSR for unequipped enclosures and cabinets (PEP 2021a, 2023).
End of life	Due to the lack of knowledge of the disposal pathway, the disposal was modelled according to table 7 of the PCR.
Benefits and loads beyond the system boundaries	Not considered

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Environmental Impacts

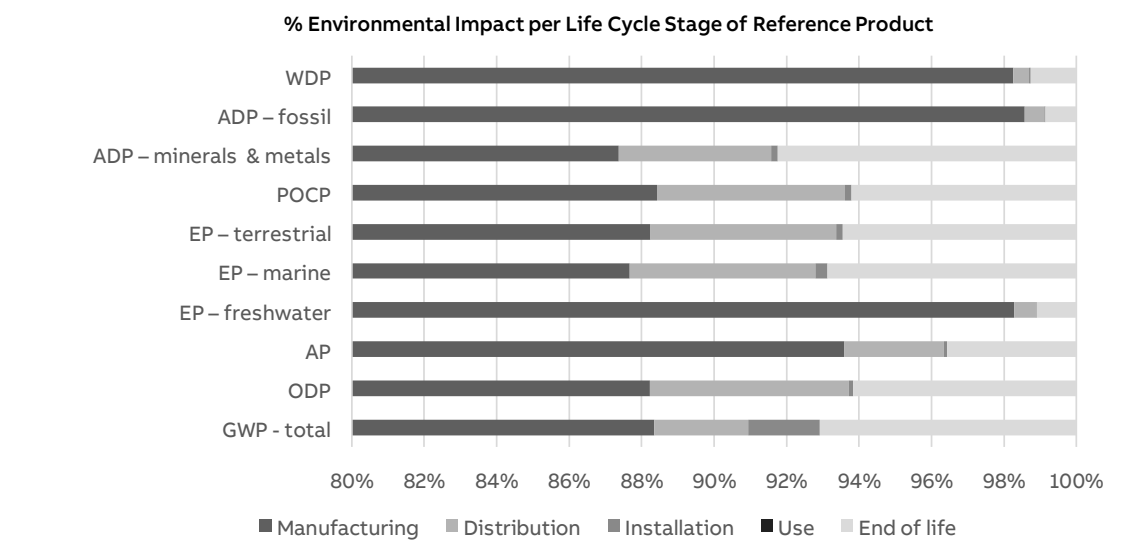
Reference lifetime	20 years
Product category	Electrical switchgear and control gear solutions
Installation elements	Does not require any special installation elements.
Use scenario	Not considered
Geographical representativeness	Europe
Technological representativeness	Represents the production of device series ComfortLine A at ABB Striebel & John in Sasbach, Germany, in 2022.
Software and database used	SimaPro 9.6.0.1, ecoinvent 3.10 and industry data 2.0

Energy model used

Manufacturing	Electricity, medium voltage {DE} market for electricity, medium voltage Cut-off, S
Installation	Global
Use	none
End of life	Global

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Common base of mandatory indicators



Environmental impact indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life
GWP-total	kg CO ₂ eq.	1,21E+02	1,07E+02	3,15E+00	2,39E+00	0,00E+00	8,55E+00
GWP-fossil	kg CO ₂ eq.	1,19E+02	1,08E+02	3,15E+00	1,05E-01	0,00E+00	8,23E+00
GWP-biogenic	kg CO ₂ eq.	1,53E+00	-1,07E+00	7,53E-04	2,28E+00	0,00E+00	3,16E-01
GWP-luluc	kg CO ₂ eq.	6,42E-02	6,15E-02	1,06E-03	4,12E-05	0,00E+00	1,54E-03
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.	1,13E-06	9,94E-07	6,18E-08	1,30E-09	0,00E+00	6,94E-08
ODP = Depletion potential of the stratospheric ozone layer							
AP	H ⁺ eq.	4,46E-01	4,17E-01	1,22E-02	4,51E-04	0,00E+00	1,59E-02
AP = Acidification potential, Accumulated Exceedance							
EP-freshwater	kg P eq.	4,08E-03	4,01E-03	2,40E-05	1,19E-06	0,00E+00	4,50E-05
EP-marine	kg N eq.	8,82E-02	7,73E-02	4,52E-03	2,85E-04	0,00E+00	6,06E-03
EP-terrestrial	mol N eq.	9,71E-01	8,57E-01	4,97E-02	1,80E-03	0,00E+00	6,26E-02
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.	3,71E-01	3,28E-01	1,92E-02	6,93E-04	0,00E+00	2,30E-02
POCP = Formation potential of tropospheric ozone							
ADP-minerals & metals	kg Sb eq.	1,97E-04	1,72E-04	8,30E-06	3,46E-07	0,00E+00	1,62E-05
ADP-fossil	MJ	6,84E+02	6,75E+02	3,66E+00	1,84E-01	0,00E+00	5,88E+00
ADP-minerals & metals = Abiotic depletion potential for non-fossil resources ADP-fossil = Abiotic depletion for fossil resources potential							
WDP	m ³ eq. depr.	3,98E+01	3,91E+01	1,75E-01	1,65E-02	0,00E+00	5,02E-01
WDP = Water Deprivation potential							

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Common base of mandatory indicators

Inventory flows indicator – Resource use indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life
PERE	MJ	1,08E+02	1,06E+02	6,86E-01	4,08E-02	0,00E+00	1,41E+00
PERM	MJ	1,44E+01	1,44E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,22E+02	1,20E+02	6,86E-01	4,08E-02	0,00E+00	1,41E+00
PENRE	MJ	1,34E+03	1,25E+03	4,45E+01	1,10E+00	0,00E+00	5,12E+01
PENRM	MJ	1,54E+02	1,54E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,50E+03	1,40E+03	4,45E+01	1,10E+00	0,00E+00	5,12E+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
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	N/A	N/A	N/A	N/A	N/A
NRSF	MJ	0,00E+00	N/A	N/A	N/A	N/A	N/A
FW	m³	1,03E+00	1,01E+00	5,20E-03	4,45E-04	0,00E+00	1,42E-02

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
Hazardous waste disposed	kg	9,07E+00	8,88E+00	4,39E-02	4,76E-03	0,00E+00	1,40E-01
Non- hazardous waste disposed	kg	1,21E+02	1,01E+02	4,29E-01	1,14E+00	0,00E+00	1,82E+01
Radioactive waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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Common base of mandatory indicators

Inventory flows indicator – Output flow indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	2,21E+01	3,17E+00	0,00E+00	9,83E-01	0,00E+00	1,79E+01
Materials for energy recovery	kg	2,31E+00	3,49E-01	0,00E+00	1,66E-01	0,00E+00	1,80E+00
Exported energy	MJ	2,90E+01	7,21E+00	0,00E+00	8,57E-01	0,00E+00	2,10E+01

Inventory flow indicator – other indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life
Biogenic carbon content of the product	kg of C	0,00E+00	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	5,69E-01	5,69E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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Optional indicators

Environmental indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	
Total use of primary energy during the life cycle	MJ	1,62E+03	1,52E+03	4,52E+01	1,14E+00	0,00E+00	5,26E+01	
Emissions of fine particles	incidence of diseases	7,70E-06	7,02E-06	3,10E-07	8,62E-09	0,00E+00	3,61E-07	
Ionizing radiation, human health	kBq U235 eq.	1,92E+00	1,86E+00	1,96E-02	1,21E-03	0,00E+00	3,89E-02	
Ecotoxicity (fresh water)	CTUe	3,51E+03	3,45E+03	1,35E+01	6,79E+00	0,00E+00	3,86E+01	
Human toxicity, car-cinogenic effects	CTUh	7,13E-06	7,09E-06	1,90E-08	6,99E-10	0,00E+00	2,49E-08	
Human toxicity, non- carcinogenic effects	incidence of diseases	1,85E-06	1,65E-06	3,61E-08	3,74E-08	0,00E+00	1,27E-07	
Impact related to land use/soil quality		6,53E+02	5,43E+02	4,48E+01	6,34E-01	0,00E+00	0,00E+00	0,00E+00

Other indicators

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

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Extrapolation Factors

For other products than the Reference product covered by this PEP, the environmental impacts for each phase of the lifecycle are obtained by multiplying the values of the Reference product by the following coefficients:

* if the coefficient is "1", the impacts of the phase of the life cycle are assimilated to the Reference product, meaning that the impacts are unchanged in comparison to the Reference product

Product name	Manu- facturing	Distri- bution	Installation	Use	End of life
A13 Wall Cabinet	0,24	0,24	0,24	NA	0,24
A14 Wall Cabinet	0,29	0,29	0,29	NA	0,29
A15 Wall Cabinet	0,33	0,33	0,33	NA	0,33
A16 Wall Cabinet	0,39	0,39	0,39	NA	0,39
A17 Wall Cabinet	0,44	0,44	0,44	NA	0,44
A18 Wall Cabinet	0,49	0,49	0,49	NA	0,49
A19 Wall Cabinet	0,53	0,53	0,53	NA	0,53
A23 Wall Cabinet	0,35	0,35	0,35	NA	0,35
A24 Wall Cabinet	0,41	0,41	0,41	NA	0,41
A25 Wall Cabinet	0,48	0,48	0,48	NA	0,48
A26 Wall Cabinet	0,56	0,56	0,56	NA	0,56
A27 Wall Cabinet	0,61	0,61	0,61	NA	0,61
A28 Wall Cabinet	0,68	0,68	0,68	NA	0,68
A29 Wall Cabinet	0,75	0,75	0,75	NA	0,75
A33 Wall Cabinet	0,47	0,47	0,47	NA	0,47
A34 Wall Cabinet	0,55	0,55	0,55	NA	0,55
A35 Wall Cabinet	0,64	0,64	0,64	NA	0,64
A36 Wall Cabinet	0,74	0,74	0,74	NA	0,74
A37 Wall Cabinet	0,79	0,79	0,79	NA	0,79
A38 Wall Cabinet	0,90	0,90	0,90	NA	0,90
A39 Wall Cabinet	1,00	1,00	1,00	NA	1,00
A43 Wall Cabinet	0,58	0,58	0,58	NA	0,58
A44 Wall Cabinet	0,67	0,67	0,67	NA	0,67
A45 Wall Cabinet	0,78	0,78	0,78	NA	0,78
A46 Wall Cabinet	0,91	0,91	0,91	NA	0,91
A47 Wall Cabinet	1,04	1,04	1,04	NA	1,04
A48 Wall Cabinet	1,15	1,15	1,15	NA	1,15
A49 Wall Cabinet	1,24	1,24	1,24	NA	1,24
A53 Wall Cabinet	0,70	0,70	0,70	NA	0,70
A54 Wall Cabinet	0,82	0,82	0,82	NA	0,82
A55 Wall Cabinet	0,92	0,92	0,92	NA	0,92
A56 Wall Cabinet	1,08	1,08	1,08	NA	1,08
A57 Wall Cabinet	1,22	1,22	1,22	NA	1,22
A58 Wall Cabinet	1,35	1,35	1,35	NA	1,35
A59 Wall Cabinet	1,46	1,46	1,46	NA	1,46

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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 ₂ 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 ³ 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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		Supplemented by:	PSR-0005-ed3.1-EN-2023 12 08
Verifier accreditation number:	VH51	Information and reference documents:	www.pep-ecopassport.org
Date of issue:	10-2024	Validity period:	5 years
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”			

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