

Product Environmental Profile

EcoStruxure Panel Server





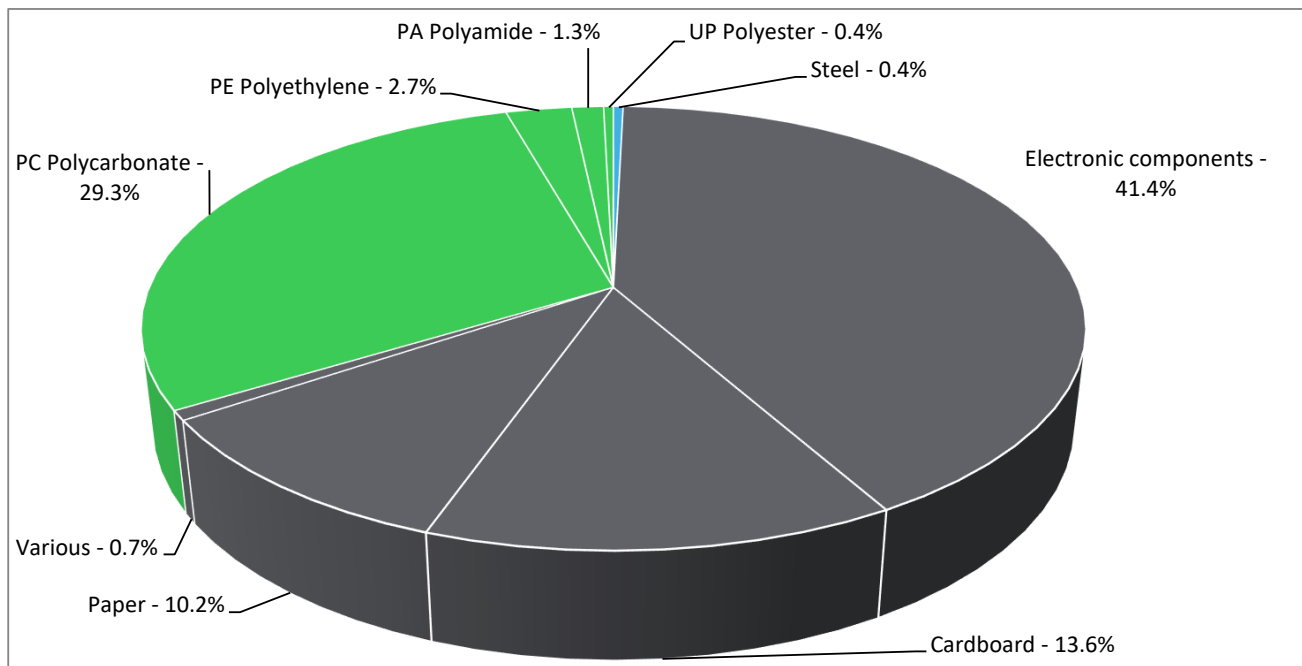
General information

Representative product	EcoStruxure Panel Server - PAS600L
Description of the product	Panel Server is communication device that provides connectivity between Ethernet(Modbus TCP/IP) and Modbus serial line devices, allowing Modbus TCP/IP clients to access information from serial slave devices. It also allows serial master devices to access information from slave devices distributed across an Ethernet network,provides edge connectivity and provides wireless connectivity ZigBee,WIFI and BLE
Description of the range	Panel Server is communication device that provides connectivity between Ethernet(Modbus TCP/IP) and Modbus serial line devices, allowing Modbus TCP/IP clients to access information from serial slave devices. It also allows serial master devices to access information from slave devices distributed across an Ethernet network,provides edge connectivity and provides wireless connectivity ZigBee,WIFI and BLE The environmental impacts of this referenced product are representative of the impacts of the other products of the range which are developed with a similar technology.
Functional unit	EcoStruxure Panel Server is installed usually in Panel (Uses 24V, 240V, 277V consumes ~3W power) . Typically, it is installed indoor. Works 24h per day, non-stop unless an outage is planned. Typical life time of the relay is 10 years but effectively it may be extended to more than this. It uses 2 Base 10/100 Ethernet RJ45 ports & 1 Modbus RS485 serial port for communication. This is not suitable for wet locations. It uses IPv4, IPv6 - HTTP, HTTPS protocols



Constituent materials

Reference product mass 258 g including the product, its packaging and additional elements and accessories



Plastics	33.7%
Metals	0.4%
Others	65.9%

Substance assessment

Products of this range are designed in conformity with the requirements of the RoHS directive (European Directive 2011/65/EU of 2 January 2013, amended in March 2015, 2015/863/EU and in November 2017, 2017/2102/EU) and do not contain, or only contain in the authorised proportions, lead, mercury, cadmium, hexavalent chromium or flame retardants (polybrominated biphenyls - PBB, polybrominated diphenyl ethers – PBDE), Bis (2-ethylhexyl)phthalate - DEHP, Benzyl butyl phthalate– BBP, Dibutyl phthalate - DBP, Diisobutyl phthalate - DIBP) as mentioned in the Directive.

Details of ROHS and REACH substances information are available on the Schneider-Electric Green Premium website

<http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page>

Additional environmental information

The EcoStruxure Panel Server presents the following relevant environmental aspects

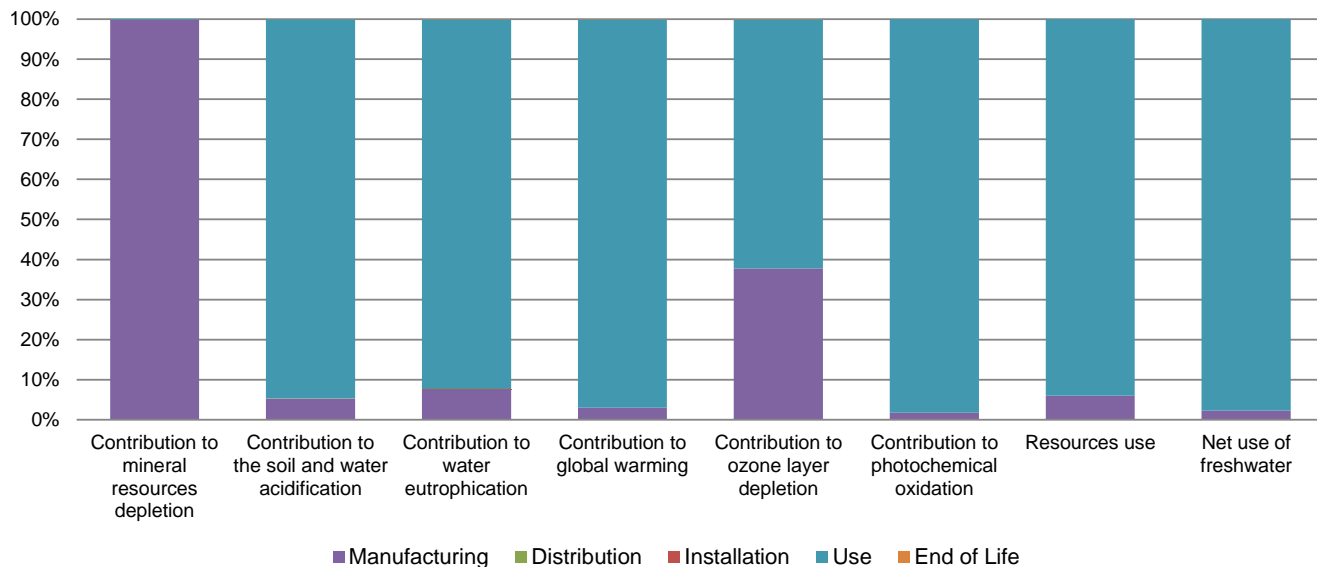
Design	Not in scope
Manufacturing	Manufactured at a Schneider Electric production site ISO14001 certified
Distribution	Weight and volume of the packaging optimized, based on the European Union's packaging directive Packaging weight is 70 g, consisting of cardboard & paper (90 %) and plastic (10 %). Product distribution optimised by setting up local distribution centres
Installation	This product does not require any installation operations.
Use	The product does not require special maintenance operations.
End of life	End of life optimized to decrease the amount of waste and allow recovery of the product components and materials This product contains Electronic Components (132.35 g) that should be separated from the stream of waste so as to optimize end-of-life treatment. The location of these components and other recommendations are given in the End of Life Instruction document which is available on the Schneider-Electric Green Premium website http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page Recyclability potential: 11% Based on "ECO'DEEE recyclability and recoverability calculation method" (version V1, 20 Sep. 2008 presented to the French Agency for Environment and Energy Management: ADEME).

Environmental impacts

Reference life time	10 years
Product category	Other equipments - Active product
Installation elements	This product does not require any special components during installation. Disposal of the packaging materials are accounted for during the installation phase (including transport to disposal).
Use scenario	Only active mode (3W) is considered as 100% of the time, because consumed power in active mode is negligible. No Sleep mode nor Off mode.
Geographical representativeness	Global

Technological representativeness	Panel Server is communication device that provides connectivity between Ethernet(Modbus TCP/IP) and Modbus serial line devices, allowing Modbus TCP/IP clients to access information from serial slave devices. It also allows serial master devices to access information from slave devices distributed across an Ethernet network,provides edge connectivity and provides wireless connectivity ZigBee,WIFI and BLE			
Energy model used	Manufacturing	Installation	Use	End of life
	Energy model used: INDIA Electricity mix; AC; consumption mix, at consumer; 120V; USElectricity mix; AC; consumption mix, at consumer; 220V; CNElectricity mix; AC; consumption mix, at consumer; 220V - 230V; RER			

Compulsory indicators		EcoStructure Panel server					
Impact indicators	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Contribution to mineral resources depletion	kg Sb eq	2.83E-03	2.83E-03	0*	0*	6.83E-06	0*
Contribution to the soil and water acidification	kg SO2 eq	6.12E-01	3.25E-02	1.52E-04	0*	5.79E-01	1.08E-04
Contribution to water eutrophication	kg PO43-en	1.66E-01	1.25E-02	3.50E-05	3.07E-05	1.53E-01	5.60E-05
Contribution to global warming	kg CO2 eq	6.17E+02	1.84E+01	0*	0*	5.98E+02	1.79E-01
Contribution to ozone layer depletion	kg CFC11 eq	2.20E-05	8.31E-06	0*	0*	1.37E-05	6.29E-09
Contribution to photochemical oxidation	kg C2H4 eq	1.34E-01	2.38E-03	0*	0*	1.32E-01	0*
Resources use	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Net use of freshwater	m3	1.12E+00	6.79E-02	0*	0*	1.05E+00	0*
Total Primary Energy	MJ	9.93E+03	2.23E+02	0*	0*	9.70E+03	0*



Optional indicators	EcoStructure Panel server						
Impact indicators	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Contribution to fossil resources depletion	MJ	7.93E+03	2.03E+02	0*	0*	7.73E+03	0*
Contribution to air pollution	m ³	6.98E+04	1.17E+03	0*	0*	6.86E+04	0*
Contribution to water pollution	m ³	2.92E+04	2.35E+03	5.47E+00	0*	2.69E+04	7.46E+00
Resources use	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Use of secondary material	kg	1.19E-03	1.19E-03	0*	0*	0*	0*
Total use of renewable primary energy resources	MJ	3.78E+02	3.89E+00	0*	0*	3.74E+02	0*
Total use of non-renewable primary energy resources	MJ	9.55E+03	2.20E+02	0*	0*	9.33E+03	0*
Use of renewable primary energy excluding renewable primary energy used as raw material	MJ	3.77E+02	2.72E+00	0*	0*	3.74E+02	0*
Use of renewable primary energy resources used as raw material	MJ	1.17E+00	1.17E+00	0*	0*	0*	0*
Use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	9.55E+03	2.15E+02	0*	0*	9.33E+03	0*
Use of non renewable primary energy resources used as raw material	MJ	4.28E+00	4.28E+00	0*	0*	0*	0*
Use of non renewable secondary fuels	MJ	0.00E+00	0*	0*	0*	0*	0*
Use of renewable secondary fuels	MJ	0.00E+00	0*	0*	0*	0*	0*
Waste categories	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Hazardous waste disposed	kg	4.03E+01	5.88E+00	0*	0*	3.39E+01	4.77E-01
Non hazardous waste disposed	kg	9.00E+01	3.42E+00	0*	4.61E-02	8.65E+01	0*
Radioactive waste disposed	kg	2.22E-02	3.34E-03	0*	0*	1.88E-02	3.18E-06
Other environmental information	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Materials for recycling	kg	6.35E-02	1.56E-02	0*	2.69E-02	0*	2.10E-02
Components for reuse	kg	0.00E+00	0*	0*	0*	0*	0*
Materials for energy recovery	kg	4.93E-02	0*	0*	0*	0*	4.93E-02
Exported Energy	MJ	2.09E-02	1.20E-04	0*	2.08E-02	0*	0*

* represents less than 0.01% of the total life cycle of the reference flow

Life cycle assessment performed with EIME version EIME v5.8.1, database version 2016-11 in compliance with ISO14044.

The use phase is the life cycle phase which has the greatest impact on the majority of environmental indicators (based on compulsory indicators).

According to this environmental analysis, proportionality rules may be used to evaluate the impacts of other products of this range.

The present study is carried out for an Eco structure Panel server Basic PAS variant PAS600L. The difference between some Panel servers can be related only to the embedded firmware. The firmware has no impact on the environment and is not taken into account in the evaluation.

There may also be hardware differences in options, such as different input voltage ranges for digital input or power supply cards, for example, but neither the size of the PCBA nor the type of electronics used do not differ and their power consumption remains almost equivalent.

There may also be PAS400 references with configurations with fewer I / O or communications boards, but these differences are minor.

So the present study prevails on the following Eco structure Panel server products: PAS600L, PAS600T, PAS600, PAS800, PAS800L, PAS800P, PAS400, PAS600P

The present study can be extrapolated to the products of the PAS400 thanks to proportionality factors. Indeed, the products PAS600L, PAS600T, PAS600, PAS600P and PAS800, PAS800L, PAS800P are almost similar with :

- identical height & depth with slight change in width
 - the mechanical parts in kind and number are identical except for those impacted by the width and therefore proportional (size & mass) to the width of the two models of products,
 - the electronic cards are identical except for the HMI and Power display which are proportional (size & mass) to the product width.
- The impact and resource indicators used for PAS400 can therefore be calculated according to the product life phases by using the following proportionality factors:

	PAS600L/PAS800L	PAS400	Proportionality factor (PAS400/PAS600L)
Mass (g)	188	150	0.8
Mass + packaging (g)	258	225	0.9
Packaging (g)	70	75	1.1

By extrapolation, the Ecostructure Panel server included in the present study are therefore the following: PAS600L, PAS600T, PAS600, PAS800, PAS800L, PAS800P, PAS400, PAS600P

Please note that the values given above are only valid within the context specified and cannot be used directly to draw up the environmental assessment of an installation.

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		Validity period	5 years
Independent verification of the declaration and data, in compliance with ISO 14025 : 2010			
Internal		External	X
The PCR review was conducted by a panel of experts chaired by Philippe Osset (SOLINNEN)			
PEP are compliant with XP C08-100-1 :2016			
The elements of the present PEP cannot be compared with elements from another program.			
Document in compliance with ISO 14025 : 2010 « Environmental labels and declarations. Type III environmental declarations »			



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