Product Environmental Profile

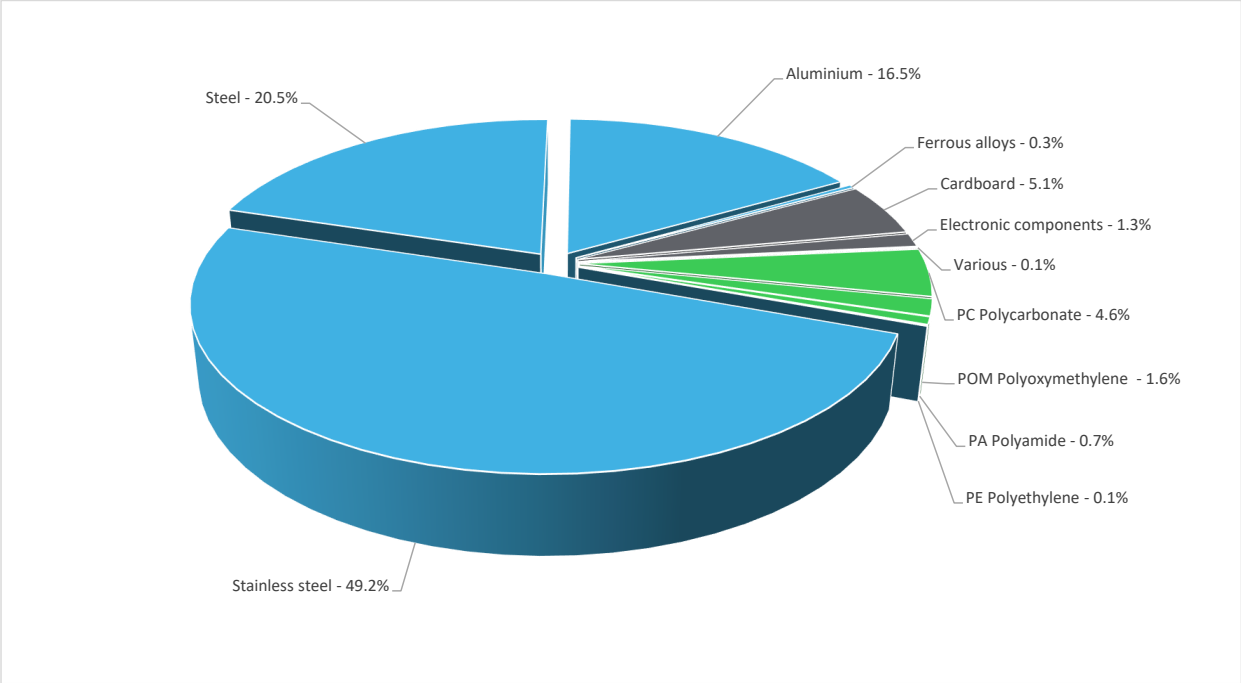
SpaceLogic MP500C PIBCV Actuator, with Stem Adapter

General information

Reference product	SpaceLogic MP500C PIBCV Actuator, with Stem Adapter - MP500C
Description of the product	MP500C is an linear electro-mechanical actuator for the control of the VP22 SpaceLogic PIBCV, DN40-100. MP500C is controlled either by an increase/decrease floating signal or by a range of modulating control signals between the span of 0…10V. Working range and end point switches calibrate to any stroke and flow setting of the valve. Multi-signal control for either 3 point increase/decrease signal or various modulating control signals including sequencing. Supply Voltage: 24 Vac +/- 10%, 24 Vdc +/- 15%. Thrust: 500N. Enclosure rating IP52 (NEMA 2). EMC 24/18/CE.
Description of the range	Single product
Functional unit	The MP500C PIBCV Actuator is under the scope of Automatic electrical controls (TC72) according to PSR0005. To provide precise and reliable continuous control of heating and cooling systems by offering high resolution control board, multi-signal control applications(3-points & modulating control) as well as simple connection design for quick and easy direct mounting on valves, for 10 years.
Specifications are:	Thrust: 500N (112 lbf.) Control mode: Modulating Flow Characteristic: Linear Operation temperature: –10…+50 °C Ambient humidity: max. 90% RH non-condensing Enclosure rating: IP 54 (NEMA 2) Sound D38power level: max. 32 Dba

Constituent materials

Reference product mass	3635 g	including the product, its packaging, additional elements and accessories



Metals	86.5%
Plastics	7.0%
Others	6.5%

Substance assessment

Details of ROHS and REACH substances information are available on the Schneider-Electric website
https://www.se.com

Additional environmental information

End Of Life	Recyclability potential:	**90%**	The recyclability rate was calculated from the recycling rates of each material making up the product based on REEECY'LAB tool developed by Ecosystem, for components/materials not covered by the tool, data from the EIME database and the related PSR was taken. If no data was found a conservative assumption was used (0% recyclability).

Environmental impacts

Reference service life time	10 years
Product category	Other equipments - Active product
Life cycle of the product	The manufacturing, the distribution, the installation, the use and the end of life were taken into consideration in this study
Electricity consumption	The electricity consumed during manufacturing processes is considered for each part of the product individually, the final assembly generates a negligible consumption
Installation elements	The product installation requires no energy. The disposal of packaging materials is also accounted during the installation phase, including transport to disposal. The material constituents of the packaging are Cardboard and paper(98.54%), Plastics(1.46%)
Use scenario	During the use phase, MP500C Actuator operates in three defined working modes throughout its service life: it functions in active mode 20% of the time with a power consumption of 12 W, in Sleep mode 10% of the time with a power consumption of 0.9 W. and in standby mode 55% of the time with a power consumption of 1.2 W. Off mode occupies 15% of the time without consuming any power when holding the target position of Valve management. These duty-cycle assumptions represent the typical operational behaviour of the actuator in standard building-control applications. The actuator is assumed to operate continuously under these conditions for a service life of 10 years, with no maintenance, repair, or replacement required during this period. The product requires no consumables, and its indoor installation environment does not lead to additional energy or material use beyond what is reported in the operating modes.
Time representativeness	The collected data are representative of the year Data collection is valid from September 2024 to March 2026 when this study started.
Technological representativeness	The Modules of Technologies such as material production, manufacturing processes and transport technology used in the PEP analysis (LCA EIME in the case) are similar and representative of the actual type of technologies used to make the product.
Interpretations	For all the impact indicators but the ODP, ADPe and GWPlu, the Usag stage is the greatest contributor due to the energy losses occuring throughout the product reference service lifetime. For ADPe, the raw material and manufacturing stage is the main contributor, due to the manufacturing of Electronics(40.73%) and metal parts(40.76%) For ODP, the raw material and manufacturing stage is the main contributor, due to the manufacturing of Electronics(10.93%) and metal parts(58.36%) For GWPlu, the raw material and manufacturing stage is the main contributor, due to the manufacturing of Polycarbonate based parts(94.42%). To deliver overall view on waste related conclusion, Non-hazardous waste is mainly contributed by Manufacturing phase (52.1%) due to processing the matels and manufacturing the metal parts.

Geographical representativeness	**Final assembly site**	**Use phase**		**End-of-life**
	Riga, Lativia	Europe, Asia Pacific,North America and Australia.		Europe, Asia Pacific,North America and Australia.
Energy model used	**[A1 - A3]**	**[A5]**	**[B6]**	**[C1 - C4]**
	Electricity mix; Production mix; low voltage; 2022; Latvia, LV	No energy used	Electricity mix; Consumption mix; Low voltage; 2022; Europe, EU-27 Electricity mix; Consumption mix; Low voltage; 2022; Global, GLO Electricity mix; Consumption mix; Low voltage; 2022; United States, US Electricity mix; Production mix; low voltage; 2022; Australia, AU	Global, European and French datasets are used.

Detailed results of the optional indicators mentioned in PCRed4 are available in the LCA report and on demand in a digital format - Country Customer Care Center - http://www.se.com/contact

Mandatory Indicators		SpaceLogic MP500C PIBCV Actuator, with Stem Adapter - MP500C						
Impact indicators	Unit	Total (without Module D)	[A1 - A3] - Manufacturing	[A4] - Distribution	[A5] - Installation	[B1 - B7] - Use	[C1 - C4] - End of life	[D] - Benefits and loads
Contribution to climate change	kg CO2 eq	1.68E+02	3.81E+01	3.81E-01	3.57E-01	1.24E+02	4.93E+00	-1.94E+01
Contribution to climate change-fossil	kg CO2 eq	1.66E+02	3.82E+01	3.81E-01	6.56E-02	1.22E+02	4.91E+00	-1.92E+01
Contribution to climate change-biogenic	kg CO2 eq	1.77E+00	-1.51E-01	0*	2.91E-01	1.61E+00	1.57E-02	-2.74E-01
Contribution to climate change-land use and land use change	kg CO2 eq	1.42E-04	1.36E-04	5.74E-07	0*	0.00E+00	4.79E-06	0.00E+00
Contribution to ozone depletion	kg CFC-11 eq	6.14E-06	5.41E-06	4.63E-09	2.40E-09	5.22E-07	2.02E-07	-4.12E-06
Contribution to acidification	mol H+ eq	8.52E-01	1.96E-01	6.31E-04	3.81E-04	6.32E-01	2.27E-02	-1.16E-01
Contribution to eutrophication, freshwater	kg P eq	3.86E-04	1.32E-04	1.45E-06	1.03E-07	2.30E-04	2.14E-05	-6.12E-05
Contribution to eutrophication marine	kg N eq	1.07E-01	2.85E-02	1.22E-04	9.09E-05	7.56E-02	2.68E-03	-1.07E-02
Contribution to eutrophication, terrestrial	mol N eq	1.39E+00	3.23E-01	1.34E-03	1.21E-03	1.03E+00	3.14E-02	-1.19E-01
Contribution to photochemical ozone formation - human health	kg COVNM eq	3.52E-01	9.64E-02	4.22E-04	2.56E-04	2.46E-01	9.56E-03	-4.27E-02
Contribution to resource use, minerals and metals	kg Sb eq	3.51E-03	3.48E-03	0*	0*	2.97E-05	1.46E-06	-2.13E-03
Contribution to resource use, fossils	MJ	3.47E+03	6.19E+02	6.86E+00	1.28E+00	2.75E+03	9.41E+01	-2.94E+02
Contribution to water use	m3 eq	1.89E+01	1.01E+01	1.38E-02	3.96E-03	7.97E+00	7.70E-01	-6.54E+00

Inventory flows Indicators		SpaceLogic MP500C PIBCV Actuator, with Stem Adapter - MP500C						
Inventory flows	Unit	Total (without Module D)	[A1 - A3] - Manufacturing	[A4] - Distribution	[A5] - Installation	[B1 - B7] - Use	[C1 - C4] - End of life	[D] - Benefits and loads
Contribution to use of renewable primary energy excluding renewable primary energy used as raw material	MJ	5.29E+02	2.63E+01	0*	1.02E-01	4.99E+02	3.73E+00	-6.61E+00
Contribution to use of renewable primary energy resources used as raw material	MJ	3.76E+00	3.76E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Contribution to total use of renewable primary energy resources	MJ	5.33E+02	3.01E+01	0*	1.02E-01	4.99E+02	3.73E+00	-6.61E+00
Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	3.46E+03	6.10E+02	6.86E+00	1.28E+00	2.75E+03	9.41E+01	-2.94E+02
Contribution to use of non renewable primary energy resources used as raw material	MJ	9.40E+00	9.40E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Contribution to total use of non-renewable primary energy resources	MJ	3.47E+03	6.19E+02	6.86E+00	1.28E+00	2.75E+03	9.41E+01	-2.94E+02
Contribution to use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Contribution to use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Contribution to 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	0.00E+00
Contribution to net use of freshwater	m³	4.46E-01	2.37E-01	3.21E-04	9.08E-05	1.86E-01	2.30E-02	-1.52E-01
Contribution to hazardous waste disposed	kg	1.78E+02	1.75E+02	0*	6.97E-02	2.97E+00	2.14E-01	-1.61E+02
Contribution to non hazardous waste disposed	kg	4.77E+01	2.48E+01	3.52E-02	9.08E-03	1.93E+01	3.48E+00	-1.93E+01
Contribution to radioactive waste disposed	kg	2.18E-02	1.74E-02	2.79E-05	4.03E-06	4.08E-03	3.24E-04	-1.36E-02
Contribution to components for reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Contribution to materials for recycling	kg	3.46E+00	3.51E-01	0.00E+00	0.00E+00	0.00E+00	3.11E+00	0.00E+00
Contribution to materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Contribution to exported energy	MJ	3.41E-02	3.33E-03	0.00E+00	0.00E+00	0.00E+00	3.07E-02	0.00E+00

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

Contribution to biogenic carbon content of the product	kg of C	0.00E+00
Contribution to biogenic carbon content of the associated packaging	kg of C	5.55E-02

* The calculation of the biogenic carbon is based on the Ademe for the Cardboard (28%), EN16485 for Wood (39,52%), and APESA/RECORD for Paper (37,8%)

Mandatory Indicators		SpaceLogic MP500C PIBCV Actuator, with Stem Adapter - MP500C							
Impact indicators	Unit	[B1 - B7] - Use	[B1]	[B2]	[B3]	[B4]	[B5]	[B6]	[B7]
Contribution to climate change	kg CO2 eq	1.24E+02	0	0.00E+00	0	0	0	1.24E+02	0
Contribution to climate change-fossil	kg CO2 eq	1.22E+02	0	0.00E+00	0	0	0	1.22E+02	0
Contribution to climate change-biogenic	kg CO2 eq	1.61E+00	0	0.00E+00	0	0	0	1.61E+00	0
Contribution to climate change-land use and land use change	kg CO2 eq	0.00E+00	0	0.00E+00	0	0	0	0.00E+00	0
Contribution to ozone depletion	kg CFC-11 eq	5.22E-07	0	0.00E+00	0	0	0	5.22E-07	0
Contribution to acidification	mol H+ eq	6.32E-01	0	0.00E+00	0	0	0	6.32E-01	0
Contribution to eutrophication, freshwater	kg P eq	2.30E-04	0	0.00E+00	0	0	0	2.30E-04	0
Contribution to eutrophication marine	kg N eq	7.56E-02	0	0.00E+00	0	0	0	7.56E-02	0
Contribution to eutrophication, terrestrial	mol N eq	1.03E+00	0	0.00E+00	0	0	0	1.03E+00	0
Contribution to photochemical ozone formation - human health	kg COVNM eq	2.46E-01	0	0.00E+00	0	0	0	2.46E-01	0
Contribution to resource use, minerals and metals	kg Sb eq	2.97E-05	0	0.00E+00	0	0	0	2.97E-05	0
Contribution to resource use, fossils	MJ	2.75E+03	0	0.00E+00	0	0	0	2.75E+03	0
Contribution to water use	m3 eq	7.97E+00	0	0.00E+00	0	0	0	7.97E+00	0

Inventory flows Indicators		SpaceLogic MP500C PIBCV Actuator, with Stem Adapter - MP500C							
Inventory flows	Unit	[B1 - B7] - Use	[B1]	[B2]	[B3]	[B4]	[B5]	[B6]	[B7]
Contribution to use of renewable primary energy excluding renewable primary energy used as raw material	MJ	4.99E+02	0	0.00E+00	0	0	0	4.99E+02	0
Contribution to use of renewable primary energy resources used as raw material	MJ	0.00E+00	0	0.00E+00	0	0	0	0.00E+00	0
Contribution to total use of renewable primary energy resources	MJ	4.99E+02	0	0.00E+00	0	0	0	4.99E+02	0
Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	2.75E+03	0	0.00E+00	0	0	0	2.75E+03	0
Contribution to use of non renewable primary energy resources used as raw material	MJ	0.00E+00	0	0.00E+00	0	0	0	0.00E+00	0
Contribution to total use of non-renewable primary energy resources	MJ	2.75E+03	0	0.00E+00	0	0	0	2.75E+03	0
Contribution to use of secondary material	kg	0.00E+00	0	0.00E+00	0	0	0	0.00E+00	0
Contribution to use of renewable secondary fuels	MJ	0.00E+00	0	0.00E+00	0	0	0	0.00E+00	0
Contribution to use of non renewable secondary fuels	MJ	0.00E+00	0	0.00E+00	0	0	0	0.00E+00	0
Contribution to net use of freshwater	m^3	1.86E-01	0	0.00E+00	0	0	0	1.86E-01	0
Contribution to hazardous waste disposed	kg	2.97E+00	0	0.00E+00	0	0	0	2.97E+00	0
Contribution to non hazardous waste disposed	kg	1.93E+01	0	0.00E+00	0	0	0	1.93E+01	0
Contribution to radioactive waste disposed	kg	4.08E-03	0	0.00E+00	0	0	0	4.08E-03	0
Contribution to components for reuse	kg	0.00E+00	0	0.00E+00	0	0	0	0.00E+00	0
Contribution to materials for recycling	kg	0.00E+00	0	0.00E+00	0	0	0	0.00E+00	0
Contribution to materials for energy recovery	kg	0.00E+00	0	0.00E+00	0	0	0	0.00E+00	0
Contribution to exported energy	MJ	0.00E+00	0	0.00E+00	0	0	0	0.00E+00	0

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

Life cycle assessment performed with EIME version v6.2.5-6, database version 2024-01 in compliance with ISO14044, EF3.1 method is applied, for biogenic carbon storage, assessment methodology -1/1 is used

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.

Registration number :	SCHN-02342-V01.01-EN	*Drafting rules*	PEP-PCR-ed4-2021 09 06
		Supplemented by	PSR-0005-ed3.1-EN-2023 12 08
Verifier accreditation N°	VH42	*Information and reference documents*	www.pep-ecopassport.org
Date of issue	2026-04	*Validity period*	5 years
Independent verification of the declaration and data, in compliance with ISO 14025 : 2006			
Internal	External X		
The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain) *PEPs are compliant with NF C08-100-1:2022 and EN 50693:2019 or NF E38-500 :2022* *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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