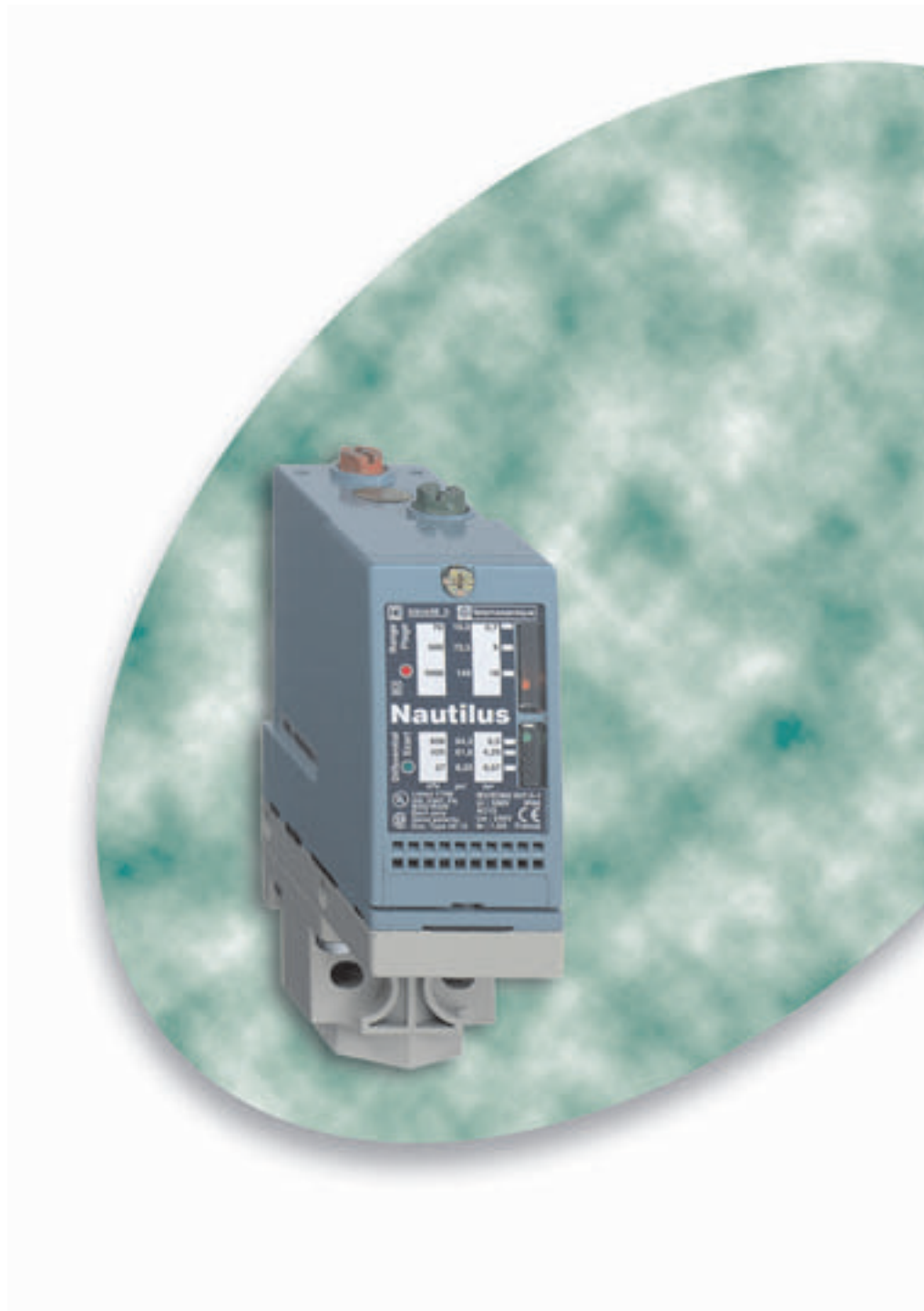


Electromechanical pressure
and vacuum switches
for control circuits
Telemecanique Nautilus XML
Product Environmental Profile



Product Environmental Profile - PEP

Product overview

Type XML electromechanical pressure and vacuum switches are designed for the control circuits. They are used to control the pressure of hydraulic oils, fresh water, sea water, air, water vapour, corrosive fluids or semi-liquid products, up to 500 bar. This range consists of the following pressure and vacuum switches:

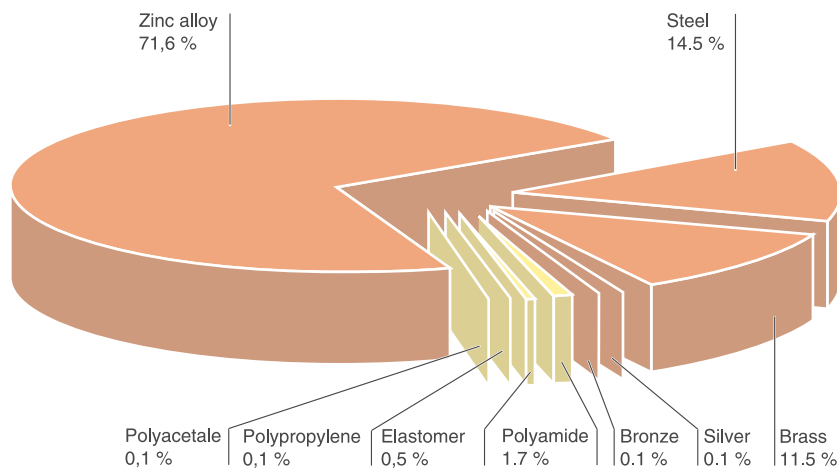
Reference	Reference	Service life
XML- A	Fixed differential pressure switches	20 years
XML- B, C	Adjustable differential pressure switches	20 years
XML- D	2-stage pressure switches (fixed differential)	20 years
XML- AM	Fixed differential pressure switches	20 years
XML- BM, CM	Adjustable differential pressure switches	20 years
XML- DM	2-stage pressure switches (fixed differential)	20 years

The product chosen for the environmental analysis of the range is the XML-B300D2S11 pressure switch. It is representative of all the pressure and vacuum switches in the XML range, which are all produced by the same manufacturing process.

The environmental analysis was performed in conformity with ISO 14040 "Environmental management: Life cycle assessment – Principle and framework". This analysis takes all the stages in the life cycle of the product into account: extraction of raw materials and manufacture of materials, manufacture of the product, utilisation, distribution (transport and packaging), end of life.

Constituent materials

Without its packaging, the XML-B300D2S11 weighs 750 g, which is distributed as follows:



Toutes les dispositions sont prises auprès de nos services, fournisseurs et sous-traitants pour que nos produits ne contiennent pas de substances interdites par la réglementation en vigueur ⁽¹⁾ when they are put on the market.

(1) List available on request.

Manufacturing

The XML range of pressure and vacuum switches is manufactured at a Schneider Electric production site operating an ISO 14001 certified environmental management system.

Distribution

The packaging was designed in compliance with the European Union's 94/62/EC packaging directive in order to reduce the weight and volume and consequently the environmental impact of the distribution phase of the life cycle of the product.

The packaging of the XML pressure and vacuum switches weighs 29 g and is made only of 100 % recyclable cardboard.

The product distribution flows have been optimised by setting up local distribution centres close to the market areas.

Product Environmental Profile - PEP

Utilization

The products in the XML range do not generate any environmental pollution requiring special precautionary measures (noise, emissions, etc.); they do not use any energy.

End of life

At end of life, no special depollution measures or manual dismantling are needed for any of the components or sub-assemblies; the product can be crushed as is, without any special precautionary measures being required.

After crushing, the mass proportion of recyclable material in the representative product, XML-B300D2S11, is greater than 95 %. This percentage includes all the metal parts (zinc alloy, steel, brass, etc.).

The plastic parts can be recovered energetically.

Environmental impacts



The EIME (Environmental Impact and Management Explorer) software, version 1.6, and its database, version 5.4, were used for the Life Cycle Assessment (LCA) of the product chosen as representative of the range.

The analysis focused on the XML-B300D2S11 pressure switch, which uses no energy. For the purposes of the LCA, its estimated service life is 10 years.

The EIME software was used to model the environmental impacts on the Manufacturing phase (including the extraction of raw materials and processing of basic materials) and on the Distribution and Utilisation phases of the life cycle.

The results of the LCA performed with the EIME software are as follows:

Presentation of product environmental impacts

Environmental indicators	Unit	For an XML-B300D2S11 pressure switch			
		S = M + D + U	M	D	U
Raw Material Depletion	Y-1	6.72 10 ⁻¹⁴	6.72 10 ⁻¹⁴	1.68 10 ⁻¹⁸	0
Energy consumption	MJ	-	-	-	-
Water Depletion	dm ³	78.8	77.7	1.08	0
Global Warming	g=CO ₂	4.94 10 ³	3.91 10 ³	1.03 10 ³	0
Ozone Depletion	g=CFC-11	1.66 10 ⁻³	1.46 10 ⁻³	1.97 10 ⁻⁴	0
Photochemical Ozone Creation	g=C ₂ H ₄	5.13	3.37	1.77	0
Air Acidification	g=H ⁺	1.26	1.13	1.36 10 ⁻¹	0
Hazardous Waste Production	kg	1.54 10 ⁻³	1.44 10 ⁻³	1.04 10 ⁻⁴	0

Product Environmental Profile - PEP

System approach

It is important to remember that the product environmental report must take into account the application or installation in which the product is incorporated: the environmental impact values given above are only valid within the context specified.

Glossary

Raw Material Depletion (RMD)

This indicator quantifies the consumption of raw materials during the life cycle of the product. It is expressed as the fraction of natural resources that disappear each year, with respect to all the annual reserves of the material.

Energy Depletion (ED)

This indicator gives the quantity of energy consumed, whether it be from fossil, hydroelectric, nuclear or other sources.

This indicator takes into account the energy from the material produced during combustion. It is expressed in MJ.

Water Depletion (WD)

This indicator calculates the volume of water consumed, including drinking water and water from industrial sources.

It is expressed in dm^3 .

Global Warming Potential (GWP)

The global warming of the planet is the result of the increase in the greenhouse effect due to the sunlight reflected by the earth's surface being absorbed by certain gases known as "greenhouse-effect" gases. The effect is quantified in gram equivalent of CO_2 .

Ozone Depletion (OD)

This indicator defines the contribution to the phenomenon of the disappearance of the stratospheric ozone layer due to the emission of certain specific gases.

The effect is expressed in gram equivalent of CFC-11.

Photochemical Ozone Creation (POC)

This indicator quantifies the contribution to the "smog" phenomenon (the photochemical oxidation of certain gases which generates ozone) and is expressed in gram equivalent of methane (C_2H_4).

Air Acidification (AA)

The acid substances present in the atmosphere are carried by rain. A high level of acidity in the rain can cause damage to forests.

The contribution of acidification is calculated using the acidification potentials of the substances concerned and is expressed in mode equivalent of H^+ .

Hazardous Waste Production (HWP)

This indicator calculates the quantity of specially treated waste created during all the life cycle phases (manufacturing, distribution and utilization). For example, special industrial waste in the manufacturing phase, waste associated with the production of electrical power, etc.

It is expressed in kg.



We are committed to safeguarding our planet by "Combining innovation and continuous improvement to meet the new environmental challenges".

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