S800 I/O System

Environmental Declaration

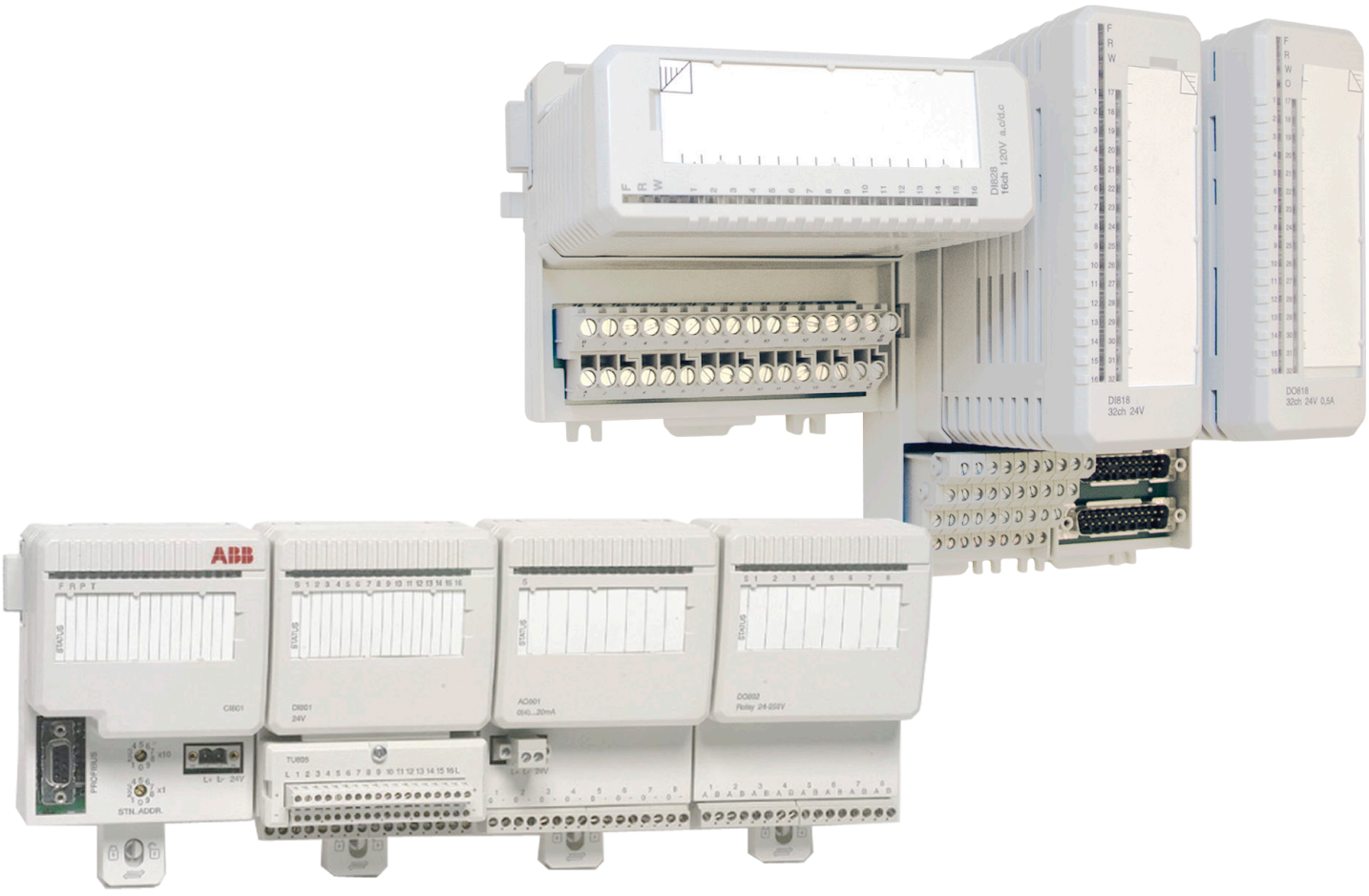

ABB and the Environment

ABB has been concerned with environmental issues for a long time. Consequently, the ABB group was an early adopter of ISO 14001-based environmental management systems and has formally been certified to that standard for years.

An important component of those systems is Life-cycle Assessments (LCA's) of the ABB group's products. These involve studying the environmental impact of products over their lifetimes by quantifying the input of energy and raw materials needed and the emissions and waste generated throughout the products' lifecycles. These studies are carried out according to the ISO 14040-43 standard and then condensed into environmental declarations like this one.

Consequently, the environmental management systems specify how the group's environmental work shall be carried out while the environmental declarations describe the results of that work.

The Product Covered by this Declaration
This environmental declaration covers a range of input/output modules for industrial process control, designated by ABB as S800 I/O (Figure 1), consisting of plastic cases, containing printed circuit boards, connectors, electrical conductors and fasteners. The modules are made for fitting onto metallic mounting rails.

The weight of each module is approximately 0.5 kg (1.1 lbs) and the distribution across constituent materials is illustrated by diagram 1.

Environmental Performance
The lifecycle of S800 I/O modules studied covers the process from raw materials extraction to the end of use, including transport both of the constituent materials to the place of assembly and of the finished product to the place of use.

Table 1 shows the environmental impact of S800 I/O modules on the basis of the following assumptions:
1) an average product transport distance of 1,000 km (620 miles),
2) a period of continuous operation of ten years,
3) an average (European) electricity mix of 10 % gas,15 % hydro,36 % nuclear, 10 % oil,19 % coal and 10 % lignite.

For comparison's sake, the various contributing factors to each impact category are converted to equivalents of a single substance, in accordance with the LCA method.

Diagram 2 shows the distribution of impact by category over the three phases: use, manufacture, and transport: As can be seen, the dominant impact is related to use of the product, in turn due to its consumption of electrical energy.

Recycling and Disposal
Much of the product can easily be recycled thanks to the facts that:
1) it can easily be dismantled using ordinary hand tools
2) mechanical plastic parts are grade-marked
3) the mechanical plastic parts do not contain any metal inlays
Recycling would improve the environmental performance as specified in Table 1 due to recovery of the materials involved.

References
Life-cycle assessment (LCA), S800 I/O, ID No.: 3BSE019673.

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Diagram 1: Materials make-up of S800 I/O modules.

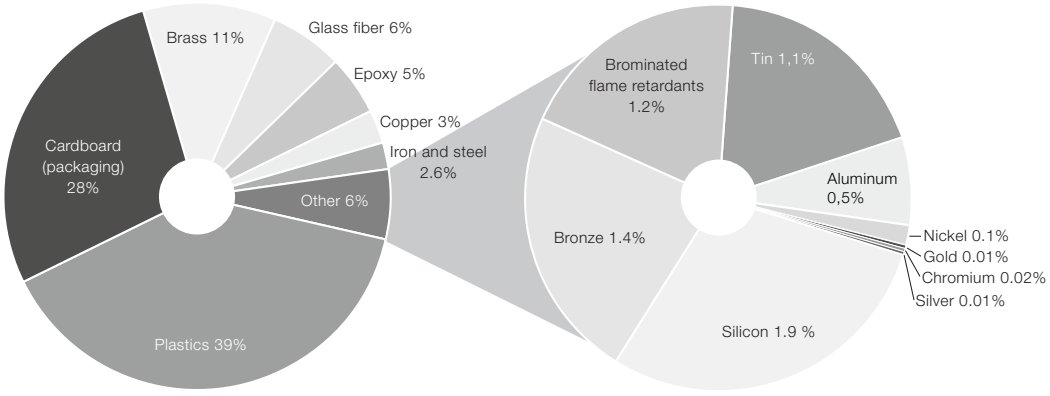
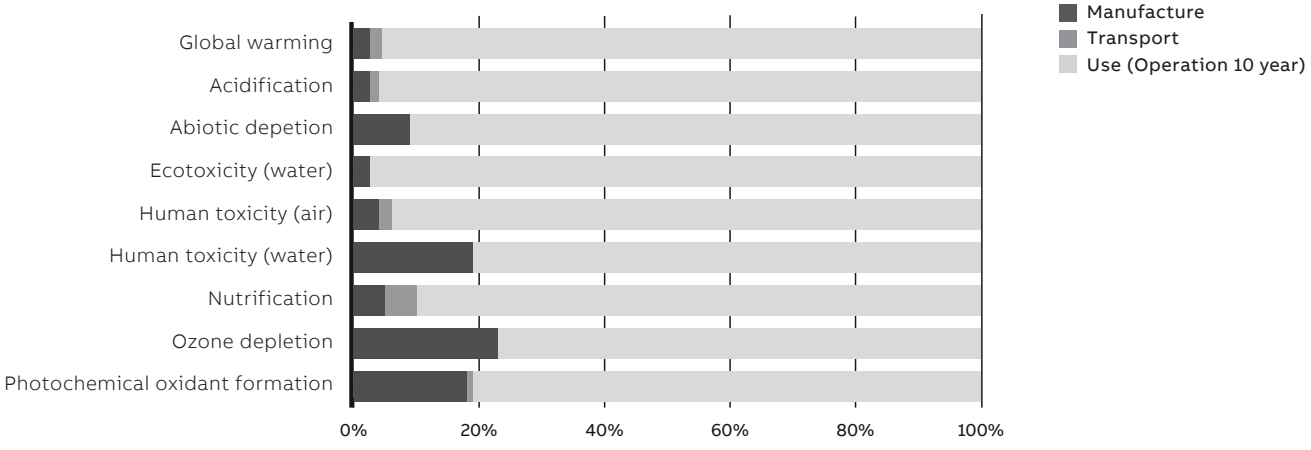


Figure 1: Some of the S800 and S800L I/O modules in the ABB I/O family.

Table 1: The environmental impact of S800 I/O modules by category

Environmental impact categories	Amount	Units (equivalents)
Global warming	1116 kg (2460 lbs)	Carbon dioxide
Acidification	6.9 kg (15.2 lbs)	Sulphur dioxide
Abiotic depletion	4.0 kg (8.8 lbs)	Silver
Nutrification	0.3 kg (0.7 lbs)	Phosphate
Ozone depletion	1E-4 kg (3.5E-3 oz)	CFC-11
Photochemical oxidant formation	0.3 kg (0.7 lbs)	Ethylene
Ecotoxicity (water)	0.02 m3 (0.7 ft3)	Polluted water exposed to the toxicologically acceptable limit
Human toxicity (air)	9.9 kg (21.8 lbs)	Human body exposed to the toxicologically acceptable limit
Human toxicity (water)	0.01 kg (0.35 oz)	Human body exposed to the toxicologically acceptable limit

Diagram 2: The distribution of environmental impact by category and life-cycle phase.



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