

# LON Multi-function push button panels

Product Environmental Profile



# Product Environmental Profile – PEP

## Product overview

The main function of the LON Multi-function Push button panels product range is to allow user defined control of the room functions. This range consists of multi-function push button panels.

The representative product used for the analysis is LON System-M PB MF-IR 4-fold ref. MTN881651.

The environmental impacts of this referenced product are representative of the impacts of the other products of the range which are developed with the same technology.

The environmental analysis was performed in conformity with ISO14040 “Environmental management: Life cycle assessment – Principle and framework”.

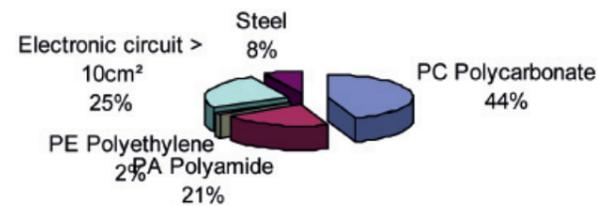
This analysis takes the stages in the life cycle of the product into account.

## Constituent materials

The mass of the range products spreads out between 25G and 35G packing excluded. It is 26,2 G for the LON System-M PB MF-IR 4-fold ref. MTN881651.

The constituent materials are distributed as follows:

| Categories | Materials                  | Mass (g):   | %             |
|------------|----------------------------|-------------|---------------|
| Plastics   | PC Polycarbonate           | 11,7        | 44,66         |
|            | PA Polyamide               | 5,5         | 20,99         |
|            | PE Polyethylene            | 0,5         | 1,91          |
| Metals     | Steel                      | 2           | 7,63          |
|            | Electronic circuit > 10cm² | 6,5         | 24,81         |
|            | <b>Total</b>               | <b>26,2</b> | <b>100,0%</b> |



All necessary steps have been taken with our services, suppliers and subcontractors to ensure that the materials used in the composition of the LON System-M PB MF-IR 4-fold range do not contain any substances prohibited by the legislation that was in force\* when the product or range was put on the market.

Products of this range are designed in conformity with the requirements of the RoHS directive (European Directive 2002/95/EC of 27 January 2003) and do not contain, or in the authorised proportions, lead, mercury, cadmium, chromium hexavalent, flame retardant (polybromobiphenyls PBB, polybromodiphenylthers PBDE) as mentioned in the Directive.

\* according to the list available on request.

## Manufacturing

The LON Multi-function Push button panels product range is manufactured at a Schneider Electric production site in Merten Wiehl on which an ISO14001 certified environmental management system has been established.

## Distribution

The weight and volume of the packaging have been reduced, in compliance with the European Union's packaging directive.

The LON System-M PB MF-IR 4-fold, ref: MTN881651 packaging weight is 10,6G.

It consists of Paper (Recycled, Without Deinking) 0,5G, PE (Low Density, LDPE, Film) 0,1G, Paper (Recycled, With Deinking) 2,1G, Cardboard (Duplex-Triplex) 7,5G, PP (Polypropylene) 0,4G.

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

## Utilisation

The products of the LON System-M PB MF-IR 4-fold range do not generate environmental pollution requiring special precautionary measures (noise, emissions, and so on).

The thermal dissipation depends on the conditions under which the product is implemented and used.

This dissipated power spreads out between 0.5 W and 1 W for the LON System-M PB MF-IR 4-fold product range.

For an utilisation rate of 100%, it is 0.8 W for the referenced LON System-M PB MF-IR 4-fold ref. MTN881651.

## End of life

At the end of life, the products of the LON System-M PB MF-IR 4-fold must be dismantled to facilitate the recovery of the various constituent materials.

The proportion of recyclable material is higher than 76%.

This percentage includes the following materials:

PC Polycarbonate, PA Polyamide, PE Polyethylene, Electronic circuit > 10cm², Steel.

The products of this range also include Electronic circuit > 10cm² which have to be disassembled and which must be sent to specialised treatment systems.

The end of life details appear on the product end-of-life recovery sheet.

## Environmental impacts

The EIME (Environmental Impact and Management Explorer) software, version 4.0, and its database, version V10 were used for the life cycle assessment (LCA).

The assumed service life of the product is 20 years with utilisation rate of the installation of 95% and the electrical power model used is Stand By.

The scope of the analysis was limited to a LON System-M PB MF-IR 4-fold ref. MTN881651.

The environmental impacts were analysed for the Manufacturing (M) phases, including the processing of raw materials, and for the Distribution (D) and Utilisation (U) phases.



### Presentation of the product environmental impacts

| Indicator                    | Unit      | For 1 LON System-M PB MF-IR 4-fold ref. MTN881651 |            |            |            |
|------------------------------|-----------|---|------------|------------|------------|
|                              |           | S = M + D + U                                     | M          | D          | U          |
| Raw Material Depletion       | Y-1       | 1.052E-13   | 1.0365E-13 | 9.1656E-19 | 1.5475E-15 |
| Energy Depletion             | MJ        | 1.4226E3  | 39.084     | 7.0784E-1  | 1.3828E3   |
| Water Depletion              | dm3       | 2.7169E2  | 57.647     | 2.0753E-1  | 2.1384E2   |
| Global Warming Potential     | g ~CO2    | 7.3127E4  | 2.4304E3   | 36.984     | 7.0659E4   |
| Ozone Depletion              | g ~CFC-11 | 6.6095E-3   | 5.0703E-4  | 2.2613E-5  | 6.0799E-3  |
| Photochemical Ozone Creation | m3        | 1.4451E7  | 8.2889E5   | 7.3521E3   | 1.3615E7   |
| Air Acidification            | g ~H+     | 25.574  | 1.024      | 2.9139E-2  | 24.522     |
| Hazardous Waste Production   | g ~H*     | 11.854  | 6.6607E-1  | 5.1725E-3  | 11.183     |
| Water Eutrophication         | dm3       | 1.7633E4  | 4.4886E2   | 6.205      | 1.7178E4   |
| Air toxicity                 | g ~PO4    | 3.084E-1  | 1.0495E-1  | 1.6474E-3  | 2.0181E-1  |
| Water toxicity               | kg        | 1.164   | 3.7966E-2  | 1.7172E-5  | 1.126      |

The life cycle analysis shows that the phase Use is the life cycle phase which has the greatest impact on the majority of environmental indicators. The environmental parameters of this phase have been optimized at the design stage. Schneider-Electric takes all necessary measures required to optimise this parameter.

The product benefits from previous versions is that it is a new device built with state of the art electronics components which allows to reduce its impact on environment.

The environmental impacts variability between the upper part and the lower part of the range is less than 20%. Values given above are only valid within the context specified. They can not be used directly to compile the environmental report on the installation.

# Product Environmental Profile – PEP

## System approach

The LON System-M PB MF-IR 4-fold can reduce impacts onto environment, because by its utilization lighting usage in rooms can be very accurately adapted and significant savings in electrical energy consumption achieved.

As the product of the range are designed in accordance with the RoHS Directive (European Directive 2002/95/EC of 27 January 2003), they can be incorporated without any restriction within an assembly or an installation submitted to this Directive.

Please note that the environmental impacts of the product depend on the use and installation conditions of the product. Impacts values given above are only valid within the context specified and cannot be directly used to draw up the environmental assessment of the installation.

## 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 m <sup>3</sup> .  |
| 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 <sub>2</sub> .                          |
| 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 <sub>2</sub> H <sub>4</sub> ).  |
| 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 <sup>+</sup> . |
| Hazardous Waste Production (HWP)   | This indicator gives the quantity of waste, produced along the life cycle of the product (manufacturing, distribution, use, including production of energy), that requires special treatments. 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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This document is complying with ISO14020 which relates to the general principles of environmental declarations and to the ISO 14025 relating to life-cycle environmental declarations.

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