Environmental Product Declaration

HID iCLASS SE® Express R10

Contactless Smartcard Reader

The HID iCLASS SE® Express R10 is a card reader device that communicates with a personalized credential via RF technology.

ASSA ABLOY is committed to providing products and services that are environmentally sound throughout the entire production process and the product lifecycle. Our unconditional aim is to make sustainability a central part of our business philosophy and culture, but even more important is the job of integrating sustainability into our business strategy. The employment of EPDs will help architects, designers and LEED-APs select environmentally preferable door openings.

ASSA ABLOY will continue our efforts to protect the environment and health of our customers/end users and will utilize the EPD as one means to document those efforts.

UL CERTIFIED
ENVIRONMENTAL PRODUCT DECLARATION
UL.COM/EPD

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.

PROGRAM OPERATOR	UL Environment
DECLARATION HOLDER	ASSA ABLOY/ HID
DECLARATION NUMBER	
DECLARED PRODUCT	HID iCLASS SE® Express R10
REFERENCE PCR	Builders Hardware PCR UL 9004
DATE OF ISSUE	November 27, 2018
PERIOD OF VALIDITY	5 Years
CONTENTS OF THE DECLARATION	Product definition and information about building physics Information about basic material and the material's origin Description of the product's manufacturing Indication of product processing Information about the in-use conditions Life cycle assessment results Testing results and verifications

The PCR review was conducted by	The Independent Expert Committee, SVR
This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories ☐ INTERNAL ☒ EXTERNAL	UL Environment
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by	

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Product Definition and Information

Product Description

Product name: HID iCLASS SE® Express R10
Product characteristic: iCLASS SE Reader

The HID iCLASS SE® Express R10 is a card reader device that communicates with a personalized credential via RF technology. Additional features include:

- Supports Seos® and ISO 14443A unique identifier (UID) only
- Integrated HID Mobile Access® via NFC & BLE
- Durable pigtail wiring connection

Application

The HID iCLASS SE® Express R10 is ideal for a wide range of applications requiring ID authentication. Common applications include but are not limited to: commercial buildings, industrial buildings, government buildings, military installations, campus settings, and hospital buildings.

Technical Data

For the declared product, the following technical data in the delivery status must be provided with reference to the test standard:

Technical Data	
Mounting	Mini-Mullion size
Power supply	12V
Current requirements	60 mA
Operating temperature	-35 to 65°C
Operating humidity	5% to 95%

Placing on the Market / Application Rules

The standards that can be applied for HID iCLASS SE® Express R10 are:
- UL 294 - The Standard of Safety for Access Control System Units
- C22.2 No. 205 Signal Equipment
- CB Certificate US-21166-UL
- US FCC Radio Certification 47 CFR Part 15, Subpart C
- Canada Radio Certification RSS-210 Issue 8: 2010
- EN 60950-1: 2006/ All: 2009 +A1:2010 +A12:2011 - Information technology equipment - Safety - Part1: General requirements
- EN 301 489-1 V1.9.2 - Common Technical Requirements
- EN 301 489-3 V1.6.1 - Specific conditions for Short Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz
- EN 50130-4:2011 - Alarm systems – Electromagnetic Compatibility and Environmental test methods
- ETSI EN 300 330-2 V1.5.1 Electromagnetic Compatibility and Radio spectrum Matters (ERM)
- EN 50581:2012 – RoHS2 Conformity

Delivery Status

Shipments of HID products are delivered in a cardboard box.

Base Materials / Ancillary Materials

Material	Percentage in mass (%)
Stainless Steel	5.20%
Electronics/Mechanics	39.00%
Plastics	43.45%
Other	12.35%
Total	100.00%

Manufacture

The product is assembled by a contract manufacturer's production facility located in Mexico. Injection molded plastic housing, as well as the electronic components, are manufactured by an upstream supplier and assembled on site at the production facility. Assembled components are potted into place before being packaged for shipment.

Environmental and Health During Manufacturing

HID is committed to producing and distributing door opening solutions with minimal environmental impact, where health & safety is the primary focus for all employees and associates.
• Environmental operations, GHG, energy, water, waste, VOC, surface treatment and H&S are being routinely monitored. Inspections, audits, and reviews are conducted periodically to ensure that applicable standards are met and environment management program effectiveness is evaluated.
• Code of Conduct covers human rights, labor practices and decent work. Management of ASSA ABLOY is aware of their environmental roles and responsibilities, providing appropriate training, supporting accountability and recognizing outstanding performance.
• The contract manufacturer's facility has certification of Environmental Management to ISO 14001:2004 and Occupational Health and Safety to OHSAS 18001:2007.

Product Processing / Installation

HID iCLASS SE® Express R10 Card Readers are distributed through and installed by trained installation technicians, such as locksmiths, carpenters etc. adhering to local/national standards and requirements.

Packaging

Shipments of HID products are delivered in a cardboard box.

Material	Quantity (% By Weight)
Cardboard	97%
Other	3%
Total	**100%**

Conditions of Use

No cleaning or annual maintenance is required.

Environmental and Health During Use

There is no harmful emissive potential. No damage to health or impairment is expected under normal use corresponding to the intended use of the product.

Reference Service Life

The reference service life is 30 years

Extraordinary Effects

Fire

The external housing of the HID iCLASS SE® Express R10, consisting of the bezel and mounting plate, are constructed from polycarbonate resin thermoplastic. The housing material, and thus the reader as a whole unit, has been classified as having a UL94 HB Flame Rating. A UL94 Flame Rating of HB indicates: slow burning on a horizontal specimen; burning rate < 76 mm/min for thickness < 3 mm and burning stops before 100 mm.

Water

No substances are used on the device, which could have a negative impact on ecological water quality on contact with water.

Mechanical Destruction

No danger to the environment can be anticipated during mechanical destruction.

Re-use Phase

During the reference service life, the reader can be disconnected and dismounted then remounted and attached elsewhere.

Disposal

The card reader can be recycled according to local electronics recycling options offered by municipalities, electronics recyclers or garbage haulers.

Further Information

HID Global
611 Center Ridge Dr
Austin, TX 78753

Life Cycle Assessment

Declared Unit

The declaration refers to the fictional unit of 1 unit (or piece) of HID iCLASS SE® Express R10, as specified in the Builders Hardware PCR

Name	Value	Unit
Declared unit	1	Card Reader
Unit	0.092	kg
Packaged Unit	0.180	kg
Conversion factor to 1 kg	10.870	-

System Boundary

This is a cradle to gate with options Environmental Product Declaration. The following life cycle phases were considered:

Product Stage			Construction Process Stage		Use Stage							End of Life Stage*				Benefits and Loads Beyond the System Boundaries
Raw material supply	Transport	Manufacturing	Transport from gate to the site	Construction/ installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction /demolition	Transport	Waste processing	Disposal	Reuse- Recovery- Recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MND	MND	MND	X	MND	MND	X	X	X	X

Description of the System Boundary Stages Corresponding to the PCR
(X = Included; MND = Module Not Declared)

*This includes provision of all materials, products and energy, packaging processing and its transport, as well as waste processing up to the end-of waste state or disposal of final residues.

Estimates and Assumptions

End of Life
In the End of Life phase, for all the materials which can be recycled, a recycling scenario with 100% collection rate was assumed.

Cut-off Criteria

In the assessment, all available data from the production process are considered, i.e. all raw materials used, auxiliary materials (e.g. lubricants), thermal energy consumption and electric power consumption - including material and energy flows contributing less than 1% of mass or energy (if available). In case a specific flow contributing less than 1% in mass or energy is not available, worst case assumption proxies are selected to represent the respective environmental impacts. Impacts relating to the production of machines and facilities required during production are out of the scope of this assessment.

Background data

For life cycle modeling of the considered products, the GaBi 8 Software System for Life Cycle Engineering, developed by thinkstep, is used. The GaBi-database contains consistent and documented datasets which are documented in the online GaBi-documentation. To ensure comparability of results in the LCA, the basic data of GaBi database were used for energy, transportation and auxiliary materials.

Data Quality

The data sources used are complete and representative of North America in terms of the geographic and technological coverage and are a recent vintage (i.e. less than ten years old). The data used for primary data are based on direct information sources of the manufacturer. Secondary data sets were used for raw materials extraction and processing, end of life, transportation, and energy production flows. Wherever secondary data is used, the study adopts critically reviewed data for consistency, precision, and reproducibility to limit uncertainty.

Period Under Review

The period under review is September through December of 2017.

Allocation

Allocation was determined on a per unit basis.

Comparability

A comparison or an evaluation of EPD data is only possible if all data sets to be compared were created according to EN 15804 and the building context, respectively the product-specific characteristics of performance, are taken into account. Environmental declarations from different programs may not be comparable. Full conformance with the PCR for North American Builders Hardware products allows EPD comparability only when all stages of a Builders Hardware product's life cycle have been considered. However, variations and deviations are possible.

LCA: Modeling Scenarios and Additional Technical Information

The following technical information is a basis for the declared modules or can be used for developing specific scenarios in the context of a building assessment if modules are not declared.

Installation into the building (A5)		
Name	**Value**	**Unit**
Auxiliary	-	kg
Water consumption	-	m^3
Other resources	-	kg
Electricity consumption	-	kWh
Other energy carriers	-	MJ
Material loss	-	kg
Output substance following waste treatment on-site	0.05	kg
Dust in the air	-	kg
VOC in the air	-	kg

Reference Service Life		
Name	**Value**	**Unit**
Reference Service Life	30	years

End of life (C1-C4)		
Name	**Value**	**Unit**
Collected separately	0.09	kg
Collected as mixed construction waste	0.00	kg
Reuse	0.00	kg
Recycling	0.00	kg
Energy recovery	0.02	kg
Landfilling	0.07	kg

Operational energy use (B6)		
Name	**Value**	**Unit**
Electricity consumption	130.64	kWh
Years of use	30	years
Days per year in use	365.25	days
Hours per day in on mode	1	h
Hours per day in stand-by mode	23	h
Power consumption (on mode)	1.52	W
Power consumption (stand-by mode)	0.96	W

LCA Results

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	1.9E+00	1.1E-01	9.0E-03	1.0E+02	7.6E-04	1.7E-04	2.1E-02	-5.5E-02
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	3.1E-09	4.3E-12	9.1E-15	1.0E-09	2.9E-14	5.9E-15	5.8E-16	7.7E-11
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.4E-02	5.6E-04	5.0E-05	8.8E-01	4.6E-06	1.1E-06	9.6E-05	-5.9E-05
EP	Eutrophication potential	kg N-Eq.	5.5E-04	3.1E-05	8.6E-06	1.2E-02	2.5E-07	5.1E-08	3.6E-05	-3.1E-06
SP	Smog formation potential	kg O_3-Eq.	1.0E-01	1.5E-02	4.7E-04	6.9E+00	1.3E-04	2.5E-05	3.8E-04	-1.4E-03
FFD	Fossil Fuel Depletion	MJ-surplus	2.2E+00	2.0E-01	2.9E-03	6.2E+01	1.3E-03	2.8E-04	3.2E-03	-9.0E-02

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	1.9E+00	1.1E-01	5.3E-02	1.0E+02	7.6E-04	1.7E-04	2.4E-02	-5.5E-02
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	2.8E-09	4.3E-12	9.1E-15	8.6E-10	2.9E-14	5.9E-15	5.8E-16	6.1E-11
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.5E-02	4.6E-04	3.3E-05	9.6E-01	3.7E-06	9.2E-07	3.7E-05	-5.2E-05
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	7.2E-04	7.9E-05	1.2E-05	3.4E-02	6.7E-07	1.3E-07	4.0E-05	-7.6E-06
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	8.7E-04	6.6E-05	7.0E-06	9.4E-02	4.4E-07	1.1E-07	9.6E-06	-9.0E-06
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	6.7E-05	4.7E-11	1.8E-09	1.1E-06	3.1E-13	3.0E-13	1.0E-09	-5.1E-08
ADPF	Abiotic depletion potential for fossil resources	MJ	2.5E+01	1.4E+00	2.6E-02	1.5E+03	9.6E-03	2.2E-03	2.5E-02	-7.2E-01

Results below contain the resource use throughout the life cycle of the product.

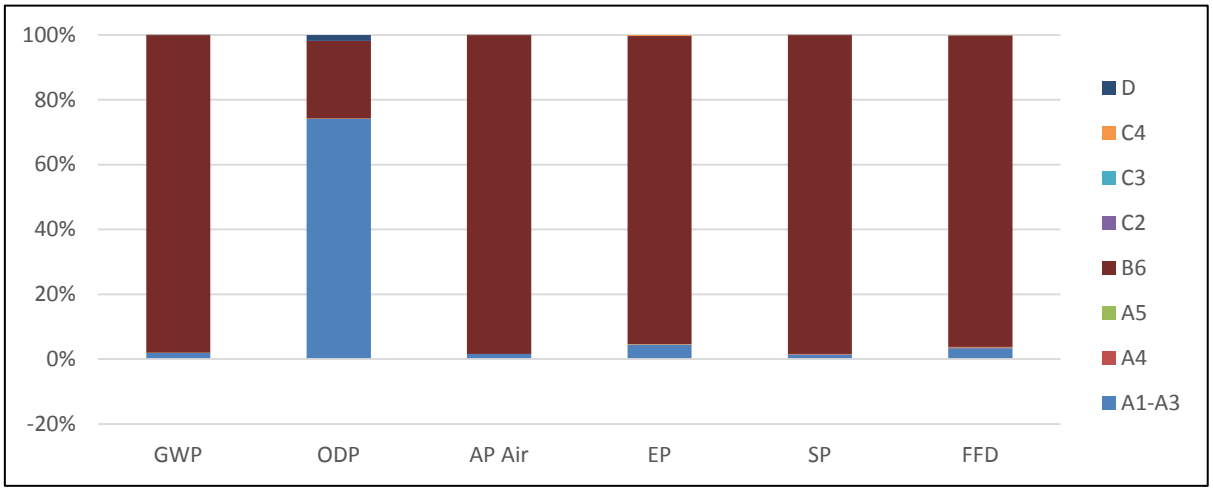
Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B6	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	MJ	3.9E+00	0.0E+00	3.4E-03	0.0E+00	0.0E+00	0.0E+00	2.2E-03	5.9E-03
PERM	Renewable primary energy resources as material utilization	MJ	8.9E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PERT	Total use of renewable primary energy resources	MJ	4.8E+00	0.0E+00	3.4E-03	0.0E+00	0.0E+00	0.0E+00	2.2E-03	5.9E-03
PENRE	Nonrenewable primary energy as energy carrier	MJ	2.7E+01	1.4E+00	2.7E-02	1.8E+03	9.7E-03	2.3E-03	2.7E-02	-7.2E-01
PENRM	Nonrenewable primary energy as material utilization	MJ	8.9E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PENRT	Total use of nonrenewable primary energy resources	MJ	2.8E+01	1.4E+00	2.7E-02	1.8E+03	9.7E-03	2.3E-03	2.7E-02	-7.2E-01
SM	Use of secondary material	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	2.1E+00	0.0E+00	1.6E-03	0.0E+00	0.0E+00	0.0E+00	1.1E-03	2.2E-03

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories										
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B6**	**C2**	**C3**	**C4**	**D**
HWD	Hazardous waste disposed	kg	1.7E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NHWD	Non-hazardous waste disposed	kg	1.0E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RWD	Radioactive waste disposed	kg	9.2E-04	0.0E+00	6.7E-07	0.0E+00	0.0E+00	0.0E+00	4.6E-07	-3.9E-07
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MFR	Materials for recycling	kg	9.0E-04	0.0E+00	4.7E-02	0.0E+00	0.0E+00	1.7E-03	0.0E+00	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EEE	Exported electrical energy	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EEE	Exported thermal energy	MJ	2.7E-02	0.0E+00	4.1E-02	0.0E+00	0.0E+00	0.0E+00	6.6E-03	0.0E+00

The operational energy use (B6) is the main driver of environmental impacts in the majority of categories, except for ozone depletion, where, the production (A1-A3) life cycle stage drives the results. Manufacturing impacts (A3) are primarily driven by electricity use. Raw materials, particularly the circuit board and polyurethane potting drive the production stage (A1), as these materials are the primary materials within the product. The figure below shows the graphical representation of these impacts across the product's life cycle stages



References

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- ULE 2013 — UL Environment, General Program Instructions, 2013.
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- CML 2001 — Center of Environmental Science of Leiden University impact categories and characterisation methods for impact assessment (CML)