ENVIRONMENTAL PRODUCT DECLARATION

pivCLASS SE RP40-H READER

ASSA ABLOY / HID GLOBAL





HID Global 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, consultants, designers, general contractors, and LEED practitioners select environmentally preferable security solutions. This EPD provides detailed requirements with which to evaluate the environmental impacts related to producing and using security solutions. HID Global will continue our efforts to protect the environment and will utilize the EPD as one means to document those efforts.





ENVIRONMENTAL PRODUCT DECLARATION



HID Global

Access control systems – pivCLASS SE RP40-H

According to EN 15804 and ISO 14025 Dual Recognition by UL Environment and Institut Bauen und Umwelt e.V.

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 Global
ULE DECLARATION NUMBER	4786980837.105.1
IBU DECLARATION NUMBER	EPD-ASA-20150220-IBA1-EN
DECLARED PRODUCT	pivCLASS SE RP40-H Reader
REFERENCE PCR	IBU Part B: Requirements of the EPD for Electronic Access Control Systems, 11-2013
DATE OF ISSUE	08/17/2015
PERIOD OF VALIDITY	5 years
SCOPE	This EPD is Manufacturer Declaration (1a) – Declaration of a specific product from a manufacturer's plant. The owner of the declaration shall be liable for the underlying information and evidence.
	Product definition
	Information about basic material and the material's origin
CONTENTS OF THE	Description of the product's manufacture
DECLARATION	Indication of product processing
	Life cycle assessment results
	Testing results and verifications

The PCR review was conducted by:	The Independent Expert Committee (SVR)			
The CEN Norm EN 15804 serves as the core PCR. This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories	u G			
☐ INTERNAL ☑ EXTERNAL	WadeStout, UL Environment			
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	IBU – Institut Bauen und Umwelte e.V.			





1. General Information

HID Global

Programme holder

IBU - Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany

Declaration number

EPD-ASA-20150220-IBA1-EN

This Declaration is based on the Product Category Rules:

Electronic Access Control Systems, 11-2013 (PCR tested and approved by the independent expert committee (SVR))

Menmanes

Issue date

17.08.2015

Valid to

16.08.2020

Prof. Dr.-Ing. Horst J. Bossenmayer (President of Institut Bauen und Umwelt e.V.)

Dr.-Ing. Burkhart Lenmanr (Managing Director IBU)

pivCLASS SE RP40-H

Owner of the Declaration

ASSA ABLOY (HID Global) 611 Center Ridge Drive Austin, TX 78753 USA

Declared product / Declared unit

This Declaration represents 1 card reader model pivCLASS SE RP40-H, with pigtail, including all custom configurations.

Scope:

The Life Cycle Assessment is based on data collected by the contract manufacturer of the RP40-H at their production facility located in Philippines.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Verification

The CEN Standard EN 15804 serves as the core PCR

Independent verification of the declaration and data according to ISO 14025

internal

x externally



Dr. Wolfram Trinius (Independent verifier appointed by SVR)

2. Product

2.1 Product description

The pivCLASS SE RP40-H reader, produced by HID Global, an ASSA ABLOY Group brand, is a device that communicates with a personalized credential via RF technology. The reader collects identity information from the credential and passes it along to a secured control unit via electrical cable. The control unit then grants or denies access to the credential holder. The reader is capable of communications using a high or low frequency RF signal and able to communicate with several credential formats. Also factory settings can be updated to various configurations allowing the reader flexibility in its function.

Supported credential formats:

- PKI-Based FIPS-201 including PIV, PIV-I, CIV, CAC, TWIC, and FRAC
- pivCLASS SE
- SE for DESFire EV1
- SE for MIFARE Classic
- HID Prox / AWID
- Indala Prox

Configurable functions:

- LED function
- · Audible signal (Beep)

- · Communication format
- Optical Tamper

2.2 Application

The pivCLASS SE RP40-H reader is suitable for indoor and outdoor use, where ID authentication is required. Common applications include: Government buildings and Military installations.

2.3 Technical Data

The table presents the technical properties of pivCLASS SE RP40-H reader:

Technical data

i common data		
Name	Value	Unit
Mounting	Wall Switch Size	-
Power supply	5-16VDC	V
Current Requirements	110mA	Α
Operating Temperature	-35 to 65	°C
Operating Humidity	5% to 95%	%
Transmit Frequency	13.56MHz and 125kHz	kHz
Power Input "Standby"	1.02	W
Power Input "Operation"	1.32	W



2.4 Placing on the market / Application rules

Compliance with US, Canada, and CB Scheme Safetv:

- UL294-The Standard of Safety for Access Control System Units
- C22.2 No. 205 Signal Equipment
- CB Certificate US-21166-UL

Compliance with US and Canada Unlicensed Radios:

- US FCC Radio Certification 47 CFR Part 15, Subpart C
- Canada Radio Certification RSS-210 Issue 8: 2010

Compliance with the European Union R&TTE Directive:

The products are subject to CE marking according to the relevant harmonization legislation. Affixing the CE marking to the products means the compliance of the product with the a. m. Directive.

The following standards apply:

- 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); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 2: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive

Compliance with the RoHS2 Directive

The products are subject to CE marking according to the relevant harmonization legislation. Affixing the CE marking to the products means the compliance of the product with the a. m. Directive.

The following standard applies:

EN 50581:2012 – RoHS2 Conformity

2.5 Delivery status

Each reader unit is delivered individually packaged with mounting plate, and mounting hardware. Packaged reader dimensions: 3.3" x 4.8" x 1.0" (8.4cm x 12.2cm x 2.4cm).

2.6 Base materials / Ancillary materials

The average composition of pivCLASS SE RP40-H reader is as following:

Component	Percentage in mass (%)
Plastics	61.5
Stainless Steel	3.1
Glass	9.2
Electronics (signal-power)	24.0
Electronics (signal)	2.2
Total	100.0

2.7 Manufacture

The pivCLASS SE RP40-H is assembled at a contract manufacturer's production facility in the Philippines. The injection molded parts are purchased from an external supplier. The electronic components, including PCB, are purchased externally and assembled at the contract manufacturer's production facility. During assembly the individual parts are assembled into the reader bezel and then potted into place. The assembled reader is then packaged with the mounting plate and hardware for shipment.

2.8 Environment and health during manufacturing

The Management System of the contract manufacturer has been assessed and certified as meeting the requirements of ISO 14001:2004 standard. In addition, industrial safety is certified as compliant to OHSAS 18001 standard.

2.9 Product processing/Installation

pivCLASS SE RP40-H readers are installed by trained product integrators or by the product end user. Installation instructions are included with each reader unit.

2.10 Packaging

The reader is packed in a cardboard box. Also included in the packaging are paper installation instructions, and a plastic bag containing the connectors and mounting hardware. Packaging materials shall be collected separately for recycling.

Material	Value (%)
Cardboard/ Paper	98.06
Plastics	1.94
Total	100.0

2.11 Condition of use

No auxiliary or consumable materials are incurred for maintenance and usage of the reader. Repairs or replacement are not usually necessary. No cleaning efforts need to be taken into consideration.

2.12 Environment and health during use

There are no interactions between products, the environment and health.

2.13 Reference service life

The service life of the pivCLASS SE RP40-H reader is estimated to be 30 years. This number is based on the most conservative Mean Time Between Failure (MTBF) data available for the reader components at elevated operation temperatures. MTBF of 270110 hours at 65°C.

2.14 Extraordinary effects

Fire

The external housing of the RP40-H, 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 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.

2.15 Re-use stage

The following possibilities arise with reference to the material composition of the reader.

Re-use

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

Material Recycling

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

2.16 Disposal

Packaging components incurred during installation are directed to local paper and cardboard recyclers.

The product can be mechanically dissembled to separate different materials. For this, collection rate of 5% was assumed. The rest is disposed as a construction waste for landfill.

2.17 Further information

More information on ASSA ABLOY (HID Global) and pivCLASS SE readers is available by:

ASSA ABLOY (HID Global) 611 Center Ridge Drive Austin, TX 78753 USA

Internet: www.hidglobal.com

Tel: 512-776-9000

3. LCA: Calculation rules

3.1 Declared Unit

The declaration refers to the functional unit of 1 piece of pivCLASS SE RP40-H reader as specified in Part B requirements on the EPD for Electronic Access Control Systems /IBU PCR Part B/.

Declared unit

Name	Value	Unit
Declared unit	1	piece of pivCLASS SE RP40- H
Mass (without packaging)	0.27	kg
Conversion factor to 1 kg	3.68	-

3.2 System boundary

Type of the EPD: cradle to gate - with options The following life cycle stages were considered: Production stage:

- A1 Raw material extraction and processing
- A2 Transport to the manufacturer and
- A3 Manufacturing.

Construction stage:

- A4 Transport from the gate to the site
- A5 Packaging waste processing

Use stage related to the operation of the building includes:

 B6 – Operational energy use (Energy consumption for lock operation)

End-of-life stage:

- C2 Transport to waste processing,
- C3 Waste processing for recycling and
- C4 Disposal (landfill).

These information modules include provision and transport of all materials, products, as well as energy and water provisions, waste processing up to the end-of-waste state or disposal of final residues.

Module D:

 Declaration of all benefits or recycling potential from EoL and A5

3.3 Estimates and assumptions

Use stage:

For the use stage, it is assumed that the pivCLASS SE RP40-H is used in the United States of America, thus an US electricity grid mix is considered within this stage.

EoL:

In the End-of-Life stage of the product, a recycling scenario with a 5% collection rate was assumed. For packaging material, a 100% collection rate was assumed.

3.4 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.

3.5 Background data

For life cycle modeling of the considered products, the GaBi 6 Software System for Life Cycle Engineering, developed by thinkstep AG, is used /GaBi 6 2013/. The GaBi-database contains consistent and documented datasets which are documented in the online GaBi-documentation /GaBi 6 2013D/. To ensure comparability of results in the LCA, the basic data of GaBi database were used for energy, transportation and auxiliary materials.



3.6 Data quality

The requirements for data quality and background data correspond to the specifications of the /IBU PCR PART A/.

thinkstep AG performed a variety of tests and validations during the commission of the present study in order to ensure its quality of the present document and results. This obviously includes an extensive review of project-specific LCA models as well as the background data used.

The technological background of the collected data reflects the physical reality of the declared products. The datasets are complete and conform to the system boundaries and the criteria for the exclusion of inputs and outputs.

All relevant background datasets are taken from the GaBi 6 software database. The last revision of the used background data has taken place not longer than 10 years ago.

3.7 Period under review

The period under review is 2013/14 (12 month average).

3.8 Allocation

Regarding incineration, the software model for the waste incineration plant (WIP) is adapted according to

the material composition and heating value of the combusted material. Following specific life cycle inventories for the WIP are considered:

- Waste incineration of plastic
- Waste incineration of paper
- Waste incineration of electronic scrap.

Regarding the recycling material of metals, the metal parts in the EoL are declared as end-of-waste status. Thus, these materials are considered in module D. Specific information on allocation within the background data is given in the GaBi dataset documentation.

3.9 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the 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.

4. LCA: Scenarios and additional technical information

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (Paper packaging)	0.0656	kg
Output substances following waste treatment on site (Plastic packaging)	0.0013	kg

Reference service life

Name	Value	Unit
Reference service life	30	а

Operational energy use (B6)

Operational energy use (B6)		
Name	Value	Unit
Electricity consumption	256.89	kWh
Years of use	30	Years
Days per year in use	365	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

End of life (C2-C4)

Name	Value	Unit
Collected separately plastics, stainless steel, electronics	0.0123	kg
Collected as mixed construction waste construction waste for landfilling	0.2595	kg
Reuse plastic parts	0.0084	kg
Recycling stainless steel, electronics	0.0040	kg
Landfilling - Construction waste for landfill	0.2595	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Name	Value	Unit
Collected separately waste Card reader (including packaging)	0.3387	kg
Recycling stainless steel	0.13	%
Recycling electronics	1.05	%
Thermal treatment (plastics)	2.47	%
Loss Construction waste for landfilling (no recycling potential)	76.60	%
Reuse packaging (paper)	19.37	%
Reuse packaging (plastics)	0.38	%



5. LCA: Results

Results shown below were calculated using CML 2000 – Apr. 2013 Methodology.

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6. LCA: Interpretation

This chapter contains an interpretation of the Life Cycle Impact Assessment categories. Stated percentages in the whole interpretation are related to the overall life cycle, excluding credits (module D).

The production stage (modules A1-A3) contributes between 4% and 14% to the overall results for all the environmental impact assessment categories hereby considered, except for the abiotic depletion potential (ADPE), for which the contribution from the production stage accounts for app. 98% - this impact category describes the reduction of the global amount of non-renewable raw materials, therefore, as expected, it is mainly related with the extraction of raw materials (A1).

Within the production stage, the main contribution for all the impact categories is the production of electronics mainly due to the energy consumption on these processes. Plastics accounts with about 61% to the overall mass of the product, therefore, the impacts are not in line with the mass composition of the product. The environmental impacts for the transport (A2) have a negligible impact within this stage.

To reflect the use stage (module B6), the energy consumption was included and it has a major contribution for all the impact assessment categories considered - between 85% and 93%, with the exception of ADPE (2%). This is a result of 23 hours of operation in stand-by mode and 1 hour in on mode per day and per 365 days in a year.

In the end-of-life stage, there are loads and benefits (module D, negative values) considered. The benefits are considered beyond the system boundaries and are declared for the recycling potential of the metals and for the credits from the incineration process (energy substitution).

7. Requisite evidence

Not applicable in this EPD.

8. References

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Flame Rating of HB

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ETSI EN 300 330-2 V1.5.1 Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 2: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive

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EN 50581

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RSS-210

RSS-210 Issue 8: 2010 License-exempt Radio Apparatus (All Frequency Bands): Category I Equipment - Spectrum Management and Telecommunications Radio Standards Specification



9. Annex

Results shown below were calculated using TRACI Methodology.

DESC	'DID	TION O	ETUE	evet	FM B	OUND	NDV /	V _ I	NCLU	IDED	IN I (^ A - 1	MND	= MOD	III E I	TOV	DECLA	(RED)
DESC	KIP	TION C	F IIIE	3131	CIVI D	JUNDA	AKI (<u> </u>	INCLU	טבט	IN L	UA; I	MIND	= MOL	ULE	NO I		FITS AND
PROD	DUCT	STAGE	CONSTRUCTI ON PROCESS STAGE			USE STAGE								END OF LIFE STAGE				OADS OND THE YSTEM INDARYS
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement ¹⁾	Refurbishment ¹⁾	Operational energy	Use Operational water	USe USe	De-construction	Transport	Waste processing	Disposal	Reuse-	Recovery- Recycling- potential
A1	A2	A3	A4	A5	B1	B2	В3	В4	B5	5 B	6	В7	C1	C2	C3	С	4	D
Х	Χ	Х	Х	Х	MND	MND	MND	MNI	D MN	D X	(N	ИND	MNE) X	Х	>	(Х
RESU	SULTS OF THE LCA - ENVIRONMENTAL IMPACT: One piece										ce of	piv	CLAS	SS SE F	RP40-I	H rea	ader	
Parame	Parameter		Parameter			Unit		А3	A 4	4	\ 5	В	6	C2	СЗ		C4	D
GWF	GWP G		Global warming potential			[kg CO ₂ -Eq.]		1.08E+01		9.29	9.29E-02		E+02	8.06E-04	6.14E	-03 4	.39E-01	-2.23E+00
ODF	ODP I .		on potential of the heric ozone layer		[kg CF	[kg CFC11-Eq.]		-09	4.10E-1	3 4.52	4.52E-13		E-08	4.10E-15	4.47E	-12 1	.40E-12	-2.04E-10
AP	AP I		ion potential of land and water		[kg SO ₂ -Eq.]		6.79E-02		2.13E-0	3 2.57	2.57E-05		E-01	4.82E-06	2.74E	-05 1	.39E-04	-2.27E-02
EP			hication potential		[kg N-eq.]		6.78E-03		7.82E-0	5 1.48	1.48E-06		E-02	3.41E-07	1.17E-06		I.93E-06	-5.99E-04
Smo	Smog Gro		Ground-level smog formation potential			[kg O ₃ -eq.]		-01	3.95E-0	2 5.99	5.99E-04		E+00	9.92E-05	2.48E-04		.39E-03	-2.57E-01
Resour	Resources R		Resources – fossil resources			[MJ]		1.18E+01		E-01 3.05E-0		1.24E+02		1.60E-03	4.96E-03		2.02E-02	-1.24E+00
RESU	JLTS	OF TH	IE LCA	A - RES	OUR	CE USI	E: One	e pie	ece of	pivCl	_ASS	S SE	RP4	0-H rea	der			
Parameter			Parar	neter		Unit	A1	- A3	A4		A5	1	B6	C2	C	3	C4	D
PEF	RE	Renewable primary energ			rgy as	[MJ]		1.01E+01			-	-		-	-		-	-
PERM			wable pi es as ma		[MJ] C		0.00E+00		-		-		-	-		-	-	
PEF	PERT		se of ren energy re	rimary	[MJ]		1.01E+01		E-02 2.43E		03 2.06E+02		4.38E-04	2.00E	-02	1.53E-02	-1.11E+00	
PENRE		Non rene	ewable p energy	ergy as	ergy as [MJ]		1.55E+02			-				-		-	-	
PENRM		Non renewable primary ene material utilization			ergy as	gy as [MJ]		E+00	-		-		-				-	-
PENRT		Total use of non renewa primary energy resource				[MJ]	1.55	E+02	1.24E+	+00 3.0	5E-02	2.66	E+03	1.12E-02	1.09E	-01 2	2.19E-01	-2.56E+01
SN	SM Use		of secon	dary mate	erial	[kg]	2.91	E-02	0.00E-	+00 0.0	0E+00	0.00	E+00	0.00E+0	0.00E	+00 (0.00E+00	0.00E+00
RS	SF.		f renewable secondary fuels			[MJ]	0.00	E+00	0.00E-	+00 0.0	0E+00	0.00	E+00	0.00E+0	0.00E	+00	0.00E+00	0.00E+00
NRS	NRSF Use of		non renewable secon fuels		condary	[MJ]	[MJ] 0.00		00 0.00E+00		0.00E+00 0		E+00	0.00E+0	0.00E	0.00E+00 0		0.00E+00
	FW		Use of net fresh water			[m³]					2.70E-04			3.09E-07				-1.60E-02
RESU H rea		OF TH	IE LC	<u> –</u> OU	ΓPUT	FLOW	S ANI	D W.	ASTE	CATE	GOF	RIES	: On	e piece	of piv	/CL/	ASS SE	RP40-
Param			Pa	rameter			Unit	A1	- A3	A4	A	.5	В6	C2	:	C3	C4	D
HW	D D	Ha	Hazardous waste disposed				[kg]	kg] 7.32E		1.98E-06 2.1		E-06 2.07E		03 2.54E	-08 1.5	1E-05	1.71E-05	-4.14E-04
NHW			on hazardous waste disposed				[kg]	-			60E-05 2.33I			_				-
RW	RWD		Radioactive waste disposed							-03 1.56E-06 1.		BE-06 2.19E		01 1.46E	-08 1.57)8 1.57E-05 9		6.07E-04
CRU		Components for re-use					[kg]					0.00E+00		00E+00 0.00E+		00 0.00E+00		-
MFR		Materials for recycling					[kg]	0.00	DE+000	0.00E+00 6.50I		E-02	0.00E+	-00 0.00E	+00 3.4	00 3.41E-02 0.		-
MER		Materials for energy recovery					[kg]				0E+00 0.00E+00		0.00E+	-00 0.00E	+00 0.00)E+00	0.00E+0	-
			Exported electrical energy							0.00E+00 1.18E-								
EEI	E	E	xported e	electrical	energy		[MJ]	0.00	0E+00	.00E+00	1.18	E-01	0.00E+	-00 0.00E	+00 0.00	E+00	8.04E-01	-





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