

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	dormakaba International Holding GmbH
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
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Issue date	14.04.2023
Valid to	13.04.2028

ARGUS V60
dormakaba

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General Information

dormakaba

Programme holder

IBU – Institut Bauen und Umwelt e.V.
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10117 Berlin
Germany

Declaration number

EPD-DOR-20230101-CBA4-EN

This declaration is based on the product category rules:

Electronic and physical Access Control Systems, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

14.04.2023

Valid to

13.04.2028



Dipl.-Ing. Hans Peters
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ARGUS V60

Owner of the declaration

dormakaba International Holding GmbH
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58256 Ennepetal
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Declared product / declared unit

1 piece of the product: Sensor Barrier ARGUS V60, consisting of the following items:

- Housings
- Tempered safety glasses (6 mm)
- Cover plates
- Glass door leaves (10 mm)
- Drive unit
- Sensor technology
- LED status display
- Product packaging

Scope:

This Environmental Product Declaration refers to a specific ARGUS V60 sensor barrier manufactured by dormakaba. The production site is located in Bühl (Germany). Green electricity is being used at this production site.


Data represents the year 2022.

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.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR		
Independent verification of the declaration and data according to ISO 14025:2011		
<input type="checkbox"/>	internally	<input checked="" type="checkbox"/> externally



Dr.-Ing. Wolfram Trinius,
(Independent verifier)

Product

Product description/Product definition

ARGUS V60 sensor barriers are particularly compact and strikingly elegant. Despite a housing depth of only 240 mm, the Argus V60 is a full-performance sensor barrier ideal for use where space is limited. The reader units can be installed the same way as other versions of the Argus product range.

The Argus sensor barriers are available in four versions; the Argus 40 with a length of 1.200 mm, Argus 60 at 1.600 mm, Argus 80 at 1.660 mm and the new Argus V60, particularly compact at only 240 mm, for use in areas with constrained space requirements.

For the use and application of the product the respective national provisions at the place of use apply. For ARGUS V60 the standards which can be applied are the following:

- Machinery Directive 2006/42/EC
- 2014/30/EU Electromagnetic Compatibility Directive
- 2011/65/EU ROHS2 Directive
- ISO 12100:2011-03 Safety of machinery
- EN 16005: 2013-01 and Amendment 2015-10 Power operated pedestrian doorsets
- ISO 13849- 1:2016-06 Safety of machinery
- ISO 13849- 2:2013-02 Safety of machinery
- EN 60335-2-103: 2016-05 Household and similar electrical appliances
- EN 61000-3-2:2015-03 Electromagnetic compatibility (EMC)
- EN 61000-6-2: 2005 and Amendment:2011 Electromagnetic Compatibility (EMC)
- EN 61000-6-3:2007 and A1:2011 Electromagnetic Compatibility (EMC)

The CE-marking takes into account the proof of conformity with the respective harmonized standards based on the legal provisions above.

Application

For reliable security, ideal for use where space is limited like:

- Offices
- Business rooms
- Company sites
- Entrances
- Educational centres

Technical Data

ARGUS V60 sensor barriers have the following technical properties:

Name	Value	Unit
Lock height	1200	mm
Lock length	240	mm
Passage width	650	mm
Total width	1161	mm
Power supply	300	VA

Performance data of the product with respect to its characteristics in accordance with the relevant technical provision which can be applied are mentioned above.

Base materials/Ancillary materials

The major material composition including the packaging of the ARGUS V60 is listed below:

Name	Value	Unit
Aluminium	49	%
Glass	29	%
Paper	8	%
Stainless steel	4	%
Steel	4	%
Plastic	3	%
Zinc	2	%
Electronics	1	%

The product contains partial articles which contain substances listed in the Candidate List of *REACH Regulation 1907/2006/EC* (date: 17.01.2023) exceeding 0.1 percentage by mass: yes

- Lead (Pb): 7439-921 -1 (CAS-No.) is included in some of the alloys used. The concentration of lead in each individual alloy does not exceed 4 % (by mass).

The Candidate List can be found on the /ECHA/ website address: <https://echa.europa.eu/de/home>.

Reference service life

The reference service life of the ARGUS V60 amounts to 15 years and depends on the application and frequency of use. Regular maintenance is advised to ensure the life expectancy of 15 years. For repairs or renewals, suitable spare part are available. The ARGUS V60 is tested and certified to EN 16005, meaning they are designed to withstand a minimum of 500.000 cycles .

LCA: Calculation rules

Declared Unit

The declared unit is 1 piece of product: ARGUS V60

Name	Value	Unit
Declared unit	1	pce.
Mass on declared product	272.77	kg

System boundary

Type of EPD: cradle to gate with options, modules C1–C4, and module D (A1–A3 + C + D and additional modules: A4 + A5 + B6)

Production - Module A1-A3

The product stage includes:

- A1, raw material extraction, processing and mechanical treatments, processing of secondary material input (e.g. recycling processes),
- A2, transport to the manufacturer,
- A3, manufacturing and assembly including provision of all materials, products and energy, as well as waste processing up to the end-of waste state.

Construction stage - Modules A4-A5

The construction process stage includes:

- A4, transport to the building site;
- A5, installation into the building; including provision of all materials, products and energy, as well as waste processing up to the end-of-waste state or disposal of final residues during the construction process stage.

Use stage - Module B6

The use stage related to the operation of the building includes:
— B6, operational energy use The potential use of electricity from the grid is declared in module B6.

End-of-life stage– Modules C1-C4 and D

The end-of-life stage includes:

- C1, de-construction, demolition;
- C2, transport to waste processing;
- C3, waste processing for reuse, recovery and/or recycling;
- C4, disposal; including provision and all transport, provision of all materials, products and related energy and water use.

Module D (Benefits and loads beyond the system boundary) includes:

— D, recycling potentials, expressed as net impacts and benefits.

Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product's lifespan: Global

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. Background database: *GaBi ts*, *SP40*.

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

Information on describing the biogenic Carbon Content at factory gate

Name	Value	Unit
Biogenic carbon content in product	1.69	kg C

Additional technical information for the declared modules.

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel (per 1 kg)	0.00276	l/100km
Transport distance via medium truck	100	km
Capacity utilisation (including empty runs) via medium truck	55	%

The product is transported via truck. The main distribution region is Europe. Transport distance is declared for a distance of 100 km by truck in order to allow scaling to a specific point of installation.

Installation into the building (A5)

Name	Value	Unit
Waste packaging (paper and plastic)	16,9	kg

Reference service life

Name	Value	Unit
Life Span according to the manufacturer	15	a

Operational energy use (B6)

Name	Value	Unit
Days per year in use	365	days
On mode per day	1,1	hours
Idle mode per day	22,9	hours
On mode power	31	W
Idle mode power	17	W
Electricity consumption per 1 year	154,54	kWh

End of life (C1-C4)

C1: The product dismantling from the building is done manually without environmental burden.

Name	Value	Unit
Collected separately waste type	256	kg
Recycling	164	kg
Energy recovery	4.46	kg
Landfilling	87.5	kg
Transport to waste management	50	km

The product is disassembled in a recycling process. Material recycling is then assumed for the metals, electronic and electromechanics. The plastic components are assumed to be incinerated with energy recovery. Minor proportions of residues arising from the recycling process are landfilled. Region for the End of Life is: Europe.

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

Name	Value	Unit
Recycling	100	%

The collection rate is 100%.

LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

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 the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction 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	MNR	MNR	MNR	X	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ARGUS V60

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq	6.17E+02	2.39E+00	2.72E+01	9.38E+02	0	1.13E+00	1.97E+01	1.34E+00	-2.53E+02
GWP-fossil	kg CO ₂ eq	6.45E+02	2.28E+00	7.87E+00	9.33E+02	0	1.08E+00	1.15E+01	1.33E+00	-2.52E+02
GWP-biogenic	kg CO ₂ eq	-2.85E+01	1.05E-01	1.94E+01	3.11E+00	0	5E-02	8.25E+00	5E-03	-3.59E-01
GWP-luluc	kg CO ₂ eq	5.28E-01	5.43E-05	7.43E-04	1.35E+00	0	2.56E-05	7.21E-04	4E-03	-1.5E-01
ODP	kg CFC11 eq	1.34E-08	2.41E-16	7.3E-15	2.05E-11	0	1.14E-16	6.74E-15	4.92E-15	-1.34E-09
AP	mol H ⁺ eq	3.74E+00	2E-03	7E-03	2.06E+00	0	1E-03	3E-03	1E-02	-1.02E+00
EP-freshwater	kg P eq	1.39E-03	4.88E-07	1.29E-06	2E-03	0	2.3E-07	1.06E-06	2.28E-06	-2E-04
EP-marine	kg N eq	6.4E-01	7.26E-04	2E-03	4.58E-01	0	3.43E-04	8.45E-04	2E-03	-1.39E-01
EP-terrestrial	mol N eq	7.04E+00	8E-03	3.1E-02	4.81E+00	0	4E-03	1.5E-02	2.7E-02	-1.5E+00
POCP	kg NMVOC eq	1.72E+00	2E-03	6E-03	1.25E+00	0	9.69E-04	2E-03	7E-03	-4.37E-01
ADPE	kg Sb eq	7.41E-02	6.84E-08	1.08E-07	2.7E-04	0	3.23E-08	9.46E-08	1.19E-07	-1.2E-02
ADPF	MJ	8.49E+03	3.23E+01	9.68E+00	1.64E+04	0	1.53E+01	7.05E+00	1.74E+01	-3.52E+03
WDP	m ³ world eq deprived	1.17E+02	4E-03	3.22E+00	2.03E+02	0	2E-03	2.02E+00	1.39E-01	-3.45E+01

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ARGUS V60

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PERE	MJ	2.72E+03	1.02E-01	1.7E+02	7.27E+03	0	4.8E-02	5.69E+01	2.28E+00	-1.37E+03
PERM	MJ	2.23E+02	0	-1.68E+02	0	0	0	-5.52E+01	0	0
PERT	MJ	2.94E+03	1.02E-01	2.03E+00	7.27E+03	0	4.8E-02	1.7E+00	2.28E+00	-1.37E+03
PENRE	MJ	8.2E+03	3.24E+01	1.34E+02	1.64E+04	0	1.53E+01	1.79E+02	1.74E+01	-3.52E+03
PENRM	MJ	2.97E+02	0	-1.25E+02	0	0	0	-1.72E+02	0	0
PENRT	MJ	8.49E+03	3.24E+01	9.69E+00	1.64E+04	0	1.53E+01	7.05E+00	1.74E+01	-3.52E+03
SM	kg	1.2E+02	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0
FW	m ³	5.89E+00	1.83E-04	7.6E-02	8.41E+00	0	8.63E-05	4.8E-02	4E-03	-2.99E+00

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ARGUS V60

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
HWD	kg	1.15E-04	3.14E-09	2.23E-08	6.79E-06	0	1.48E-09	2.13E-08	2.66E-07	-1.32E-05
NHWD	kg	9.04E+01	3E-03	1.39E+00	1.16E+01	0	2E-03	1.24E+00	8.76E+01	-4.92E+01
RWD	kg	3.22E-01	3.47E-05	4.56E-04	2.49E+00	0	1.64E-05	2.98E-04	1.98E-04	-3.04E-01
CRU	kg	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	5.25E+01	0	0
MER	kg	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	4.37E+01	0	0	0	3.53E+01	0	0
EET	MJ	0	0	8.58E+01	0	0	0	7.52E+01	0	0

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

**RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional:
1 piece ARGUS V60**

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PM	Disease incidence	3.59E-05	1.2E-08	4.75E-08	1.73E-05	0	5.66E-09	3.18E-08	1.18E-07	-1.65E-05
IR	kBq U235 eq	5.43E+01	5E-03	6.2E-02	4.08E+02	0	2E-03	3.4E-02	2E-02	-5.94E+01
ETP-fw	CTUe	5.17E+03	2.29E+01	4.26E+00	7.02E+03	0	1.08E+01	2.76E+00	9.95E+00	-1.4E+03
HTP-c	CTUh	1.62E-05	4.31E-10	2.68E-10	1.94E-07	0	2.04E-10	2.23E-10	1.47E-09	-7.98E-08
HTP-nc	CTUh	1.13E-05	1.84E-08	1.81E-08	7.14E-06	0	8.7E-09	1.91E-08	1.63E-07	6.57E-06
SQP	SQP	4.37E+03	8.3E-02	2.69E+00	5.22E+03	0	3.9E-02	2.07E+00	3.63E+00	-2.32E+02

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

This EPD was created using a software tool.

References

ISO 14025

ISO 14025:2011-10, Environmental labels and declarations — Type III environmental declarations — Principles and procedures

EN 15804

EN 15804:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

EN 16005

EN 16005: 201301 and Amendment 2015-10 Power operated pedestrian doorsets

EN 60335-2

EN 603352103: 201605 Household and similar electrical appliances

EN 61000-3-2

EN 6100032: 201503 Electromagnetic compatibility (EMC)

EN 61000-6-2

EN 6100062: 2005 and Amendment:2011 Electromagnetic Compatibility (EMC)

EN 61000-6-3

EN 6100063: 2007 and A1:2011 Electromagnetic Compatibility (EMC)

ISO 12100

ISO 12100:201103 Safety of machinery

ISO 13849- 1

ISO 138491: 201606 Safety of machinery

ISO 13849- 2

ISO 138492: 201302 Safety of machinery

ISO 9001

ISO 9001:201509 Quality management systems Requirements

Machinery Directive

DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on machinery, and amending Directive 95/16/EC

REACH

Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

2011/65/EU ROHS3 Directive

Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Further References

IBU 2021

General Instructions for the EPD programme of Institut Bauen und Umwelt e.V. Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021. www.ibu-epd.com

GaBi

Sphera Solutions GmbH Gabi Software System and Database for Life Cycle Engineering 19922020 Version 10.0.0.71 University of Stuttgart Leinfelden-Echterdingen

GaBi ts documentation

GaBi life cycle inventory data documentation ([https://www.gabisoftware.com/support/gabi/gabidatabase\[1\]2020lcidocumentation/](https://www.gabisoftware.com/support/gabi/gabidatabase[1]2020lcidocumentation/)).

LCA-tool dormakaba

LCA tool, ESC (Entrance System Control) Tool No.: IBU-DOR-202109-LT1-EN Developed by Sphera Solutions GmbH.

PCR Part A

PCR – Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN 15804+A2:2019, Version 1.0, Institut Bauen und Umwelt e.V., www.ibu-epd.com.

PCR Part B

PCR – Part B: Requirements on the EPD for electronic and physical Access Control Systems, version 08/21, Institut Bauen und Umwelt e.V., www.ibu-epd.com.



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