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)
Declaration number	EPD-DOR-20250360-CBA1-EN
Issue date	25.06.2025
Valid to	24.06.2030

Compact Reader 91 10

dormakaba

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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General Information

dormakaba

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-DOR-20250360-CBA1-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

25.06.2025

Valid to

24.06.2030

Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

Compact Reader 91 10

Owner of the declaration

dormakaba International Holding GmbH
DORMA Platz 1
58256 Ennepetal
Germany

Declared product / declared unit

1 piece of the product: Compact Reader 91 10 consisting of the following items:

- Compact Reader 91 10-K5
- Product packaging

Scope:

This Environmental Product Declaration refers to a specific Compact Reader manufactured by dormakaba. The production site is located in Villingen Schwenningen (Germany).

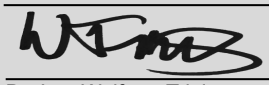
Green electricity with Guarantee of Origin (GoO) is being used at this production site.

The data represents the year 2024.
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			
☐	internally	☒	externally



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

Product

Product description/Product definition

As an essential part of a secure dormakaba access control solution, the Compact Reader 91 10 provides reliable user identification with its integrated RFID reader and illuminated icon for clear user feedback. An unintrusive design as well as full compatibility with existing cabling, quickwire technology and two mounting options allow easy upgrades and building integration.

For the placing on the market in the European Union/European Free Trade Association (EU/EFTA, with the exception of Switzerland) the following legal provisions apply:

- *Radio Equipment Directive (RED)*
- *2011/65/EU (RoHS)*

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

Application

The dormakaba Compact Reader 91 10 is is used for access points as part of a dormakaba electronic access control system. Possible applications are:

- Electronic access control via RFID
- Door Control
- Validation of CardLink access rights for offline door components

Technical Data

The Compact Reader 91 10 has following technical properties:

Name	Value	Unit
Operating Temperature	-25 - 70	°C
Operating Humidity	5 - 85	%
Width Dimension	88,5	mm
Height Dimension	88,5	mm
Depth Dimension	19,4 / 26,4	mm
Power Supply	12 - 27	VAC
Power Supply	10 - 34	VDC
Class of Protection	40 or 54	IP

The product is not harmonised in accordance with the Construction Product Regulations (CPR) but in accordance with other provisions for harmonisation of the EU. Compliance with the European Union Directive and technical specifications:

- *EN 301 489-1*
- *EN 301 489-3*
- *EN 300 330*
- *EN 50364*
- *EN 62368-1*
- *EN 60529*

In addition, the product also conforms to the following standards:

- *UL 294*
- *UL 62368-1*
- *CAN/CSA-22.2 No. 62368-1*

Base materials/Ancillary materials

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

Name	Value	Unit
Paper and packaging	37	%
Plastics	34	%
Electronics	29	%

The product includes partial articles which contain substances listed in the *Candidate List* of *REACH Regulation 1907/2006/EC* (date: 25.01.2025) exceeding 0.1 percentage by mass: no

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 Compact Reader 91 10 is about 10 years, depending on the application and frequency of use. For repairs and renewals, suitable spare parts are available.

LCA: Calculation rules

Declared Unit

The declared unit is 1 piece of the product: Compact Reader 91 10 including packaging

Name	Value	Unit
Declared unit	1	pce.
Mass of product without packaging	0.13	kg
Mass of packaging	0.07	kg
Mass reference	0.20	kg/pce

Other declared units are allowed if the conversion is shown transparently.

For IBU core EPDs (where clause 3.6 is part of the EPD): for average EPDs, an estimate of the robustness of the LCA values must be made, e.g. concerning the variability of the production process, geographical representativeness and the influence of background data and preliminary products compared to the environmental impacts caused by the actual production.

System boundary

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

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 (green electricity with Guarantee of Origin (GoO)), 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

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: Germany

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, SP40.

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

Name	Value	Unit
Biogenic carbon content in product	0.03	kg C
Biogenic carbon content in accompanying packaging	-	kg C

Villingen Schwenningen (Germany) is considered for A3.

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2.

Transport to the building site (A4)

Name	Value	Unit
Liters of fuel	0,00276	l/100km
Transport distance	100	km
Capacity utilisation (including empty runs)	55	%

The product is stored in the dormakaba plant in Villingen-Schwenningen and transported via truck. The main distribution region is Europe. In order to allow scaling to a specific point of installation 100 km are declared.

Installation into the building (A5)

Name	Value	Unit
Waste packaging (paper incl. technical documentation and plastic)	0,07	kg

Reference service life

Name	Value	Unit
Life Span according to the manufacturer	10	a

Operational energy use (B6)

Name	Value	Unit
Electricity consumption for 1 year	10,8	kWh
Days per year in use	365	days
On mode per day	4	h
Idle mode per day	20	h
On mode power	1,4	W
Idle mode power	1,2	W

End of life (C1-C4)
C1: The product dismantling from the building is done manually without environmental burden.
C2: Transport to waste management is 50 km.

Name	Value	Unit
Collected separately waste type	0.13	kg
Reuse	-	kg
Recycling	0.05	kg
Energy recovery	0.07	kg
Landfilling	0.01	kg

The product is disassembled in a recycling process. Material recycling is then assumed for paper and electronics. The plastic components are assumed to be incinerated with energy recovery. Minor proportions of residuals 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

EF version 3.0.

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 Compact Reader 91 10

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	2.49E+00	2E-03	1.05E-01	4.37E+01	0	5.19E-04	1.76E-01	1.08E-04	-1.33E-01
GWP-fossil	kg CO_2 eq	2.59E+00	2E-03	3E-03	4.35E+01	0	4.96E-04	1.76E-01	1.08E-04	-1.32E-01
GWP-biogenic	kg CO_2 eq	-1.06E-01	7.77E-05	1.02E-01	1.45E-01	0	2.29E-05	4.09E-06	3.68E-07	-2.74E-04
GWP-luluc	kg CO_2 eq	2.15E-03	4E-08	1.74E-06	6.3E-02	0	1.18E-08	9.93E-06	3.1E-07	-1.08E-04
ODP	kg CFC11 eq	1.26E-10	1.77E-19	1.91E-17	9.56E-13	0	5.24E-20	8.86E-17	3.99E-19	-1.25E-15
AP	mol H^+ eq	1.82E-02	1.68E-06	2.95E-05	9.6E-02	0	4.97E-07	3.13E-05	7.73E-07	-5.54E-04
EP-freshwater	kg P eq	1.32E-05	3.6E-10	3.72E-09	1.16E-04	0	1.06E-10	1.41E-08	1.85E-10	-1.55E-07
EP-marine	kg N eq	3.07E-03	5.35E-07	1.06E-05	2.1E-02	0	1.58E-07	7.05E-06	1.99E-07	-8.01E-05
EP-terrestrial	mol N eq	3.46E-02	5.95E-06	1.33E-04	2.24E-01	0	1.76E-06	1.42E-04	2.19E-06	-8.56E-04
POCP	kg NMVOC eq	9.19E-03	1.51E-06	2.82E-05	5.8E-02	0	4.47E-07	1.95E-05	6.02E-07	-2.43E-04
ADPE	kg Sb eq	9.76E-04	5.04E-11	3.01E-10	1.26E-05	0	1.49E-11	1.22E-09	9.67E-12	-2.33E-05
ADPF	MJ	3.32E+01	2.4E-02	3.3E-02	7.64E+02	0	7E-03	8.1E-02	1E-03	-2.51E+00
WDP	m^3 world eq deprived	4.89E-01	3.29E-06	1.3E-02	9.48E+00	0	9.73E-07	1.8E-02	1.13E-05	-1.5E-02

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 Compact Reader 91 10

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PERE	MJ	9.51E+00	7.51E-05	8.95E-01	3.39E+02	0	2.22E-05	2.1E-02	1.85E-04	-4.47E-01
PERM	MJ	8.89E-01	0	-8.89E-01	0	0	0	0	0	0
PERT	MJ	1.04E+01	7.51E-05	6E-03	3.39E+02	0	2.22E-05	2.1E-02	1.85E-04	-4.47E-01
PENRE	MJ	3.06E+01	2.4E-02	3.8E-02	7.64E+02	0	7E-03	2.61E+00	1E-03	-2.51E+00
PENRM	MJ	2.54E+00	0	-4E-03	0	0	0	-2.53E+00	0	0
PENRT	MJ	3.32E+01	2.4E-02	3.3E-02	7.64E+02	0	7E-03	8.1E-02	1E-03	-2.51E+00
SM	kg	0	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	1.4E-02	1.35E-07	3.07E-04	3.92E-01	0	3.98E-08	4.3E-04	3.56E-07	-5.27E-04

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 Compact Reader 91 10

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
HWD	kg	1.04E-06	2.31E-12	4.93E-11	3.16E-07	0	6.83E-13	3.1E-10	2.16E-11	-1.63E-09
NHWD	kg	6.1E-02	2.44E-06	3E-03	5.42E-01	0	7.2E-07	1.8E-02	7E-03	1E-03
RWD	kg	6.6E-04	2.56E-08	1.75E-06	1.16E-01	0	7.56E-09	3.02E-06	1.61E-08	-1.46E-04
CRU	kg	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	4.3E-02	0	0
MER	kg	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	1.59E-01	0	0	0	3.74E-01	0	0
EET	MJ	0	0	2.89E-01	0	0	0	8.61E-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 Compact Reader 91 10

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PM	Disease incidence	1.65E-07	8.84E-12	1.64E-10	8.05E-07	0	2.61E-12	3.99E-10	9.56E-12	-4.58E-09
IR	kBq U235 eq	6.3E-02	3.66E-06	2.7E-04	1.9E+01	0	1.08E-06	2.72E-04	1.66E-06	-2.4E-02
ETP-fw	CTUe	1.65E+01	1.7E-02	1.6E-02	3.27E+02	0	5E-03	3.1E-02	8.07E-04	-5.54E-01
HTP-c	CTUh	6.97E-10	3.18E-13	8.36E-13	9.03E-09	0	9.39E-14	2.65E-12	1.2E-13	-2.82E-11
HTP-nc	CTUh	3.37E-08	1.36E-11	3.65E-11	3.33E-07	0	4.01E-12	2.68E-10	1.32E-11	-1.44E-09
SQP	SQP	1.73E+01	6.12E-05	9E-03	2.43E+02	0	1.81E-05	2.4E-02	2.95E-04	-4.23E-01

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

EN 15804
EN 15804+A2:2019+AC:2021,
Sustainability of construction works — Environmental Product Declarations - Core rules for the product category of construction products

ECHA
European Chemical Agency

ISO 14025
DIN EN ISO 14025:201110, Environmental labels and declarations — Type III environmental declarations — Principles and procedures

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

RoHS
2011/65/EU, Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment
Add product specific references depending on product

EN 301 489-1
ElectroMagnetic Compatibility (EMC) standard for radio equipment and services - Part 1: Common technical requirements - Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU

EN 301 489-3
Electromagnetic compatibility and Radio spectrum Matters (ERM) - ElectroMagnetic Compatibility (EMC) standard for radio equipment and services - Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz

EN 300 330-1
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 1: Technical characteristics and test methods

EN 300 330-2
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 under article 3.2 of the R&TTE Directive

RED 2014/53/EU
Radio Equipment Directive, 2014/53/EU

EN 62368-1:2014
Audio/video, information and communication technology equipment - Part 1: Safety requirements

EN 50364:2010
Limitation of human exposure to electromagnetic fields from devices operating in the frequency range 0 Hz to 300 GHz, used in Electronic Article Surveillance (EAS), Radio Frequency Identification (RFID) and similar applications

EN 60529:2014-09
Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989 + A1:1999 + A2:2013)

EN 300 328 V2.1.1
Wideband transmission systems - Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques - Harmonised

Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU

EN 301 489-17 V3.1.1
ElectroMagnetic Compatibility (EMC) standard for radio equipment and services - Part 17: Specific conditions for Broadband Data Transmission Systems - Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU

UL 294:2013
Standard for Access Control System Units

UL 62368-1:2014
Audio/video, information and communication technology equipment - Part 1: Safety requirements

CAN/CSA-22.2 No. 62368-1:2014
Audio/video, information and communication technology equipment - Part 1: Safety requirements

FCC CFR47 Parts 15
Code of Federal Regulations, Title 47, Part 15, 47 CFR 15: Radio Frequency Devices

DIN EN ISO 9001:2015-11
Quality management systems - Requirements (ISO 9001:2015)

EWC
COMMISSION DECISION of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council

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- 2020-lcidocumentation/).

LCA-tool dormakaba
Tool No.: IBU-DOR-202102-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, 2020, 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 08/2021, Institut Bauen und Umwelt e.V., www.ibu-epd.com.

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