

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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| Valid to | 06.10.2026 |

Extension module 90 43 dormakaba

www.ibu-epd.com | <https://epd-online.com>



General Information**dormakaba****Programme holder**

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

Declaration number

EPD-DOR-20210197-CBA2-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

07.10.2021

Valid to

06.10.2026



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



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

Extension module 90 43**Owner of the declaration**

dormakaba International Holding GmbH
DORMA Platz 1
58256 Ennepetal
Germany

Declared product / declared unit

1 piece of the product: Extension module 90 43

Scope:

This EPD refers to a specific product manufactured by dormakaba. The production site is located in Villingen-Schwenningen (Germany).

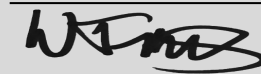
The data represents the year 2019.

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

With the extension module 90 43, the standalone remote reader 91 15 becomes a reader with convenient wireless function. This way, you can program doors from your desk and benefit from the advantages of a wireless access system. It can be used for doors where you wish to change access rights wirelessly. For instance, in a system in which doors have been equipped with battery operated standalone components and have the wireless function. Here you can integrate the entrance door reader into the same network and operate all doors conveniently with the click of a mouse. The extension module connects directly to the remote reader 91 15 without additional wiring effort. 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)*
- *Restriction of Hazardous Substances (RoHS)*
- *EN 50581:2012*

The CE-marking takes into account the proof of conformity with the respective harmonized standards based on the legal provisions above. For the application and use the respective national provisions apply.

Application

Wireless access control

It provides a wireless access point for almost any door:

- Standalone systems: as a CardLink update point
- External doors and gates
- Automatic doors
- Parking barriers
- Entrance areas
- Motor locks

Technical Data

The extension module 90 43 has the following technical properties:

| Name | Value | Unit |
|-------------------------------|--------|------|
| Operating Temperature | 0 - 50 | °C |
| Operating Humidity | 5 - 85 | % |
| Width Dimension | 70 | mm |
| Height Dimension | 87 | mm |
| Depth Dimension | 45 | mm |
| Weight (without packaging) | 0,09 | kg |
| Weight (with packaging) | 0,145 | kg |
| Power consumption "on mode" | 5 | W |
| Power consumption "idle mode" | 2 | W |

LCA: Calculation rules

Declared Unit

The declared unit is 1 piece of the product: Extension module 90 43.

Declared unit

| Name | Value | Unit |
|--------------------------------------------------|-------|------|
| Declared unit | 1 | pce. |
| Conversion factor to 1 kg (kg per declared unit) | 6.89 | - |
| Product weight including packaging | 0,145 | kg |

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

Interface

- proprietary in-line bus to host device

Peripherals Interface

- Radio Technology: IEEE 802.15.4
- Frequency band: 2400 to 2485.5 MHz (16 channels)

Power supply

- via proprietary bus from connected host device

Installation

- Top hat rails: TH35/(7.5/15)
- Class of protection: IP20

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 301489-1 V2.2.0 Draft*
- *EN 301489-17 V3.2.1 Draft*
- *EN 300328 V2.1.1*
- *EN 62311:2008*
- *EN 62368-1:2014-08*

The product is subject to CE marking according to the relevant harmonization legislation.

Base materials/Ancillary materials

The major material compositions of the product are listed below:

| Name | Value | Unit |
|-------------|-------|------|
| Paper | 45 | % |
| Plastics | 29 | % |
| Electronics | 25 | % |
| Steel | <1 | % |

The product includes partial articles which contain substances listed in the Candidate List of REACH Regulation 1907/2006/EC (date: 08.07.2021) 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 dormakaba extension module 90 43 is estimated to be 12 years. This number is based on the support and service life and is not an estimated lifetime.

+ 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

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

Information on describing the biogenic Carbon Content at factory gate

| Name | Value | Unit |
|---------------------------------------------------|-------|------|
| Biogenic carbon content in product | 0.01 | kg C |
| Biogenic carbon content in accompanying packaging | 0.02 | kg C |

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO₂.

The following technical scenario information is required 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 | 750 | km |
| Capacity utilisation (including empty runs) | 51 | % |

Installation into the building (A5)

| Name | Value | Unit |
|-------------------------|-------|------|
| Waste Packaging (paper) | 0,05 | kg |

Reference service life

| Name | Value | Unit |
|-----------------------------------------|-------|------|
| Life Span according to the manufacturer | 12 | a |

Operational energy use (B6) and Operational water use (B7)

The use stage is declared for 12 years.

| Name | Value | Unit |
|-----------------------------------------------|-------|------|
| Energy consumption for 1 year on mode per day | 19,75 | kWh |
| idle mode per day | 2 | h |
| on mode power | 22 | W |
| idle mode power | 5 | W |
| Days per year in use | 2 | W |
| | 365 | days |

End of life (C1-C4)

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

| Name | Value | Unit |
|-----------------------------------------|-------|------|
| Recycling | 0.04 | kg |
| Energy recovery | 0.04 | kg |
| Landfilling | 0.01 | kg |
| Transportation to Waste Processing Site | 50 | km |

Region for end of life: Global

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

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 Extension module 90 43

| Parameter | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|----------------|----------------------------------|-----------|----------|----------|----------|----|----------|----------|----------|-----------|
| GWP-total | kg CO ₂ eq | 3.41E+00 | 1E-02 | 7.6E-02 | 9.59E+01 | 0 | 4.64E-04 | 1.06E-01 | 1.9E-04 | -2.06E-01 |
| GWP-fossil | kg CO ₂ eq | 3.42E+00 | 9E-03 | 2E-03 | 9.54E+01 | 0 | 4.43E-04 | 1.06E-01 | 1.89E-04 | -2.06E-01 |
| GWP-biogenic | kg CO ₂ eq | -1.79E-02 | 4.23E-04 | 7.4E-02 | 3.18E-01 | 0 | 2.05E-05 | 2.47E-06 | 6.45E-07 | 1.92E-04 |
| GWP-luluc | kg CO ₂ eq | 5.09E-03 | 2.18E-07 | 1.25E-06 | 1.38E-01 | 0 | 1.06E-08 | 5.98E-06 | 5.44E-07 | -2.81E-04 |
| ODP | kg CFC11 eq | 4.72E-10 | 9.66E-19 | 1.37E-17 | 2.11E-12 | 0 | 4.68E-20 | 5.34E-17 | 7E-19 | -1.19E-15 |
| AP | mol H ⁺ eq | 1.91E-02 | 9.16E-06 | 2.12E-05 | 2.11E-01 | 0 | 4.44E-07 | 1.89E-05 | 1.36E-06 | -3E-03 |
| EP-freshwater | kg P eq | 2.57E-05 | 1.96E-09 | 2.67E-09 | 2.55E-04 | 0 | 9.49E-11 | 8.52E-09 | 3.24E-10 | -1.83E-07 |
| EP-marine | kg N eq | 3.05E-03 | 2.92E-06 | 7.67E-06 | 4.7E-02 | 0 | 1.41E-07 | 4.25E-06 | 3.49E-07 | -1.98E-04 |
| EP-terrestrial | mol N eq | 3.64E-02 | 3.24E-05 | 9.56E-05 | 4.92E-01 | 0 | 1.57E-06 | 8.58E-05 | 3.83E-06 | -2E-03 |
| POCP | kg NMVOC eq | 1.01E-02 | 8.24E-06 | 2.03E-05 | 1.28E-01 | 0 | 3.99E-07 | 1.18E-05 | 1.06E-06 | -6.59E-04 |
| ADPE | kg Sb eq | 7.31E-04 | 2.75E-10 | 2.16E-10 | 2.76E-05 | 0 | 1.33E-11 | 7.32E-10 | 1.7E-11 | -1.15E-04 |
| ADPF | MJ | 4.14E+01 | 1.3E-01 | 2.4E-02 | 1.68E+03 | 0 | 6E-03 | 4.9E-02 | 2E-03 | -2.8E+00 |
| WDP | m ³ world eq deprived | 8.53E-01 | 1.79E-05 | 9E-03 | 2.08E+01 | 0 | 8.69E-07 | 1.1E-02 | 1.98E-05 | -7.4E-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 Extension module 90 43

| Parameter | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|-----------|----------------|----------|----------|-----------|----------|----|----------|-----------|----------|-----------|
| PERE | MJ | 1.21E+01 | 4.09E-04 | 6.46E-01 | 7.43E+02 | 0 | 1.98E-05 | 1.62E-01 | 3.25E-04 | -4.41E-01 |
| PERM | MJ | 7.91E-01 | 0 | -6.42E-01 | 0 | 0 | 0 | -1.49E-01 | 0 | 0 |
| PERT | MJ | 1.29E+01 | 4.09E-04 | 4E-03 | 7.43E+02 | 0 | 1.98E-05 | 1.3E-02 | 3.25E-04 | -4.41E-01 |
| PENRE | MJ | 3.95E+01 | 1.3E-01 | 2.4E-02 | 1.68E+03 | 0 | 6E-03 | 2.01E+00 | 2E-03 | -2.81E+00 |
| PENRM | MJ | 1.96E+00 | 0 | 0 | 0 | 0 | 0 | -1.96E+00 | 0 | 0 |
| PENRT | MJ | 4.14E+01 | 1.3E-01 | 2.4E-02 | 1.68E+03 | 0 | 6E-03 | 4.9E-02 | 2E-03 | -2.81E+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 | 2.2E-02 | 7.34E-07 | 2.21E-04 | 8.6E-01 | 0 | 3.56E-08 | 2.59E-04 | 6.25E-07 | -1E-03 |

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 Extension module 90 43

| Parameter | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|-----------|------|----------|----------|----------|----------|----|----------|----------|----------|-----------|
| HWD | kg | 3.75E-06 | 1.26E-11 | 3.53E-11 | 6.94E-07 | 0 | 6.1E-13 | 1.87E-10 | 3.78E-11 | -8.47E-09 |
| NHWD | kg | 1.19E-01 | 1.33E-05 | 2E-03 | 1.19E+00 | 0 | 6.44E-07 | 1.1E-02 | 1.2E-02 | -3.2E-02 |
| RWD | kg | 9.43E-04 | 1.4E-07 | 1.26E-06 | 2.55E-01 | 0 | 6.76E-09 | 1.82E-06 | 2.82E-08 | -9.23E-05 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 0 | 0 | 0 | 0 | 0 | 0 | 5.2E-02 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EEE | MJ | 1.07E-01 | 0 | 1.15E-01 | 0 | 0 | 0 | 0 | 0 | 0 |
| EET | MJ | 1.95E-01 | 0 | 2.08E-01 | 0 | 0 | 0 | 0 | 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 Extension module 90 43

| Parameter | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|-----------|-------------------|----------|----------|----------|----------|----|----------|----------|----------|-----------|
| PM | Disease incidence | 1.97E-07 | 4.82E-11 | 1.18E-10 | 1.77E-06 | 0 | 2.33E-12 | 2.41E-10 | 1.68E-11 | -2.06E-08 |
| IR | kBq U235 eq | 9.1E-02 | 1.99E-05 | 1.95E-04 | 4.18E+01 | 0 | 9.65E-07 | 1.64E-04 | 2.9E-06 | -1.4E-02 |
| ETP-fw | CTUe | 1.99E+01 | 9.2E-02 | 1.1E-02 | 7.17E+02 | 0 | 4E-03 | 1.8E-02 | 1E-03 | -1.32E+00 |
| HTP-c | CTUh | 1.2E-09 | 1.73E-12 | 6.01E-13 | 1.98E-08 | 0 | 8.38E-14 | 1.59E-12 | 2.1E-13 | -8.92E-11 |
| HTP-nc | CTUh | 6.32E-08 | 7.4E-11 | 2.61E-11 | 7.3E-07 | 0 | 3.59E-12 | 1.61E-10 | 2.31E-11 | -7.16E-09 |
| SQP | SQP | 1.82E+01 | 3.34E-04 | 6E-03 | 5.34E+02 | 0 | 1.62E-05 | 1.5E-02 | 5.17E-04 | -1.22E+00 |

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 IRP

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 nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

References

Standards

EN 15804

EN 15804:2019+A2 (in press), Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

EN 300328 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 Directive 2014/53/EU.

EN 301489-1 V2.2.0 Draft

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 301489-17 V3.2.1 Draft

ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonised Standard for ElectroMagnetic Compatibility.

EN 50581

EN 50581:2012, Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

EN 62311

EN 62311:2008, Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields.

EN 62368-1

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

ISO 14025

DIN EN ISO 14025:2011-10, Environmental labels and

declarations — Type III environmental declarations — Principles and procedures.

Radio Equipment Directive (RED)

Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC.

Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

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

Restriction of Hazardous Substances (RoHS)

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), Directive (EU) No 2011/65.

Further References

IBU 2016

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

GaBi ts software

Sphera Solutions GmbH GaBi Software System and Database for Life Cycle Engineering 1992-2020 Version 10.0.0.71 University of Stuttgart Leinfelden-Echterdingen

GaBi ts documentation

GaBi life cycle inventory data documentation (<https://www.gabi-software.com/support/gabi/gabi-database-2020-ici-documentation/>).

LCA-tool dormakaba

LCA tool, version 1.0.
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 Building Hardware product, version 1.3, Institut Bauen und Umwelt e.V., www.ibu-epd.com, 2019.



Publisher

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

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com



Programme holder

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

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com



Author of the Life Cycle Assessment

Sphera Solutions GmbH
Hauptstraße 111- 113
70771 Leinfelden-Echterdingen
Germany

+49 711 341817-0
info@sphera.com
www.sphera.com



Owner of the Declaration

dormakaba International Holding GmbH
DORMA Platz 1
58256 Ennepetal
Germany

+49 2333 793-0
info.de@dormakaba.com
www.dormakaba.com