



ED 100LE ED 250LE

Low energy swing
door operators

Low energy swing door operators

Automatic doors provide a means of opening and closing doors without the need for physical effort. For many people who lack physical ability or who are encumbered, by for example shopping or push chairs, heavy manual doors can be a barrier to access. With the ED 100LE / ED 250LE, dormakaba has developed a Low Energy swing door operator designed to remove this barrier and provide easy and safe access for all users.

The unit offers a range of operating modes which enable the door to be opened under power when required and used as a conventional manual swing door at all other times.

The ED 100LE / ED 250LE opens the door at precisely controlled speeds and forces assuring safety for all users. It is not only extremely safe but is less expensive than traditional automatic swing door operators. The combination of low operating noise levels and the compact Contur design ensures the ED 100LE / ED 250LE will integrate into the most sensitive of environments.

With our ED 100LE / ED 250LE, DORMA offers electro-mechanical low energy swing door operators for various fields of application. Simply select the suitable version according to your door-leaf width and weight: While the ED 100LE is suitable for doors with a weight of up to 100 kg and a door width of up to 1,100 mm, the ED 250LE is designed for doors with a width of up to 1,600 mm and a door weight of up to 250 kg. Both operators may be installed as push-version with standard arm or as pull-version with slide channel.

Benefits

For the trade

- Elegant visual appearance:
- dormakaba Contur design provides an operator height of only 70mm.
- Low noise levels through multi-stage gearing.
- Efficient closing due to an electronic latching action enabling the motor to support the spring to overcome door seals, room to room pressure differentials and wind loads.
- Suitable for 60 minute fire rated doors for both push and pull application.
- Optional additional safety: Compatible with IRS safety sensors where applications are for particularly vulnerable users.
- Optional integrated door co-ordinator to ensure the correct closing of rebated double doors.

dormakaba and the Environment

dormakaba takes its responsibilities seriously to minimise impact on the environment in all aspects of its activities. This philosophy has remained a key driver throughout the development of the ED 100LE / ED 250LE.

- We have attached particular importance to using as little material as possible, and have managed to reduce by almost 40% the required material compared to our previous generation of low energy door operators.

The low weight has a positive effect on the shipping of the goods and thus reduces unnecessary CO2 emissions.

- Even the best operator will require replacement one day; we are prepared for this as all components are recyclable.

- The ED 100LE / ED 250LE along with all DORMA swing door operators provides sufficient force reserves. Even when the system is used to the maximum the operator will

always try to open and close the door perfectly within the statutory limits. dormakaba swing door operators contribute to avoiding the loss of heat thereby contributing towards reducing a building's carbon footprint.

- Where required, IRS safety sensors consume significant amounts of power over a 24 hour period when mains power is not turned off – as is the case in the vast majority of buildings. The ED 100LE / ED 250LE offers an integrated ESM Energy Saving Mode function which allows the sensors to be switched to standby to minimise unnecessary power consumption which offers an energy saving of up to 30%.

- The ED 100LE / ED 250LE mainly closes via spring force. However, thanks to its direct drive, the motor automatically switches on to provide support when required. This assists the door to reach its closed position minimising energy loss.



Required operating conditions	
Ambient temperature	-15 to +50 °C
Only suitable for dry environments	Relative humidity max. 93 % Non-condensing
Power supply	230 V AC 50 Hz +/- 10 %
Class of protection	IP20

General specifications

Dimensions (W x H x D)	685 x 70 x 130 mm
Min. clearance between hinges (double-leaf systems)	1,450 mm
Min. clearance between hinges for ESR (double-leaf systems)	1,450 mm
Weight of single-leaf version	12 kg
Power supply for external accessories	24 V DC +/- 10 %, 1.5 A

Parameters

Opening angle	Max. 110°
Latching action	Adjustable from 7° – 0°
Hold-open time	0 – 30 seconds
First entry-last exit hold-open time	0 – 30 seconds
Blocking behaviour	Reversing closing cycle/ Door closer function
Locking feedback contact	Motor lock/Electric strike
Working point of wind load control	Total load of max. 50 Nm
Voltage-independent braking circuit	Adjustable via potentiometer
Electronic latching action pulse	Force adjustable

Integrated functions

LED status indicator	green	24V DC voltage indicator
	red	Error Code
	yellow	Service interval expired
Integrated program switch	OFF	
	AUTOMATIC	
	PERMANENT OPEN	
	EXIT ONLY (OPTIONAL – only for single-leaf systems)	
User interface with information display	Status indicator and parameterisation	
Slot for DORMA Upgrade Cards	Extension of functional range	
Update interface	Firmware update	
TMP – Temperature Management Program	Temperature-related overload protection	
IDC – Initial Drive Control	Driving phase optimisation	
Cycle counter	0 – 1,000,000 (reasonably subdivided)	

Inputs, terminals max. 1.5 mm²

Potential-free activator	Inside and outside
Voltage input/First entry-last exit	Max. 8 – 24 V AC/DC + 10%
First entry-last exit (key switch)	NC contact/NO contact
Safety sensor	Hinge side and opposite hinge side
Test signal for safety sensor	Hinge side and opposite hinge side
Emergency-Off pushbutton/ Lock switch	NC contact/NO contact

Outputs, terminals max. 1.5 mm²

Potential-free door status contact	Door closed
	Door open

ED 100LE

Power consumption	120 Watts
Closing force EN 1154	EN 2–4, adjustable
Max. door-leaf weight for lintel depths of up to 300 mm	100kg
Door-leaf width for single-leaf version	700 – 1,100 mm hinged 770 – 1,100 mm pivoted*
Door-leaf width for double-leaf version	1,450 – 2,200 mm hinged 1,590 – 2,200 mm pivoted*
Max. opening speed	27° per second
Max. closing speed	27° per second
Axle extension	30 mm / 60 mm
Lintel depth for slide channel	+/- 30 mm
Lintel depth for standard arm	0 – 300 mm

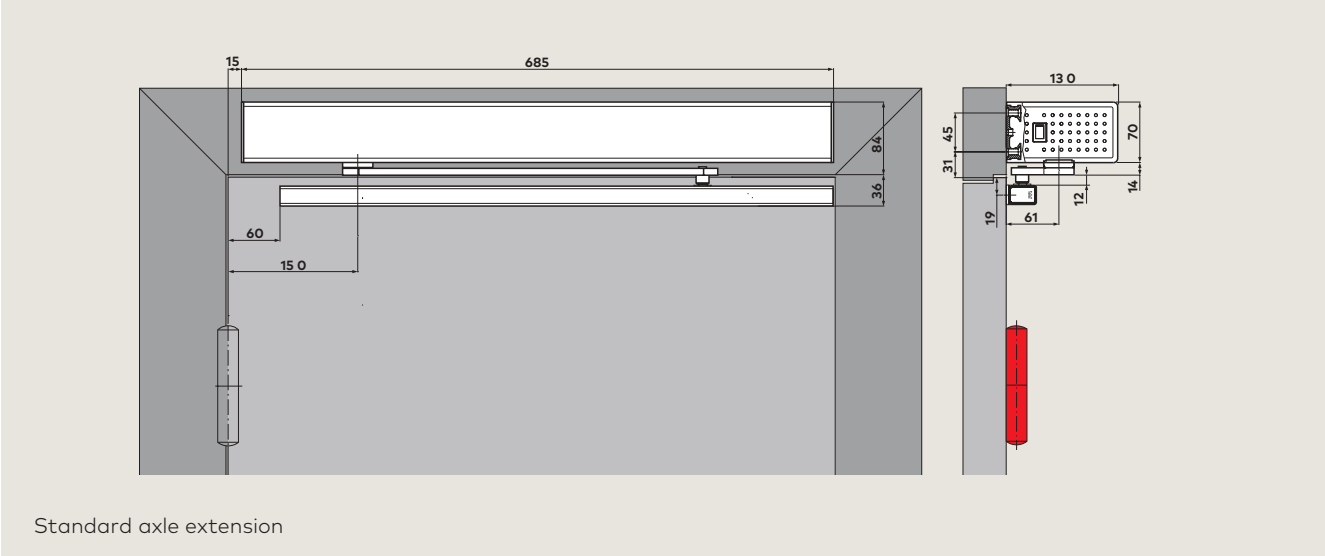
* Based on 70 mm pivot centres.

ED 250LE

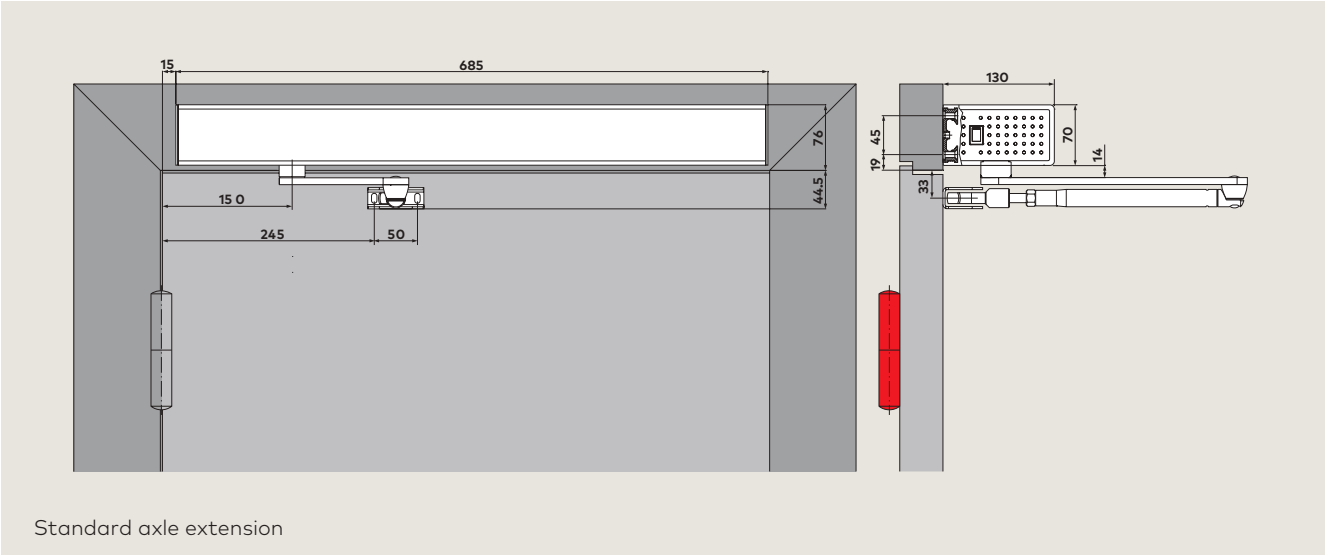
Power consumption	240 Watts
Closing force EN 1154	EN 4–6, adjustable
Max. door-leaf weight for lintel depths of up to 225 mm	250 kg
Max. door-leaf weight for lintel depths from 226 mm to 500 mm	120 kg
Door-leaf width for single-leaf version for single-leaf fire protection doors	700 – 1,600 mm hinged 770 – 1,600 mm pivoted* 700-1,400 mm
Door-leaf width for double-leaf version for double-leaf fire protection doors	1,450 – 3,200 mm hinged 1,590 – 3,200 mm pivoted* 1,400-2,800 mm
Max. opening speed	27° per second
Max. closing speed	27° per second
Axle extension	30 mm / 60 mm / 90 mm
Lintel depth for slide channel	+/- 30 mm
Lintel depth for standard arm	0 – 500 mm

* Based on 70 mm pivot centres.

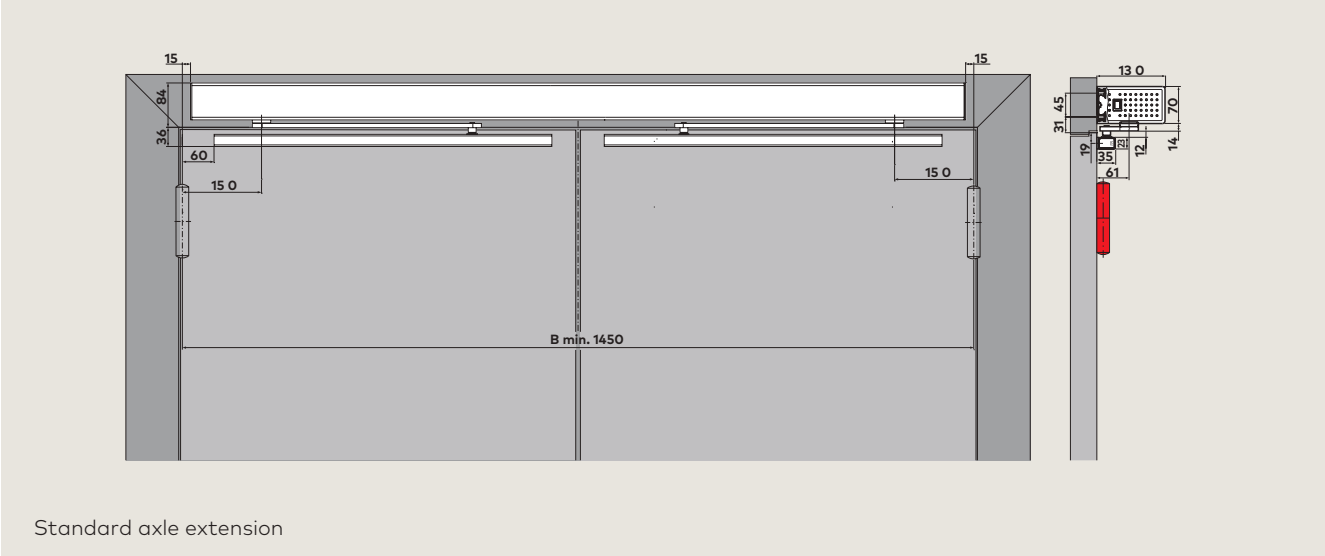
View: BASIC cover, pull-version, 12.5 mm drive arm pin



View: BASIC cover, push-version



View: CONTINUOUS cover, pull-version, 12.5 mm drive arm pin



Technical drawing of a standard axle extension. The drawing shows a side view of the component with various dimensions in millimeters (mm). Key dimensions include:

- Overall length: 632 mm
- Distance from center of operator axle to the right end: 555 mm
- Distance from center of operator axle to the first set of mounting holes: 100 mm
- Distance between mounting holes: 220 mm, 340 mm, 460 mm, and 555 mm.
- Radius of the mounting holes: R3.3
- Distance from the center of the operator axle to the first set of mounting holes: 60 mm
- Distance from the center of the operator axle to the first set of mounting holes: 63 mm
- Distance from the center of the operator axle to the first set of mounting holes: 31.5 mm
- Distance from the center of the operator axle to the first set of mounting holes: 22 mm
- Distance from the center of the operator axle to the first set of mounting holes: 106 mm
- Distance from the center of the operator axle to the first set of mounting holes: 150 mm
- Distance from the center of the operator axle to the first set of mounting holes: 155 mm
- Distance from the center of the operator axle to the first set of mounting holes: 451 mm
- Distance from the center of the operator axle to the first set of mounting holes: 19 mm
- Distance from the center of the operator axle to the first set of mounting holes: 31 mm
- Distance from the center of the operator axle to the first set of mounting holes: 53.5 mm
- Distance from the center of the operator axle to the first set of mounting holes: 76 mm
- Distance from the center of the operator axle to the first set of mounting holes: 9 mm
- Distance from the center of the operator axle to the first set of mounting holes: 9 mm

The drawing also includes labels for the "Centre of operator axle" and the "Upper edge of door leaf".

Technical drawing of a standard axle extension. The drawing shows a side view of the component with various dimensions and labels. Key dimensions include:

- Overall length: 632
- Distance from center of operator's foot to the end of the extension: 555
- Distance from center of operator's foot to the center of the axle: 460
- Distance from center of operator's foot to the center of the axle: 340
- Distance from center of operator's foot to the center of the axle: 220
- Distance from center of operator's foot to the center of the axle: 100
- Distance from center of operator's foot to the center of the axle: 60
- Distance from center of operator's foot to the center of the axle: 63
- Distance from center of operator's foot to the center of the axle: 315
- Distance from center of operator's foot to the center of the axle: 106
- Distance from center of operator's foot to the center of the axle: 150
- Distance from center of operator's foot to the center of the axle: 245
- Distance from center of operator's foot to the center of the axle: 50
- Distance from center of operator's foot to the center of the axle: 42
- Distance from center of operator's foot to the center of the axle: 9
- Distance from center of operator's foot to the center of the axle: 19
- Distance from center of operator's foot to the center of the axle: 41.5
- Distance from center of operator's foot to the center of the axle: 64

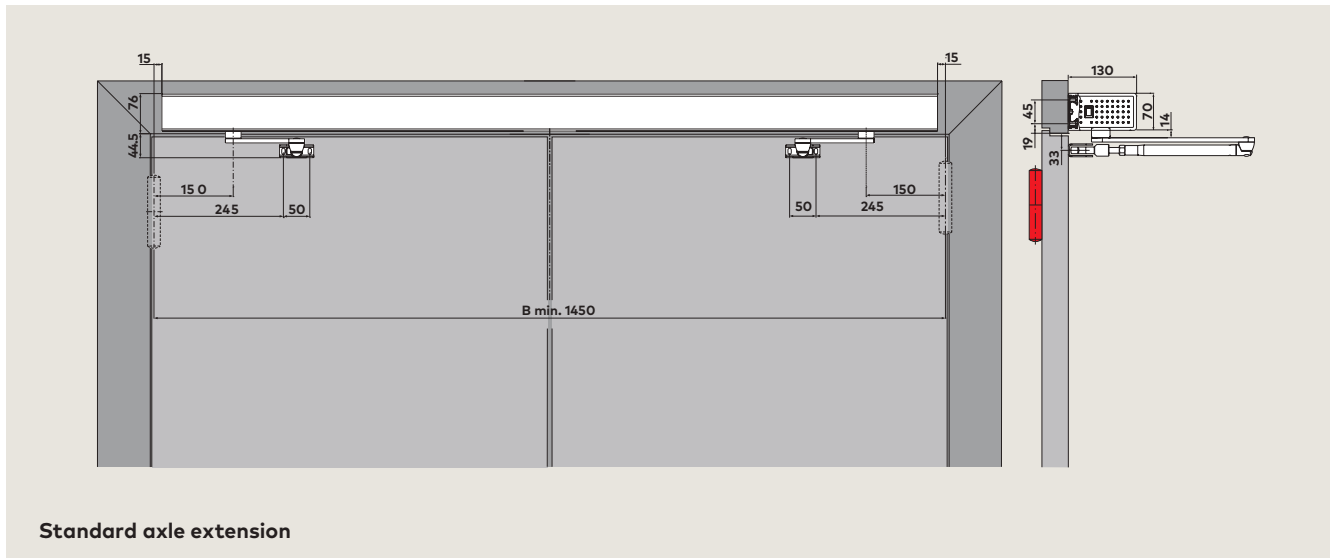
Labels include:

- Centre of operator's foot
- Bottom edge of link
- R3.3

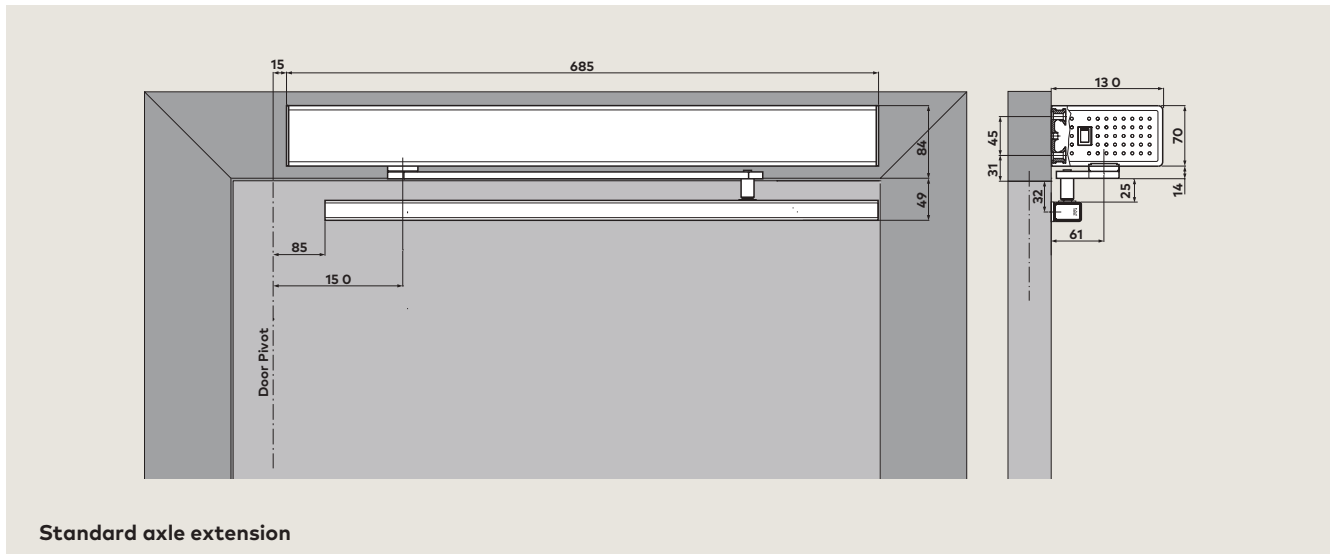
Standard axle extension

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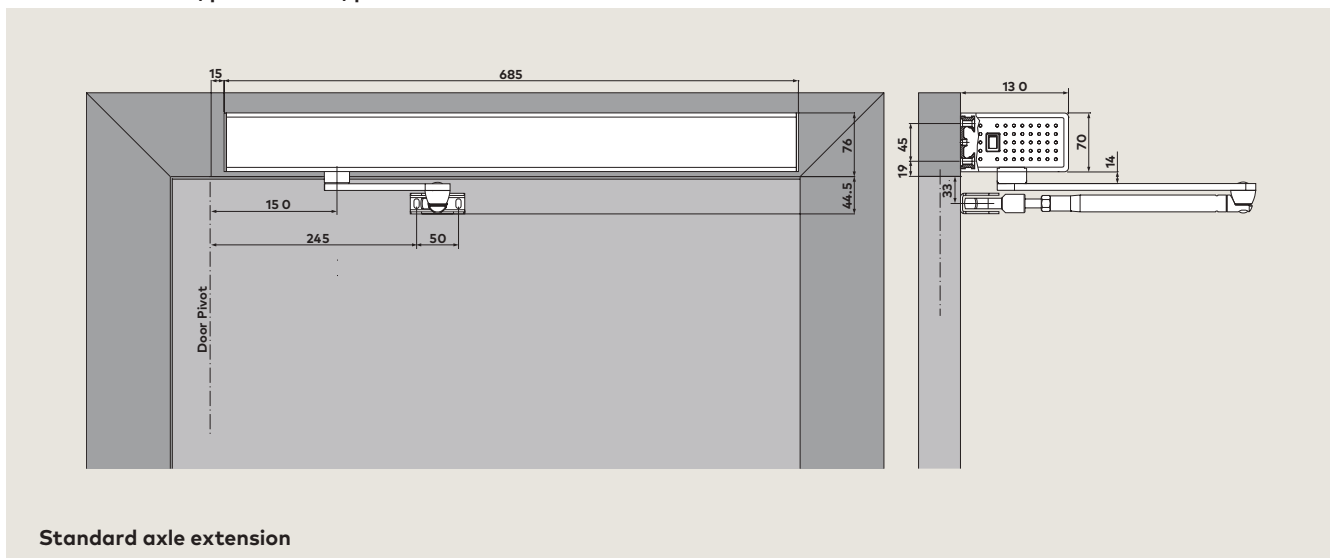
View: CONTINUOUS cover, push-version



View: BASIC cover, pull-version, 25 mm drive arm pin, pivoted door



View: BASIC cover, push-version, pivoted door



Standard axle extension
Cable entry on the left or on the right side.

Standard axle extension

Technical drawing of a standard axle extension. The drawing shows a side view of the component with various dimensions and labels. Key dimensions include:

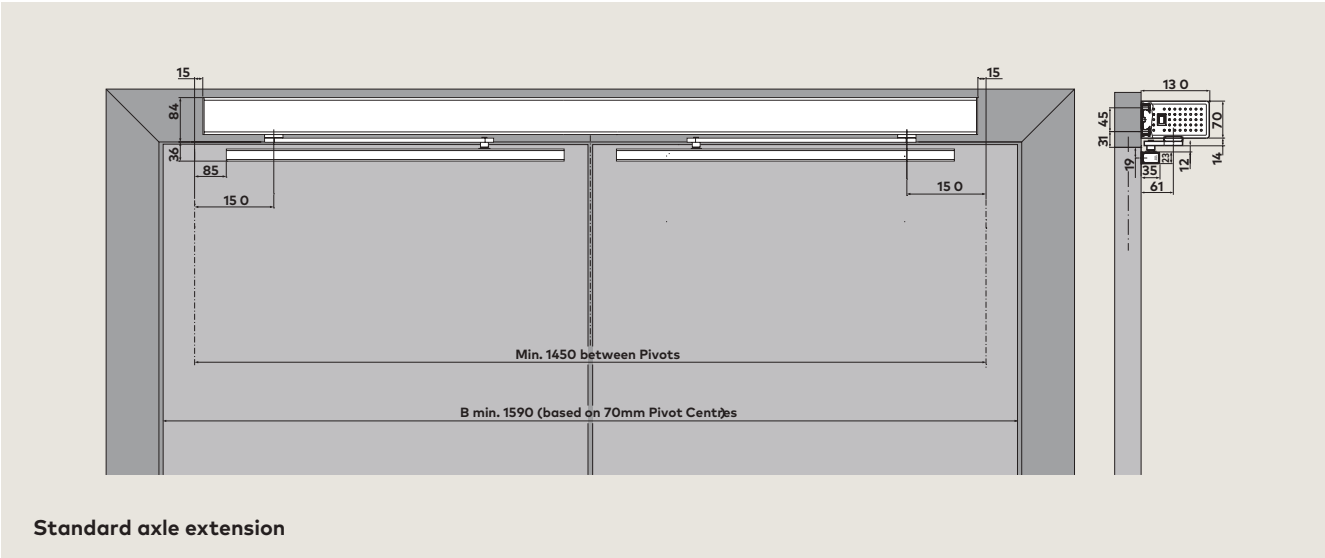
- Overall length: 632
- Distance from door pivot to center of operator arm: 106
- Distance from door pivot to center of operator arm (alternative measurement): 150
- Distance from door pivot to center of operator arm (alternative measurement): 245
- Distance from center of operator arm to center of axle: 42
- Distance from center of axle to bottom edge of link: 50
- Distance from center of operator arm to center of axle: 100
- Distance from center of operator arm to center of axle: 220
- Distance from center of operator arm to center of axle: 340
- Distance from center of operator arm to center of axle: 460
- Distance from center of operator arm to center of axle: 555
- Distance from center of operator arm to center of axle: 60
- Distance from center of operator arm to center of axle: 63
- Distance from center of operator arm to center of axle: 31.5
- Distance from center of operator arm to center of axle: 9
- Distance from center of operator arm to center of axle: 9
- Distance from center of operator arm to center of axle: 19
- Distance from center of operator arm to center of axle: 41.5
- Distance from center of operator arm to center of axle: 64

Labels include:

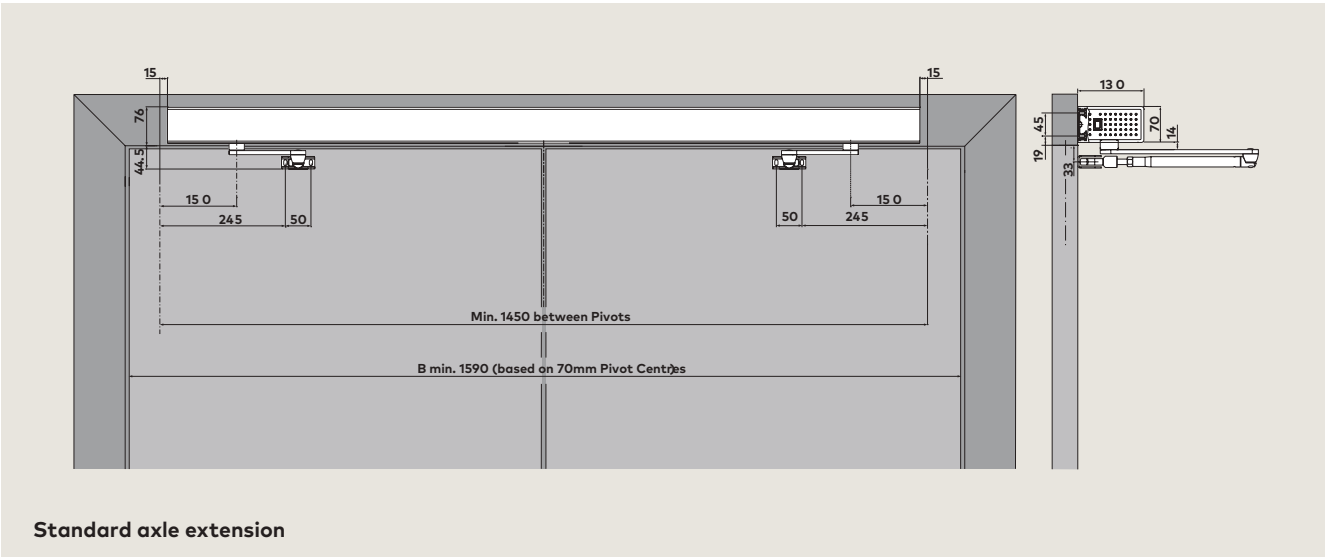
- Centre of operator arm
- Door Pivot
- Bottom edge of link
- R3.3

Standard axle extension

View: CONTINUOUS cover, pull-version, 12.5 mm drive arm pin, pivoted door



View: CONTINUOUS cover, push-version, pivoted door

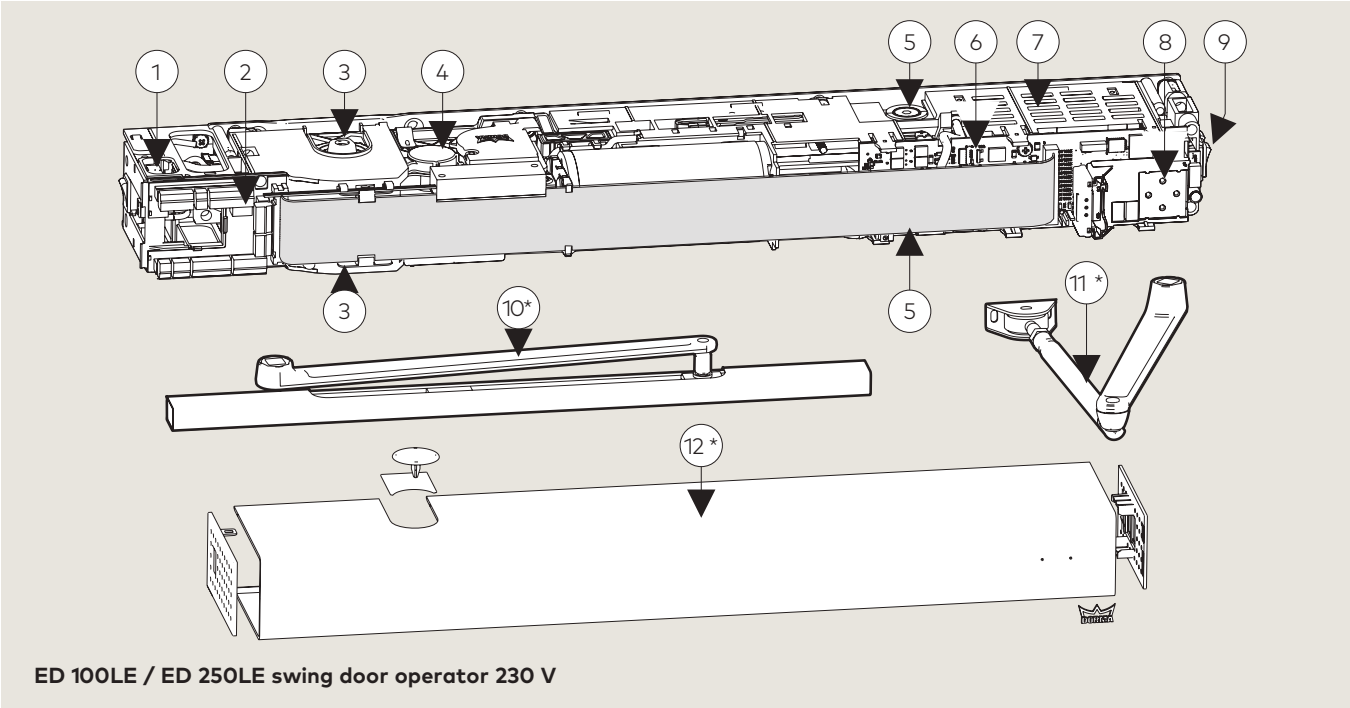


Standard axle extension
Cable entry on the left or on the right side.

Standard axle extension
Cable entry on the left or on the right side.



System setup



The example system is equipped with all possible components. It is selected in accordance with the door-leaf width and the door-leaf weight.

- | | | |
|---------------------------------------|--|-------------------------------|
| 1 Mains connection | 5 Adjustment of closing force | 9 Internal program switch |
| 2 Connection unit | 6 Control unit | 10 Slide channel (Set)* |
| 3 Axle connection on both sides | 7 Switching power supply unit | 11 Standard arm* |
| 4 Drive system
(motor/gear/spring) | 8 User interface with
information display | 12 Complete cover (ED BASIC)* |
- * supplied separately

Arm

ED slide channel set – pull-version

The slide channel set is suitable for doors with a door-leaf width of 1,600 mm. The maximum lintel depth amounts to +/- 30 mm.
(Number 10 in above diagram)

ED standard arm 225 – push-version

The standard arm is suitable for lintel depths of up to 225 mm, admissible door-leaf width of 1,600 mm.
(Number 11 in above diagram)

For lintel depths from 0 to 225 mm

ED 100 arm 225 to 300 mm
ED 250 arm 225 to 500 mm

Covers

dormakaba provides covers for single and double-leaf systems. All covers feature the dormakaba Contur design and are designed for on-site mounting.

ED basic cover

Aluminium cover for single-leaf swing door systems.

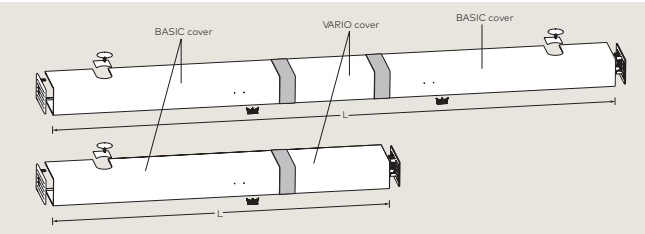
ED vario cover

This cover combines with the ED basic cover to provide a continuous cover for double leaf swing door systems. In addition to the VARIO cover you will require two ED basic covers which are mounted on the left and the right of the operator system.

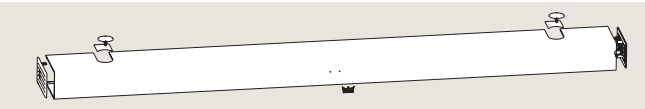
ED professional cover

Designed for double-leaf swing door systems, the ED professional cover is a continuous and seamless cover available in lengths from 1400 mm to 3,200 mm. Also, single-leaf operators may be extended to a length of up to 3,000 mm towards the main closing edge.

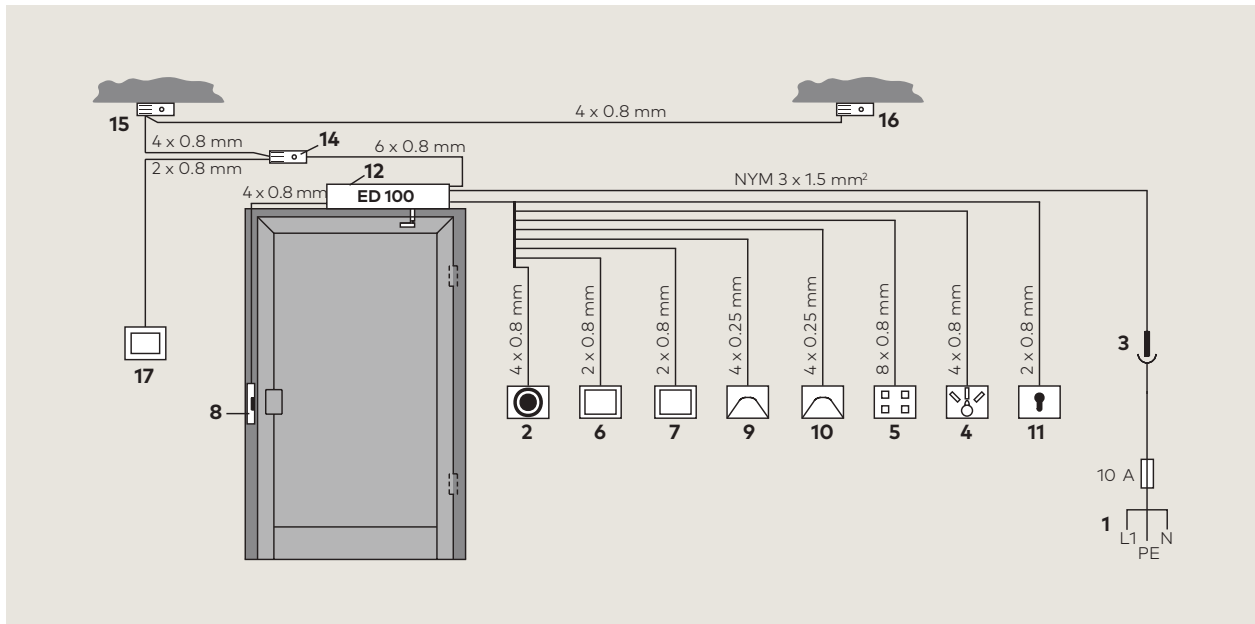
ED basic and vario covers



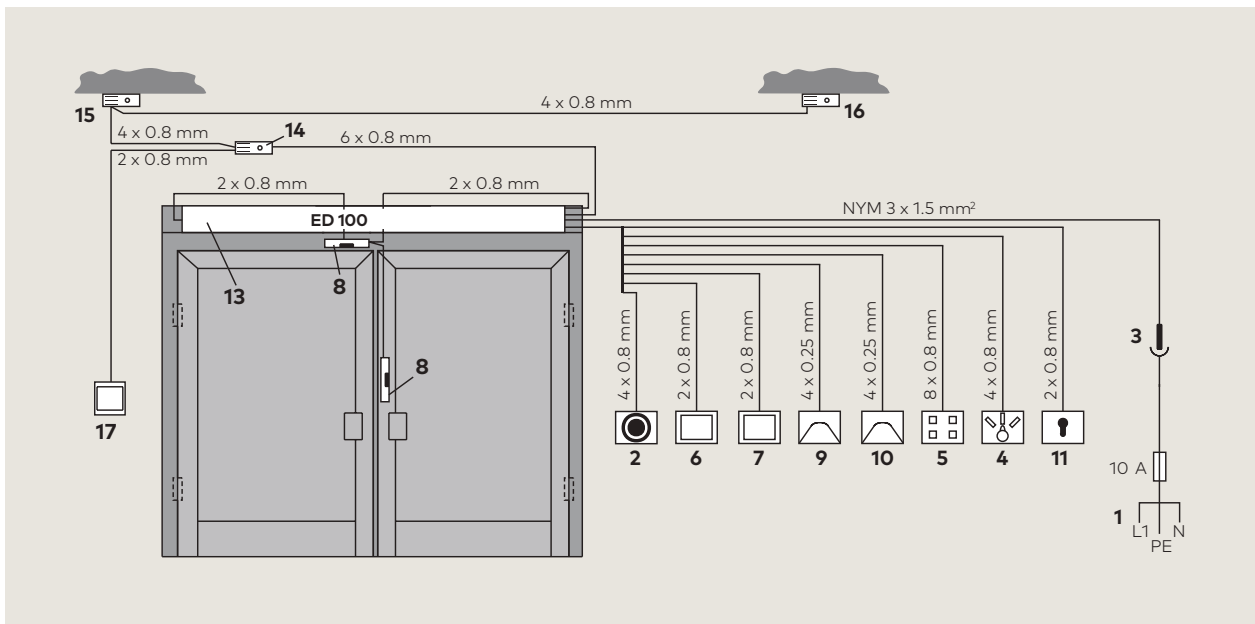
ED professional cover



ED 100LE / ED 250LE, single-leaf doors



ED 100LE / ED 250LE, double-leaf doors



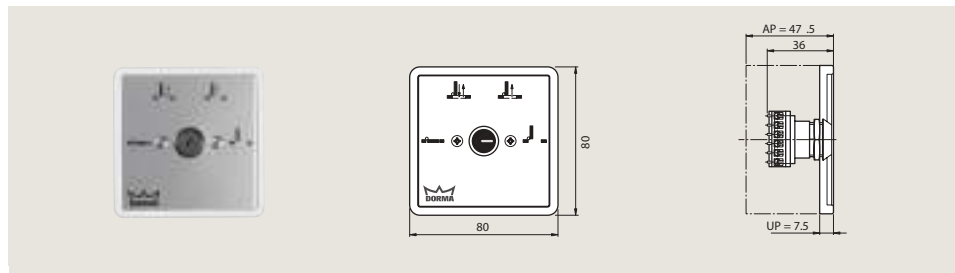
Connections

* Not sold for LE operator

- | | | |
|--|---|--|
| 1 Power supply | 7 Pushbutton, outside | 14 RM-ED smoke detector |
| 2 Emergency pushbutton,
function: Emergency Off | 8 Locking device | 15 RM-N smoke detector,
opposite hinge side |
| 3 Two-pole-and-earth
socket | 9 Radar motion detector,
inside* | 16 RM-N smoke detector,
hinge side |
| 4 External PGS, mechanical | 10 Remote actuation | 17 Optional manual release
pushbutton |
| 5 External PGS, electronic | 11 Key switch | |
| 6 Pushbutton, inside | 12 ED 100LE / ED 250LE | |
| | 13 ED 100LE / ED 250LE with
continuous cover | |

Options - program switches

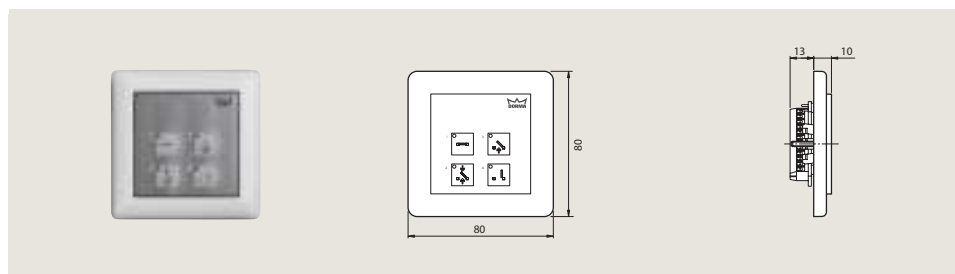
PG-D3



Program switch PG-D3

4-position, lockable,
aluminium, white,
flush-mounted version, Gira
S-Color

EPS-D



EPS-D full-electronic program switch

In System 55 design,
4-position, lockable via code
or additional TL-ST S55 key
switch, membrane keypad,
aluminium-coloured, white,
flush-mounted version

ESR – Integrated door coordinator

The ESR set is installed inside the double-leaf operator on site. It is available as an individual component and is easy to install. The system works similar to a drum brake and thereby ensures the proper functioning of the system.

The brake is released when the passing leaf is fully closed allowing the active leaf to close in turn.

Options - radar motion detector

Easy Motion radar motion detector with direction recognition



Radar motion detectors respond to movements. They detect approaching people within their detection range and trigger the activation (opening) signal at the door operator. Adjustable to allow for difficult installations.

Easy Motion

With direction recognition,
black
black rain cover*

*dormakaba recommends installing a rain cover for outdoor applications.

Options - safety barriers

Framed 'F' type safety barriers

BS EN 16005:2012 Power operated doorsets – Safety in use states: Barriers are intended to direct pedestrian traffic or to avoid pedestrians from entering non-safe zones. They shall be a) designed so that children cannot easily climb over or crawl under them, b) suitably secured, c) able to withstand forces occurring in normal service, d) a minimum of 900 mm high. Barriers, when used, shall not create new hazards.

dormakaba offer the following range of barriers to ensure compliance.



Framed 'F' type with glass infill.

Silver painted aluminium frame. 10mm toughened glass infill.

Framed 'F' type with solid infill.

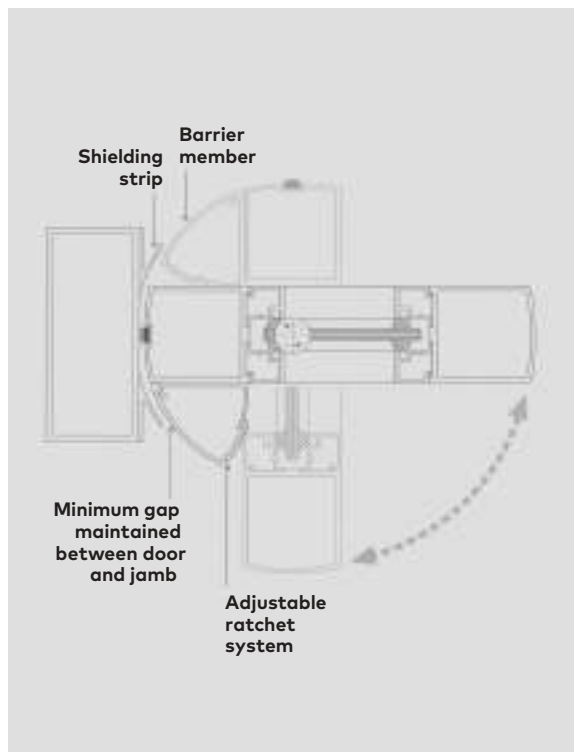
Silver painted aluminium frame. Silver painted aluminium sheet infill

Options - back edge protection

Pivotsafe and Hingesafe

BS EN 16005:2012 Power operated doorsets – Safety in use states: Danger points between the leaf and frame presenting a fingertrap hazard shall be avoided structurally or by an appropriate protective device or safeguards provided by means of protective measures.

To ensure that installations carried out by dormakaba meet the strictest safety standards we offer a range of options suitable for the majority of door types.



Pivotsafe for pivoted doors.

Aluminium. Available in anodised or RAL painted finishes. Suitable for conventional doors with pivot centres between 50mm and 75mm

Hingesafe for hinged doors.

UVPC. Available in either white or brown.



System setup

Safety



dormakaba infrared safety sensors are active infrared sensors and designed to detect all static and moving obstructions, either people or objects, within their detection range. On the opposite hinge side, the infrared safety sensor fulfils the function of an activator, which means that the sensor

Reversing



will institute the door to reverse and open as soon as an obstruction is detected in the course of a closing cycle. Then the hold-open time starts anew. On the hinge side, the infrared safety sensor will interrupt the automatic movement of the door whenever it detects an obstruction; the door closes on

Stop



expiry of the adjusted hold-open time. dormakaba infrared safety sensors are available in different lengths and may be supplied in the same colour as the operator.

IRS-4 active infrared safety sensor



IRS-4 active infrared safety sensor c/w cable & loop		Colour	Part number
IRS-4	With one sensor, length: 350 mm	silver	294350
IRS-4	With two sensors, length: 1100 mm	silver	294110

IRS-4 weather protection hood		Part number
IRS-4	Length: 350 mm	294352
IRS-4	Length: 1100 mm	294112

ESM Energy Saving Mode

The Energy Saving Mode is available when the IRS-4 is installed in combination with the ED 100LE / ED 250LE swing door operator.

The sensors automatically switch to Stand-By Mode as soon as the program switch at the operator is adjusted to OFF.

Safety sensors with laser technology

The **Flatscan SW** is a safety sensor based on laser technology to safeguard the swivel range of automated swing doors in accordance with DIN18650/EN16005.

The sensors are installed in the upper corner area of the door. The resolution of the sensor is 70 measurement points for the swivel range and 100 measurement points for the secondary closing edge. A single sensor module on each side is sufficient to safeguard the entire door up to a diagonal of 4 m.

The detection field of the sensor can be precisely adjusted so that the grey zone on the floor in which the detection is no longer possible due to the physical limits of the technology usually does not exceed 10 cm. The floor characteristics do not influence the sensor. The strength of the system becomes evident when difficult to capture floors with grates and grooves or shiny coats are involved.



If the door opens against a wall or if a fixed installation such as handle bars is continuously within the detection range, the sensor will detect them during the teach-in operation and automatically suppresses them during the operation without affecting the detection quality. The wall suppression of the drive can be used additionally.

A sufficient safeguarding of the swivel range can be achieved by adjusting the detection field. During the movement of the door, the detection field can even be dynamically expanded beyond the door panel and thus increase the operational reliability. In addition, the sensor offers a significantly improved protection on the secondary closing edge. Compared to the standard infrared sensors and depending on the risk potential deduced from the risk assessment, this can be sufficient to safeguard the secondary closing edge. You may take other additional measures to safeguard the secondary closing edge.

Safety sensor Flatscan SW
incl. 2.5 m connecting cable and transition tube

Description		black	silver	white
Flatscan Kit	1 sensor DIN left & 1 sensor DIN right	86501300	86502300	86503300
Flatscan left	1 sensor DIN left	86501301	86502301	86503301
Flatscan right	1 sensor DIN right	86501302	86502302	86503302

The complete solution

Automatic entrance systems require careful specification and installation to ensure safety and reliability in use. Commencing with a risk assessment survey, dormakaba can advise at all stages of design and installation so the correct methods of operation and user safety protection are adopted.

Risk Assessment

All automatic doors must be specified and installed following appropriate safety standards requiring risk assessment prior to installation and periodically during the life of the product. dormakaba are experienced with safety specification and can provide further details on request.

Professional and impartial advice from staff assessed and accredited by ADSA (Automatic Door Suppliers Association):

- Site surveys, escape routes, impaired user access.
- Risk assessment reports
- Consultation with leading safety bodies and equipment manufacturers.
- CPD delivery to specifiers and professional organisations



Protection

Automatic doors installed in the UK are subject to the highest safety demands in accordance with EN 16005:2012. To meet these requirements consideration must be given to the use of barriers, self-monitoring sensors and other protective devices. These are mandatory for each door and uniquely specific to its location.

Advanced, standards-compliant technologies for all door types:

- Compact sensors with microwave Doppler technology for motion detection
- Combination sensors with active infrared technology for simultaneous motion and passageway protection
- Active infrared motion detectors based on the triangulation principle for protection of users or obstructions located in the door panel travel path
- Laser sensors with precision monitoring and extended field of view over the door face
- Barriers, fingerguards and appropriate signage for increased risk users, children or failsafe situations



For further advice on dormakaba products and accessories please contact:

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www.dormakaba.co.uk

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