

Orthos

Personal Interlocks



Versatile Orthos personal interlocks

Effective, precise, secure

The highest level of security is achieved through the combination of consistent separation and reliable authorization verification. Orthos' electronically monitored security interlocks meet the highest security requirements and reliably protect sensitive areas – from data centers and financial institutions to secure areas in government buildings to airports.

Versatility

The Orthos product family includes round and rectangular personnel interlocks designed for controlled single-person passage.

Round and cubic Orthos PIL personal interlocks

Depending on the security requirements, the desired level of individual separation can be achieved through weight detection, sensors, or an additional identification step with a stop function in the middle of the interlock. For added security, contact mats, weighing systems, or internal monitoring can be integrated. Alternative versions for high-security areas include reinforced, bullet-resistant, and burglar-resistant designs. The various models are certified from RC2 up to RC4.



Personaleingang

Advantages of Orthos Personal Interlocks

Maximum security for sensitive areas.

Round and cubic Orthos PIL personal interlocks

- High level of security thanks to contact mats
- Additional security through an integrated scale with up to two weight limits or actual weight
- Resistance classes RC2 up to RC4 for cubic interlocks
- Elegant glass units
- Smooth, quiet operation
- Minimal space requirements

Numerous options:

- Fire protection door
- Escape route function
- Bullet and break-in resistance
- Barrier-free solutions



The right solution for every access situation



01
Compact single unit with minimal space requirements



02
Only clearly identified persons are granted access



03
With integrated biometric system for maximum security

04
All-glass multi-unit system in a high-gloss stainless steel version

For maximum security in:

- Data centers
- Research centers
- Nuclear power plants
- Banks and financial institutions
- Protected areas of government buildings, companies, or airports

Round and cubic Orthos personal interlocks

Frequency of people = 3–5 per minute

Security level = ●●●●●

Comfort = ●●●○○

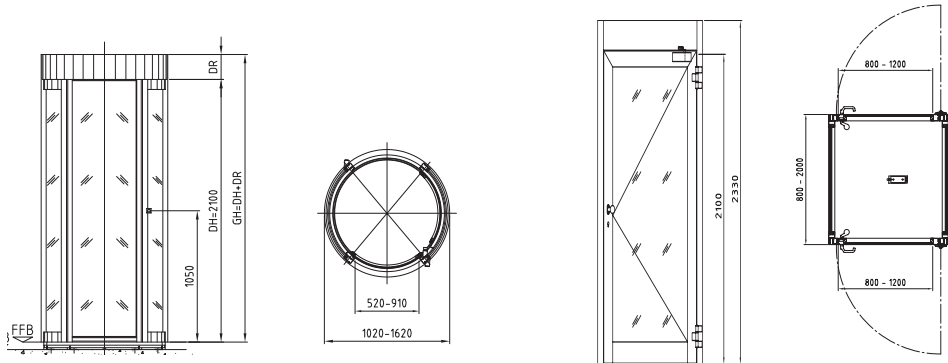




Orthos Personal Interlocks



Standard units	PIL-S01	PIL-M01
Construction Outside diameter	1020, 1120, 1220, 1320, 1420, 1520, 1620	-
Passage width	520, 580, 650, 710, 780, 840, 910	800–1200
Total height	2300	2330
Passage height	2100	2100
Upper part of body	200	230
Upper part length	-	800–2000
Body Resistance class	Optional RC2	Optional RC2–RC4
Body side panels	With glass panel, or alternatively metal-clad. Including black rubber floor covering.	With glass panel, or alternatively metal-clad. Optional black rubber coating.
Interior		
Outer door	Sliding door made of light metal profiles with curved glass.	Optional (hinged door, sliding door, fire protection door) or on-site door.
Inner door	Sliding door made of light metal profiles with curved glass.	Optional (hinged door, sliding door, fire protection door) or on-site door.
Finish	Powder-coated in a RAL color.	Powder-coated in a RAL color.
Function	Door wing with locking device. Home position closed inside and outside. Automatic opening and closing of both door wings consecutively. The PMA emergency release switch inside the interlock opens the outer door. Interior with area scanner as relaying element, including a 1-zone contact mat with black rubber floor covering. Light curtain for contactless protection. Integrated into the outer radius of the body panel on both sides. Sliding door behavior in a power failure can be freely selected. Standard setting: Inside closed and locked, outside open. Power failure behavior of sliding doors with break-in resistance: Outside closed and locked, inside open. The PMA is replaced by a manual unlocking device inside the interlock.	Home position closed inside and outside. Release signals for door control from inside or outside provided by customer. Release of the first door in entry or exit direction. Release of the second door in entry and exit directions as soon as the first door has automatically closed and locked. Interior with an area scanner as relaying element. Lighting can be installed.
Electrical equipment	CAN bus control unit ETS 21 integrated into the unit.	CAN bus control unit ETS 21 integrated into the unit.
Installation	On stainless steel floor element with guide rail for unfinished floor (dimension x 70-79).	With side walls on finished floor FFB. Optionally with floor element.
Installation instructions	The conditions must be checked for facade installation.	The conditions must be checked for facade installation.



All dimensions in mm

Orthos PIL-S01 options

(dependent on unit and power supply type)

Note: Enhanced access security through a 2-zone contact mat.
Biometric and weight verification possible.

	PIL-S01
Construction	
Raised passage height.	•
Raised upper part of body.	•
Thermal separation of body side panels in axis.	•
Wall connection.	•
Manual unlocking devices for inner or outer doors on the outer side of body.	
Sliding door monitoring for closed and locked status signal.	•
Finish	
Stainless steel with satin finish.	•
Anodized C0 and C31-35 (E6).	•
Natural-color anodized C0 instead of powder-coated to RAL.	•
Electrical equipment	
Consoles (1, 2, and 3) made of plastic or aluminum, in the unit color or in RAL 9006 or made of stainless steel with satin finish.	•
Consoles 4 and 5 made of stainless steel with satin finish.	•
Push button for manual single release.	•
Electric key switch for general unit release.	•
OPL 05 control unit with freely selectable functions.	•
Magnetic contact for monitoring the maintenance flaps or ceiling plate.	•
Signal system consisting of 2 red and 2 green lights.	•
Contact mats with rubber flooring with studded surface.	•
Light curtain for contactless protection (see project-specific risk assessment). (Standard)	Standard
Emergency release button PIB, emergency release switch PMI, PMB.	•
Various weight evaluations for access control (actual weight or weight limits).	•
Lighting by 2 LEDs.	•
Additional board to expand existing inputs and outputs.	•
Installation	
Wall frame for pre-installation.	
Base frame for raised floor.	•
Floor element made of stainless steel for pre-installation. (Standard)	Standard

For interlock sequence, see page 18.

For security level according to equipment, see page 17.

For drawings of options, see page 15.

ETS 21: For configurable, potential-free signals to be processed on site, see page 17.

Orthos PIL-M01 options

Note: Access security can be enhanced using a 2-zone contact mat; additional light barriers, biometric verification, optical separation, and weight verification are also available. Increased convenience through swing door drives.

Construction	
Raised upper part of body.	
Side wall made of aluminum profile with 8 mm laminated safety glass.	
Side panel made of aluminum profile in RC2 with P4A glazing.	
Aluminum profile swing door with 8 mm laminated safety glass.	
Aluminum profile swing door in RC2 with P4A glazing.	
Smoke-tight swing door with 8 mm laminated safety glass.	
Hold-open magnet (locking force 5000 N) in addition to the electric door opener for exterior or interior door.	
Fire protection door T30 (EI-30) or T90 (EI-90) made of primed sheet steel with a viewing window in F30 or F90.	
Folding door with continuous profile system and sealing. 10 mm toughened safety glass.	
Floor element made of stainless steel for pre-installation.	
Base frame for raised floor.	
Floor covering with round, green or gray zone marking Ø 300 mm in center of the interlock.	
Watertight wooden base plate for floor covering, height = 10 mm.	
Black rubber flooring with studded surface, height 5 mm, to be glued to base plate or concrete.	
Function	
Electromechanical operator (with return spring) for swing door (not suitable for fire protection doors).	
Electromechanical operator (with return spring) for swing door. Suitable for fire protection doors.	
Pre-assembled finger protection textile to be used in the swing door hinge (with self-retraction).	!
Sensor strip (light curtain) on inside and outside of door leaf that moves with the door.	!
Fixed light curtain on folding door.	!
Integrated door closer, hidden within the frame of swing door instead of surface-mounted.	
Escape and emergency route module.	
Escape route functions for swing door.	
Electrical equipment	
Installation preparation for on-site components.	
Consoles 4 and 5 made of stainless steel with satin finish.	
Emergency release button with various functions PMB, PIB, PMA, PMI.	
Push button for manual single release.	
Key switch or button prepared for on-site profile half cylinder to install in flush-mounted box or surface-mounted housing or console.	
OPL 05 control unit with freely selectable functions.	
Various surface-mounted housings and mounting frames.	
Door wing alarm glazing (alarm conductor loop, alarm wire, glass breakage detector).	
"Closed" magnetic contact signal in accordance with VdS "C," or "locked" bolt contact signal for swing door for on-site processing.	
Magnetic contacts for monitoring the maintenance flaps.	
Signal system consisting of 2 red and 2 green lights.	
Area scanner in the upper part of body for additional monitoring of the complete interlock interior.	
Contact mats with rubber flooring with studded surface.	
Ramp rail for contact mat on finished floor level FFB, on entry and exit side.	
Various weight evaluations for access control (actual weight or weight limit).	
Lighting by 2 or 3 LEDs.	
Additional boards to expand the existing inputs and outputs.	

! Security element

For interlock sequence, see page 19.

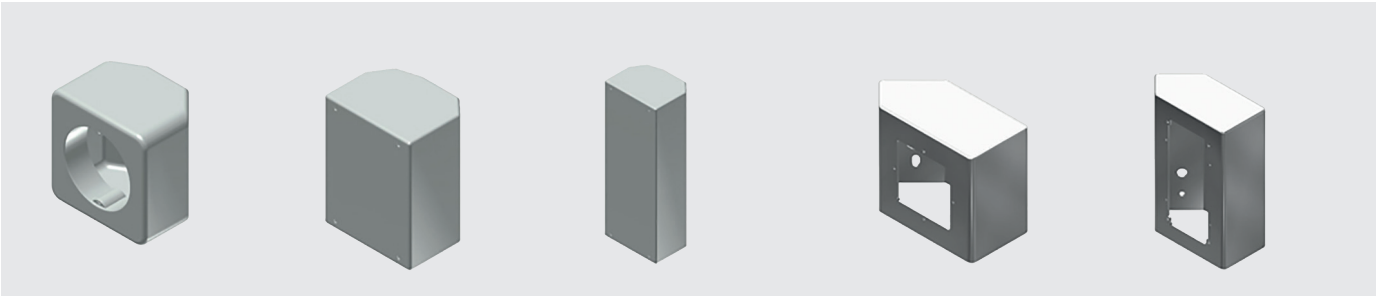
For security level according to equipment, see page 17.

For drawings of options, see page 15.

ETS 21: Parameterizable, potential-free signals for on-site processing page 17.

Accessories

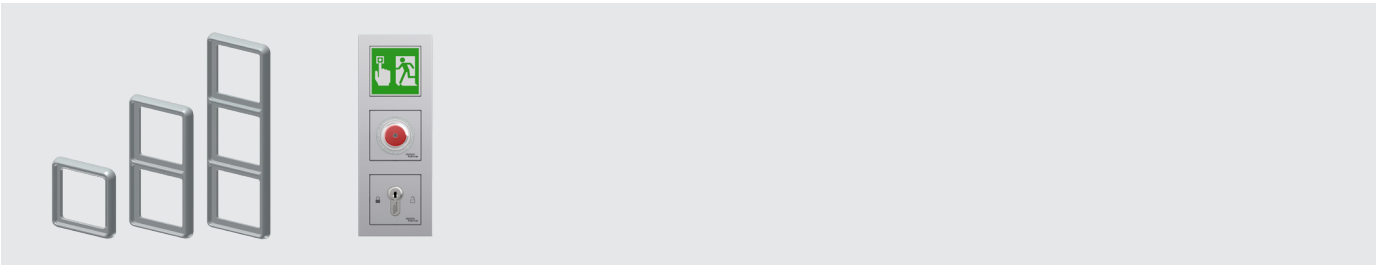
Console 1	Console 2	Console 3	Console 4	Console 5
made of plastic in unit color or in RAL 9006	made of aluminum in unit color or in RAL 9006	made of aluminum in unit color or in RAL 9006	made of stainless steel with satin finish	made of stainless steel with satin finish



Width 94 mm	Width 140 mm	Width 140 mm	Width 118 mm	Width 118 mm
Height 94 mm	Height 180 mm	Height 365 mm	Height 93 mm	Height 164 mm
Depth 65 mm	Depth 110 mm	Depth 110 mm	Depth 60 mm	Depth 60 mm
PIL-S01	PIL-S01	PIL-S01	PIL-S01	PIL-S01
PIL-M01	PIL-M01	PIL-M01	PIL-M01	PIL-M01



Electric key switch in console	Release button	Signal system	Key switch	OPL 05
PIL-S01	PIL-S01	PIL-S01	PIL-S01	PIL-S01
PIL-M01	PIL-M01	PIL-M01	PIL-M01	PIL-M01



Frames for flush-mounting	SafeRoute terminal
PIL-S01	-
PIL-M01	PIL-M01

Security level by equipment

Element	Degree of separation
Contact mat (1 zone)	--
Contact mat (2 zones)	low
Additional light barriers and light sensors	improved
Scale with one weight limit	increased
Scale with two weight limits	high
Actual weight scale	very high
Actual weight scale and biometrics	highest possible

ETS 21: Parameterizable, potential-free signals for on-site processing

There are 5 potential-free feedback messages in the motherboard:

- Ready for entry
- Passage entry
- Ready for exit
- Passage exit
- Malfunction

Additional feedback messages can be added by using additional I/O boards.

Max. 6 potential-free signals for each additional I/O board.

For example:

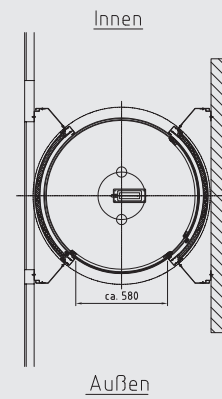
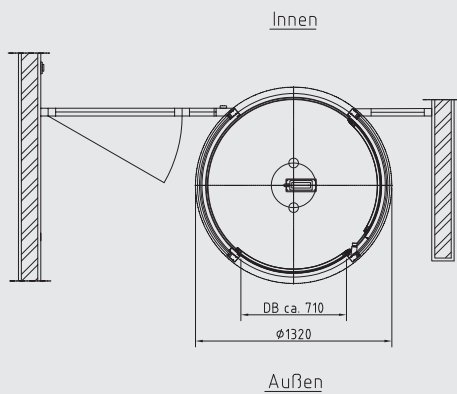
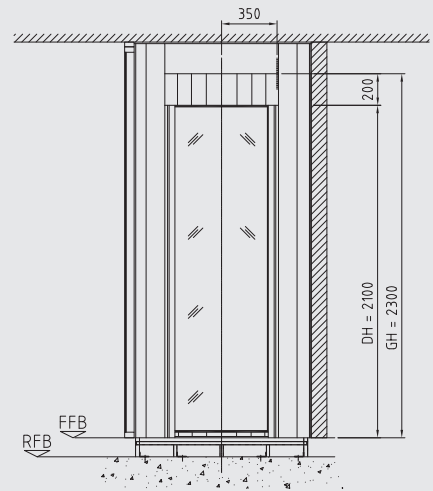
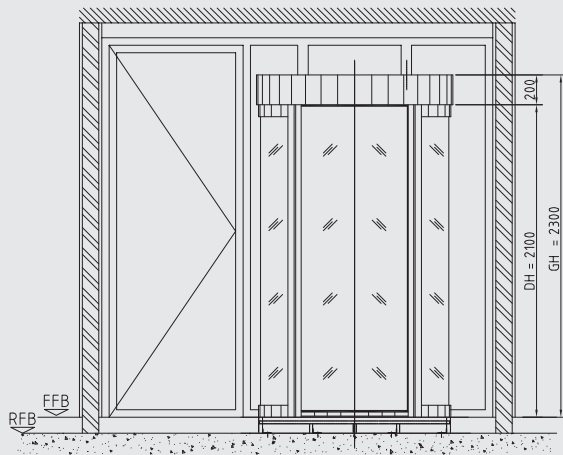
- Blocked
- Released
- Emergency release switch
- Single release entry
- Single release exit
- Continuous release entry
- Continuous release exit
- Release disabled entry
- Release disabled exit
- Random generator on/off
- Random generator alarm
- Passage message entry
- Passage message exist
- Setup after power failure
- Setup from known position
- Ready for entry/exit
- Ready
- Home position
- Pulse for electromechanical counter
- Service message
- General malfunction
- Bus fault
- Cleaning inside
- Cleaning outside
- 1-door operation
- Anti-tamper inside wing
- Anti-tamper outside wing
- Interlock occupied
- Interlock occupied, both doors closed
- Inner door locked
- Outer door locked
- Pre-alarm
- Alarm
- Alarm suppression

Further messages are available through parameter settings.

All parameter settings are described in detail in the control unit's online help.

Installation examples

Orthos PIL-S01



Interlock sequence

Orthos PIL-S01

Passage sequence with external card reader
(biometric also possible)

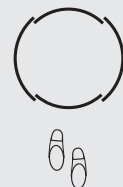
Home position: Interlock closed and locked.

- Person obtains authorization via card reader.
- Door is opened for authorized person.
- Entry into interlock area.
- Door closes automatically.
- Any additionally installed identification and measuring systems are now used in the interlock area.
- Second door opens or the person is denied entry (leaving the interlock through the first door).
- Last opened door closes automatically again (initial position).

Further sequence variants possible (functions can be activated individually via ID card)

- Automatic operation without central reader
- Automatic operation with central reader
- Comfort mode for people with disabilities without central reader
- Comfort mode for people with disabilities with central reader
- Material interlock
- Preferential operation entry or exit
- Single-door operation entry or exit

PIL-S01



Orthos PIL-M01

with two hinged doors in basic version or with outer door RC2, RC3 or T30/T90 (EI-30/EI-90)

Passage sequence with external card reader (biometric also possible)

Home position: interlock closed and locked.

- Person obtains authorization via card reader.
- Authorized person opens door.
- Entry into interlock area.
- Door closes automatically.
- Additional identification and measurement systems may now be used in the interlock area.
- The person opens the second door or is rejected (exits the interlock through the first door).
- Last opened door closes automatically again (initial position).

with hinged door outside and folding leaf inside

Sequence of a passage with card reader outside (biometric also possible)

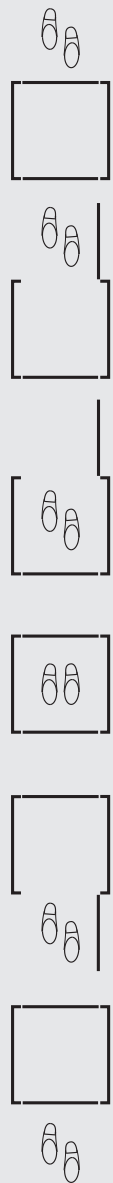
Home position: Interlock closed and locked.

- Person obtains authorization via card reader.
- Authorized person opens door.
- Entry into interlock area.
- Door closes automatically.
- Additional identification and measurement systems may now be installed in the interlock area.
- The second door opens automatically, and the person exits the interlock or is denied entry (exiting the interlock through the first door).

Further sequence variants possible (functions can be activated individually via ID card)

- Automatic operation without central reader
- Automatic operation with central reader
- Comfort mode for people with disabilities without central reader
- Comfort mode for people with disabilities with central reader
- Material interlock
- Preferential operation entry or exit
- Single-door operation entry or exit

PIL-M01



Our Sustainability Commitment

We are committed to foster a sustainable development along our entire value chain in line with our economic, environmental and social responsibilities toward current and future generations. Sustainability at product level is an important, future-oriented approach in the field of construction. In order to give quantified disclosures of a product's environmental impact through its entire life cycle, dormakaba provides Environmental Product Declarations (EPD's), based on holistic life cycle assessments.

dormakaba.com/sustainability



Our offering

Access Automation Solutions

Entrance Automation
Entrance Security



Access Control Solutions

Electronic Access & Data
Escape and Rescue Systems
Lodging Systems



Access Hardware Solutions

Door Closers
Architectural Hardware
Mechanical Key Systems



Services

Technical Support
Installation and commissioning
Maintenance and Repair



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