IB25 Electronic Drop Bolt

Electromechanical Bolt

INTERLOCK™

ASSA ABLOY

ASSA ABLOY, the global leader in door opening solutions.

Installation and Operating Instruction

Contents

Description

The IB25 is a magnetically latching solenoid operated deadbolting lock suited for commercial or residential doors. Its dual action reduces alignment problems as the integrated magnetic latch captures the door before the deadbolt secures it making the IB25 ideally suited for swing through doors. It is supplied with a matching strike plate and can be surface mounted with the aid of accessories or installed into a mortice for a concealed solution.

Integrated electronics provide complete control over the lock and offer an array of features;

- Multi–voltage input (12-24VDC)
- Multiple locking / unlocking attempts
- Adjustable timed re-lock
- Current reduction circuitry
- Door position and bolt position monitoring
- High physical strength – 10,000N

Tools Required

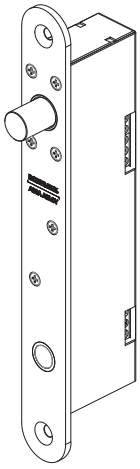
- Drill
- 3.2mm Drill Bit
- 10.0mm Drill Bit
- 20.0mm Drill Bit
- Phillips Screwdriver #2
- Square Screwdriver #1

Pack Contents

The IB25 is supplied with four 10G x 1" CSK. self tapping screws for fitting the lock and strike plate. They are suitable for mounting in both aluminium and wooden doors and frames.

Alternatively, the mounting holes in the locks face plate and strike plate are ø 5.2mm so any 10G or 5mm screw can be used.

Strike Plate

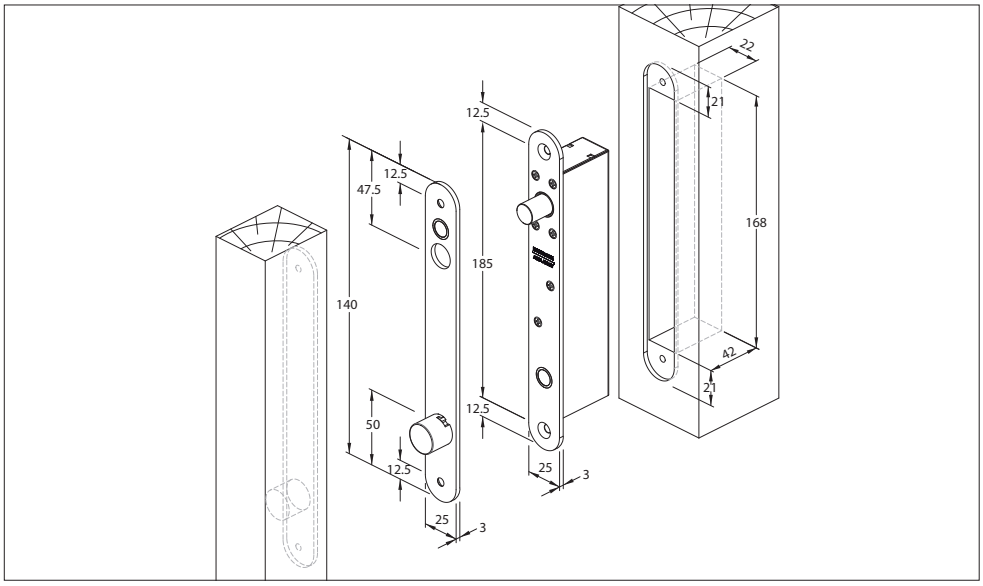


Lock

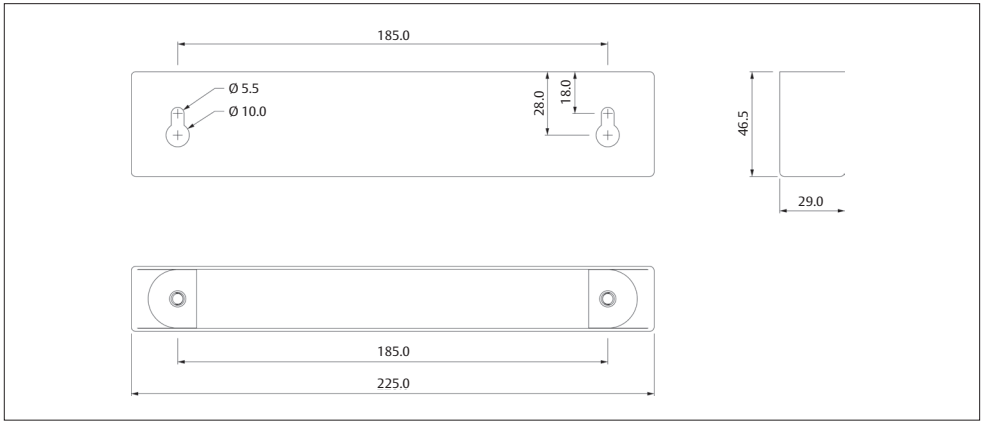
10g x 1" CSK Mounting Screws

Dimensions

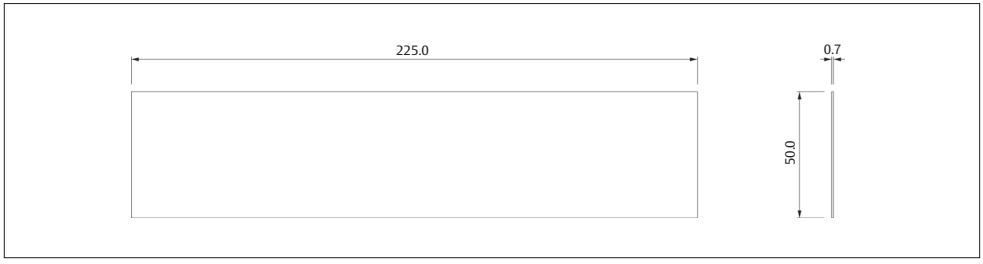
1. Lock / Strike Plate / Mortices



2. Housing
(Available separately)



3. Dress Plate
(Available separately)



Pre - Installation Assessment

1. Mechanical:

The first decision regarding installation is whether the IB25 will be morticed or surface mounted to the door / door frame. Mortice installation ensures a discrete solution as the lock and strike plate can be embedded into the door and frame, however in some instances this is not possible. Glass doors for example require surface mounting the lock which is done with the aid of the IB25 housing.

Whichever method is chosen it is important that the lock and strike plate are aligned correctly. This is achieved when the Ⓜ on the lock face plate aligns with the magnet in the strike plate. It is also important that when the door is closed the gap between the lock and strike plate does not exceed **6mm** otherwise the lock will not sense the strikes position resulting in incorrect operation.

The IB25 can be installed vertically or horizontally but is **not designed** to be mounted in a floor cavity firing upwards or in a wet environment, this may void the warranty.

Do not lubricate the lock. It has been lubricated when assembled and additional lubrication will void the warranty.

2. Electrical:

The first consideration is to establish where to run the wires and decide on what feedback is required from the lock. There are a total of eight available connections and for a fully featured lock it is compulsory to connect three with the other five providing feedback. Alternatively the lock does operate with reduced features on two compulsory connections and five optional.

The three essential connections are; Positive (+), Negative (-) and Control (CL). The five optional connections provide feedback about the lock status; Door Position and Bolt Position. If desired, wires can be run from these connections to integrate into access control or alarm systems to provide full monitoring.

Finally the correct gauge of wire needs to be chosen as when connecting the power wires (+ and -) to the lock, voltage drop across these wires can limit the lock operation. For all the remaining connections, a lower gauge wire can be used as these are only signal wires.

The following chart shows the appropriate wire gauge for a range of distances between the lock and power supply assuming the voltage measured at the lock is within the range of 12-24VDC ±10%.

Distance (m)	AWG Size		Metric Size (mm^2)		Wire Diameter (mm)	
	12VDC	24VDC	12VDC	24VDC	12VDC	24VDC
1	24	24	0.21	0.21	0.51	0.51
5	22	24	0.33	0.21	0.65	0.51
10	22	22	0.33	0.33	0.65	0.65
20	20	22	0.52	0.33	0.82	0.65
30	20	22	0.52	0.33	0.82	0.65
40	18	20	0.83	0.52	1.02	0.82
50	18	20	0.83	0.52	1.02	0.82

Installation

Two installation examples are detailed on the following pages however any combination of mortice and surface mounting can be achieved. Whichever installation method is chosen it is vital to ensure that the lock face plate and the strike plate align correctly and the gap between the locks face plate and the strike plate does not exceed 6mm when the door is closed.

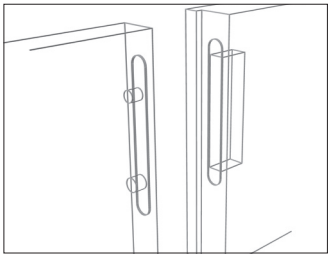
Mortice installation:

A typical mortice installation is described with the lock fitted into the door frame while the strike plate is secured to the door. It is possible to install the lock into the door and the strike plate to the frame however running the wiring to the lock can be difficult.

1. Cutting the Mortices

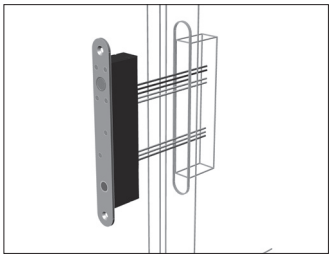
- Using the supplied lock dimensions a mortice is cut in the door frame that is suitable to house the lock. An appropriate sized mortice is then cut for the strike plate and holes are drilled to house the magnetic catch and accept the lock pin. The lock pin hole behind the strike plate needs to be free from debris and deep enough to allow the lock pin to fully extend when locked*

** For mortice dimensions, see page 4*



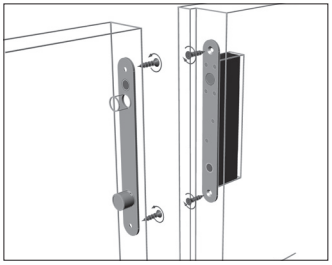
2. Wiring the Lock

- Wires are run out from the back of the mortice and following the connection guide on the locks cover, connected to the lock



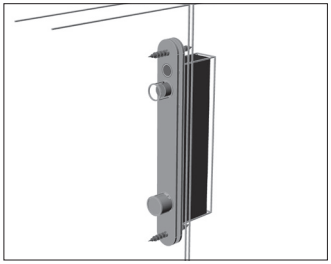
3. Fitting the Lock and Strike Plate

- The lock is slid back into the mortice, making sure that the wiring integrity is maintained, and secure with the supplied mounting screws. Likewise the strike plate is fitted into its mortice and secured in place



4. Checking the Operation

- With the lock and strike installed and the wiring complete the door is closed to check alignment and operation. The magnetic latch should 'capture' the door and align it correctly so the lock pin can extend through the hole in the strike plate and door, to achieve locking



NB: Pictures are indicative only

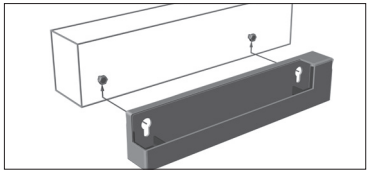
Installation (*continued*)

Surface installation:

By using a IB25 housing the lock and or strike plate can be secured to the door or door frame eliminating the need for cutting mortices. Housings are available with adhesive tape supplied for easy application to glass doors in addition to having screw hole mounting points for wood and metal doors.

1. Securing the Housing to Wood

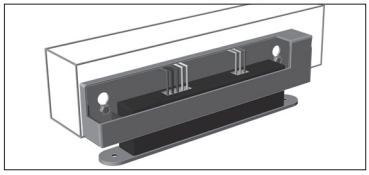
- Two 10G x 1" hex head self tapping screws are supplied with the housing and can be screwed into the wood door frame. The housing has two keyhole cut outs that fit over the screw heads and once the housing is in place the screws can be tightened with a spanner



2. Wiring the Lock

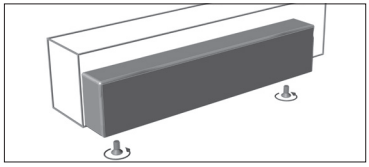
- Two grommets are supplied as wires will need to be run into the housing to connect to the lock. The position of the hole(s) is determined at installation time

** For wiring information, see page 8*



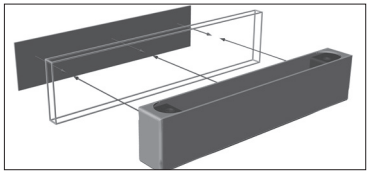
3. Fitting the Lock

- Once wired, the lock is slid into the housing and secured in place with the M5 X 10 CSK. screws supplied



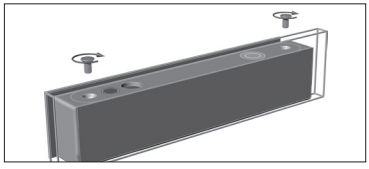
4. Securing the Housing to Glass

- For simple application to glass the IB25 housings are supplied with self adhesive tape. With the backing removed the housing can be applied directly to the glass. A flat stainless steel dress plate is fitted on the opposite of the glass to give a clean finish



5. Fitting the Strike Plate

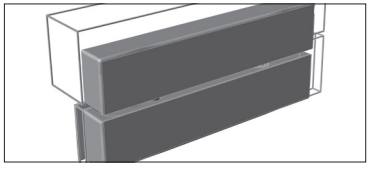
- The strike plate is placed into the housing and secured in place with the supplied M5 x 10 CSK screws



6. Checking the Operation

- With the lock and strike installed and the wiring complete, the door is closed to check alignment and operation. The magnetic latch should 'capture' the door and align it correctly so the lock pin can extend through the hole in the strike plate and door to achieve locking

NB: Pictures are indicative only



Wiring

The IB25 is fitted with eight connectors; five are optional and provide monitoring of the lock pin and door positions. Control of the lock is achieved by using the remaining three wires however a reduced function two wire mode is available if desired. Connect the IB25 as per the following chart.

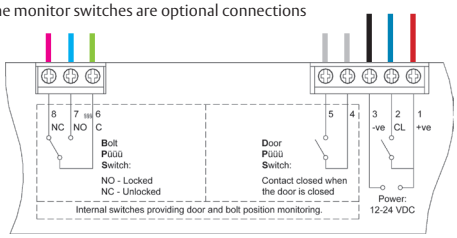
+	1	Power	Positive connection to DC power supply (12 – 24V)
CL	2		Switched positive control input
-	3		Negative connection to DC power supply (12 – 24V)
C	4	Door Position Switch	Common contact of the door position monitor
NO	5		Normally open contact of the door position monitor
C	6	Bolt Position Switch	Common contact of the bolt position locked monitor
NO	7		Normally open contact of the bolt position locked monitor
NC	8		Normally closed contact of the bolt position locked monitor

1. Three Wire Connection

- The three wire mode requires a continuous connection of power to terminals 1 (+ve) and 3 (-ve). The lock is unlocked by the application of power between terminals 1 (+ve) and 2 (CL). Wiring the lock for Fail Safe or Fail Secure configurations is identical

The power and control (CL) wires must be permanently connected

The monitor switches are optional connections



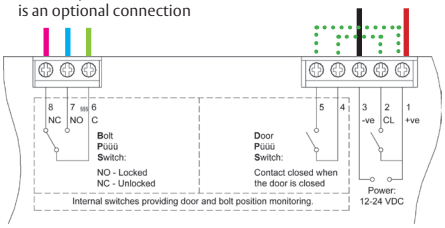
2. Two Wire Connection

- The two wire mode differs between fail safe and fail secure configurations but both require a switched power supply connected to terminals '1' and '3'. In addition, for fail safe configuration the jumper needs to be repositioned as shown in section 3 – Jumper position

Fail Safe Operation

Switched power supply permanently connected

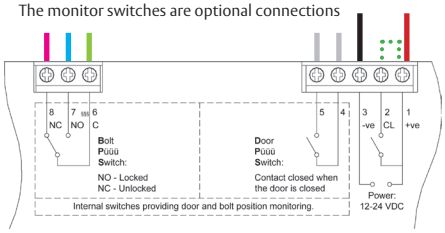
The bolt position switch is an optional connection



Fail Secure Operation

Switched power supply permanently connected

The monitor switches are optional connections



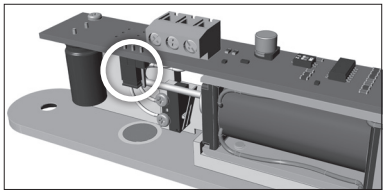
Wiring (*continued*)

3. Jumper Position

In addition to running the necessary wires for the desired mode, positioning of the jumper that is located on the locks printed circuit board is necessary. The default jumper setting is for three wire mode and is factory set.

The jumper is found by removing the cover and the only time it will need to be repositioned is when operating a Fail Safe lock in the two wire mode.

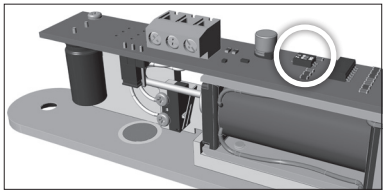
Features	3 Wire Mode	2 Wire Mode
Multiple re-lock (Fail Safe)	Yes 9x	Yes 5x
Multiple unlock (Fail Secure)	Yes 5x	Yes 5x
Auto Re-lock	Yes	Fail Safe Only
Adjustable Timed Re-lock	Yes	No
Anti Tamper	Yes	Yes
Jumper Position Fail Safe		
Jumper Position Fail Secure		



4. Timed Re-lock Selection

Also located under the lock cover is the field selectable timed re-lock. If an unlock signal is given to the lock, but the door is not opened, the IB25 can automatically lock itself again after a selected time. This ensures that a door can not be left unsecured if it has been unlocked but not opened. The timer is factory set to 9 seconds, but 0, 3 and 6 second options are offered and selected by positioning the dip switches accordingly.

Timer	Switch Positions	
Multiple re-lock (Fail Safe)	1 & 2 ON	
Anti-tamper	1 OFF & 2 ON	
Jumper Position Fail Safe	1 ON & 2 OFF	
Jumper Position Fail Secure	1 & 2 OFF	



Operation

Operating the lock using three wires is the suggested method as some of the features available on the lock are not accessible when used in two wire mode.

The IB25 is available in either Fail Safe or Fail Secure configuration which ensures the correct action can be achieved in the event of a total power failure.

The IB25 features multiple locking / unlocking to allow for misaligned doors or unforeseen problems. If the lock pin meets an obstruction as it is trying to secure the door, it stops and withdraws before attempting to lock again. It has a total of 9 attempts to lock when configured in Fail Safe mode and 5 attempts to unlock in Fail Secure configuration.

1. Three Wire Mode

In either Fail Safe or Fail Secure configuration, maintained connection of '1' to '2' will keep the IB25 unlocked regardless of the door position. The following scenarios assume that the control signal is open at the start of the operation sequence as a maintained connection will cause the lock to stay unlocked indefinitely.

1. Fail Safe Operation

- Assume the door is closed and locked. Momentarily connecting '1' and '2' unlocks the door for a period of 9 seconds*. After the 9 seconds has elapsed if the door has not been opened the IB25 automatically locks again. If the door has opened within the 9 second window (which is the case in normal operation) the timed re-lock is overridden and automatic relocking occurs as soon as the door is closed. On closing, full power is applied to the IB25 9 times in 15 seconds before the current is reduced and the lock goes into a holding mode to minimize heating and power consumption. The IB25 will remain unlocked as long as the door is open.

2. Fail Secure Operation

- Assume the door is closed and locked. Momentarily connecting '1' and '2' unlocks the door and over a 9 second period full power is applied to the lock 5 times. If the door remains closed, after 9 seconds* has elapsed the IB25 automatically locks again. If the door has opened within the 9 second window (which is the case in normal operation) the IB25 will remain unlocked and in a holding mode until the door is closed again and automatic re-locking occurs.

2. Two Wire Mode

In installations where running three wires to the lock is not possible or desired the IB25 can operate effectively on two wires. Although the functions are reduced, controlling the lock this way still offers a high security locking solution.

1. Fail Safe Operation

- Wire links **(not supplied)** are connected between terminals '2' and '4' and '1' and '5'. The lock will remain unlocked with power switched off. With power applied, and with the strike plate correctly aligned, the IB25 locks. On closing, full power is applied to the IB25 5 times before the current is reduced and the lock goes into a holding mode to minimize heating and power consumption. The IB25 will remain unlocked as long as the door is open.

2. Fail Secure Operation

- A wire link (not supplied) is connected between terminals '1' and '2'. The IB25 will be locked when no power is applied and will unlock when power is applied. The operation remains the same regardless of door or strike plate positions.

3. Monitors

The five monitor connectors found on the IB25 are available to provide door and bolt position feedback. If desired wires can be run from these connections to integrate with access control or alarm systems to provide full monitoring. When a two wire Fail Safe operation is chosen the door position monitor is not available.

Specifications

Bolt Pin	Stainless Steel, ø12.7mm, 16mm stroke			
Lock Face Plate	Stainless Steel, 3mm			
Strike Plate	Stainless Steel, 3mm			
Holding Force	10,000N (1000kg)			
Voltage at Lock	12 – 24VDC ±10%			
Durability	1,000,000 Operations			
Current Usage	Activating Current	12V – 1250mA	Holding Current	12V – 160mA
		24V – 1000mA		24V – 95mA
Batteries	4 x AA 1.5VDC Alkaline			
Monitor Switches	Bolt position – 25VDC, 0.5A			
	Door position – 100VDC, 0.5A			

Maintenance

The IB25 has been lubricated at assembly and applying any other type of lubricant may void the warranty. With the cover removed it is important to take care when repositioning the jumper or adjusting the timed re-lock switches.

Notes

INTERLOCK WARRANTY

ASSA ABLOY New Zealand Ltd ("ASSA ABLOY") guarantees its Interlock products against defects in workmanship and materials.

All electrical and electronic components used in ASSA ABLOY's range of products excluding batteries are guaranteed for a period of 12 months from the date of proof of purchase, unless stated otherwise.

ASSA ABLOY assumes no liability under the guarantee for the following:
1. Improper installation or failure to follow fitting instructions.
2. Failure due to improper maintenance.
3. Fair wear and tear.
4. Indirect or consequential loss or damage.
5. Cost of removal and/or replacement.
6. Cost of freight and/or travelling time.
7. Damage to or deterioration of plated finishes (soft finishes). As deterioration is possible under some environmental conditions, these finishes are excluded from this guarantee.
8. Any modification or repairs to a product, as supplied, unless authorised by ASSA ABLOY.
9. Use of replacement parts other than authorised parts.
10. Malfunction or failure of the product due to the use of non-genuine ASSA ABLOY parts.

Nothing in the ASSA ABLOY New Zealand Limited Warranty excludes, restricts or modifies any condition, warranty, right or liability implied or protected by law where to do so would render the Warranty, or any part of it, void.

6 Armstrong Road, Albany, Auckland 0632
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