Hotron Sensors and BS7036 Compliance
Key to understanding this document

Red = Safety (or presence detection)
Blue = Motion detection (door activation)
BS7036 Sensor Guidelines for Sliding Doors
Motion Detection for Sliding Doors
Automatic activation devices should be positioned to ensure that, where practicable, the edge of the detection zone where activation is initiated is a minimum of 1400 mm from the door.

Motion Device Verification
1 Test sensors by walking towards the door opening. The door should start to open when a person is approximately 1,400 mm (5 ft) from the door. The door should slide smoothly to the open position and stop without impact.
2 Step out of the activation zone. After a time delay (normally 1 s to 5 s) the door should close smoothly.
3 Repeat 1 and 2 on the other side of the opening if the door has two-way operation

For motion sensing devices, testing is achieved by the tester approaching the door from several directions in turn.
Safety during the closing cycle
Various devices are available to protect the threshold area by preventing a door from closing whilst the area is occupied. These include presence sensing devices, hold-open beams or safety mats. Test these devices as follows:

a) Presence sensing devices. If presence sensing devices are fitted, place the test object within 150 mm of the plane of movement of the door (but not interrupting any hold-open beam) and verify that the door remains open for a minimum of 30 s. After a minimum of 30 s it is allowable for the doors to close.

b) Hold-open beams. If hold-open beams are fitted, place the test object on the threshold and verify that the door remains open.

Extra Presence Detection for Sliding Doors
Where assessment indicates that a significant portion of the traffic using main entrance/exit doors is potentially vulnerable (e.g. elderly, infirm, disabled or very young) then it is essential that additional presence sensing safety devices covering the threshold of the door and cover a detection area as shown below.

Presence Timer
Presence sensors should detect stationary traffic for 30 s minimum. If further movement of traffic occurs and the traffic remains within the detection zone, then the door should remain open for an additional 30 s minimum.
Beam Positions
A hold-open beam positioned between the jambs at a height between 300 mm and 600 mm above the finished floor level. The beam should be connected such that traffic interrupting the beam causes the door to remain fully open, or to reopen if it is in its closing cycle.
**Side Screen Safety**

Where practicable, one of the following should be fitted.

- A suitable barrier

- A pocket screen of minimum height 1,500 mm measured from finished floor level so that a pocket is formed into which the door slides

- Presence sensors protecting the area through which the doors travel during their opening cycle, such that the doors (if activated) open at search speed, or give an audible warning, when traffic is detected.
Hotron Sliding Door Sensor Recommendations for Compliance with BS7036
Combined Door Activation & Safety During the Closing Cycle

**HR100**  Single Relay Output Version (One relay output for activation & safety)
**HR100-2**  Dual Relay Output Version (Separate relay outputs for activation & safety)

**Benefits**
- Combined Door Activation & Safety in one Sensor
- Detection distance from the door adjustable between 0.2m to 2m.
- Separate presence timer settings possible for the inner 3 rows and outer 2 rows

**Detection Area**
Benefits

- One controller can operate one or two sets of safety beams
- Operational range from 0-12m without any need for sensitivity adjustment
- Cable enters sensor head at 90° to allow for installation into the thinnest of door profiles
- Sensor Head connectors for easy installation
HR94D1  Active infrared presence detection sensor for side screen & door threshold safety applications

**Benefits**

- Narrow strip of presence detection ideal for side screen safety or door threshold safety applications
- Presence timer settings of 2, 15, 60 & 180 seconds
- Detection area adjustable without use of separate lenses
- Extremely easy to set-up and adjust

**Detection Area**
BS7036 Guidelines for Swing Doors
Motion Detection for Swing Doors
Automatic activation devices should be positioned to ensure that, where practicable, the edge of the detection zone where activation is initiated should be as follows:

a) 1400 mm from the door, measured perpendicular to the plane of the closed door, when the door opens away from the user;
b) 1400 mm from the leading edge of the door in the fully open position when the door opens towards the user.

Test activation sensor as follows.

a) For a door opening away from the user, test sensors by walking towards the door opening. The door should start to open when a person is approximately 1400 mm from the door. The door should swing smoothly to the open position and stop without impact.
b) For a door opening towards the user, the door should start to open when a person is approximately 1400 mm plus the width of the door leaf from the door.

2 Step out of the detection zone. After a time delay (normally 1 s to 5 s) the door should close smoothly.
3 Repeat 1 and 2 on the other side of the opening if the door has two-way operation.
Permitted Safety Devices on Swing Doors
a) Presence sensing device which interrupts door movement at any point during its cycle
b) Presence sensing device or safety mat which gives limited protection by preventing a fully open or fully closed door from moving.
Item b above should only be considered where the Hazard Analysis and Risk Assessment indicates that the risk is low.

Test Safety Sensor as follows
1. With the door in the closed position, place the test object in the swept area of the doors, activate the door and verify that the door starts to open but stops before striking the test object.
2. Activate the door to the open position. Place the test object as in 1 above and check that the door starts to close but stops before striking the object.

Approach Side Safety

Swing Side Safety

BS Test Object
1 Finger traps
During the opening and closing cycle of a swing or balanced door, a potential finger trap is created by the construction, the position of the pivot point, or by other features. Such hazards should be overcome by the installation of a finger guard that either fills the finger trap or minimizes the gap so as not to create a finger trap. Particular attention should be directed to manual doors that are proposed for conversion to power operation.

2 Door Opening Against a wall
If the door opens against a wall, barrier (or similar construction), the presence sensing device may need to be switched off as the door approaches the wall. This in turn may create a risk of entrapment, in which case a kick plate or other protective device, should be fitted to the bottom of the door leaf.
Hotron Swing Door Sensor Recommendations for Compliance with BS7036
Standard Swing Door Sensor Solution

ACTIVATION SIDE

HR100: Combined Activation and Safety Sensor
- Long range detection possible up to 2m at install heights of 2.2m
- Inner 3 rows of presence detection (safety) are not compromised when extending detection distance

SSS-1S1: Swing Door Safety Sensor
- Possible to get detection area to within 100mm of the floor surface for increased safety
- Detection distance adjustable using dipswitches for ease of installation
- Available in **340, 700 or 900mm lengths** with up to 3 transmitter/receiver units to ensure safety on all types of swing door
Standard Swing Door Sensor Solution

SWING SIDE

**DOMINO1000: Unidirectional Radar Sensor**
- Long Range detection of up to 3 metres
- Turtle mode increases ability to detect slowing moving pedestrians
- Cross traffic filter preventing door activation by pedestrian walking past the door

**SSS-1M2: Swing Door Safety Sensor**
- Possible to get detection area to within 100mm of the floor surface for increased safety
- Detection distance adjustable using dipswitches for ease of installation
- Available in 340, 700 or 900mm lengths with up to 3 transmitter/receiver units to ensure safety on all types of swing door
BS7036 Guidelines for Low Energy Swing Doors
Low energy swing doors have two main methods of operation as follows:

a) power assisted operation in which the initiating signal is provided by the action of pushing, pulling or touching the door leaf or handle; or

b) power operation in which the initiating signal is provided by a manual or automatic activation device.

NOTE 2. Low energy swing doors are generally not fitted with safety devices because the kinetic energy levels are not considered to be dangerous. However, installation of low energy swing doors should only be considered where the Hazard Analysis and Risk Assessment (see 4.1.4 of Part 1) has taken account of elderly, frail and disabled users and indicates that the risk to these users is low.
5 Safety during the opening and closing cycle
5.1 Provision should be made to protect traffic occupying the swept area.
5.2 The powered door operator should be so designed that forces caused by the door leaf impacting the human body, or part of it, are limited to safe values.
NOTE. The potential for causing injury is defined by the mass of the door and its speed of movement i.e. its kinetic energy. See annex C for minimum opening and closing times for a range of door masses.
Therefore, to keep the force of impact to a safe level, the speed of a low energy swing door should be adjusted so that the kinetic energy of the door does not exceed the values given in table 1 of Part 1 at any point in the opening or closing cycle.
5.3 The maximum static entrapment force should not exceed 67 N when applied 25 mm from the leading or meeting stile of the door at any point in the opening or closing cycle.
5.4 If the Hazard Analysis and Risk Assessment identifies that any contact with the user is unacceptable then a presence sensing safety device (see 8.3 of Part 1) or safety mat (see 8.2.2 of Part 1) should be fitted.
NOTE. A safety mat gives limited protection by preventing a fully open or fully closed door from moving.
Hotron Low Energy Swing Door Sensor Recommendations for Compliance with BS7036
Low Energy Swing Door Activation Sensor Solutions

Hotron Touch Switches in Hardwired or Radio Controlled format

Hotron Non-Touch Switches
For details on our full range of sensors, please contact Axis Automatic Entrance Systems Limited as below:

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