Approval for Smoke Detectors
RM 2000, RM 3000+ and Signal Control S400
3.8 Electrical Installation of the Hold Open System

Excerpt from the Directions for Hold-Open Devices

The smoke detector must be installed on the ceiling, above the wall opening. It must be at least 0.5 m horizontally from the wall, and must be no higher than 2.5 m.

The smoke detector should be installed in the area of the ceiling where the highest concentration of smoke would first be expected in the event of fire. Fire protection ceilings are so thick that smoke spreads quickly over the surface, whereas decorative ceilings are generally permeable (see diagram 1).

4. Mounting

4.1 Installing Smoke Detectors

4.1.1 Wall Openings

Excerpt from the General Approval of the Building Authorities (from November 2010)

To prevent any disturbances by short circuit (unintended conductive connection) of the release contacts, there is required a separate wiring to the following devices (system components):
- fire detectors
- hand release switches
- supervising devices which can prevent the release.

In case the trouble-shooting or release of these devices (system components) is realized by lines (e.g. current change, data frames) or the devices (system components) are combined or contained in one casing, or the wiring of these devices is completely conducted in a cable protection tube or cable canal, a separate wiring is not required.

Diagram 1: Heights of lintel
The quantity and model of detectors, as well as the measurements between the ceiling and lintel, depend on the height of the ceiling at the points where the detectors are installed. If a lintel detector is required, it should be installed on the wall above the wall opening, maximum 0.1 m above the lintel.

For the installation it is generally assumed that one detector can cover a range of 2 m to each side. If the opening width exceeds 4 m, additional detectors are required.

Usually one detector is placed on the ceiling in each of the adjoining rooms of the door and a third one directly on the lintel of the opening. However, if the ceiling in both rooms is no more than one metre above the opening, two detectors (one on each ceiling) are sufficient. A single detector on the lintel is sufficient on swing doors with an opening width up to 3 m.

Diagram 2: Installation Instructions according to 4.1.1.

<table>
<thead>
<tr>
<th>Line</th>
<th>Height of ceiling over opening lintel</th>
<th>Installation points (b = b1 or b2)</th>
<th>Min. number of detectors required*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>h1 and/or h2 &gt; 1.0 m</td>
<td>a1 + a2 + b</td>
<td>2 ceiling and 1 lintel detectors</td>
</tr>
<tr>
<td>2</td>
<td>h1 and h2 ≤ 1.0 m</td>
<td>a1 + a2</td>
<td>2 ceiling detectors</td>
</tr>
<tr>
<td>3</td>
<td>as line 2, but swing door with door width up to 3.0 m</td>
<td>b</td>
<td>1 lintel detector</td>
</tr>
</tbody>
</table>

* Depending on the door width more detectors may be necessary in lines 1 and 2.
4.1.1 Replacing Ceiling Detectors by Wall Detectors - cont.

According to regulations (10/1998) ceiling detectors may be replaced by wall detectors in exceptional cases.

Exceptions:
- Distance between ceiling and lintel is more than 5 m.
- Wall detectors are installed at least 3.5 m above the lintel of the wall opening, with brackets at least 0.5 m long.

4.1.2 Ceiling Openings

If floors are joined through ceiling openings, these openings must have ceiling detectors. At least one ceiling detector must be installed on each floor, and they must be no further away from the edge of the ceiling opening than 0.5 m. If the ceiling above the opening is sealed, the detector must be installed vertically in the middle of the ceiling opening.

Diagram 4: Installation areas according 4.1.2

If the ceiling opening has a diameter of more than 4 m, additional detectors are required.
4.2 Hand Release

A manual hand release must be provided for every hold-open device. The hand switch must be installed within the immediate vicinity of the door and not be hidden by the door. It must be marked with "close the door".

4.5 Mounting Devices

Mounting devices used for hold-open systems must not interfere with the protection given by the door/gate.

You must not drill through fire protection doors/gates.

Counter plates for electromagnets should be mounted on swing doors in such a way that the screws are no more than 150 mm from the upper, lower, or vertical edge of the closing side. Rivet nuts with M5 oder M6 screws must be used on steel doors.

5. Final Inspection

Once the hold-open system has been installed it is the operator’s responsibility to ensure it is tested to make sure it functions correctly. This inspection must only be carried out by the manufacturer of releasing devices and hold-open systems or a specialist.

The inspection must include the following points:

1. The hold-open system equipment must be authorised.
2. The reference numbers on the equipment must be authorised numbers.
3. All equipment must operate safely, as stated in the regulations. It must be possible to release the system by hand, or by simulating the detectors according to the type of fire.
4. It must be checked whether the system still closes automatically should it not be operating (e.g. through lack of power or missing detector).

Once the inspection has been successful a 105 mm x 52 mm sign available from the hold-open system manufacturer must be displayed on the wall within the immediate vicinity of the system, with the following inscription:

Hold-Open System
Authorised by....
(Company, month and year of inspection)
6. Periodic Inspection

The hold-open system must be tested by the operator on a monthly basis. In addition, an annual maintenance service is required, which must only be carried out by a competent person.

Records of these monthly checks and annual maintenance must be kept by the operator (please see example below).