IMPORTANT NOTE

FOLLOW THE INSTRUCTIONS GIVEN IN THIS MANUAL CAREFULLY. FAILURE TO DO SO MAY CAUSE CUSTOMER COMPLAINTS AND SERIOUS CALL BACKS. KEEP INSTRUCTION MANUAL ON SITE.
**IMPORTANT NOTICE**

THE IMS 100 MUST BE USED IN CONJUNCTION WITH A DOOR PROTECTION SYSTEM (E.G. LIGHT CURTAIN, MECHANICAL EDGE, ETC.). WHEN THE IMS 100 IS USED WITH THESE DEVICES, IT IS THE RESPONSIBILITY OF THE INSTALLER TO ENSURE THAT, ON COMPLETION, THE INSTALLATION COMPLIES WITH ALL THE RELEVANT STATE CODES, LOCAL CODES AND REGULATIONS THAT PERTAIN TO INFRARED AND PHOTOELECTRIC DOOR PROTECTION DEVICES!

FAIL SAFE OPERATION:
BECAUSE DOOR SYSTEM DESIGNS ARE NOT INHERENTLY FAIL SAFE, THERE ARE RARE SITUATIONS WHEN DOORS CAN CLOSE, EVEN WITH AN OBSTACLE OR PERSON PRESENT. THEREFORE, THERE MUST BE, BY CODE, OTHER SAFETY MEANS TO PREVENT PASSENGERS FROM BEING HURT BY THE ELEVATOR DOORS. DANGEROUS SITUATIONS, SUCH AS DESCRIBED, SHOULD BE DETECTED BY THE ELEVATOR CONTROL SYSTEM, WHICH, IN TURN, SHOULD CAUSE THE ELEVATOR TO BE TAKEN OUT OF SERVICE.

IN GENERAL, DOOR PROTECTION SYSTEMS CANNOT PROVIDE ABSOLUTE SAFETY FOR ELEVATOR PASSENGERS PASSING THROUGH THE DOORWAY. THEY CANNOT BE USED AS FAIL-SAFE DEVICES OF THE DOOR MECHANISM. THIS SAFETY FUNCTION MUST BE PROVIDED BY A FAIL-SAFE FORCE AND KINETIC ENERGY LIMITER.

**DANGER**

DO NOT USE THIS PRODUCT FOR THE PROTECTION OF DANGEROUS MACHINERY OR IN EXPLOSIVE ATMOSPHERES OR RADIOACTIVE ENVIRONMENTS! USE ONLY SPECIFIC AND APPROVED TYPES OF SAFETY DEVICES FOR SUCH APPLICATIONS, OTHERWISE SERIOUS INJURY OR DEATH OF PERSONNEL MAY OCCUR!

**WARNING**

DOOR SENSOR DEVICES CAN ONLY ACHIEVE THEIR GIVEN FUNCTION, IF THE INSTRUCTIONS GIVEN IN THIS INSTRUCTION MANUAL AND THE DOCUMENTS MENTIONED WITHIN ARE FOLLOWED EXACTLY, AS WELL AS CONSULTING THE VALID LAWS AND REGULATIONS AT THE TIME OF INSTALLATION.

THE INSTALLER OR SYSTEM INTEGRATOR WILL BE FULLY RESPONSIBLE FOR A SAFE INTEGRATION OF THIS PRODUCT.

THIS INSTRUCTION MANUAL MUST BE KEPT ACCESSIBLE TOGETHER WITH THE OTHER ELEVATOR DOCUMENTATION DURING ITS ENTIRE LIFE CYCLE FOR ALL PERSONNEL RESPONSIBLE FOR ASSEMBLY, INSTALLATION, OPERATION AND MAINTENANCE.
1. Introduction

The IMS 100 sensor is used to enhance elevator door protection systems by providing sensor detection in front of the elevator cab entrance. It is used with existing two-dimensional (2D) elevator door protection systems such as light curtains, single-beam sensors or mechanical edges to provide three-dimensional (3D) protection. The IMS 100 can be used for new elevator installations or for modernization of existing elevator systems.

As an extension to existing door-protection devices, the purpose of the IMS 100 sensor is to monitor the entrance area of the elevator door for people or objects entering the elevator cab. By using “Time of Flight” (TOF) technology, the IMS 100 sensor can detect the difference between a person or object approaching the elevator cab and a stationary person or object in the elevator cab entrance area. The sensor's compact, low profile housing is optimized for difficult mounting locations, including narrow elevator cab transoms, thus minimizing interference with mechanically moving door operators.

When the elevator cab door opens, the IMS 100 quickly acquires a reference image of the elevator cab entrance area. This reference image is then compared to the sensor's current image. The IMS 100 behaves similarly to other door protection systems (e.g. light curtains). When the sensor is clear of moving person(s) or object(s), the semiconductor-based output will be active (high, e.g. 24 VDC). When a moving person or object is detected within the sensor's field of view (approximately 900 mm wide by 200 mm depth), the semiconductor output will transition to inactive (low, e.g. 0 VDC). The IMS 100 can also be configured so that the semi-conductor output will automatically transition to active (high, e.g. 24 VDC) after a fixed 18-second timer has expired (e.g. for nudging).
2. Delivery content

The IMS 100 system consists of the following components:

![Figure 1: IMS 100, flush mounting, packed (P/N 106 833)](image1)

![Figure 2: IMS 100 surface mounting, packed (P/N 108 175)](image2)

1. IMS 100 sensor (P/N 106 834)
2. Connection cable (P/N 104 153)
3. Mounting bracket IMS 100, flush mounting (P/N 106 852)
4. Mounting box IMS 100, surface mounting (P/N 108 176)
5. Mounting accessories flush mounting (P/N 107 991, contains 4 clips and 2 fixing pins)
6. Mounting accessories surface mounting (P/N 108 177, contains 2 screws)
7. Installation and operation manual (P/N 106 854)

⚠️ Important:
Integrating the CEDES IMS 100 sensor into a new or existing door protection system can be accomplished in several ways depending on the elevator control system requirements. The following sections provide examples for incorporating the IMS 100 into an existing system. Should you have any questions, or if you require application assistance, please contact CEDES or your local distributor.

3. Mechanical installation

The installation should be done in the following order:

1. Switch off power and mark clearly that this elevator is out of service
2. Mechanical installation of the IMS 100
3. Electrical installation and integration of IMS 100
4. Power-up and test for proper function

3.1. Switch OFF main power

For your own safety, turn the power off before you start working on the elevator! Clearly mark that this elevator is out of service. Keep the working area closed to the public all the times.
3.2. Mechanical installation of IMS 100

3.2.1. Possible sensor positions

Center opening car door

The sensor is placed in the door frame in the center of the door opening.

Orientation: Cable going out on slam post side or toward center of cab entrance opening

Side opening car door

The sensor is placed in the door frame as near to the slam post as possible.

Orientation: Cable going out toward center of cab entrance opening

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### 3.2.2. Installation of surface mounted sensor

The sensor has to be installed on the elevator cab transom.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
<th>Illustration / note (all dimensions in mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drill two 3.2 mm (1/8 inch) holes for the sensor box (1) with 100 mm distance into the elevator cab transom (2). Keep the distance of 22 mm from the corner of the doorway. Drill a 10 mm (3/8 inch) hole into the elevator cab transom (2) for the sensor cable.</td>
<td><img src="image1" alt="Diagram" /></td>
</tr>
<tr>
<td>2</td>
<td>Mount the sensor box (1) with the two 3.5 mm self-tapping screws (3) on the elevator cab transom (2).</td>
<td><img src="image2" alt="Diagram" /></td>
</tr>
<tr>
<td>3</td>
<td>Snap the sensor (4) into the mounting bracket (5). Align the sensor to the lobby.</td>
<td><img src="image3" alt="Diagram" /></td>
</tr>
<tr>
<td>4</td>
<td>Fix the sensor with the fixing pin (7)</td>
<td><img src="image4" alt="Diagram" /></td>
</tr>
<tr>
<td>5</td>
<td>Route cable up through square hole in the elevator cab transom. Slide the sensor (4) with the mounting bracket (5) into the hole and fix it with the two mounting clips (6). For removal of the clips please refer to section 5.2</td>
<td><img src="image5" alt="Diagram" /></td>
</tr>
</tbody>
</table>

**Important note:**

*Observe for side opening doors.* Since the camera lens in the IMS 100 is located opposite the cable outlet (see picture in section 5.1), the sensor will provide better coverage during door closure when the cable outlet is toward the center of the elevator cab transom.
### 3.2.3. Installation of flush mounted sensor

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
<th>Illustration / note (all dimensions in mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cut a square shape of 29 x 111 mm out of the elevator cab transom (1). Keep the distance to the edge of the elevator cab transom (2), hall side, as short as possible. → The MINIMUM distance is 17 mm → The MAXIMUM distance is 250 mm Keep the minimum distance of 7 mm from the corner of the doorway. Drill two 4.7 mm (3/16 inch) diameter holes for the mounting bracket (4) into the elevator cab transom (1) with 120 mm distance on the centerline (CL) of the shape.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Snap-In the sensor (3) into the mounting bracket (4). Align the sensor to the lobby.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Fix the sensor with the fixing pin (7)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Route cable up through square hole in the elevator cab transom. Slide the sensor (3) with the mounting bracket (4) into the hole and fix it with the two mounting clips (5). For removal of the clips please refer to section 5.2</td>
<td></td>
</tr>
</tbody>
</table>

**Important note:**

**Observe for side opening doors.**

Since the camera lens in the IMS 100 is located opposite the cable outlet (see picture in section 5.1), the sensor will provide better coverage during door closure when the cable outlet is toward the center of the elevator cab transom.
3.3. Electrical installation

3.3.1. Wiring

Make sure that the power supply voltage available for IMS 100 is between 10 and 30 VDC. The power supply has to provide at least 200 mA for proper operation.

**Important note:** The Universal Power Supply (CEDES P/N 103 600) cannot be used as Power Supply for the IMS 100. The min. required current consumption of IMS 100 is 200 mA. Use the switching power supply (CEDES P/N 106 666) or any 24 V power supply with at least 6 W available on the market.

**Cable connection of IMS 100**

<table>
<thead>
<tr>
<th>Cable color</th>
<th>Connected to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown</td>
<td>$U_{SP} = +10 \ldots 30$ VDC</td>
</tr>
<tr>
<td>Blue</td>
<td>GND (0 V)</td>
</tr>
<tr>
<td>Black</td>
<td>Output (Door re-open signal)</td>
</tr>
<tr>
<td>White</td>
<td>Timeout Selector</td>
</tr>
</tbody>
</table>

Timeout function

When a moving person or object is detected within the sensor’s field of view (approximately 900 mm wide by 200 mm depth), the semiconductor output will transition to inactive (low, e.g. 0 V DC).

The IMS 100 can also be configured so that the semiconductor output will automatically transition to active (high, e.g. 24 V DC) after a fixed 18-second timer has expired (e.g. for nudging).

The timeout setting can be changed based on the signal connected to the timeout selector (white conductor) as shown in the following table.

<table>
<thead>
<tr>
<th>Timeout selector connection (white conductor)</th>
<th>Timeout setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connected to $U_{SP}$</td>
<td>18 s *</td>
</tr>
<tr>
<td>Connected to 0 VDC (GND)</td>
<td>Infinity</td>
</tr>
</tbody>
</table>

**Important note:**
* The timer begins to count after the first sensor triggering. After this time the sensor will be disabled until the next door opening.

**Important note:** IMS 100 meets all standards for resistance to electromagnetic interference (EMI). However, it is prudent to guard against interference. Therefore, do not guide the connection cables close to cables carrying high voltage and/or high current. The IMS 100 cables should also be mounted as far away as possible from the door drive motor or motor inverter (variable voltage, variable frequency drives) to avoid EMI problems.

3.3.2. Integrating IMS 100

Integrating the IMS 100 sensor into a new or existing door protection system can be accomplished in several ways depending on the elevator control system requirements. The following block diagrams outline examples for incorporating the IMS 100 into an existing system. Several other methods for integrating the IMS 100 with existing systems are also possible. Should you have any questions, or if you require application assistance, please contact CEDES or your local distributor.

**Output logic**

<table>
<thead>
<tr>
<th>3D</th>
<th>Output (Black connector)</th>
<th>LED (Red)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object</td>
<td>Low, 0 VDC</td>
<td>LED on</td>
</tr>
<tr>
<td>No object</td>
<td>High, 24 VDC</td>
<td>LED off</td>
</tr>
</tbody>
</table>
### Option 1

Elevator control system supports two (2) 24 VDC semi-conductor (PNP) input for door open control

<table>
<thead>
<tr>
<th>IMS 100 sensor</th>
<th>Elevator door protection light curtain</th>
<th>Necessary accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output type:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PNP semi-conductor, 24 VDC</td>
<td>Output type:</td>
<td></td>
</tr>
<tr>
<td>PNP semi-conductor, 24 VDC</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

#### Signal 1 to elevator control

#### Signal 2 to elevator control

### Option 2

Elevator control system supports one (1) 24 VDC semi-conductor (PNP) input for door open control

<table>
<thead>
<tr>
<th>IMS 100 sensor</th>
<th>Elevator door protection light curtain</th>
<th>Necessary accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output type:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PNP semi-conductor, 24 VDC</td>
<td>Output type:</td>
<td></td>
</tr>
<tr>
<td>PNP semi-conductor, 24 VDC</td>
<td>Relay module</td>
<td></td>
</tr>
</tbody>
</table>

CEDES relay modules (part number 103 602) convert semiconductor outputs (NPN or PNP) to electromechanical (relay) contacts when 24 VDC is already available.
Option 3

Elevator control system supports one (1) 24 VDC semi-conductor (PNP) input for door open control

<table>
<thead>
<tr>
<th>IMS 100 sensor</th>
<th>Elevator door protection light curtain</th>
<th>Necessary accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output type:</td>
<td>Output type:</td>
<td></td>
</tr>
<tr>
<td>PNP semi-conductor, 24 VDC</td>
<td>Relay (e.g. with controller)</td>
<td>None</td>
</tr>
</tbody>
</table>

Option 4

Elevator control system supports one (1) contact based input for door open control (e.g. higher voltage; 120 / 230 VAC)

<table>
<thead>
<tr>
<th>IMS 100 sensor</th>
<th>Elevator door protection light curtain</th>
<th>Necessary accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output type:</td>
<td>Output type:</td>
<td></td>
</tr>
<tr>
<td>PNP semi-conductor, 24 VDC</td>
<td>PNP semi-conductor, 24 VDC</td>
<td>Relay module or switching power supply</td>
</tr>
</tbody>
</table>

CEDES relay modules (part number 103 602) convert semiconductor outputs (NPN or PNP) to electromechanical (relay) contacts when 24 VDC is already available.

CEDES switching power supplies with relay output (part number 106 666) provide a simple means of converting 85 ... 265 VAC input power to 24 VDC required to power the door protection light curtain or the IMS 100 while also converting semi-conductor outputs (NPN or PNP) to electromechanical (relay) contacts.
Option 5

Elevator control system supports one (1) contact based input for door open control
(e.g. higher voltage; 120 / 230 VAC)

<table>
<thead>
<tr>
<th>IMS 100 sensor</th>
<th>Elevator door protection light curtain</th>
<th>Necessary accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output type: PNP semi-conductor, 24 VDC</td>
<td>Output type: Relay (e.g. with controller)</td>
<td>Relay module or switching power supply</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>From Elevator Control with higher voltage (e.g.110V/230V AC)</th>
</tr>
</thead>
</table>

| CEDES relay modules (part number 103 602) convert semiconductor outputs (NPN or PNP) to electro-mechanical (relay) contacts when 24 VDC is already available. |

| CEDES switching power supplies with relay output (part number 106 666) provide a simple means of converting 85 ... 265 VAC input power to 24 VDC required to power the door protection light curtain or the IMS 100 while also converting semi-conductor outputs (NPN or PNP) to electro-mechanical (relay) contacts. |

3.4. Power-up and test for proper function

Once the IMS 100 and associated door protection system have been installed and wired in accordance with your elevator control system requirements, turn the power on. If you used a CEDES relay module to distribute power to the IMS 100, the green LED on the relay module will be illuminated at power up to indicate that 24 VDC is present. If you used a CEDES Switching Power Supply module 24 VDC power to the IMS 100, the green LED will be illuminated to indicate that 24 VDC power is present for powering the sensor and that the input voltage to the power supply is greater than 85 VAC.

The IMS 100 has several IR-LEDs that used for infrared illumination of the area. If you look directly at the sensor when it is under power, these LEDs will be flashing constantly.

The IMS 100 also has a single red LED that provides output status information (see Figure 3). When this red LED is illuminated (i.e. ON), a moving person or object has been detected by the IMS 100 and the output (black conductor) will be inactive (low, e.g. 0 VDC). When this LED is not illuminated (i.e. OFF), no person or object has been detected by the IMS 100 and the output (black conductor) will be active (high, e.g. 24 VDC / USP). See troubleshooting (see Section 5, Trouble shooting) for additional information regarding other LED states.

Important note:
The IMS 100 is an intelligent sensor that bypasses itself during door closure. There is no need for an additional sensor(s) for door recognition. When installed correctly, the IMS 100 remains active (i.e. not bypassed) until approximately 100 ... 150 mm prior to door closure.

4. Maintenance

Congratulations! You have successfully installed one of the most powerful, reliable and cost effective door protection systems available today. There is no special maintenance required for IMS 100. We recommend checking the proper function of all devices during normal elevator maintenance.
5. Trouble shooting

5.1. LED indicators

<table>
<thead>
<tr>
<th>Red LED (IMS 100)</th>
<th>Indication</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>○</td>
<td>- No power connected or&lt;br&gt;- No object detected or&lt;br&gt;- Sleeping mode</td>
<td></td>
</tr>
<tr>
<td>●</td>
<td>Object detected in IMS 100 protection area</td>
<td></td>
</tr>
<tr>
<td>◎</td>
<td><strong>Slow flashing:</strong>&lt;br&gt;- Door mode → door has been recognized&lt;br&gt;- Sensor keeps flashing as long door is closed &lt;br&gt;&lt;br&gt;<strong>Fast flashing:</strong>&lt;br&gt;- Sensor in timeout (see Section 3.3.1)&lt;br&gt;- Sensor keeps flashing until door has been recognized</td>
<td></td>
</tr>
</tbody>
</table>

= LED on  ○ = LED off  ◎ = LED flashing

Figure 3: Position of LED (1) and sensitive receiver part (2)

5.2. Removal of mounting clips

Use a flat blade screwdriver (2) as shown to remove the mounting clips (1) from the sensor holder. The clips cannot be reused. A second pair of mounting clips (1) is included with each IMS 100. Spare mounting clips are available. See ordering information for part number detail.
### 5.3. Problem checklist

<table>
<thead>
<tr>
<th>Problem / Situation</th>
<th>What to check</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>No function, door open</td>
<td>• Power supply good?</td>
<td>Section 3.3.2</td>
</tr>
<tr>
<td></td>
<td>• Power wire broken?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Defective relay module or power supply?</td>
<td></td>
</tr>
<tr>
<td>Door constantly open</td>
<td>• Are the light curtain and IMS 100 connected correctly?</td>
<td>Section 3.3.2</td>
</tr>
<tr>
<td>No person or object moving in the IMS 100 detection area.</td>
<td>• Is the IMS 100 aligned towards the hall?</td>
<td>Section 2</td>
</tr>
<tr>
<td></td>
<td>• Is the relay connected correctly (COM, NO, NC)?</td>
<td>Please refer to the light curtain installation and operation manual.</td>
</tr>
<tr>
<td></td>
<td>• Is the position of the IMS 100 in the elevator cab transom within the tolerance?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Is the IMS 100 sensor optically influencing the light curtain?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Is the alignment done properly?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Dirty sensors?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Excessive EMC interference e.g. from door drive or fluorescent lamps?</td>
<td></td>
</tr>
<tr>
<td>Door close</td>
<td>• Are the light curtain and IMS 100 connected correctly?</td>
<td>Section 3.3.2</td>
</tr>
<tr>
<td>Person or object in the IMS 100 detection area.</td>
<td>• Is the relay connected correctly (COM, NO, NC)?</td>
<td>Section 2</td>
</tr>
<tr>
<td></td>
<td>• Is the alignment done properly?</td>
<td>Please refer to the light curtain installation and operation manual.</td>
</tr>
<tr>
<td></td>
<td>• Is the position of the IMS 100 in the elevator cab transom within the tolerance?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Dirty sensors or vision shields?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Excessive EMC interference e.g. from door drive or fluorescent lamps?</td>
<td></td>
</tr>
<tr>
<td>Random door openings</td>
<td>• Do the sensors influence each other?</td>
<td>Section 3.3.2</td>
</tr>
<tr>
<td></td>
<td>• Dirty sensors or vision shields?</td>
<td>Section 2</td>
</tr>
<tr>
<td></td>
<td>• Excessive EMC interference e.g. from door drive or fluorescent lamps?</td>
<td>Please refer to the light curtain installation and operation manual.</td>
</tr>
<tr>
<td></td>
<td>• Damaged cable to the sensors, check for break in the cables by moving the cable by hand?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Interference with other infrared sensors with the receiver directly or via mirroring from shiny surfaces?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Sufficient current supply from the used power supply (&gt; 200 mA)?</td>
<td></td>
</tr>
</tbody>
</table>
# 6. Technical data

## Application data

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating range</td>
<td>0.5 ... 3 m</td>
</tr>
<tr>
<td>Active area at 2 m distance</td>
<td>200 mm x 900 mm</td>
</tr>
<tr>
<td>Number of pixels</td>
<td>768 (8 x 96)</td>
</tr>
<tr>
<td>Wave length</td>
<td>840 nm</td>
</tr>
<tr>
<td>Relative distance resolution</td>
<td>50 mm (20 cm above floor)</td>
</tr>
</tbody>
</table>

## Mechanical data

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (w x h x d)</td>
<td>102 x 27 x 23 mm</td>
</tr>
<tr>
<td>Connection cable length (included)</td>
<td>2.8 m</td>
</tr>
<tr>
<td>Mechanical adjustment range</td>
<td>±30° (continuously), locking possibility at 30°</td>
</tr>
<tr>
<td>Housing material</td>
<td>Aluminum, Polycarbonate</td>
</tr>
</tbody>
</table>

## Electrical data

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage U&lt;sub&gt;sp&lt;/sub&gt;</td>
<td>+10 ... 30 VDC (typ. 24 VDC)</td>
</tr>
<tr>
<td>Ripple at supply voltage</td>
<td>10%</td>
</tr>
<tr>
<td>Current consumption (at 24 V)</td>
<td>&lt; 200 mA</td>
</tr>
<tr>
<td>Number of outputs</td>
<td>1</td>
</tr>
<tr>
<td>Output type</td>
<td>Semi-conductor type, PNP (short circuit protected)</td>
</tr>
<tr>
<td>Resistive load</td>
<td>50 mA</td>
</tr>
<tr>
<td>Capacitive load</td>
<td>100 nF</td>
</tr>
<tr>
<td>Optical illumination LED power</td>
<td>&lt; 0.5 W</td>
</tr>
<tr>
<td>Indication LED (status)</td>
<td>Red (object detected = active)</td>
</tr>
<tr>
<td>Response time</td>
<td>Typ. &lt; 200 ms</td>
</tr>
<tr>
<td>Recalibration time</td>
<td>&lt; 200 ms</td>
</tr>
<tr>
<td>Supply voltage U&lt;sub&gt;sp&lt;/sub&gt;</td>
<td>Suppressed by provisions in circuitry</td>
</tr>
</tbody>
</table>

## Cable data

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable type and color</td>
<td>PVC, Black</td>
</tr>
<tr>
<td>Sensor cable length</td>
<td>0.5 m</td>
</tr>
<tr>
<td>Connection cable</td>
<td>2.8 m</td>
</tr>
<tr>
<td>Connecting plug</td>
<td>M8</td>
</tr>
<tr>
<td>Cross section</td>
<td>AWG 26 (0.14 mm²)</td>
</tr>
</tbody>
</table>

## Environmental data

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclosure rating</td>
<td>IP54</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-20° ... +60°C</td>
</tr>
</tbody>
</table>

## Standards

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Safety</td>
<td>DIN prEN 62471: 2007</td>
</tr>
</tbody>
</table>
6.1. Dimensions (in mm)

6.1.1. Sensor

6.1.2. Mounting bracket

6.1.3. Sensor box
7. Ordering information

7.1. IMS 100 systems with mounting kit

<table>
<thead>
<tr>
<th>CEDES Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>106 833</td>
<td>IMS 100 with flush mounting kit</td>
</tr>
<tr>
<td>108 175</td>
<td>IMS 100 with surface mounting kit</td>
</tr>
</tbody>
</table>

7.2. Spare Parts

<table>
<thead>
<tr>
<th>CEDES Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>106 834</td>
<td>IMS 100, sensor only</td>
</tr>
<tr>
<td>104 153</td>
<td>Connection cable, 2,800mm</td>
</tr>
<tr>
<td>106 852</td>
<td>Mounting bracket IMS 100</td>
</tr>
<tr>
<td>108 176</td>
<td>Surface mounting box IMS 100</td>
</tr>
<tr>
<td>106 854</td>
<td>Operating manual IMS 100</td>
</tr>
<tr>
<td>107 991</td>
<td>Shipping kit IMS 100 (4 clips, 2 fixing pins)</td>
</tr>
<tr>
<td>108 177</td>
<td>Set of 3 screws for surface mounting</td>
</tr>
</tbody>
</table>

7.3. Accessories

<table>
<thead>
<tr>
<th>CEDES Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>103 602</td>
<td>Relay module (interface module for sensors with semi-conductor outputs)</td>
</tr>
<tr>
<td>106 666</td>
<td>Switching power supply 85 … 265 VAC</td>
</tr>
</tbody>
</table>
8. Certificate of compliance

Konformitätserklärung
Declaration of Conformity
Déclaration de Conformité
Dichiarazione di Conformità
Deklaracja zgodności

Wir / We / Nous / Noi / My erklären in alleiniger Verantwortung, dass declare in sole responsibility that déclarons sous notre propre responsabilité que dichiariamo sotto propria responsabilità che deklarujemy z pełną odpowiedzialnością, że
de die Produktfamilie the product range la famille de produit la gamma di prodotti rodzina wyrobów
den Anforderungen der Aufzugs-Richtlinie 95/16/EC entspricht. meets all the provisions of the Lift Directive 95/16/EC remplit toutes les exigences de la Directive d'Élévateur 95/16/EC qui le concernent. adempie a tutte le esigenze della Direttiva di Elevatore 95/16/EC che lo riguardano. odpowiada wszystkim wymaganiom Dyrektywy Dźwiguowej 95/16/EC.

Angewandte harmonisierte Normen
Harmonized standards and specifications
Normes harmonisées et spécifications
Campioni e specifiche armonizzati
Zastosowane normy zharmonizowane

EMV 89/336/EWG
(Geändert, modified, modifié, modificato, ze zmianami: 92/31/EWG, 93/68/EWG, 93/465/EWG)
EN 12015:2004 EMC - Emission
EN 12016:2004 EMC - Immunity

Prüfberichte
Test reports
Rapports de test
Relazioni sull'esperimento
Nr rapportu technicznego

EMV Zentrum Graubünden
Hochschule für Technik und Wirtschaft
Ringstrasse, CH-7000 Chur
and CECES AG
PB-09-EL-006 IMS100 Komplett.pdf
CH-7302 Landquart, 2009-02-23

Name und Funktion
Name and function
Nom et fonction
Nome e funzione
Nazwisko i stanowisko

I.V. Andreas Hartmann
Leiter Qualitätsmanagement
Head of Quality Management
Directeur de Qualité
Direttore di Qualità
Dyrektor ds. Jakości