Panasonic



4452

PHOTOELECTRIC SMOKE DETECTOR

Fire alarm solutions technical description

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1. INTRODUCTION

This document describes the photoelectric smoke detector, type number 4452.
The document contains information about the product and instructions on how to mount and connect it.

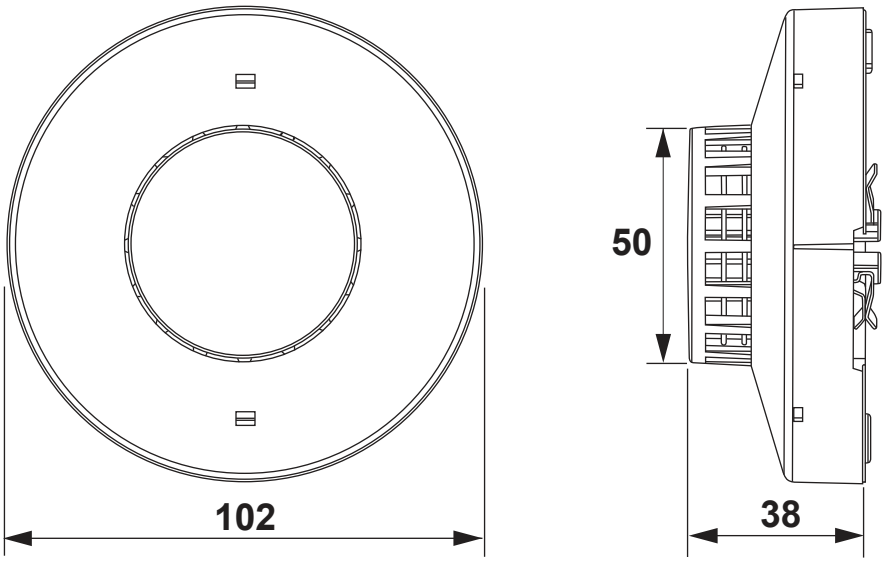
2. ABBREVIATIONS

CIE	Control and indicating equipment	= control unit
LED	Light Emitting Diode	

3. GENERAL DESCRIPTION

The photoelectric smoke detector 4452 is a conventional detector. The detector is excellent to detect large, bright smoke particles as from a smouldering fire. The latest IC technology is used to secure the highest reliability possible.
Used in system EBL512 G3 / EBL128 / EBL512.

The detector is intended for indoor use and in dry premises.



(Measure in mm)

3.1. DETECTOR

The smoke enters the detection chamber through an insect filter and an optical labyrinth. This construction not only improves the smoke inflow, but it also causes steam and fog to condense into moisture on its surfaces, to prevent nuisance alarms. Furthermore, the detector has a smart alarm algorithm which reduces the risk for false fire alarms.

3.2. LED

The detector is plugged in the conventional base 2324.The base has an LED that will light up when the detector goes into alarm.

3.3. ZONE LINE INPUT

The conventional detector is connected to a zone line input (for conventional detectors) in the CIE. The last unit on the zone line has an End-of-line device to be connected. The type of end-of-line device is depending on the CIE. and the type of zone line input.

4. FIRE ALARM

4.1. FIRE JUDGEMENT

Artificial Intelligence uses smoke sensing for the fire judgement, as well as variable sensitivity and time delay based on the smoke changes just before the alarm level is reached.
This will secure real fire alarms and minimize the not wanted nuisance alarms, for example due to artificial smoke or oil mist.

The fire judgement is depending on the alarm threshold level, which is depending on the area alarm algorithm.

4.1.1. ALARM THRESHOLD LEVELS

The photoelectric smoke detector has the following fire alarm threshold level:

Area alarm algorithm	S [%/m]
Normal (default)	4

4.1.2. ALARM DELAY TIME

The delay time is normally 9 seconds.

4.2. SENSITIVITY COMPENSATION

In order to maintain a constant sensitivity regardless of the contamination of the detector, a Contamination Compensation Factor (CCF) is subtracted from the momentary smoke obscuration values before evaluated in the alarm algorithms.
The CCF is calculated during a 36 hour period as follows:
During 13 minutes, all the momentary smoke obscuration values are saved and an average value is calculated. The CCF will be changed directly if the average value is lower than the actual CCF, else no change.
This is valid for 18 hours. Then the CCF will be changed also if the average value is higher than the actual CCF. (It will normally be higher because of contamination.)
After another 18 hours the CCF will be changed if the average value is lower or higher than the actual CCF and it will be saved in the detector's EEPROM.
A new 18 + 18 = 36 hours period starts with an average value calculation every 13th minute.

4.3. TEST MODE

For information about how to set the detector in test mode, see Planning Instructions or Operating Instructions.
It is possible to use test aerosol equipment for testing. For example “SOLO” or “Testifire”.

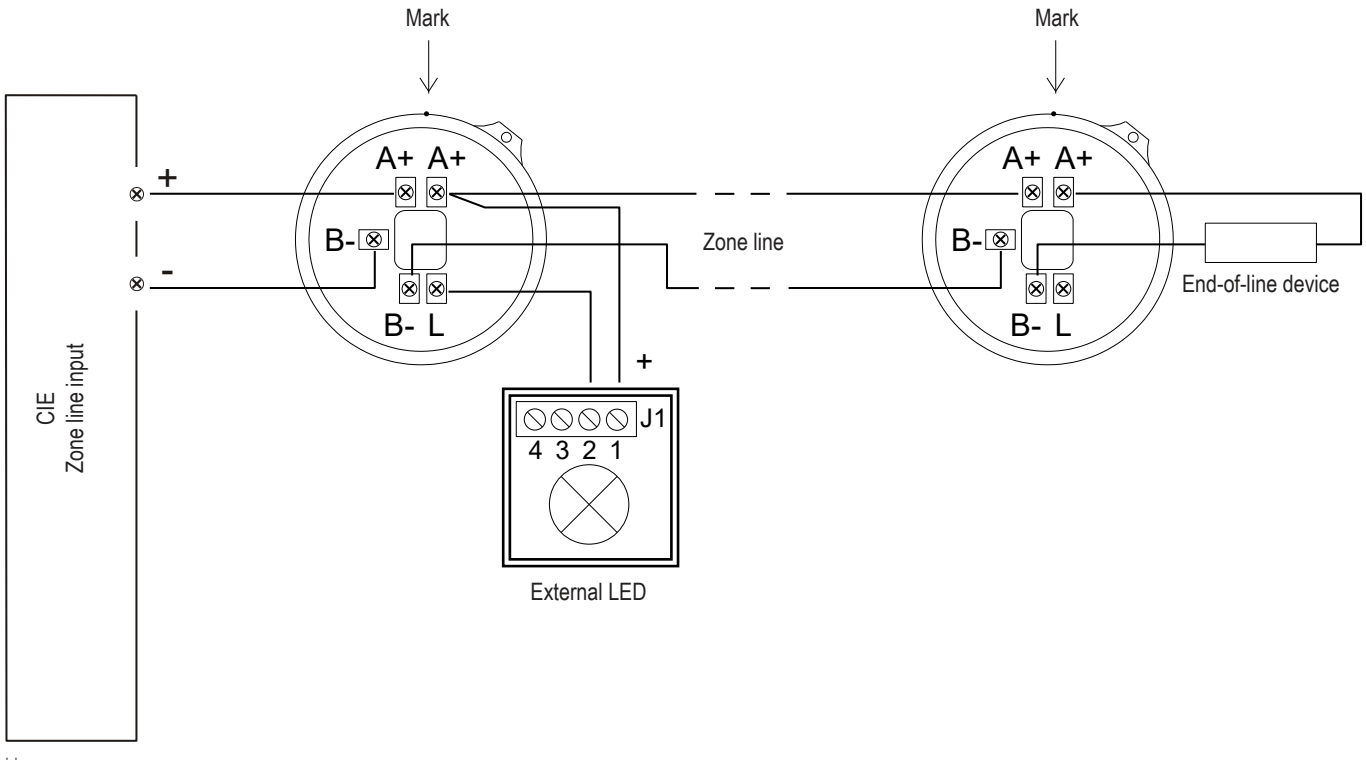
5. MOUNTING

The detector is plugged in the conventional base 2324. Place the detector in the base with the detector's "Mark" in the same position as the "Mark" on the base and turn the detector clockwise.

6. INSTALLATION AND WIRING

The detector is plugged in the conventional base. The conventional zone line input and external LED are connected to the conventional base.

Screen wire termination is not provided.



	2324
Wire size (Min)	Ø 0,65 mm (0,3 mm²)
Wire size (Max)	Ø 1.6 mm (2 mm²)

7. TECHNICAL DATA

All current consumptions are valid by nominal voltage and by 25 °C.

Voltage: Allowed Normal	 12 – 30V DC 24V DC
Current: Quiescent Active	 0.04 mA Min 3 mA
Short circuit isolator	No
Internal battery	No
Material	Modified polycarbonate
Ambient temperature: Operating Storage	 -10 to +50 °C -25 to +70 °C
Ambient humidity	Maximum 95 % RH (Non condensing)
Ingress protection rating	IP41
Smoke obscuration	4 %/m
Size: Ø x H	 102 x 38 mm
Weight:	 85 g
Colour	White (10Y9/0.5, Munsell colour code)

8. APPROVALS

Applicable directive/ Approval	Applicable standards	Notified body
CPR	EN54-7	VdS No. 0786-CPR-21252
VdS	EN54-7 VdS 2344 VdS 2543	VdS No. G213028
EMC	EN61000-6-3 (Emission) EN50130-4 (Immunity)	Self declaration VdS
RoHS	EN IEC 63000	Self declaration

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