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Testing of passive infrared detector Optex EX-35T according to CLC/TS 50131-2-2 (2 appendices)

SP Technical Research Institute of Sweden has performed functional tests of a passive infrared detector in accordance with the CENELEC standard CLC/TS 50131-2-2:2004.

Identification

Your reference: Sebastian Håkansson/2010-11-12
Delivery of test objects: 2010-11-12
Status of test objects: Without complaint
Manufacturer: Optex
Model: EX-35T
Grade: 2
Lens: Wide Angle
Settings: Normal
Delivered documentation: Installation Instructions No. 559-0558-4 0712-13

Specification

Detection area: ~11 m, see diagram in Appendix
Mounting height: 0.6 – 2.4 m.

Date of test

December 13 – 23, 2010.

Summary of test results

The detector fulfils the requirements.

Measurement conditions

The measurements are made in a temperature stabilized laboratory with the temperature $+23\text{ °C} \pm 2\text{ °C}$. The full length of the laboratory is 35 m. The infrared detector is placed on a photogoniometer on 2.4 m height. The goniometer is turned horizontally to select each test point.

Standard walk test target (SWT) temperature difference: $3\text{ °C} \pm 0.3\text{ °C}$

Instrument code: Photogoniometer, IR-thermometer

Measurement accuracy

Angle of detection: $\pm 0.1^\circ$
Distance: $\pm 0.2\text{ m}$
Temperature: $\pm 0.2\text{ °C}$

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The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2$, which for a normal distribution corresponds to a coverage probability of approximately 95 %. The standard uncertainty of measurement has been determined in accordance with EA Publication EA-4/02.

Measurement method

The testing is performed in accordance with applicable parts of standard CLC/TS 50131-2-2:2004 and SP method no 4240.

Measurement result

The result of the testing is presented following the paragraphs of the standard.

4.4.1 Immunity to air flow

Increase of air temperature from ambient to 40 °C with gradient 5 °C/min. Stabilization at 40 °C during 4 minutes. Ramp down with heat off and stabilize at ambient for 2 min. The cycle is repeated 5 times.

No alarms were detected. The detector fulfils the requirement.

4.4.2 Immunity to visible and near infrared radiation

A light source is placed at 5 meters distance, scanning over the detector at a speed of 0.5 m/s. A double pane of glass is placed in front of the detector. A total of 10 scans are performed.

No alarms were detected. The detector fulfils the requirement.

6.4.1 Detection within and across the boundary

A Standard Walk Test target was used in each test point, moving at 1.0 m/s (across) and 0.3 m/s (within) a total of 3 m at $\pm 45^\circ$ angle to the detector radial line. The detector set an alarm at 100 % of the test points, see sketch in Appendix.

The detector fulfils the requirement (95 %).

6.4.2 Detection at high velocity and with intermittent movement

A Standard Walk Test target was used, moving at 2.0 m/s along the prescribed lines. Intermittent movement is not required for a Grade 2 detector. The detector set an alarm at all test points.

The detector fulfils the requirement.

6.4.3 Verify the close-in detection performance

A Standard Walk Test target was used, moving at 0.4 m/s along the prescribed lines. The detector set an alarm at all test points.

The detector fulfils the requirement.

6.4.4 Verify the effect of control adjustments on detection

The detector does not offer any control adjustments, the test is not applicable.

6.4.5 Verify the significant reduction of specified range

The test is not required for a Grade 2 detector.

Remark

The result in this test report is valid only for the item tested.

SP Technical Research Institute of Sweden Measurement Technology - Communication

Mikael Lindgren
Technical Manager/Officer

Appendices

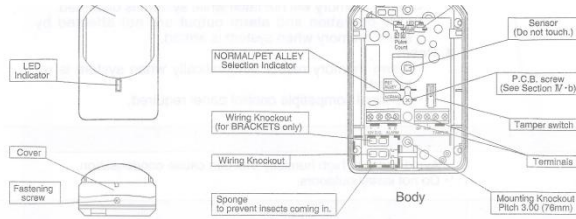
Installation Instructions

Results from Walk Test

Appendix 1

Appendix 1

Installation Instructions



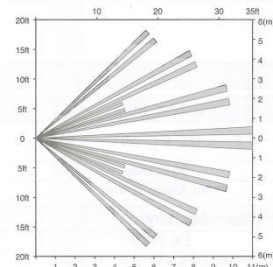
II. INSTALLATION METHOD

- Loosen fastening screw and remove cover.
- Mount the unit and wire according to Section V.
- Replace the cover and supply power to unit. [warm-up period is complete (Apx. 30 sec.)]
- Conduct Walk Test.
- Pulse count according to your coverage needs and environmental conditions. Fasten cover with fastening screw.

III. DETECTION AREA

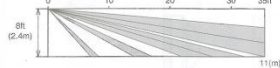
WIDE ANGLE

TOP VIEW

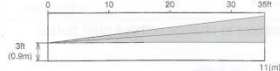


SIDE VIEW

NORMAL (Multi-Level) AREA



PET ALLEY AREA

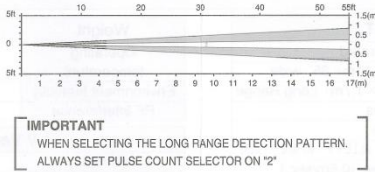


MAX. Detection Distance/Height

Installation Height	2R (0.6m)	3R (0.9m)	4R (1.2m)	5R (1.5m)	6R (1.8m)	7R (2.1m)	8R (2.4m)
NORMAL	15R (4.5m)	23R (7.0m)	30R (9.0m)	35R (11.0m)	35R (11.0m)	35R (11.0m)	35R (11.0m)
PET ALLEY	35R (11.0m)	35R (11.0m)	30R (9.0m)	-	-	-	-

LONG RANGE

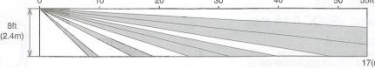
TOP VIEW



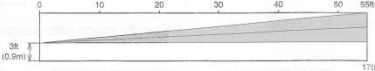
[IMPORTANT]
WHEN SELECTING THE LONG RANGE DETECTION PATTERN, ALWAYS SET PULSE COUNT SELECTOR ON "2"

SIDE VIEW

NORMAL (Multi-Level) AREA



PET ALLEY AREA



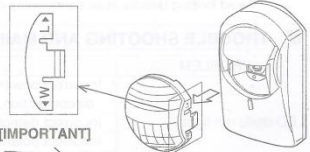
MAX. Detection Distance/Height

Installation Height	2R (0.6m)	3R (0.9m)	4R (1.2m)	5R (1.5m)	6R (1.8m)	7R (2.1m)	8R (2.4m)
NORMAL	17R (5.0m)	30R (9.0m)	42R (12.5m)	55R (17.0m)	55R (17.0m)	55R (17.0m)	55R (17.0m)
PET ALLEY	55R (17.0m)	55R (17.0m)	42R (12.5m)	-	-	-	-

NOTE: The detection pattern is preset to the "W" (Wide Angle) position.

- Inverting the lens will select either the Wide Angle or Long Range detection patterns.
- Please note markings "W" (Wide Angle) and "L" (Long Range), on each side of lens.

- For Wide Angle detection the "W" points downward.
- For Long Range detection the "L" points downward.



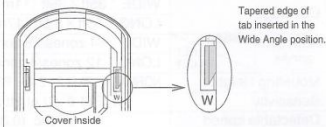
[IMPORTANT]

Verify Pattern Selection / Lens Position, as follows.

"Tapered Edge" (Only one of the two tabs is tapered.)

-Example-

For Wide Angle patterns, the tapered edge on the Lens (See illus.) points to the "W" on the cover.
For Long Range, the tapered edge points at the "L".

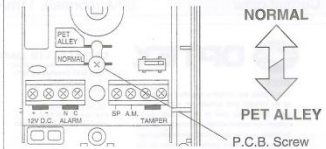


b) SELECTING NORMAL (Multi-Level) or PET ALLEY DETECTION PATTERNS.

(Detector is pre-set at the "NORMAL" position.)
1. Loosen screw (see illus.), and slide the "P.C.B." (Printed Circuit Board) up or down to match the arrow with the desired pattern (see illus.).

-Carefully-

-Tighten screw when complete-



Appendix 2

**Result from Walk Test Detection Performance
within and across the boundary
Detector 3**

