HIS-07   SPECIFICATIONS

1.   SCOPE：

This specification sheet is for ionization smoke chamber model HIS-07 (radiation source-0.5microcurie Am-241, 2 chambers with a source, made in compliance with UL 217, EN-54-7) for applications to smoke detectors.

2. Radiation source:

Nuclide ; americium 241

Radioactivity;Ave.33.3 KBq. =0.9μ CI(29K~37KBq)

3.Operational conditions:

Power supply; DC9V

Operational ambient conditions;

Temperature   0--50℃

Humidity   less   than   95   (No   dew condensation)

4.Maximum ratings:

Supply voltage; DC   24V

Operation;   Temperature   -10…+60℃

Humidity   less than 95%

Storage;   Temperature   -25…+80℃

Humidity   less than 95%

6.Shape,dimensions, weight;

Shape;   As per attached drawing

Dimensions;   22.0×Φ 42mm

Weight;   12g.

7.Ratings:

Test conditions; at 25℃,60%   RH

Items	specifications
Supply voltage	DC 9V
Current consumption	27±3pA
Output voltage	5.6±0.4 V in clean air
Sensitivity	0.6±0.1 V at 2%/foot of smoke

(Tested   according to UL 217)

8.Characteristics:

8-1.Sensitivity characteristics

Table 1   Test conditions ;at 25℃,60%   RH

Smoke concentration(%/foot)	output	Variation (△V)
0	5.6±0.4	0
1	5.3±0.5	0.3±0.1
2	5.0±0.5	0.6±0.1
3	4.7±0.5	0.9±0.2
4	4.4±0.5	1.2±0.2
5	4.2±0.5	1.4±0.2

Gray   smoke   test   according   to   UL   217   Air velocity;0.16m/sec.

8-2. Supply voltage dependency

Table 2   Test conditions ;at 25℃,60%   RH

Supply voltage(V)	Output voltage(V)
6	3.3±0.3
9	5.6±0.4
12	8.0±0.7
15	10.0±0.85
18	13.0±1.0

8-3 Temperature & Humidity dependency

Table 3 Temperature dependency

Temperature(℃)	Output(V)
0	5.15±0.4
25	5.6±0.4
50	5.85±0.4

Table 3   Humidity dependency

Humidity(%C)	Output(V)
30	5.75±0.5
60	5.6±0.4
90	5.45±0.4

(Temperature;   25℃)

9.Durability tests;

9-1.Heat resistance test

Test method	criteria
At +80 ℃±5 ℃ for 72 hrs. Without electrified	To maintain the characteristics shown in Heading No.8 after test .To show neither deforming, nor discoloring, nor cracks .

9-2. Low temperature   resistance

Test method	criteria
At -30℃±5℃ for 72 hrs . without electrified	To maintain the characteristics shown in Heading No.8 after test .To show neither deforming, nor discoloring, nor cracks.

9-3.High humidity resistance

Test method	criteria
At +40℃±5℃& 85 ±5% RH for 72 hrs . without electrified	To maintain the characteristics shown in Heading No.8 after test .To show neither deforming, nor discoloring, nor cracks.

9-4.Vibration   test

Test method	Criteria
Vibrated with amplitude of 0.25mm at every 5Hz from 10－35Hz for 15 min . with sympathetic vibration. If no sympathetic vibration occurs, to be vibrated at 35Hz for 4 hour .	To maintain the characteristics shown in Heading No.8 after test. To show neither deforming , nor discoloring ,nor cracks .

9-5.Impact test

Test method	criteria
Dropped from a height of 1m on to a	To maintain the characteristics shown in

wooden plate with 3 different directions .	Heading No.8 after test .To show neither deforming , nor discoloring , nor cracks .

10. Remarks

10.1 Output voltage is to be measured using an electrometer with more than 1014 of impedance or an exclusively designed measuring circuit with Ics . Normal testers with around 100MΩ impedance would be insufficient for measurement .

10.2 Upon assembling detectors ,attention is to be paid not to let a soldering flux get inside smoke chambers .If inside of the chambers is contaminated ,cleaning or washing is necessary .

10.3The output lead wire of a chamber and an input terminal of a circuit must be connected in air to keep the connected point away from the surface of a PC board(usually a teflon pin is used to support the connected point) .Because of the resistance level of paper phenol PC boards , current leakage will occur on to the PC board . This will prevent to read correct outputs .

10.4 The connected point of the lead wire and the input terminal of an FET or an IC must be protected from humidity using a silicon resin or the   like so that current leakage from the packages will be minimized .

10.5 Because of the necessity of reading a tiny current put out from the chamber ,this sensor must be electrically shielded to minimize noises from the outside .As the most sensitive part to noises is   the connected part of the lead wire and the input the terminal of a circuit ,this part must definitely be shielded .