

# DIN EN 54-5:2018-10 (E)

## Fire detection and fire alarm systems - Part 5: Heat detectors - Point heat detectors (includes Amendment A1:2018)

---

<b>Contents</b>		<b>Page</b>
European foreword .....		5
<b>1</b>	<b>Scope .....</b>	<b>7</b>
<b>2</b>	<b>Normative references .....</b>	<b>7</b>
<b>3</b>	<b>Terms, definitions and abbreviations .....</b>	<b>8</b>
<b>3.1</b>	<b>Terms and Definitions .....</b>	<b>8</b>
<b>3.2</b>	<b>Abbreviations .....</b>	<b>8</b>
<b>4</b>	<b>Product characteristics .....</b>	<b>8</b>
<b>4.1</b>	<b>General .....</b>	<b>8</b>
<b>4.1.1</b>	<b>Heat Response Categories .....</b>	<b>8</b>
<b>4.2</b>	<b>Operational reliability .....</b>	<b>9</b>
<b>4.2.1</b>	<b>Position of heat sensitive elements .....</b>	<b>9</b>
<b>4.2.2</b>	<b>Individual alarm indication .....</b>	<b>9</b>
<b>4.2.3</b>	<b>Connection of ancillary devices .....</b>	<b>10</b>
<b>4.2.4</b>	<b>Monitoring of detachable detectors .....</b>	<b>10</b>
<b>4.2.5</b>	<b>Manufacturer's adjustments .....</b>	<b>10</b>
<b>4.2.6</b>	<b>On-site adjustment of response behaviour .....</b>	<b>10</b>
<b>4.2.7</b>	<b>Software controlled detector (when provided) .....</b>	<b>10</b>
<b>4.3</b>	<b>Nominal activation conditions/sensitivity .....</b>	<b>12</b>
<b>4.3.1</b>	<b>Directional dependence .....</b>	<b>12</b>
<b>4.3.2</b>	<b>Static response temperature .....</b>	<b>12</b>
<b>4.3.3</b>	<b>Response times from typical application temperature .....</b>	<b>12</b>
<b>4.3.4</b>	<b>Response times from 25 °C .....</b>	<b>12</b>
<b>4.3.5</b>	<b>Response times from high ambient temperature .....</b>	<b>12</b>
<b>4.3.6</b>	<b>Reproducibility .....</b>	<b>12</b>
<b>4.4</b>	<b>Response delay (response time) .....</b>	<b>13</b>
<b>4.4.1</b>	<b>Additional tests for suffix S detectors .....</b>	<b>13</b>
<b>4.4.2</b>	<b>Additional tests for suffix R detectors .....</b>	<b>13</b>
<b>4.5</b>	<b>Tolerance to supply voltage - Variation in supply parameters .....</b>	<b>13</b>
<b>4.6</b>	<b>Durability of Nominal activation conditions/sensitivity .....</b>	<b>13</b>
<b>4.6.1</b>	<b>Temperature resistance .....</b>	<b>13</b>
<b>4.6.2</b>	<b>Humidity resistance .....</b>	<b>13</b>
<b>4.6.3</b>	<b>Corrosion resistance: Sulphur dioxide (SO<sub>2</sub>) corrosion (endurance) .....</b>	<b>14</b>
<b>4.6.4</b>	<b>Vibration resistance .....</b>	<b>14</b>
<b>4.6.5</b>	<b>Electrical stability: Electromagnetic Compatibility (EMC), Immunity tests (operational) ....</b>	<b>14</b>
<b>5</b>	<b>Testing, assessment and sampling methods .....</b>	<b>14</b>
<b>5.1</b>	<b>General .....</b>	<b>14</b>
<b>5.1.1</b>	<b>Atmospheric conditions for tests .....</b>	<b>14</b>
<b>5.1.2</b>	<b>Operating conditions for tests .....</b>	<b>15</b>
<b>5.1.3</b>	<b>Mounting arrangements .....</b>	<b>15</b>
<b>5.1.4</b>	<b>Tolerances .....</b>	<b>15</b>
<b>5.1.5</b>	<b>Measurement of response time .....</b>	<b>15</b>
<b>5.1.6</b>	<b>Provision for tests .....</b>	<b>16</b>
<b>5.1.7</b>	<b>Test schedule .....</b>	<b>16</b>
<b>5.2</b>	<b>Operational reliability .....</b>	<b>20</b>
<b>5.2.1</b>	<b>Position of heat sensitive elements .....</b>	<b>20</b>
<b>5.2.2</b>	<b>Individual alarm indication .....</b>	<b>20</b>

5.2.3	Connection of ancillary devices .....	20
5.2.4	Monitoring of detachable detectors .....	21
5.2.5	Manufacturer's adjustments .....	21
5.2.6	On-site adjustment of response behaviour .....	21
5.2.7	Software controlled detectors (when provided) .....	21
5.3	Nominal activation conditions/sensitivity .....	21
5.3.1	Directional dependence .....	21
5.3.2	Static response temperature .....	22
5.3.3	Response times from typical application temperature .....	22
5.3.4	Response times from 25 °C .....	23
5.3.5	Response times from high ambient temperature .....	24
5.3.6	Reproducibility .....	25
5.4	Response delay (response time) .....	25
5.4.1	Additional tests for suffix S detectors .....	25
5.4.2	Additional test for suffix R detectors .....	27
5.5	Tolerance to supply voltage .....	28
5.5.1	Variation in supply parameters .....	28
5.6	Durability of Nominal activation conditions/sensitivity .....	29
5.6.1	Temperature resistance .....	29
5.6.2	Humidity resistance .....	31
5.6.3	Corrosion resistance .....	33
5.6.4	Vibration resistance .....	34
5.6.5	Electrical stability .....	38
6	Assessment and verification of constancy of performance (AVCP) .....	40
6.1	General .....	40
6.2	Type testing .....	40
6.2.1	General .....	40
6.2.2	Test samples, testing and compliance criteria .....	41
6.2.3	Test reports .....	41
6.3	Factory production control (FPC) .....	41
6.3.1	General .....	41
6.3.2	Requirements .....	42
6.3.3	Product specific requirements .....	44
6.3.4	Initial inspection of factory and FPC .....	45
6.3.5	Continuous surveillance of FPC .....	45
6.3.6	Procedure for modifications .....	46
6.3.7	One-off products, pre-production products, (e.g. prototypes) and products produced in very low quantities .....	46
7	Classification .....	47
8	Marking, labelling and packaging .....	47
	Annex A (normative) Heat tunnel for response time and response temperature measurements .....	48
	Annex B (informative) Information concerning the construction of the heat tunnel .....	49
	Annex C (informative) Derivation of upper and lower limits of response times .....	52
	Annex D (informative) Apparatus for impact test .....	55
	Annex E (informative) Data supplied with point heat detectors .....	57
	Annex ZA (informative) Relationship of this European Standard with Regulation (EU) No.305/2011 .	58
	ZA.1 Scope and relevant characteristics .....	58
	ZA.2 System of Assessment and Verification of Constancy of Performance (AVCP) .....	60
	ZA.3 Assignment of AVCP tasks .....	60
	Bibliography .....	62