

ISO 7240-12:2022-06 (E)

Fire detection and alarm systems - Part 12: Line type smoke detectors using a transmitted optical beam

Contents		Page
Foreword.....		vi
Introduction.....		vii
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Requirements	3
4.1	Conformance.....	3
4.2	Individual alarm indication.....	3
4.3	Connection of ancillary devices.....	4
4.4	Monitoring of detachable detectors and connections.....	4
4.5	Manufacturer's adjustments.....	4
4.6	On-site adjustment of response threshold value.....	4
4.7	Protection of optical components.....	4
4.8	Limit of compensation.....	4
4.9	Fault signalling.....	5
4.10	Software-controlled detectors.....	5
4.10.1	General.....	5
4.10.2	Software documentation.....	5
4.10.3	Software design.....	6
4.10.4	Storage of programs and data.....	6
5	Test methods	6
5.1	General.....	6
5.1.1	Atmospheric conditions for tests.....	6
5.1.2	Mounting arrangements.....	6
5.1.3	Operating conditions for tests.....	6
5.1.4	Tolerances.....	7
5.1.5	Measurement of response value.....	7
5.1.6	Provision for tests.....	8
5.1.7	Test schedule.....	8
5.1.8	Test report.....	9
5.2	Reproducibility.....	9
5.2.1	Object of test.....	9
5.2.2	Test procedure.....	9
5.2.3	Requirements.....	9
5.3	Repeatability.....	9
5.3.1	Object of test.....	9
5.3.2	Test procedure.....	9
5.3.3	Requirements.....	10
5.4	Alignment dependence.....	10
5.4.1	Object of test.....	10
5.4.2	Test procedure.....	10
5.4.3	Requirements.....	11
5.5	Variation of supply parameters.....	11
5.5.1	Object.....	11
5.5.2	Test procedure.....	11
5.5.3	Requirements.....	11
5.6	Rapid changes in attenuation.....	11

5.6.1	Object of test.....	11
5.6.2	Test procedure.....	11
5.6.3	Requirements.....	12
5.7	Slow changes in attenuation.....	12
5.7.1	Object of test.....	12
5.7.2	Test procedure.....	12
5.7.3	Requirements.....	12
5.8	Optical path length dependence.....	13
5.8.1	Object of test.....	13
5.8.2	Test procedure.....	13
5.8.3	Requirements.....	13
5.9	Fire sensitivity.....	13
5.9.1	Object of test.....	13
5.9.2	Test procedure.....	13
5.9.3	Requirements.....	15
5.10	Stray light.....	15
5.10.1	Object of test.....	15
5.10.2	Test procedure.....	15
5.10.3	Requirements.....	16
5.11	Dry heat (operational).....	16
5.11.1	Object of test.....	16
5.11.2	Test procedure.....	16
5.11.3	Requirements.....	17
5.12	Cold (operational).....	17
5.12.1	Object of test.....	17
5.12.2	Test procedure.....	17
5.12.3	Requirements.....	18
5.13	Damp heat, steady-state (operational).....	18
5.13.1	Object of the test.....	18
5.13.2	Test procedure.....	18
5.13.3	Requirements.....	19
5.14	Damp heat, steady-state (endurance).....	19
5.14.1	Object of test.....	19
5.14.2	Test procedure.....	19
5.14.3	Requirements.....	20
5.15	Vibration, sinusoidal (endurance).....	20
5.15.1	Object of test.....	20
5.15.2	Test procedure.....	20
5.15.3	Requirements.....	21
5.16	Electromagnetic compatibility (EMC), immunity tests (operational).....	21
5.17	Sulfur dioxide, SO ₂ , corrosion (endurance).....	22
5.17.1	Object of test.....	22
5.17.2	Test procedure.....	22
5.17.3	Requirements.....	22
5.18	Impact (operational).....	23
5.18.1	Object of test.....	23
5.18.2	Test procedure.....	23
5.18.3	Requirements.....	23
6	Test report.....	24
7	Marking.....	24
8	Data.....	25
	Annex A (informative) Compensation for detector drift.....	26
	Annex B (normative) Bench for response threshold value measurements.....	31
	Annex C (normative) Fire test room.....	33
	Annex D (normative) Smouldering pyrolysis wood fire (TF2).....	35
	Annex E (normative) Glowing smouldering cotton fire (TF3).....	38
	Annex F (normative) Flaming plastics (polyurethane) fire (TF4).....	41
	Annex G (normative) Flaming liquid (<i>n</i>-heptane) fire (TF5).....	43

Annex H (normative) Smoke-measuring instruments	45
Annex I (normative) Apparatus for stray light	48
Annex J (informative) Information concerning the construction of the measuring ionization chamber	50
Bibliography	53