

ISO 7240-29:2024-01 (E)

Fire detection and alarm systems - Part 29: Video fire detectors

| Contents | | Page |
|---------------------|--|------------|
| Foreword | | vii |
| Introduction | | ix |
| 1 | Scope | 1 |
| 2 | Normative references | 1 |
| 3 | Terms, definitions and abbreviated terms | 2 |
| 3.1 | Terms and definitions | 2 |
| 3.2 | Abbreviated terms | 2 |
| 4 | Requirements | 3 |
| 4.1 | Conformity | 3 |
| 4.2 | Fire phenomena | 3 |
| 4.3 | Immunity to unwanted alarms | 3 |
| 4.4 | Detection range | 3 |
| 4.5 | Camera lenses | 3 |
| 4.6 | Camera lens monitoring | 3 |
| 4.7 | Individual alarm indication | 4 |
| 4.8 | Connection of ancillary devices | 4 |
| 4.9 | Monitoring of detachable cameras | 4 |
| 4.10 | Connection of more than one VFD to the FDCIE transmission path | 4 |
| 4.11 | Manufacturer's adjustments | 4 |
| 4.12 | On-site adjustment of response behaviour | 4 |
| 4.13 | Protection against the ingress of foreign bodies | 4 |
| 4.14 | Ambient light operating level | 5 |
| 4.15 | Operating temperature | 5 |
| 4.16 | Software | 5 |
| 4.16.1 | General | 5 |
| 4.16.2 | Software design | 5 |
| 4.16.3 | Storage of programs and data | 6 |
| 5 | Tests | 6 |
| 5.1 | General | 6 |
| 5.1.1 | Atmospheric conditions for tests | 6 |
| 5.1.2 | Ambient light level for tests | 6 |
| 5.1.3 | Mounting arrangements | 6 |
| 5.1.4 | Operating conditions for tests | 6 |
| 5.1.5 | Tolerances | 7 |
| 5.1.6 | Provision for tests | 7 |
| 5.1.7 | Measurement of response threshold value | 7 |
| 5.1.8 | Test schedule | 8 |
| 5.1.9 | Test report | 9 |
| 5.2 | Repeatability | 10 |
| 5.2.1 | Object of test | 10 |
| 5.2.2 | Test procedure | 10 |
| 5.2.3 | Requirements | 10 |
| 5.3 | Reproducibility | 10 |
| 5.3.1 | Object of test | 10 |
| 5.3.2 | Test procedure | 10 |
| 5.3.3 | Requirements | 10 |
| 5.4 | Detector lens monitoring | 10 |
| 5.4.1 | Object of test | 10 |

| | | |
|---------|---|----|
| 5.4.2 | Test procedure | 10 |
| 5.4.3 | Requirements | 11 |
| 5.5 | Detector lens blocking | 11 |
| 5.5.1 | Object of test | 11 |
| 5.5.2 | Test procedure | 11 |
| 5.5.3 | Requirements | 11 |
| 5.6 | Detector lens focus fault | 12 |
| 5.6.1 | Object of test | 12 |
| 5.6.2 | Test procedure | 12 |
| 5.6.3 | Requirements | 12 |
| 5.7 | Fire sensitivity | 12 |
| 5.7.1 | Object of test | 12 |
| 5.7.2 | Test procedure | 12 |
| 5.7.3 | Requirements | 14 |
| 5.8 | Ambient light (minimum) | 14 |
| 5.8.1 | Object of test | 14 |
| 5.8.2 | Test procedure | 15 |
| 5.8.3 | Requirements | 15 |
| 5.9 | Ambient light (maximum) | 15 |
| 5.9.1 | Object of test | 15 |
| 5.9.2 | Test procedure | 15 |
| 5.9.3 | Requirements | 15 |
| 5.10 | Non-uniform illumination (Type A and AB only) | 15 |
| 5.10.1 | Object of test | 15 |
| 5.10.2 | Test procedure | 16 |
| 5.10.3 | Requirements | 16 |
| 5.11 | Light source immunity | 16 |
| 5.11.1 | Object of test | 16 |
| 5.11.2 | Test procedure | 16 |
| 5.11.3 | Fluorescent light | 16 |
| 5.11.4 | Metal halide light | 17 |
| 5.11.5 | Halogen light | 17 |
| 5.11.6 | LED beacon | 17 |
| 5.11.7 | Rotating beacon — Optional | 17 |
| 5.11.8 | Xenon beacon — Optional | 18 |
| 5.11.9 | High-pressure sodium light — Optional | 18 |
| 5.11.10 | Low-pressure sodium light — Optional | 18 |
| 5.11.11 | Incandescent light — Optional | 18 |
| 5.11.12 | HID xenon light — Optional | 19 |
| 5.11.13 | Laser light — Optional | 19 |
| 5.11.14 | Requirements | 19 |
| 5.12 | Arc welding — Optional | 19 |
| 5.12.1 | Object of test | 19 |
| 5.12.2 | Test apparatus | 19 |
| 5.12.3 | Test procedure | 19 |
| 5.12.4 | Requirements | 20 |
| 5.13 | Variation in supply parameters | 20 |
| 5.13.1 | Object of test | 20 |
| 5.13.2 | Test procedure | 20 |
| 5.13.3 | Final measurements | 20 |
| 5.13.4 | Requirements | 20 |
| 5.14 | Dry heat (operational) | 20 |
| 5.14.1 | Object of test | 20 |
| 5.14.2 | Test procedure | 20 |
| 5.14.3 | Requirements | 21 |
| 5.15 | Dry heat (operational) — Optional | 21 |
| 5.15.1 | Object of test | 21 |
| 5.15.2 | Test procedure | 21 |
| 5.15.3 | Requirements | 22 |
| 5.16 | Cold (operational) | 22 |
| 5.16.1 | Object of test | 22 |
| 5.16.2 | Test procedure | 22 |
| 5.16.3 | Requirements | 23 |
| 5.17 | Cold (operational) — Optional | 23 |

| | | |
|----------------|--|-----------|
| 5.17.1 | Object of test | 23 |
| 5.17.2 | Test procedure | 23 |
| 5.17.3 | Requirements | 24 |
| 5.18 | Cold controllers (operational) | 24 |
| 5.18.1 | Object of test | 24 |
| 5.18.2 | Test procedure | 24 |
| 5.18.3 | Requirements | 25 |
| 5.19 | Damp heat, steady-state (operational) | 25 |
| 5.19.1 | Object of test | 25 |
| 5.19.2 | Test procedure | 25 |
| 5.19.3 | Requirements | 25 |
| 5.20 | Damp heat, steady-state (endurance) | 26 |
| 5.20.1 | Object of test | 26 |
| 5.20.2 | Test procedure | 26 |
| 5.20.3 | Requirements | 26 |
| 5.21 | Protection against ingress of foreign bodies | 26 |
| 5.21.1 | Object of test | 26 |
| 5.21.2 | Enclosure of the VFD | 26 |
| 5.21.3 | Test procedure | 27 |
| 5.21.4 | Requirements | 27 |
| 5.22 | Sulfur dioxide (SO ₂) corrosion (endurance) | 27 |
| 5.22.1 | Object of test | 27 |
| 5.22.2 | Test procedure | 28 |
| 5.22.3 | Requirements | 28 |
| 5.23 | Shock (operational) | 28 |
| 5.23.1 | Object of test | 28 |
| 5.23.2 | Test procedure | 28 |
| 5.23.3 | Requirements | 29 |
| 5.24 | Impact (operational) for cameras | 29 |
| 5.24.1 | Object of test | 29 |
| 5.24.2 | Test procedure | 29 |
| 5.24.3 | Requirements | 30 |
| 5.25 | Impact (operational) for controllers | 30 |
| 5.25.1 | Object of test | 30 |
| 5.25.2 | Test procedure | 30 |
| 5.26 | Vibration, sinusoidal (endurance) | 31 |
| 5.26.1 | Object of test | 31 |
| 5.26.2 | Test procedure | 31 |
| 5.26.3 | Requirements | 32 |
| 5.27 | Vibration, sinusoidal controller (endurance) | 32 |
| 5.27.1 | Object of test | 32 |
| 5.27.2 | Test procedure | 32 |
| 5.27.3 | Requirements | 33 |
| 5.28 | Electromagnetic compatibility (EMC) immunity (operational) | 33 |
| 5.28.1 | Object of test | 33 |
| 5.28.2 | Test procedure | 33 |
| 5.28.3 | Requirements | 34 |
| 6 | Marking | 34 |
| 7 | Data | 35 |
| 7.1 | General | 35 |
| 7.2 | Software documentation | 35 |
| 7.3 | Hardware documentation | 36 |
| 7.4 | Installation and user documentation | 36 |
| Annex A | (normative) Fire test room | 38 |
| Annex B | (normative) Smouldering (pyrolysis) wood fire (TF2) | 40 |
| Annex C | (normative) Glowing smouldering cotton fire (TF3) | 43 |

| | |
|--|-----------|
| Annex D (normative) Open plastics (polyurethane) fire (TF4) | 46 |
| Annex E (normative) Flaming liquid (<i>n</i>-heptane) fire (TF5) | 48 |
| Annex F (normative) Low temperature black smoke (decalin) liquid fire (TF8) | 50 |
| Annex G (normative) Long range smouldering (pyrolysis) wood fire (TF2c) | 52 |
| Annex H (normative) Long range glowing smouldering cotton fire (TF3c) | 54 |
| Annex I (normative) Long range open plastics (polyurethane) fire (TF4a) | 56 |
| Annex J (normative) Long range flaming liquid (<i>n</i>-heptane) fire (TF5c) | 57 |
| Annex K (normative) Long range low temperature black smoke (decalin) liquid fire (TF8a) | 58 |
| Annex L (normative) Open cellulosic (wood) fire (TF1) | 59 |
| Annex M (normative) Liquid (methylated spirit) fire (TF6) | 62 |
| Annex N (normative) Long range open cellulosic (wood) fire (TF1a) | 64 |
| Annex O (normative) Long range liquid (methylated spirit) fire (TF6a) | 66 |
| Annex P (normative) Non-uniform illumination test configuration | 67 |
| Annex Q (normative) Smoke-measuring instruments | 69 |
| Annex R (normative) Simulation of dirt particles on a lens | 74 |
| Bibliography | 85 |