

DIN EN 54-23:2010-06 (E)

Fire detection and fire alarm systems - Part 23: Fire alarm devices - Visual alarm devices

Contents		Page
Foreword		5
Introduction		7
1	Scope	8
2	Normative references	8
3	Terms, definitions and abbreviations	9
3.1	Definitions	9
3.2	Abbreviations	10
4	Requirements	10
4.1	General	10
4.2	Operational reliability	10
4.2.1	Duration of operation	10
4.2.2	Provision for external conductors	10
4.2.3	Flammability of materials	11
4.2.4	Enclosure protection	11
4.2.5	Access	11
4.2.6	Manufacturer's adjustments	11
4.2.7	On site adjustments of behaviour	11
4.2.8	Requirements for software controlled devices	11
4.3	Performance parameters under fire conditions	13
4.3.1	Coverage volume	13
4.3.2	Variation of light output	13
4.3.3	Minimum and maximum effective luminous intensity	13
4.3.4	Light colour	13
4.3.5	Light temporal pattern and frequency of flashing	14
4.3.6	Marking and data	14
4.3.7	Synchronization (option with requirements)	15
4.4	Durability	16
4.4.1	Temperature resistance	16
4.4.2	Humidity resistance	16
4.4.3	Shock and vibration resistance	16
4.4.4	Corrosion resistance - Sulphur dioxide (SO ₂) corrosion (endurance)	16
4.4.5	Electrical stability - EMC, immunity (operational)	17
5	Tests and evaluation methods	17
5.1	General	17
5.1.1	Atmospheric conditions for tests	17
5.1.2	Operating conditions for tests	17
5.1.3	Mounting arrangements	17
5.1.4	Tolerances	18
5.1.5	Provision for tests	18
5.1.6	Test schedule	18
5.1.7	Reproducibility	20
5.2	Operational reliability	20
5.2.1	Duration of operation	20
5.2.2	Provision for external conductors	21
5.2.3	Flammability of materials	21

5.2.4	Enclosure protection	21
5.2.5	Access	22
5.2.6	Manufacturer's adjustments	23
5.2.7	On site adjustments of behaviour	23
5.2.8	Requirements for software controlled devices	23
5.3	Performance parameters under fire conditions	23
5.3.1	Coverage volume	23
5.3.2	Variation of luminous intensity	23
5.3.3	Minimum and maximum light intensity	24
5.3.4	Light colour	24
5.3.5	Light pattern and frequency of flashing	24
5.3.6	Marking and data	24
5.3.7	Synchronization (option with requirements)	24
5.4	Durability	26
5.4.1	Temperature resistance	26
5.4.2	Humidity resistance	29
5.4.3	Shock and vibration resistance	33
5.4.4	Corrosion resistance - Sulphur dioxide (SO ₂) corrosion (endurance)	37
5.4.5	Electrical stability - Electromagnetic compatibility (EMC), immunity	38
6	Evaluation of conformity	39
6.1	General	39
6.2	Initial type testing	40
6.2.1	General	40
6.2.2	Test samples	40
6.2.3	Test reports	40
6.3	Factory production control	41
6.3.1	General	41
6.3.2	General requirements	41
6.3.3	Product specific requirements	42
6.3.4	Initial inspection of factory and FPC	43
6.3.5	Surveillance of FPC	43
6.4	Procedure for modifications	44
6.5	One-off products, pre-production products (e.g. prototypes) and products produced in very low quantities	44
Annex A (normative) Method for measuring the light distribution from a VAD		46
A.1	General	46
A.2	Test apparatus	46
A.3	Instrumentation	46
A.4	Test room	46
A.5	Arrangement for measuring the effective luminous intensity	48
A.6	Calculation of l_{eff} (av)	52
A.7	Calculation of coverage distance	52
Annex B (normative) Comparative light output level measurement for VADs		53
B.1	General	53
B.2	Light test chamber	53
B.3	Calibration of the light test chamber	53
B.4	Mounting arrangements	54
B.5	Measurement of effective average illumination	54
Annex C (informative) Construction of the light test chamber and associated equipment for comparative measurements		55
C.1	Light test chamber	55
C.2	Surface finishes	55
Annex D (informative) Comparison of flammability test requirements in various standards		57

D.1	Introduction	57
D.2	Relevant standards	57
D.3	Vertical burning tests	57
D.4	Horizontal burning tests	58
D.4.1	IEC 60695-11-10 and UL 94	58
D.4.2	IEC 60695-11-20 and UL 94	59
Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Directive (89/106/EEC)		60
ZA.1	Scope and relevant characteristics	60
ZA.2	Procedures for the attestation of conformity of VADs	62
ZA.2.1	System of attestation of conformity	62
ZA.2.2	EC Certificate of conformity	63
ZA.3	CE marking and labelling	63
Bibliography		66