

DIN EN 54-16:2008-06 (E)

Fire detection and fire alarm systems - Part 16: Voice alarm control and indicating equipment

| Contents | | Page |
|--------------------|---|-------------|
| Foreword | | 4 |
| Introduction | | 6 |
| 1 | Scope | 7 |
| 2 | Normative references | 7 |
| 3 | Terms, definitions and abbreviations | 8 |
| 3.1 | Terms and definitions | 8 |
| 3.2 | Abbreviations | 10 |
| 4 | General requirements | 11 |
| 4.1 | General | 11 |
| 4.2 | Combined VACIE and CIE | 11 |
| 4.3 | Power supply | 11 |
| 5 | General requirements for indications | 11 |
| 5.1 | Display and functional conditions | 11 |
| 5.2 | Indication display | 12 |
| 5.3 | Indication on alphanumeric displays | 12 |
| 5.4 | Indication of the supply of power | 12 |
| 5.5 | Additional indications | 12 |
| 6 | The quiescent condition | 12 |
| 7 | The voice alarm condition | 12 |
| 7.1 | Reception and processing of fire signals | 12 |
| 7.2 | Indication of the voice alarm condition | 13 |
| 7.3 | Audible warning (option with requirements) | 13 |
| 7.4 | Delays to entering the voice alarm condition (option with requirements) | 13 |
| 7.5 | Phased evacuation (option with requirements) | 13 |
| 7.6 | Silencing of the voice alarm condition | 13 |
| 7.7 | Reset of the voice alarm condition | 14 |
| 7.8 | Output to fire alarm devices (option with requirements) | 14 |
| 7.9 | Voice alarm condition output (option with requirements) | 14 |
| 8 | Fault warning condition | 14 |
| 8.1 | Reception and processing of fault signals | 14 |
| 8.2 | Indication of faults in specified functions | 15 |
| 8.3 | Indication of faults related to the transmission path to the CIE (option with requirements) | 16 |
| 8.4 | Indication of faults related to voice alarm zones (option with requirements) | 16 |
| 8.5 | System fault | 16 |
| 8.6 | Audible indication | 16 |
| 8.7 | Reset of fault indications | 16 |
| 8.8 | Transmission of the fault warning condition | 16 |
| 9 | Disablement condition (option with requirements) | 17 |
| 9.1 | General requirements | 17 |
| 9.2 | Indication of the disabled condition | 17 |

| | | |
|-----------------------|--|----|
| 9.3 | Indication of specific disablements | 17 |
| 9.4 | Disablements and their indication | 17 |
| 9.5 | Transmission of the disablement condition | 17 |
| 10 | Voice alarm manual control (option with requirements) | 18 |
| 10.1 | General requirements | 18 |
| 10.2 | Indication of the voice alarm zones in an activated condition | 18 |
| 10.3 | Indication of the voice alarm zones in fault condition | 18 |
| 10.4 | Indication of the voice alarm zones in disablement condition | 18 |
| 11 | Interface to external control device(s) (option with the requirements) | 18 |
| 12 | Emergency microphone(s) (option with requirements) | 19 |
| 13 | Design requirements | 19 |
| 13.1 | General requirements and manufacturer's declaration | 19 |
| 13.2 | Documentation | 20 |
| 13.3 | Mechanical design requirements | 20 |
| 13.4 | Electrical and other design requirements | 21 |
| 13.5 | Integrity of transmission paths | 21 |
| 13.6 | Accessibility of indications and controls | 21 |
| 13.7 | Indications by means of light emitting indicators | 22 |
| 13.8 | Indications on alphanumeric displays | 22 |
| 13.9 | Indication colours | 22 |
| 13.10 | Audible indications | 23 |
| 13.11 | Indicator testing | 23 |
| 13.12 | Audio performance | 23 |
| 13.13 | Message store(s) | 25 |
| 13.14 | Redundant power amplifiers (option with requirements) | 25 |
| 14 | Additional design requirements for software controlled VACIE | 25 |
| 14.1 | General requirements and manufacturer's declarations | 25 |
| 14.2 | Software documentation | 25 |
| 14.3 | Software design | 26 |
| 14.4 | Program monitoring (see also Annex C) | 26 |
| 14.5 | The storage of programs and data (see also Annex C) | 27 |
| 14.6 | Monitoring of memory contents | 27 |
| 15 | Marking | 27 |
| 16 | Tests | 28 |
| 16.1 | General | 28 |
| 16.2 | Functional tests | 29 |
| 16.3 | Audio performance and environmental tests | 31 |
| 16.4 | Output power | 32 |
| 16.5 | Signal-to-noise ratio | 34 |
| 16.6 | Frequency response of VACIE without microphone(s) | 35 |
| 16.7 | Frequency response of VACIE with microphone(s) | 36 |
| 16.8 | Cold (operational) | 37 |
| 16.9 | Damp heat, steady state (operational) | 38 |
| 16.10 | Damp heat, steady state (endurance) | 39 |
| 16.11 | Impact (operational) | 40 |
| 16.12 | Vibration, sinusoidal (operational) | 41 |
| 16.13 | Vibration, sinusoidal (endurance) | 42 |
| 16.14 | Supply voltage variation (operational) | 42 |
| 16.15 | Electromagnetic Compatibility (EMC), Immunity tests (operational) | 43 |
| Annex A (informative) | Explanation of access level | 45 |
| Annex B (informative) | Optional functions with requirements and alternatives | 47 |
| Annex C (informative) | Design requirements for software controlled VACIE | 49 |

| | |
|--|-----------|
| Annex D (informative) General information about voice alarm systems | 50 |
| Annex E (informative) Interface between the VACIE and the CIE | 53 |
| Annex F (informative) Common indications, controls and outputs when the VACIE and the CIE are combined | 54 |
| Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Directive (89/106/EEC) | 56 |
| Bibliography | 65 |