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Industriell processtyrning – Larmsystem och larmhantering

Management of alarm systems for the process industries

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Nationellt förord

Europastandarden EN 62682:2015

består av:

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– **IEC 62682, First edition, 2014 - Management of alarm systems for the process industries**

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62682

January 2015

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English Version

Management of alarms systems for the process industries (IEC 62682:2014)

Gestion de systèmes d'alarme dans les industries de transformation
(IEC 62682:2014)

Alarmmanagement in der Prozessindustrie
(IEC 62682:2014)

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SEK Svensk Elstandard

Foreword

The text of document 65A/704/FDIS, future edition 1 of IEC 62682, prepared by SC 65A "System aspects" of IEC/TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62682:2015.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2015-08-19
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-11-19

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The text of the International Standard IEC 62682:2014 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61511 Series	NOTE	Harmonized as EN 61511 Series (not modified).
IEC 61511-1	NOTE	Harmonized as EN 61511-1.
IEC 62541-9	NOTE	Harmonized as EN 62541-9.

CONTENTS

FOREWORD....9
INTRODUCTION....11
1 Scope....12
1.1 General applicability....12
1.2 Exclusions and inclusions....13
1.2.1 Operators....13
1.2.2 Process sensors and final control elements....13
1.2.3 Safety instrumented systems....13
1.2.4 Event data....13
1.2.5 Alarm identification methods....14
1.2.6 Management of change....14
2 Normative references....14
3 Terms, definitions, and abbreviations....14
3.1 Terms and definitions....14
3.2 Abbreviations....22
4 Conformance to this standard....22
4.1 Conformance guidance....22
4.2 Existing systems....23
4.3 Responsibility....23
5 Alarm system models....23
5.1 Alarm systems....23
5.2 Alarm management lifecycle....23
5.2.1 Alarm management lifecycle model....23
5.2.2 Alarm management lifecycle stages....24
5.2.3 Alarm lifecycle entry points....27
5.2.4 Simultaneous and encompassing stages....27
5.2.5 Alarm management lifecycle loops....27
5.2.6 Alarm management lifecycle stage inputs and outputs....28
5.3 Alarm states....29
5.3.1 Alarm state transition diagram....29
5.3.2 Alarm states....30
5.3.3 Alarm state transition paths....31
5.4 Alarm response timeline....32
5.4.1 General....32
5.4.2 Normal (A)....33
5.4.3 Unacknowledged (B)....33
5.4.4 Acknowledged (C) and response....33
5.4.5 Return-to-normal (D)....34
5.4.6 Consequence threshold....34
5.5 Feedback model of operator-process interaction....34
5.5.1 General....34
5.5.2 Detect....35
5.5.3 Diagnose....35
5.5.4 Respond....35
5.5.5 Performance shaping factors....35
6 Alarm philosophy....35

6.1 Purpose 35
6.2 Alarm philosophy contents 35
6.2.1 General 35
6.2.2 Purpose of alarm system 36
6.2.3 Definitions 37
6.2.4 References 37
6.2.5 Roles and responsibilities for alarm management 37
6.2.6 Alarm design principles 37
6.2.7 Rationalization 37
6.2.8 Alarm class definition 37
6.2.9 Highly managed alarms 38
6.2.10 HMI design principles 38
6.2.11 Prioritization method 38
6.2.12 Alarm setpoint determination 39
6.2.13 Alarm system performance monitoring 39
6.2.14 Alarm system maintenance 39
6.2.15 Testing of the alarm system 39
6.2.16 Approved enhanced and advanced alarming techniques 39
6.2.17 Alarm documentation 39
6.2.18 Implementation guidance 40
6.2.19 Management of change 40
6.2.20 Training 40
6.2.21 Alarm history preservation 40
6.2.22 Related site procedures 40
6.2.23 Specific alarm design considerations 41
6.2.24 Alarm system audit 41
6.3 Alarm philosophy development and maintenance 41
7 Alarm system requirements specification 41
7.1 Purpose 41
7.2 Recommendations 42
7.3 Development 42
7.4 Systems evaluation 42
7.5 Customization 43
7.6 Alarm system requirements testing 43
8 Identification 43
8.1 Purpose 43
8.2 Alarm identification methods 43
8.3 Identification training 43
9 Rationalization 43
9.1 Purpose 43
9.2 Rationalization documentation 44
9.2.1 Rationalization documentation requirements 44
9.2.2 Rationalization documentation recommendations 44
9.3 Alarm justification 44
9.3.1 Alarm justification process 44
9.3.2 Justification approach 44
9.3.3 Individual alarm justification 45
9.3.4 Impact on alarm system 45
9.4 Alarm setpoint determination 45

9.5 Prioritization 45
9.6 Removal 45
9.7 Classification 46
9.8 Review 46
9.9 Use of documentation 46
10 Detailed design: Basic alarm design 46
10.1 Purpose 46
10.2 Usage of alarm states 46
10.2.1 Alarm state triggering 46
10.2.2 Alarm states and other logic functions 46
10.2.3 Alarm suppression and other logic functions 47
10.3 Alarm types 47
10.4 Alarm attributes 47
10.4.1 General 47
10.4.2 Alarm description 48
10.4.3 Alarm setpoints 48
10.4.4 Alarm priority 48
10.4.5 Alarm deadbands 48
10.4.6 Alarm on-delay and off-delay 48
10.5 Programmatic changes to alarm attributes 49
10.6 Review basic alarm design 49
11 Detailed design: Human-machine interface design for alarm systems 49
11.1 Purpose 49
11.2 HMI functions 49
11.2.1 General 49
11.2.2 HMI information requirements 49
11.2.3 HMI functional requirements 50
11.2.4 HMI display requirements 50
11.2.5 Alarm records requirements 50
11.2.6 Alarm records recommendations 50
11.3 Alarm states indications 50
11.3.1 General 50
11.3.2 Required alarm state indications 51
11.3.3 Recommended alarm state indications 51
11.3.4 Audible alarm state indications 52
11.4 Alarm priority indications 52
11.4.1 General 52
11.4.2 Alarm priority indication requirements 52
11.4.3 Colour alarm priority indications requirements 52
11.4.4 Recommended alarm priority indications 53
11.5 Alarm message indications 53
11.5.1 General 53
11.5.2 Recommended alarm message indications 53
11.6 Alarm displays 53
11.6.1 General 53
11.6.2 Alarm summary display 54
11.6.3 Alarm summary status 55
11.6.4 Alarm log displays 55
11.6.5 Process displays 56

11.6.6 Tag detail displays 56
11.6.7 Other display elements 56
11.7 Alarm shelving 56
11.7.1 General 56
11.7.2 Alarm shelving functional requirements 56
11.7.3 Alarm shelving functional recommendations 57
11.7.4 Shelved alarm displays 57
11.8 Out-of-service alarms 57
11.8.1 General 57
11.8.2 Out-of-service alarm functional requirements 58
11.8.3 Out-of-service alarm displays 58
11.9 Alarms suppressed by design 58
11.9.1 General 58
11.9.2 Designed suppression functional requirements 58
11.9.3 Design suppression functional recommendations 59
11.9.4 Suppressed-by-design displays 59
11.10 Alarm annunciator integration 59
11.10.1 General 59
11.10.2 Alarm annunciator integration recommendations 59
11.10.3 Alarm annunciator display integration recommendations 60
11.11 Safety alarm HMI 60
11.11.1 General 60
11.11.2 Independent safety alarm HMI 60
12 Detailed design: Enhanced and advanced alarm methods 60
12.1 Purpose 60
12.2 Basis of enhanced and advanced alarming 60
12.2.1 General 60
12.2.2 Effort, manpower requirements and complexity 60
12.3 Information linking 61
12.4 Logic-based alarming 61
12.4.1 General 61
12.4.2 Alarm attribute modification 61
12.4.3 Externally enabled systems 61
12.4.4 Logical alarm suppression and attribute modification 61
12.4.5 State-based alarming 61
12.5 Model-based alarming 61
12.6 Additional alarming considerations 62
12.6.1 General 62
12.6.2 Non-control room considerations 62
12.6.3 Remote alarm systems 62
12.6.4 Supplementary alarm systems 62
12.6.5 Batch process considerations 62
12.7 Training, testing, and auditing systems 63
12.8 Alarm attribute enforcement 63
13 Implementation 63
13.1 Purpose 63
13.2 Implementation planning 63
13.3 Implementation training 63
13.3.1 General 63

13.3.2 Implementation training 63
13.3.3 Implementation training requirements 64
13.3.4 Training documentation requirements for highly managed alarms 64
13.3.5 Training documentation recommendations 64
13.3.6 Implementation training requirements for new or modified alarm systems 64
13.3.7 Implementation training recommendations for new or modified alarm systems 64
13.4 Implementation testing and validation 64
13.4.1 General 64
13.4.2 Implementation testing requirements for highly managed alarms 64
13.4.3 Implementation testing recommendations for new or modified alarms 65
13.4.4 Implementation testing requirements for new or modified alarm systems 65
13.5 Implementation documentation 65
13.5.1 General 65
13.5.2 Documentation requirements 65
13.5.3 Implementation documentation recommendations 65
14 Operation 66
14.1 Purpose 66
14.2 Alarm response procedures 66
14.2.1 Alarm response procedures requirements 66
14.2.2 Alarm response procedure recommendations 66
14.3 Alarm shelving 66
14.3.1 Alarm shelving requirements 66
14.3.2 Alarm shelving for highly managed alarms 67
14.3.3 Alarm shelving recommendations 67
14.3.4 Alarm shelving record requirements 67
14.4 Refresher training for operators 67
14.4.1 Refresher training requirements for operators 67
14.4.2 Refresher training documentation for highly managed alarms 67
14.4.3 Refresher training content for highly managed alarms 67
14.4.4 Refresher training recommendations for alarms 67
15 Maintenance 68
15.1 Purpose 68
15.2 Periodic alarm testing 68
15.2.1 General 68
15.2.2 Periodic alarm testing requirements 68
15.2.3 Periodic alarm testing for highly managed alarms 68
15.2.4 Periodic alarm test procedure requirements 68
15.2.5 Periodic alarm test procedure recommendations 68
15.2.6 Periodic alarm testing recommendations 69
15.3 Out-of-service alarms 69
15.3.1 General 69
15.3.2 Out-of-service process requirements 69
15.3.3 Out-of-service highly managed alarms 69
15.3.4 Out-of-service process recommendations 69
15.3.5 Requirements for returning alarms to service 69
15.4 Equipment repair 69
15.5 Equipment replacement 70

15.6 Refresher training for maintenance 70
15.6.1 General requirements 70
15.6.2 Refresher training requirements for highly managed alarms 70
15.6.3 Refresher training recommendations for alarms 70
16 Monitoring and assessment 70
16.1 Purpose 70
16.2 Requirements 70
16.3 Monitoring, assessment, audit, and benchmark 70
16.4 Alarm system monitoring 71
16.5 Alarm system performance metrics 71
16.5.1 General 71
16.5.2 Average alarm rate per operator console 71
16.5.3 Peak alarm rate per operator console 72
16.5.4 Alarm floods 72
16.5.5 Frequently occurring alarms 73
16.5.6 Chattering and fleeting alarms 73
16.5.7 Stale alarms 73
16.5.8 Annunciated alarm priority distribution 73
16.5.9 Alarm priority distribution 74
16.6 Unauthorized alarm suppression 74
16.7 Alarm attribute monitoring 74
16.8 Reporting of alarm system analyses 74
16.9 Alarm performance metric summary 74
17 Management of change 75
17.1 Purpose 75
17.2 Changes subject to management of change 75
17.3 Change documentation requirements 76
17.4 Change documentation recommendations 76
17.5 Alarm removal recommendations 76
17.6 Alarm attribute modification recommendations 76
18 Audit 77
18.1 Purpose 77
18.2 Benchmark 77
18.2.1 General 77
18.2.2 Initial audit or benchmark requirements 77
18.3 Audit interviews 77
18.4 Audit recommendations 77
18.5 Action plans 78
Bibliography 79

Figure 1 – Alarm system dataflow 13
Figure 2 – Alarm management lifecycle 24
Figure 3 – Alarm state transition diagram 29
Figure 4 – Alarm response timeline 33
Figure 5 – Feedback model of operator-process interaction 35

Table 1 – Alarm management lifecycle stage inputs and outputs 28

Table 2 – Alarm states 31
Table 3 – Required and recommended alarm philosophy content 36
Table 4 – Recommended alarm state indications 52
Table 5 – Average alarm rates 72
Table 6 – Annunciated alarm priority distribution 73
Table 7 – Recommended alarm performance metrics summary 75

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MANAGEMENT OF ALARMS SYSTEMS FOR THE PROCESS INDUSTRIES

FOREWORD

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International Standard IEC 62682 has been prepared by subcommittee 65A: System aspects, of IEC technical committee 65: Industrial-process measurement, control and automation.

The text of this standard is based on the following documents:

FDIS	Report on voting
65A/704/FDIS	65A/706/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

Purpose

This International Standard addresses the development, design, installation, and management of alarm systems in the process industries. Alarm management includes multiple work processes throughout the alarm system lifecycle. This standard defines the terminology and models to develop an alarm system, and it defines the work processes recommended to effectively maintain the alarm system throughout the lifecycle.

This standard was adapted from ANSI/ISA-18.2-2009, *Management of Alarm Systems for the Process Industries*, an International Society of Automation (ISA) standard, and with due consideration of other guidance documents that have been developed throughout industry. Ineffective alarm systems have often been cited as contributing factors in the investigation reports following major process incidents. This standard is intended to provide a methodology that will result in the improved safety of the process industries.

This standard is not the first effort to define terminology and practices for effective alarm systems. In 1999 the Engineering Equipment and Materials Users' Association (EEMUA) issued Publication 191, *Alarm Systems: A Guide to Design, Management and Procurement.* In 2003 the User Association of Process Control Technology in Chemical and Pharmaceutical Industries (NAMUR) issued worksheet NA 102, *Alarm Management*.

During the development of this standard every effort was made to keep terminology and practices consistent with the previous work of these respected organizations and committees.

This document provides requirements for alarm management and alarm systems. It is intended for those individuals and organizations that

a) manufacture or implement embedded alarm systems,

b) manufacture or implement third-party alarm system software,

c) design or install alarm systems,

d) operate and/or maintain alarm systems, and

e) audit or assess alarm system performance.

Organization

This standard is organized in two parts. The first part is introductory in nature, (Clauses 1 to 5). The main body of the standard follows (Clauses 6 to 18).

MANAGEMENT OF ALARMS SYSTEMS FOR THE PROCESS INDUSTRIES

1 Scope

1.1 General applicability

This International Standard specifies general principles and processes for the lifecycle management of alarm systems based on programmable electronic controller and computer-based human-machine interface (HMI) technology for facilities in the process industries. It covers all alarms presented to the operator, which includes alarms from basic process control systems, annunciator panels, safety instrumented systems, fire and gas systems, and emergency response systems.

The practices in this standard are applicable to continuous, batch, and discrete processes. There can be differences in implementation to meet the specific needs based on process type.

In jurisdictions where the governing authorities (e.g., national, federal, state, province, county, city) have established process safety design, process safety management, or other requirements, in addition to the requirements of this standard, these should be taken into consideration.

The primary function within the alarm system is to notify operators of abnormal process conditions or equipment malfunctions and support the response. The alarm systems can include both the basic process control system (BPCS) and the safety instrumented system (SIS), each of which uses measurements of process conditions and logic to generate alarms. Figure 1 illustrates the concepts of alarm and response dataflow through the alarm system. The alarm system also includes a mechanism for communicating the alarm information to the operator via an HMI, usually a computer screen or an annunciator panel. Additional functions of the alarm system are an alarm and event log, an alarm historian, and the generation of performance metrics for the alarm system. There are external systems that can use the data from the alarm system.

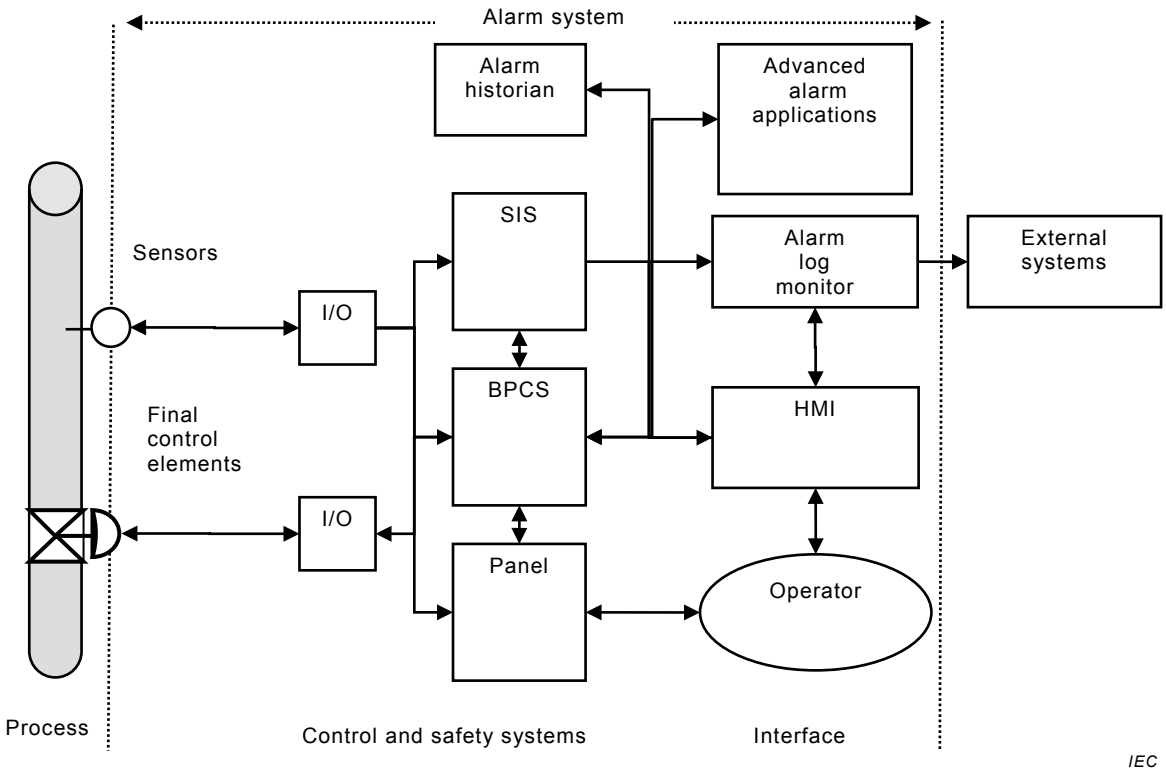

Figure 1 – Alarm system dataflow

1.2 Exclusions and inclusions

1.2.1 Operators

The functions of the operator receiving and responding to alarms are included in the scope of this standard. Management of operators is excluded from the scope of this standard.

1.2.2 Process sensors and final control elements

The alarms from sensors and final control elements are included in the scope of this standard. Process sensors and final control elements are shown in Figure 1 to indicate alarms can be implemented in these devices. The design and management of process sensors and final control elements are excluded from the scope of this standard.

1.2.3 Safety instrumented systems

The alarms from safety instrumented systems are included in the scope of this standard. The safety instrumented system (SIS) is shown in Figure 1 to indicate alarms can be implemented in these devices. The design and management of safety instrumented systems are excluded from this standard. Refer to IEC 61511.

The alarms and diagnostics from fire detection and protective systems or security systems that are presented to the operator through the control system are included in the scope of this standard. Fire detection and protective systems and security systems are excluded from the scope of this standard.

1.2.4 Event data

The indication and processing of analog, discrete, and event data other than alarm indications are excluded from the scope of this standard. The analysis techniques using both alarm and event data are excluded from the scope of this standard.

1.2.5 Alarm identification methods

Required methods of alarm identification are not specified in this standard. Examples of alarm identification methods are listed.

1.2.6 Management of change

A specific management of change procedure is not included in this standard. Some requirements and recommendations for a management of change procedure are included.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

None.