AS IEC 62682:2017
IEC 62682:2014

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Management of alarm systems for the process industries

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The following are represented on Committee IT-006:

- Australia Safety Critical Systems Association
- Australian Computer Society
- Australian Industry Group
- Australian Petroleum Production and Exploration Association
- Engineers Australia
- Institution of Chemical Engineers
- Institute of Instrumentation, Control and Automation, Australia
- ISACA
- Process Control Society
- University of Queensland
- Workplace Health and Safety Queensland

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Australian Standard®

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PREFACE

This Standard was prepared by the Standards Australia Committee IT-006, Industrial Process Measurement, Control and Automation.

The objective of this Standard is to specify 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 manually.

This Standard is identical with, and has been reproduced from IEC 62682:2014, *Management of alarm systems for the process industries.*

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text ‘this International Standard’ should read ‘Australian Standard’.

(b) A full point substitutes for a comma when referring to a decimal marker.

There are no normative references in the source document.

CONTENTS

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).

AUSTRALIAN STANDARD

Management of alarm 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.