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Management of alarms systems for the process industries

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Preview: page 1 of 4 shown, full document available. Complete English PDF, instant download:
https://chinastandards.org/standards/gb-t-41261-2022

Table of Contents

foreword

Introduction

1 Scope

1.1 Scope of application

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1.Structure and Drafting Rules of Standardization Documents"

drafted.

This document is equivalent to IEC 62682.2014 "Process Industry Alarm System Management".

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

Purpose

This document addresses the development, design, installation and management of alarm systems for the process industry. Alarm management includes the whole life cycle of the alarm system

Several workflows. This document defines the terms and models for developing alarm systems and proposes effective maintenance of alarm systems throughout their life cycle.

recommended workflow.

This document is derived from ANSI/ISA-18.2-2009, "Management of Alarm Systems in Process Industries" is an International Society of Automation (ISA) standard,

Appropriate reference is also made to other guidance documents developed in the industry. In major process accident investigation reports, ineffective alarm systems are often identified as

factors that cause the accident. The purpose of this document is to provide a set of methods that can improve safety in the process industry.

The terms and practices associated with an effective alarm system are not defined for the

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first time in this document..1999, Engineering Equipment and Materials Users Association

(EEMUA) released the 191st edition of the publication. Guidelines for Design, Management and Procurement of Alarm Systems..2003, Process Control for Chemical and Pharmaceutical Industries

The Association of Technical Users (NAMUR) has published Worksheet NA102.Alarm Management.

In developing this document, we have tried to align as much as possible with the terminology and practices used in the previous work of these organizations and committees.

This document specifies the relevant requirements for alarm management and alarm systems. It is intended to provide guidance to the following relevant individuals and organisations.

a) manufacture or implement embedded alarm systems;

b) manufacture or implement third party alarm system software;

c) design or install an alarm system;

d) operate and/or maintain alarm systems; and

e) Review or evaluate the performance of the alarm system.

organization

This document consists of two parts. The first part is a general introduction (Chapter 1 ~ Chapter 5), followed by (Chapter 6 ~ Chapter 18) is this document

main part of.

Process Industry Alarm System Management

1.1 Scope of application

This document specifies general principles and procedures for the life cycle management of alarm systems in process industry facilities based on programmable electrical

Sub-controller and computer-based Human Machine Interface (HMI) technology. It covers all alarms to the operator, including basic process control

control systems, siren panels, safety instrumented systems, fire and gas systems, and emergency response systems.

The practical methods in this document apply to continuous, batch and discrete processes.

There may be differences in the implementation of this document to meet the specific needs of different processes.

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https://chinastandards.org/standards/gb-t-41261-2022

In addition to the requirements of this document, the process safety design, process safety management regulations formulated by the government (such as the country, province, city, autonomous prefecture) should be followed.

or other requirements.

The main function of the alarm system is to notify operators of abnormal conditions or equipment failures and support them to respond. The alarm system involves both

Basic Process Control Systems (BPCS), also related to Safety Instrumented Systems (SIS), each of which generates reports based on process condition measurements and logic.

police. Figure 1 illustrates the concept of alarm system alarm and response data flow. The alarm system also includes an alarm to the operator through the HMI

The mechanism for the alarm message, usually a computer screen or a signal panel (light board). Additional functions of the alarm system are alarm and event logs,

Alarm history, as well as performance metrics for generating alarm systems. Alarm system data can be used by other external systems.

Figure 1 Alarm system data flow

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