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TECHNICAL REPORT

ISA-TR18.2.1-2018

Alarm Philosophy

Approved 26 February 2018

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ISA-TR18.2.1-2018, Alarm Philosophy

ISBN: 978-1-945541-89-6

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Foreword

In June of 2009, ANSI/ISA-18.2-2009, *Management of Alarm Systems for the Process Industries*, commonly referred to as ISA-18.2, was issued. In that same year the ISA18 committee established six working groups to develop a series of technical reports with guidance on how to implement the practices outlined in ISA-18.2. In 2012, a seventh working group was also added. In 2016, a revision of ISA-18.2 was published as ANSI/ISA-18.2-2016.

- TR1 – Alarm Philosophy – provides guidance on the alarm philosophy. TR1 is limited to the scope of ISA-18.2 Clause 6. The alarm philosophy provides guidance for successful management of the alarm system. It covers the definitions, principles, and activities by providing overall guidance on methods for alarm identification, rationalization, classification, prioritization, monitoring, management of change, and audit.
- TR2 – Alarm Identification and Rationalization – provides guidance on alarm identification and rationalization. TR2 is limited to the scope of ISA-18.2 Clauses 8 and 9. Identification and rationalization covers the processes to determine the possible need for an alarm or a change to an alarm, systematically compare alarms to the alarm philosophy, and determine the alarm setpoint, consequence, operator action, priority, and class. Activities include, but are not limited to, identification, justification, prioritization, classification, and documentation.
- TR3 – Basic Alarm Design – provides guidance on basic alarm design. TR3 focuses on the scope of ISA-18.2 Clause 10 and may include other clauses as needed (e.g., operations and maintenance). Basic alarm design covers the selection of alarm attributes (e.g., types, deadbands, and delay times) and may be specific to each control system.
- TR4 – Enhanced and Advanced Alarm Methods – provides guidance on advanced and enhanced alarm methods. TR4 focuses on the scope of ISA-18.2 Clause 12. Enhanced alarm design covers guidance on additional logic, programming, or modeling used to modify alarm behavior. These methods may include dynamic alarming, state-based alarming, adaptive alarms, logic-based alarming, predictive alarming, as well as most of the designed suppression methods.
- TR5 – Alarm Monitoring, Assessment, and Audit – provides guidance on monitoring, assessment, and audit of alarms. TR5 focuses on the scope of ISA-18.2 Clauses 16 and 18. Monitoring, assessment, and audit cover the continuous monitoring, periodic performance assessment, and recurring audit of the alarm system.
- TR6 – Alarm Systems for Batch and Discrete Processes – provides guidance on the application of ISA-18.2 alarm life cycle activities to batch and discrete processes, expanding on multiple clauses of ISA-18.2.
- TR7 – Alarm Management when Utilizing Packaged Systems – provides guidance on the application of ISA-18.2 to plants utilizing packaged systems, expanding on multiple clauses of ISA-18.2.

Each technical report is written to be a standalone document. In an effort to minimize repetition, the technical reports have cross references.

The guidance as presented in this document is general in nature and should be applied to each system as appropriate by personnel knowledgeable in the manufacturing process and control systems to which it is being applied.

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1 Scope

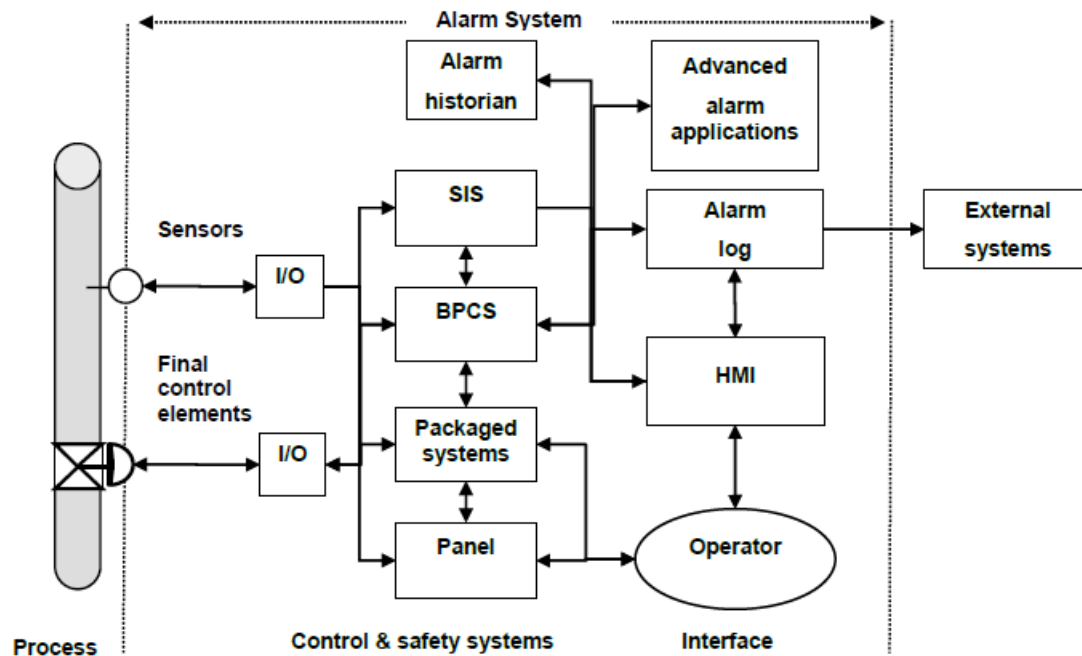
1.1 General applicability

This technical report was written in support of the standard ANSI/ISA-18.2-2016, *Management of Alarm Systems for the Process Industries* (March 2016), hereinafter referred to as ISA-18.2. The goal of this technical report is to provide guidance on how to implement the recommendations and the requirements described in the Alarm Philosophy clause (Clause 6) of the standard. It outlines potential approaches and provides specific examples that can be included in an alarm philosophy in order to properly manage the identification, rationalization, detailed design, implementation, operations, maintenance, monitoring and assessment, management of change, and audit life cycle work processes.

Similar to ISA-18.2, this document 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;
- e) audit or assess alarm system performance.

This technical report includes alarm system dataflow from ISA-18.2 for completeness in Figure 1.



NOTE Other packaged systems (i.e., fire and gas systems) can be included in the control system.

Figure 1 – Alarm system dataflow