**AMERICAN NATIONAL STANDARD**

**ANSI/ISA-62381-2011 (IEC 62381 Modified)**

# Automation Systems in the Process Industry – Factory Acceptance Test (FAT), Site Acceptance Test (SAT), and Site Integration Test (SIT)

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# ANSI/ISA-62381-2011 (IEC 62381 Modified)

# AUTOMATION SYSTEMS IN THE PROCESS INDUSTRY – FACTORY ACCEPTANCE TEST (FAT), SITE ACCEPTANCE TEST (SAT), AND SITE INTEGRATION TEST (SIT)

## US FOREWORD

This standard is a US adoption with modifications of IEC 62381 Edition 1, prepared by the ISA105 Standards Development Committee. While the content is essentially the same as that of IEC 62381, this adoption contains the following changes, which have been submitted to IEC TC65 for consideration:

- Added tests and normative requirements typical to system testing performed in the US.
- Emphasized the importance of the development of a test plan by the user specific to the project and system being tested. Some of the specific tests required in the normative section of IEC 62381 do not apply to all systems, and the informative annex of IEC 62381 provides only very general checklists. As an alternative, this adoption provides example detailed checklists to aid the user in development of project-specific detailed checklists for conducting and documenting the tests.
- Organized definitions in alphabetical order.
- Removed duplicated abbreviations from subclause 3.1.20 that are provided and defined in other parts of the document.
- Placed the figures in the document in the section of text to which they pertain rather than at the beginning of the document.
- Organized the three main body parts (FAT, SAT, SIT) with the same structure for consistency.

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# FOREWORD

## IEC 62381 Edition 1

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International Standard IEC 62381 has been prepared by IEC technical committee 65: Industrial-process measurement and control.

This standard cancels and replaces IEC/PAS 62381 published in 2004. This first edition constitutes a technical revision.

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

| FDIS | Report on voting |
|---|---|
| 65/385/FDIS | 65/394/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 maintenance result 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.

A bilingual version of this publication may be issued at a later date.

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## 1 Scope

### 1.1 General applicability

This standard defines procedures and specifications for the Factory Acceptance Test (FAT), the Site Acceptance Test (SAT), and the Site Integration Test (SIT) of an industrial automation system. These tests are carried out to prove that the automation system meets the requirements of the specification.

The annexes of this standard contain forms which may be used in the development of specific test procedures for a specific automation system.

### 1.2 Exclusions

#### 1.2.1 Prior and post activities

Engineering and manufacturing activities prior to or subsequent to the FAT, SAT and SIT, such as loop checks and commissioning, are not covered by this standard.

The intent of this standard is to provide a means for all parties, including the owner, the contractor and the vendor, to clearly establish and agree on the scope of activities and responsibilities involved in performing these tests in order to achieve a timely delivery and acceptance of the automation system. The activities described in this standard can be taken as a guideline and adapted to the specific requirements of the process/plant/equipment.

#### 1.2.2 Regulated industries

For applications in the pharmaceutical or other highly specialized industries, additional guidelines (for example, Good Automated Manufacturing Practice (GAMP)), definitions and stipulations should apply in accordance with existing standards, for example, for GMP Compliance 21 CFR (FDA) and the Standard Operating Procedure of the European Medicines Agency (SOP/INSP/2003).

#### 1.2.3 Safety Instrumented Systems

For additional guidance on specific requirements on the installation, commissioning, start-up, and validation of safety instrumented systems, refer to ANSI/ISA–84.00.01–2004 (IEC 61511 Mod) Part 1 Functional Safety: Safety Instrumented Systems for the Process Industry Sector – Part 1: Framework, Definitions, System, Hardware and Software Requirements.

#### 1.2.4 Manufacturing Execution Systems

Testing and verification of manufacturing execution systems (MES) is not covered by this standard.

## 2 Normative references

The following referenced documents are useful for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.