



PROCESS  
INDUSTRY  
PRACTICES

TECHNICAL REVISION  
*September 2022*

**Process Control**

**PIP PCCPA001**  
**Process Analyzer System Design Criteria**

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### Table of Contents

<b>1. Scope .....</b>	<b>2</b>
<b>2. References .....</b>	<b>2</b>
2.1 Process Industry Practices .....	2
2.2 Industry Codes and Standards .....	2
<b>3. Definitions .....</b>	<b>2</b>
<b>4. Requirements .....</b>	<b>3</b>
4.1 General .....	3
4.2 Safety .....	4
4.3 Process Interface .....	5
4.4 Sample Transport .....	6
4.5 Sample Conditioning .....	7
4.6 Calibration .....	8
4.7 Analyzer Alarms .....	8
4.8 Status and Validation Signals .....	9
4.9 Documentation .....	9

## 1. Scope

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This Practice describes the engineering, design, and fabrication requirements for use by an analyzer systems engineer for the design and installation of process analyzer systems used for monitoring and control for the following measurements:

- a. Process
- b. Effluent
- c. Ambient atmospheric

## 2. References

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Applicable parts of the following Practices and industry codes and standards shall be considered an integral part of this Practice. The edition in effect on the date of the contract award shall be used, except as otherwise noted. Short titles are used herein where appropriate.

### 2.1 Process Industry Practices (PIP)

- PIP PCSPA001 - *Instructions for Process Analyzer Project Documentation Requirements Sheets*
- PIP PCSPA002 - *Instructions for Process Analyzer System Data Sheets*

### 2.2 Industry Codes and Standards

- IEC TR61831 - *On-Line Analyser Systems – Guide to Design and Installation*
- NFPA 496 - *Standard for Purged and Pressurized Enclosures for Electrical Equipment*

## 3. Definitions

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*calibration and auto-calibration*: Procedure for introduction of a known standard to the analyzer. Measured results are compared with the standard, and the response factors of the analyzer are adjusted so that the measured results match the standard. Auto-calibration is the same activity with no human intervention and is normally on a fixed time cycle.

*Factory Acceptance Tests (FAT)*: Tests that are performed at an Analyzer System Vendor (ASV) facility after complete fabrication and assembly of the analyzer system(s).

*fast loop*: Part of the sample transport system that is designed to transport the process sample close to but not through the analyzer. The purpose is to reduce the time lag in getting sample from the process sample tap to the analyzer and it should be returned to process whenever possible. The term “speed loop or bypass sample line” is sometimes used to define the same part of the system.

*Original Equipment Manufacturer (OEM) Tests*: Acceptance tests that are performed at the Analyzer Manufacturer’s facility. These tests must have defined and measurable parameters with repeatability factors or tolerance factors that are stated in the data