

GP 15-08-01	Process Analyzers	April 2005
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Process Analyzers

GP 15-08-01

Scope

- 1) [I] This Global Practice (GP) covers the design, installation, and inspection of process analyzers.
 - 2) [I] An asterisk (*) indicates that a decision by Purchaser is required or that additional information is furnished by Purchaser.
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1. Required References

- 1) [I] This Section lists Practices and Standards that are generically referenced and assumed to be a part of this document. Unless otherwise specified herein, use the latest edition.
- 2) * [I] Vendor shall comply with any local rules or regulations specified by Purchaser.

1.1. Global Practices–ExxonMobil Engineering Practices

GP 15-06-01	Electronic and Pneumatic Instruments
GP 15-10-01	Instrument Transmission Systems
GP 15-12-01	Instrument Wire and Cable
GP 20-01-01	Inspection of Equipment and Materials

2. Additional Requirements

- 1) * [I] The following Practices and Standards shall be used with this Practice as specified by the Owner's Engineer or Purchaser.
- 2) * [I] Vendor shall comply with any local rules or regulations specified by Purchaser.

2.1. Global Practices–ExxonMobil Engineering Practices

GP 04-03-03	Shelters for Process Analyzers
GP 15-08-02	Sample Transport and Sample Conditioning Systems for Process Stream Analyzers
GP 16-01-01	Area Classification and Related Electrical Design for Flammable Liquids, Gases or Vapors

2.2. API–American Petroleum Institute

API RP 555	Process Analyzers
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2.3. Other References

ExxonMobil Chemical Process Analyzer Requirements Handbook - 97 CENGT 2141 (Guidelines for Company Factory Acceptance)
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3. Definitions

Term	[I] Description
Analyzer Span	The calibrated range of the 4–20 mA output signal(s) or the maximum expected operating range defined for the analyzer, including transmitters, if any, that relay the output information to the end user.
Linearity	Output that is directly and linearly proportional to the concentration of the component of interest in the sample being measured.
Noise	Random fluctuations in measured output.
Process Analyzer	A device for measuring, or inferring, physical or chemical properties or chemical composition of gases, liquids, or solids. The device will accept sample continuously, operate autonomously, and deliver its results to the information gathering system at the end of each measurement.
Repeatability (for a specified material)	The closeness with which an analyzer repeats indications when measuring identical values of the measured variable on a specified material under the same conditions. It is defined as 2.77 times the standard deviation (95% confidence interval) of the data collected under repeatability conditions.
Sensitivity	The smallest change in a variable capable of causing a measurable corresponding change in the output signal.
Standard Sample	A sample of process fluid, or sample similar to process fluid with independently (i.e., not by the analyzer) and precisely determined composition of physical properties. These independently determined properties will be used to adjust (calibrate) the system such that the system will provide the desired responses.
Validation (quality control) Sample	A sample of process fluid, or sample similar to process fluid, with precisely determined composition or physical properties using results generated by the analyzer. These values will be used to validate the "fitness-for-use" of the analyzer and will establish whether analyzer re-calibration is necessary.

4. Documentation

- 1) [O], [R] All analyzer proposals shall be reviewed by the Owner's Engineer.
- 2) * [M], [R] Instruction manuals shall be supplied by Vendor for each analyzer. The number of copies and delivery schedule of the manuals shall be specified by the Owner's Engineer. These manuals shall cover all components and shall include the following:
 - a) Internal wiring diagrams.

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