

# INSTRUMENT ANALYSIS

## What is an Instrument Analysis?

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**1**

An Instrument Analysis is intended to provide a means by which to measure and determine an instrument and its associated equipment for the purpose of determining its sustainable quality output taking various factors into account.

When an Instrument Analysis is performed all the possible factors that could negatively impact the quality of the data acquired from a sensor is taken into account.

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**2**

## Why Perform?

## When to Perform

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**3**

Instrument Analysis should be performed;

- At the inception of the sensor and its associated equipment
- After any production or plant modifications
- After any changes in the performance of the sensor and associated equipment
- At regular intervals set by engineering departments
- When changes/notifications arise from Original Equipment Manufacturer (OEM)

An instrument (sensor and conversion unit) is usually part of a "Loop" to provide value to the signal acquired from the process measurement.

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**4**

## What to Perform - Instruments & Loops

## Types of Calibration & Servicing

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**5**

Calibrations and Servicing vary in magnitude due to the requirements as determined.

To be able to better determine the frequency of a service or calibration, a sensor and its associated equipment may be subjected to a ranking system

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**6**

## Criticality of a Calibration

## Factors Determining

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**7**

The criticality of an instrument will be determined based on a number of factors: Safety, Environmental, Quality Assurance, Production, Location of the sensor and its associated equipment, Removal from the process, Type and Nature of the instrument, Past History and Original Equipment Manufacturer (OEM) Recommendations

A process of insights will help to determine the value of a sensor or its associated equipment and its vulnerability in the process.

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**8**

## Calculating the Service Type

## Performing the Analysis

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**9**

When performing the calibration and service analysis a number of pertinent questions should lead the investigation: OEM Recommendations, Significance, System (Redundancy), Function, Type of Sensor, Vulnerability, Sensor, Loop or both, Calibration, Service or both, Frequency.

The combination of the above information, resulting in a single or several outcomes. The frequency of a single action (calibration) may be interlaced with service maintenance. Alternatively if it is found that the need for a calibration is equal to that of a service the two functions may be joined into one single maintenance activity.

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**10**

## Frequency

## Instrument Score

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**11**

A Final Score or Mark should be given at Conclusion of Analysis, for benchmarking, comparison and for repeat analysis after any recommendations carried out

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