



## AI-POWERED PROCESS ANALYTICS AND INSTRUMENTATION

# SITRANS Soft Sensor Engine IQ (SITRANS SSE IQ)

### The challenge

In process industries, every process control depends on reliable measurements – provided by process analyzers and instruments. But often, measurements are challenged by too much unplanned downtime, high initial investment in hardware, or significant maintenance and operational costs. And sometimes measurements are even too slow for optimal process control.

### SITRANS SSE IQ – The principle

SITRANS Soft Sensor Engine IQ operates as a smart virtual sensor that precisely predicts measurement results instead of taking expensive and often unreliable physical measurements. The basis are many physical measurements that take place in a process plant: SITRANS Soft Sensor Engine IQ collects the already existing measurement data and uses them as input for a process model predicting the target measurements.

Depending on the individual case, the process model is defined by a Process Expert using Siemens gPROMS simulation software or by analyzing historical plant data using artificial intelligence. The basis for the process model are the correlations between different sensors which can be identified by process know-how or data analysis.

SITRANS Soft Sensor Engine IQ can run as a back-up of measurements in case of failure or as replacement of physical measurements.

### Benefits of using SITRANS SSE IQ

- Exact, reliable, and fast measurement results
- Increased process performance by up to 100% availability
- Minimal operating costs due to reduction of service efforts and other expenditures

- Low initial investment costs compared to a physical sensor

### Fields of application

SITRANS SSE IQ is a technology that can be applied to many industries and processes. For example to predict emissions like NO<sub>x</sub>, CO<sub>2</sub>, CO, SO<sub>2</sub>, O<sub>2</sub> in various plant types like gas turbines, gas boilers, fire heaters, flares (PEMS) which is allowed by several environmental bodies. It can be used as well for many other applications in industries like Chemical, O&G, Pharma or Water. Wherever a need of cost optimized alternative exists, the implementation for soft sensor is an attractive solution and can be evaluated.

**Please get in touch with your Siemens contact to investigate the capabilities with a cost-free feasibility study.**

## What is a soft sensor?

A soft sensor

- is a virtual and computational sensor that predicts physical properties using a process model instead of a physical sensor.
- is using the understanding of physics and the plant data to build up an exact representation of the plant.
- provides measurement results to process control.

With **SITRANS Soft Sensor Engine IQ**, Siemens offers a standardized software to build and operate soft sensors combining process expertise and Artificial Intelligence.



# SITRANS Soft Sensor Engine IQ - Learn more about the different system components

## AI-powered Process Model

SITRANS SSE IQ is combining different techniques from AI and process expertise to develop a soft sensor model using process information:

- Model built using patented AI method from Siemens or gPROMS using process knowhow
- High accuracy can be achieved of max. 1% deviation to reference measurement
- Model can cover various plant levels to ensure reliable prediction in all phases
- High automation of model development is minimizing costs and enables usage for many applications
- Soft Sensor can be used for Greenfield and Brownfield

## SITRANS SSE IQ Software

The SITRANS SSE IQ Software is a modern software to execute the soft sensors model with the following features:

- Secure deployment of soft sensor model
- User-friendly visualization of all data in web-browser
- Evaluation of soft sensor performance according to metrology standards like EPA PS-16, VDI-EE 3952
- Additional features to manage soft sensor like event handling, calibration history, predictive maintenance, and maintenance schedule
- Connection to DCS via Modbus TCP or OPC to provide measurement results

## SITRANS SSE IQ Technical Architecture

Secure and reliable operation of soft sensors in full data control of end-customer without need of external access.

- SSE IQ runs on-premise on physical and virtual server (Windows/Linux)
- Scalable architecture depending on number of soft sensors
- Offline-Training of Model allows minimized need for computing resources
- Complete set-up delivered by Siemens incl. cybersecurity concept and configuration
- High reliability of IT infrastructure can be ensured incl. back-up server to avoid data loss

Visit: [siemens.com/softsensor](https://www.siemens.com/softsensor)

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