

User Manual Boiler Efficiency

Rockwell Automation

Delivery Manual

Boiler Efficiency - Innovation center

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1 Introduction

1.1 Project Vision/Goal

The objective of creating a standard Boiler Efficiency library is to gather knowledge from experience and applications utilizing the best approaches to provide features that will be selected based on the detailed requirements of the project scope. Control, process design, and the configuration approach will utilize a PlantPAx based control system that will be used with standard Boiler Efficiency applications. It is also desired for the controller to be flexible and allow integration of custom requirements and expansion as future technological developments are realized through industries.

The vision is to allow the user to select specific requirements and procedures, including and configuration capabilities, to meet the needs of the required mixing application.

1.2 Problem Statement

Currently, there is no way to calculate Boiler Efficiency in a standardized way. A standard library with flexibility allows for the same basic building blocks to be utilized.

1.3 Business Drivers/Impacts

By standardizing the Boiler Efficiency library, it may be used for multiple industries (F&B, Chem, Life Science, Home & Personal Care) across the globe. This standard will also be able to assist in cost benefit to the organization by lowering the engineer labor to create basic functionality.

1.4 Expected Benefits

Capturing of industry specific knowledge. Future go-to-market features for sales of Plant Pax application. Financial and labor savings are unknown currently. However, reduced development time is expected due to the ability of tool to create basic functionality.

1.5 Inputs & Outputs

User will enter Boiler system inputs based on standard instrumentation typically used in Boilers.

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2 Requirements

2.1 System Requirements

Item	Requirement	Version
1	Tool will be built using Steam properties libraries of PlantPAx	4.x – 5.x
2	FactoryTalk View SE/ME	12.00
3	Studio 5000	21 and above

2.2 Functional Scope of Automation Systems and Information Solutions

Process variables will need to be able to be configured including input signal, scaling and units.

Item	Instrumentation
1	Temperature (Steam and Water) Type: <ul style="list-style-type: none"> Resistance - RTD with common ranges configurable (Pt100, Pt1000, etc.) with configurable units degK, degC, degF mV - Thermocouple with all types for temperature ranges (type J, type K, etc.) with configurable and units degK, degC, degF Analog - analog input signal, with scalable engineering units, with configurable units degK, degC, degF Digital - networked device, ethernet I/P, profibus, ASi, etc. with configurable units degK, degC, degF
2	Flow (Steam, Water, Fuel) Type: <ul style="list-style-type: none"> Analog - analog input signal, with scalable engineering units, with configurable units gpm, gpm, lpm, lph, m3h, kgh, etc. Digital - networked device, ethernet I/P, profibus, ASi, etc. with configurable units gpm, gpm, lpm, lph, m3h, kgh, etc..
3	Pressure (Steam, Water) Type: <ul style="list-style-type: none"> Analog - analog input signal, with scalable engineering units, with configurable units PSI, MPa, etc. Digital - networked device, ethernet I/P, profibus, ASi, etc. with configurable units PSI, MPa, etc.

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3 How to implement?

1. Import file L5X according with the programing language:

- Calc_Boiler_Efficiency_FB_Routine_FBD. L5X for Function Block.
- Calc_Boiler_Efficiency_LD_Routine_RLL.L5X for Ladder.

Please read the instrucción in the program comments.

2. Import the two (2) Global Objects in FTView SE Application.

- boiler efficiency.ggfx
- boiler efficiency_sim.ggfx

Time estimated to implement: one (1) hour.

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4 Support

In case of any support, correction, modification or feedback, please contact to:

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