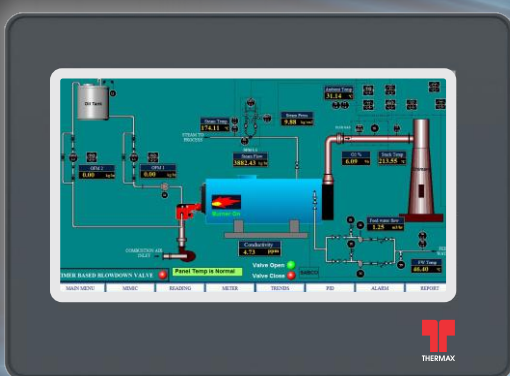**RIFOX**

A Thermax Group Company

THERMAX

Energy Environment Solutions for Sustainable Growth

Effimonitor ™

STEAM ENGINEERING

INTRODUCTION

Effimonitor is a PLC based efficiency monitoring unit which takes inputs from field installed measuring instruments and does performance analysis of the boilers / heater. Important measured and calculated parameters are displayed on locally mounted touch screen color human machine interface (HMI). Effimonitor monitors more than 15 parameters which are anlyzed for better load management and to plan proactive actions leading to decrease in fuel bill. The system is suitable for oil fired (FO / HSD / LDO), Gas fired (NG / LPG) and Solid fuel fired boiler & heaters.
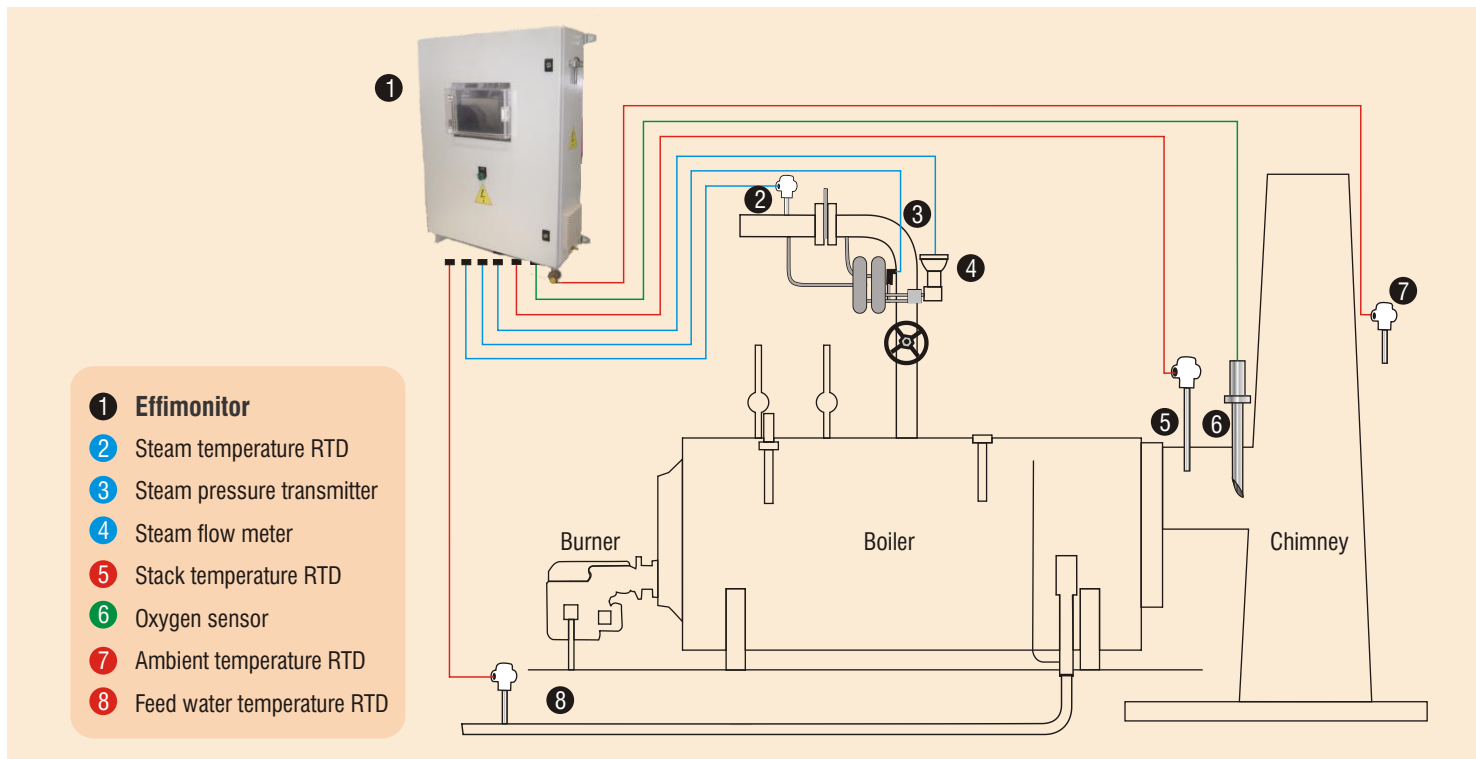
PARAMETERS for MONITORING

Stock Oxygen (%)	Totalised mass flow of steam
Stack Temperature (^{o}C)	CO_2 (%)
Steam Temperature (^{o}C)	Excess Air (%)
Steam Flow (kg/hr)	Losses as per BS 845 (%)
Steam Pressure (kg/cm^{2})	Indirect Efficiency (%)
Feed Water Temperature (^{o}C)	Fuel Consumption (kg/hr)
Ambient Temperature (^{o}C)	Steam to Fuel Ratio

FEATURES

- PLC based controller
- Displays Co2 and flue gas loss in steam boilers
- Uses Zirconia based oxygen sensor for in situ continuous measurement of oxygen.
- PC communication through a high speed ethernet port
- Provision of alarms and alarm reports
- Continuous calculation and display of combustion efficiency of direct fired equipment by indirect method and steam to fuel ratio
- Suitable for use on direct fired shell type steam boilers using liquid and gaseous fuels.

SCHEMATIC OF EFFIMONITOR

1 Effimonitor
2 Steam temperature RTD
3 Steam pressure transmitter
4 Steam flow meter
5 Stack temparature RTD
6 Oxygen sensor
7 Ambient temperature RTD
8 Feed water temperature RTD

Burner   Boiler   Chimney

COMPONENTS OF EFFIMONITOR

Programmable Logic Controller (PLC)

- Latest technology
- Modular in nature
- Provides unparallel reliability and can be used for efficiency calculation in all combustion applications.

Field Instruments

- Orifice type Steam Flow Meter which is reliable and robust.
- Zirconia based oxygen sensor
- Gauge pressure transmitter for boiler steam pressure measurement
- RTDs with temperature transmitter for measuring stack feed water, steam and ambient temperature

SCADA

- Displays online data of measured and calculated parameters continuously and remotely on a PC using SCADA through LAN connectivity
- A special master analyst, which is a powerful tool to view and analyse both multiple and individual trends on a single screen
- Online/Offline historical trends with separate MIS, daily shift and periodical reports.
- Flexible and user-friendly reporting as per user requirements.
- Alarms viewing, recording and reporting facility available in SCADA and HMI reports
- Data logging interval of one hour which can be set by user.

THERMAX

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Thermax Business Portfolio

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