

# Sensors and Systems for Firing Processes

**Automatic Burner Control System**



**Electronic Fuel/Air-Ratio Control**



**Volume Flow-Differential Pressure Transducer**



**Flame Detector Systems**



**Combustion Optimization**



**O<sub>2</sub> - Measurement**



**O<sub>2</sub>/CO - Control**



**Operation- and Alarm Indicator**



# All-in-one

## Electronics

Electronic fuel/air ratio control system with/without burner sequence control.

Flame detection

RPM fan speed control

Operation- and alarm indicator device

O<sub>2</sub> - control

O<sub>2</sub> - measurement

CO / H<sub>2</sub> - monitoring

## Sensing Technology

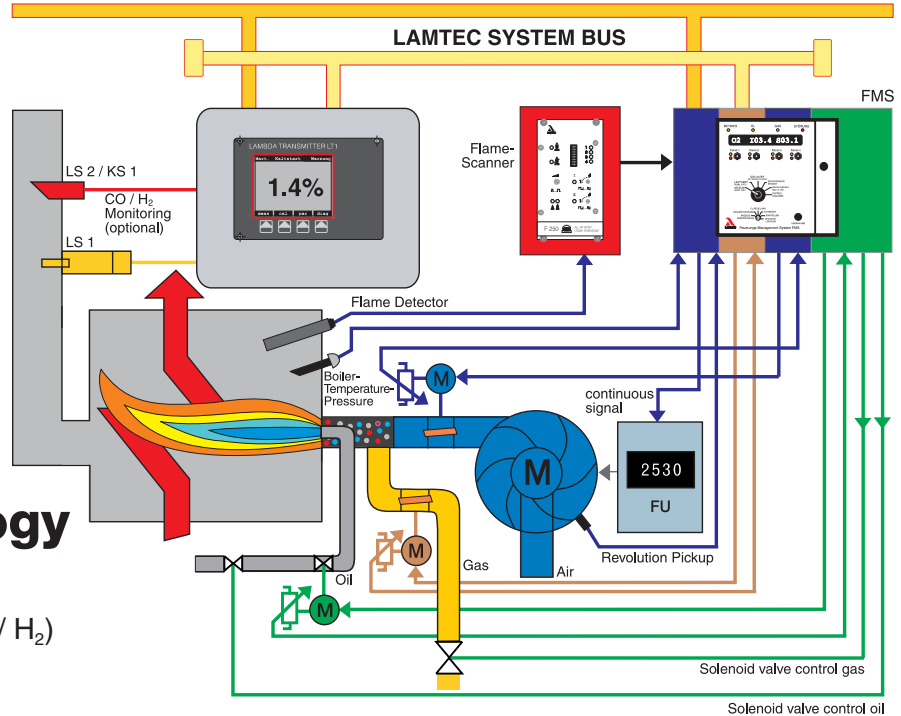
ZrO<sub>2</sub> - oxygen measurement

Measurement of combustibles (CO / H<sub>2</sub>)

IR and UV flame detectors

Differential pressure volume flow transducer

Field Bus Supervisory Control Path (optional) PROFIBUS, CAN, INTERBUS S, MODBUS



## Burner Control System



**FMS Firing Management System**  
**VMS Compound Management System**

- Universal electronic fuel/air ratio control system for firing installations of all types.
- TÜV approved acc. TRD 604-72hr.
- Up to 5 actuator output channels, with or without integrated burner sequence control, leakage check, flame monitoring.

### Optional:

- Burner capacity control
- RPM measurement
- O<sub>2</sub> / CO - control
- Fuel change by ignition burner
- Gliding fuel change
- Simultaneous combustion of 2 fuels with a variable mixing ratio
- Field Bus interfaces



**Compact burner control system in acc. with TRD 604-72hr**

- Compact electronic burner control system in a 19" rack with integrated burner sequence control, leakage check, flame detection for main- and ignition burner (IR/UV/Ionisation), electr. fuel/air-ratio control, operation and alarm indicator device.



- Compact electronic fuel/air ratio control system for 4 actuator output channels and integrated burner sequence control.
- Leakage check
- Flame detection
- RPM measurement
- Burner capacity control
- O<sub>2</sub> / CO - control
- Operating hours- / start-up counter
- Field Bus interfaces
- TÜV approved acc. TRD 604-72hr

# Flame Monitoring

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**F 250 Flame Detector**



**F 200K Compact Flame Detector**

Infrared (IR); ultraviolet (UV); ionisation (IO)

Flame detection for single- and multiple-burner installations of all types.

- Digital flame evaluation
- Variable adjustment to all fuels
- High safety
- Great reliability
- Best selectivity
- Approved for continuous operation without burner capacity restriction

# Oxygen Measurement

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**LT1 O<sub>2</sub> - Transmitter**



**LT2 O<sub>2</sub> - Transmitter**

Universal O<sub>2</sub> - measurement device for firing installations of all types, based on the LS 1 and LS 2 Lambda Probes, for connecting several probes.

Oxygen (O <sub>2</sub> ):	LS 1 Lambda Probe LS 2 Lambda Probe
Combustibles (CO / H <sub>2</sub> ):	KS 1 Combined Probe
Temperature:	Pt 100
Pressure:	Absolute and differential pressure

- Measurement of flue gas and intake air temperature as well calculation of firing efficiency rate
  - Detection of combustibles CO / H<sub>2</sub> displayed as CO<sub>EQUIVALENT</sub> (CO<sub>e</sub>)
  - Calculation and display of CO<sub>2</sub> concentration
  - Burner capacity dependent and fuel-specific boundary curves / boundary limits
  - O<sub>2</sub> control
  - Firing chamber pressure regulation
  - Field Bus Interfaces
-

# Operation - and Alarm Indicator Devices



**New Value-, First Value-  
Operation- and Alarm-Indicator  
System NEMS 16**

- New Value- /First Value- /Operation Indicator, Safety Interlock Circuit Scan
- 16 separate input channels
- $\mu$ Processor controlled
- New Value- /First Value- /Operation Indicator free programmable for each signal input by key-pad
- Network operation on Lamtec-System-Bus (LSB) to complete an Indicator Scan System, up to 64 NEMS 16 devices can be interfaced (1024 Signal Inputs)

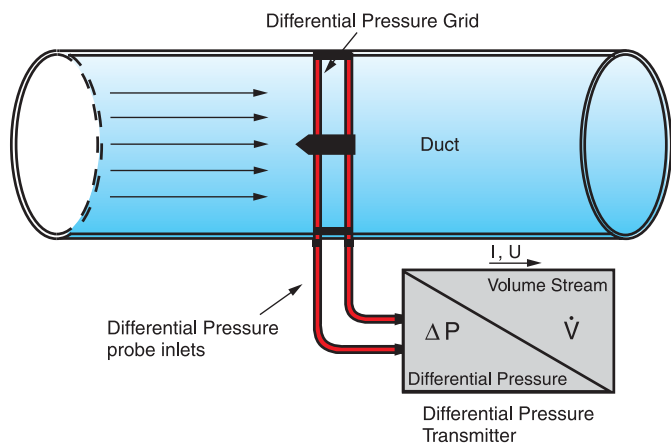
Interface:

- Lamtec-System-Bus (LSB)
- Optional RS 232 or RS 485

Field Bus Interface:

- Optional Profibus DP, Modbus, Interbus S or CAN open

# Volume Differential Pressure Reading Grid



## Pressure Reading Grid

- Volume measurement of gaseous media, especially for combustion air for firing applications up to 400 °C
- Volume measurement of waste gases under use of optional materials practicable
- A minimum loss of differential pressure, compared to the conventional technology
- Rectangular- and circular grid versions are available
- Short length of inlet- and outlet-stretch for laminar flow are required only, therefore retrofit for existing plants practicable
- Free of maintenance for use in clean air application; on increased dust particles loading, flushing back can be done (option)
- Connection to the differential pressure transmitter by impulse hose or on customers request



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