

Combustion Made Simple



System Overview

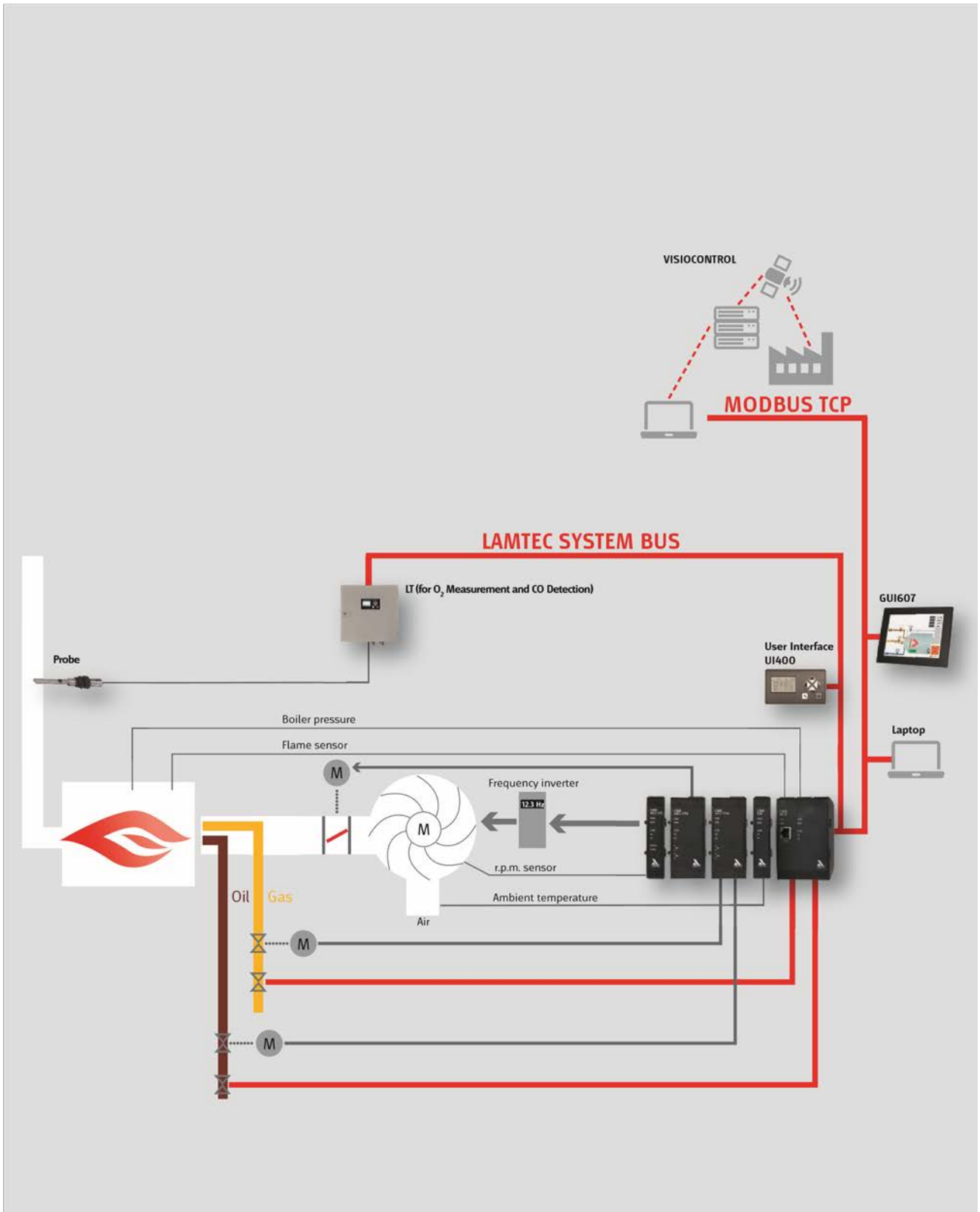
CMS Combustion Management System

Sensors and systems for combustion engineering



www.lamtec.de

Function overview CMS.



The intelligent system of the future.

Whether it be a standard industrial combustion or complex process application, LAMTEC's revolutionary CMS Burner Management System sets new standards in control automation.

Modular: The CMS is simple and easily configured to meet a wide and varied range of application requirements from small industrial burners to large complex systems; everything is controllable. The CMS can control and address up to 10 combustion control elements, 60 failsafe digital inputs and 41 failsafe digital outputs. Modules can be distributed anywhere over a 100m LSB LAMTEC SYSTEM BUS; this increases design flexibility.

Safety: Modules are connected via a failsafe LSB LAMTEC SYSTEM BUS. The CMS is approved in accordance with the following relevant standards for industrial combustion applications: EN298, EN12067-2, EN1643, UL, CSA, AGA, GL Marine Approval, SIL 3 according to EN61508.

Communications: The CMS uses MODBUS TCP as a standard interface. Additional fieldbus communications such as PROFINET, PROFIBUS and MODBUS RTU are also supported. PC software to support commissioning can be connected via Ethernet. The CMS also provides communications via a web server allowing fast access to information. The CMS is compatible with the current LAMTEC SYSTEM BUS (LSB) and can therefore seamlessly integrate with existing systems.

Simple: At LAMTEC, CMS stands for 'Combustion Made Simple'; underlining the intuitive graphic-based user interface. The CMS interface is an evolution of the BT300 operating philosophy. Working with the CMS is intuitive and easy to learn for everyone.



Burner with integrated UI400.



CMS modules installed in the control cabinet.

Customisable: The standard graphic user interfaces are the simple UI400 and the 7" GUI607 colour touchscreen. However, the CMS is very flexible with HMIs and both 10" (GUI610) and 15" (GUI15) colour touchscreen panels are also available for delivery. Furthermore, it is possible to connect additional HMIs to allow control at different site locations. This feature is also available when using OEM HMI solutions.

Versatile: Integrated Soft-PLC (CODESYS) for non-failsafe control assignments. Instead of using an additional separate PLC control system you can programme the internal CODESYS PLC with IEC 61131 standard. Inputs and outputs of the CMS that are not used can be assigned freely as desired. CODESYS also enables users to customise touchscreen HMIs to their own requirements.

Flexibility: Inputs and outputs from the burner system can be freely assigned to the CMS modules. This feature enables users to design and configure the CMS to their individual application requirements. Spare I/O on the CMS modules can be assigned for use with the on-board CODESYS PLC. Single fuel, dual fuel and additional fuels can all be supported; safety chains or individual interlocks can also be assigned.

System Components.

Burner Module MCC

- Power supply 24 VDC
- 12 Failsafe digital inputs
- 9 Failsafe digital outputs
- Ethernet with MODBUS TCP
- CODESYS Soft -PLC integrated ■ Available in 5 versions:
 - Input 24 VDC / output 24 VDC
 - Input 24 VDC / output 120 VAC
 - Input 24 VDC / output 230 VAC
 - Input 120 VAC / output 120 VAC
 - Input 230 VAC / output 230 VAC
- Optionally available with input for ionisation sensor or optical flame scanner FFS07 / FFS08



Failsafe Input Module SDI

- 8 Failsafe digital inputs
- 3 Versions: 24 VDC, 120 VAC, 230 VAC
- Maximum of 6 SDI Modules per system



Motor Module AEC-TPS

- Supports 2 x Three-point step servo motors
- Compatible with LAMTEC TPS motors
- Position feedback by potentiometer 5 kΩ
- 2 Versions: 120 VAC and 230 VAC
- Maximum of 5 AEC-TPS Modules in one system*



Failsafe Output Module SDO

- 8 Failsafe digital outputs
- Maximum of 2 A per output
- 3 Versions: 24 VDC, 120 VAC, 230 VAC
- Maximum of 4 SDO Modules per system



RPM Module AEC-VS

- 4 - 20 mA Output for frequency inverter
- Alternatively 4 - 20 mA output for positioner
- FR.P.M. sensor NAMUR, 3-wire sensor or 4 - 20 mA
- Digital output for 'Fan ON'
- Digital input for frequency inverter fault/status signal
- Maximum of 10 AEC-VS Modules per system*

Analogue Input Module SAI

- 3 Failsafe or 6 non-failsafe, analogue inputs or any combination of this, alternatively as 4 - 20 mA, Pt100, Pt1000
- 2 Pulsed inputs for fuel meter monitoring
- Maximum of 3 SAI Modules per system



*AEC-TPS and AEC-VS modules can be combined to control a maximum of 10 output channels for combustion control elements.

System Components.

Power supplies

- Input 110 V - 240 V, Output 24 VDC
- 15 W - 150 W

Display Module GUI6XX

- 7", 10" and 15" touchscreen panel

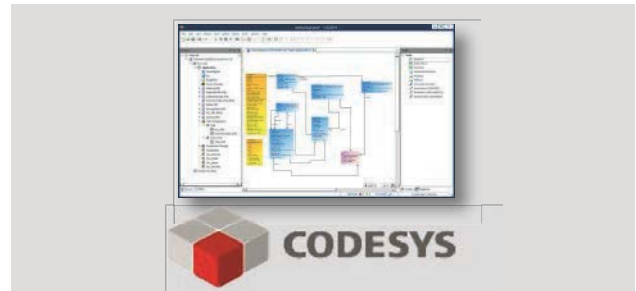


- Distance between MCC up to 500 m

PC Soft ware

- Soft ware for complete confi guration
- Backup and restore of settings
- Connection to CMS via Ethernet
- Printing of the wiring diagram
- Checklist for equipment test

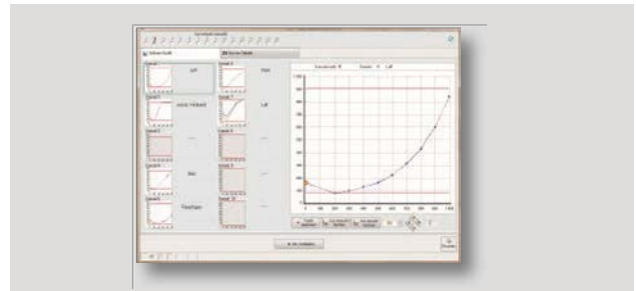
CO/O₂ Control



Display Module UI400

Low cost HMI

- Graphic user interface
- DIN Rail mounting



- Parameter checking against standards

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- Symbol based - language neutral
- Easy operation
- Connection via LAMTEC SYSTEM BUS (LSB)

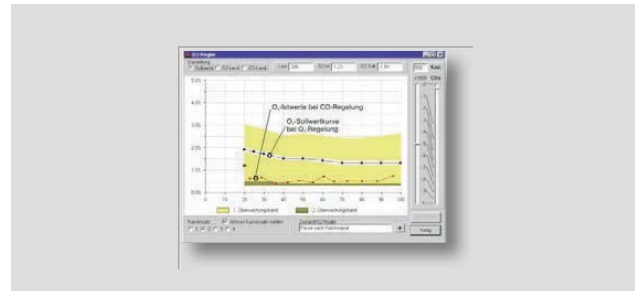
Soft -PLC

- Individual confi guration of non-failsafe functions
- Integrated in MCC and GUI
- CODESYS standard soft ware

- Graphic user interface
- Mostly language neutral
- Graphic plant display
- Can be used for CMS backup and restore
- Graphical display is adaptable to customer specifications
- LAMTEC CO/O₂ Control connected via LSB
- Compatible with all LAMTEC combustion analysers over LSB - LT1, LT2, LT3 & LT3-F
- Increased combustion efficiency and emissions reduction
- Setup assistant
- Distance to MCC is unlimited (Ethernet)



- Increased safety
- **Flame detection**
- FFS07 / FFS08 are interfaced directly to MCC (optional)

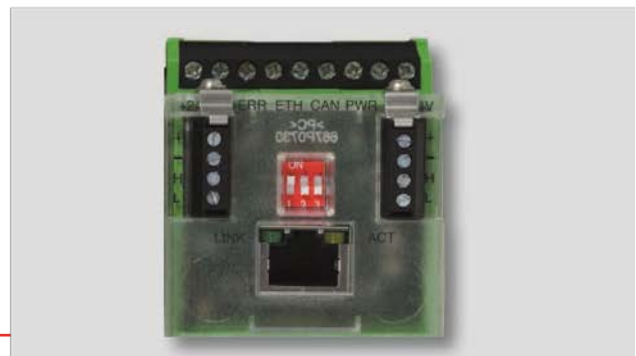


- Direct connection for ionisation sensor
- Connection of compact flame scanner F200K and F300K via digital inputs
- Connection of up to 3 main flame scanners and one pilot flame scanner possible



Fieldbus modules

- Interface to other Fieldbus systems
- Protocols available:
 - MODBUS TCP on-board
 - MODBUS RTU
 - PROFIBUS DP
 - PROFINET



Measuring systems

- All LAMTEC O₂/CO_e measuring systems can be connected to the CMS over LSB
- Increases safety and combustion efficiency



CMS Actuating motor

- 6 Nm - 180 Nm
- Maximum of 10 actuators per CMS system

Approvals in preparation.

CE 0085 

EC Type Examination Certificate

- EU/2009/142/EG
- DIN EN 298
- DIN EN 13611
- DIN EN 1643
- DIN EN 12067-2



EC Type Examination Certificate

- 2014/68/EU (Modul B)

SIL 3 Certificate



SIL3

- DIN EN 61508 Teil 1-7



Supported by:



Federal Ministry
for Economic Affairs
and Energy

on the basis of a decision
by the German Bundestag



MH48669

**Controls, Primary Safety Certified for Canada -
Component**

- UL 372
- UL 1998



EAC

Eurasian Conformity

- TP TC 016/2011

EC Declaration of Conformity

- 2014/35/EU (Niederspannungsrichtlinie)
- 2014/30/EU (EMV-Richtlinie)
- 2014/68/EU (Druckgeräterichtlinie Kat. 4 Mod. B+D)
- 2009/142/EG (Gasgeräterichtlinie)



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