

## System Overview

**ETAMATIC**  
**ETAMATIC S**



Sensors and systems for combustion engineering

[www.lamtec.de](http://www.lamtec.de)

# Approvals.



**EC Type Examination Certificate (Module B)  
according to Directive 2014/68/EU**

- DIN EN 298
- DIN EN 1643
- DIN EN 230
- DIN EN 60730-2-5
- DIN EN 12067-2
- DIN EN 50156-1, point 10.5



**SIL3**

- DIN EN 61508 Parts 2+3

**CE 0085**



**EC Type Examination Certificate**

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

**EC Declaration of Conformity**

- 2014/35/EU (Low Voltage Directive)
- 2014/30/EU (EMC Directive)
- 2014/68/EU (Pressure Equipment Directive Cat. 4 Mod.) B+D
- 2009/142/EC (Gas Appliances Directive)

**EAC**



**INNOVATIONSPREIS  
DER DEUTSCHEN  
GASWIRTSCHAFT  
2004**



# LAMTEC ETAMATIC – compact total solution for multi- functional monoblock burner control.

**All-in-one for simple integrated, coordinated electronic control and maximum efficiency: This is the LAMTEC ETAMATIC. It combines all the functions required for burner control in a compact housing.**

These days combustion plants need to be three things: fail-safe, clean and effective – not just during ongoing operation, but also during setup and commissioning. This is why we developed the LAMTEC ETAMATIC burner control. The compact total solution for combustion management combines the advantages of a fuel/air ratio control and burner control device with automatic power control, CO and O<sub>2</sub> optimisation as well as valve leakage and flame monitoring – in a single device. This does more than simply ensure the best possible coordination of the control, regulation and test functions in a few, simple steps.

The compact design also reduces the cost of additional relays and wiring, making installation and commissioning simple and fail-safe. Safety chains, sensors and monitors are connected directly on the ETAMATIC via digital inputs. If desired, the ETAMATIC can house the



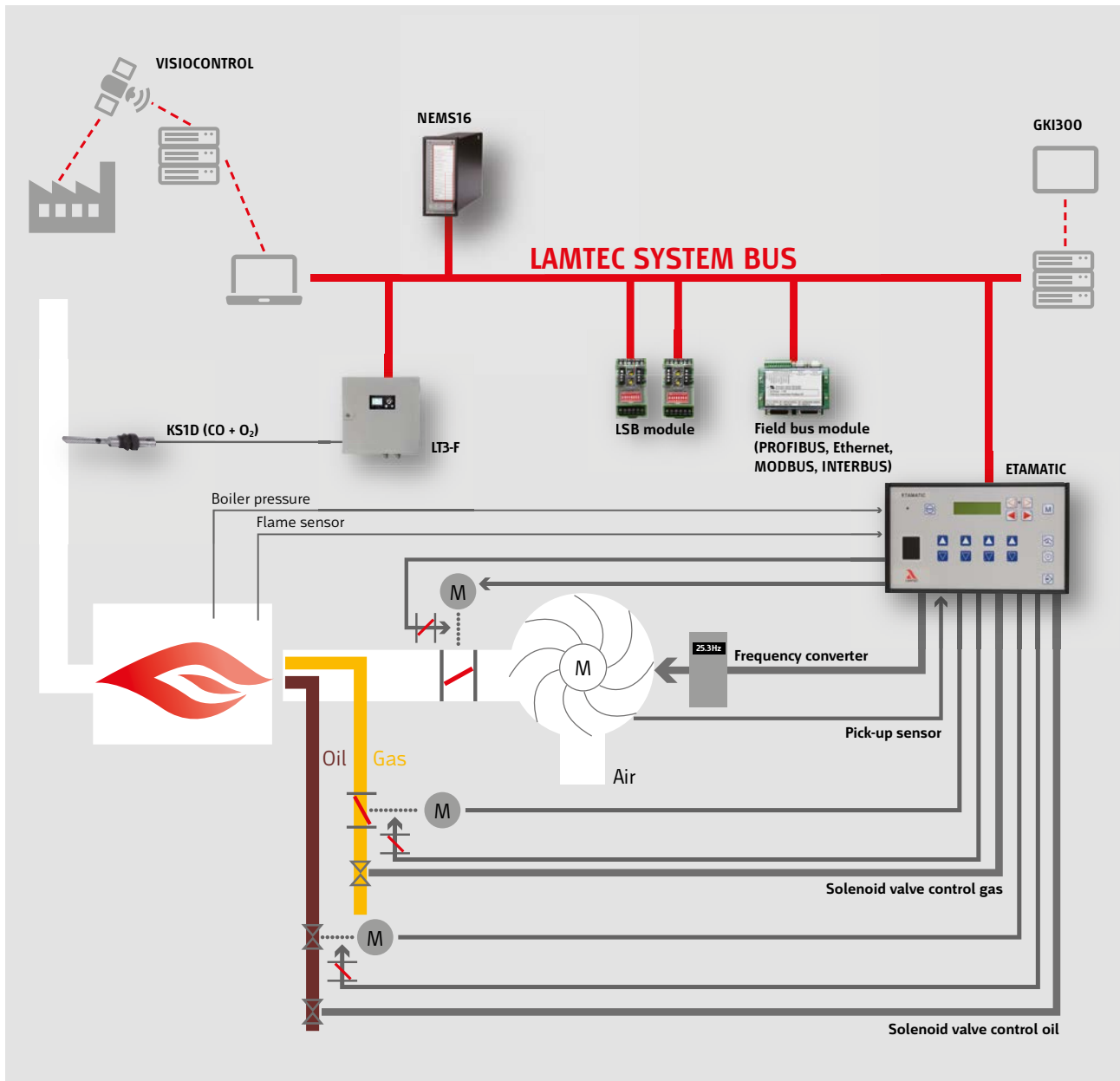
entire control directly on the burner and still take advantage of bus networking and PC-based remote control, evaluation and documentation via defined interfaces.

This sees us once again demonstrating that LAMTEC delivers leading combustion technology for all kinds of tasks and applications.

*“As the name suggests, effectiveness and simplicity in all areas is the main focus with the ETAMATIC: ETA and Automatia come from the Greek – in technology the letter stands for efficiency, and the other is the goddess of all that comes from itself.”*

**Advantages:**

- Compact burner control unit
- Failsafe electronic assembly with up to 4 actuators
- Connection to control technology
- Settings can be made graphically via PC
- Integrated valve leakage check
- External current correction (heating value or temperature compensation)
- SIL 3 confirmed
- Internal firing rate controller
- CO/O<sub>2</sub> control for combustion optimisation
- Flame monitoring (optional)
- Mobile operating unit (optional)
- Possibility to resolve safety interlock chain when used in combination with NEMS16



Functional overview of ETAMATIC/ETAMATIC S.



## Strong functions.

### Electronic burner control

Burner sequencer and assembly can be adjusted for a wide range of combustion conditions by setting parameters. Starting with and without pilot burner can be set separately for oil and gas. Starting without pre-purge is possible in accordance with EN676.

### Fuel/air ratio control with up to 4 actuators

The ETAMATIC is available with 4 three-point step outputs or with 3 three-point step outputs and a continuous output (such as for speed control).

### Firing rate controller

On request the ETAMATIC undertakes the firing rate controller of the burner. An internal firing rate controller allows up to two switchable set-points for temperature or pressure to be defined (e.g. for night-time reduction or heat-maintenance mode, external set-point shift (weather guidance) or start-up control), compare these

with actual values and determine the burner firing rate position required to reach the set-points. The latter is then forwarded to the electronic assembly as the target value. The firing rate controller can be used as a fixed value or weather-guided controller.

### Valve leakage check

The integrated valve leakage check can be run before ignition or after shutdown.

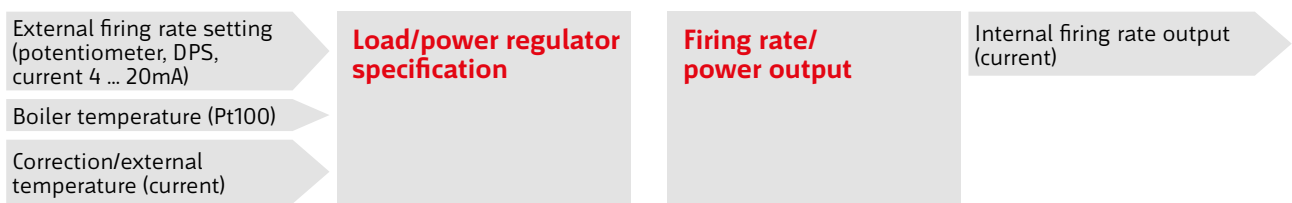
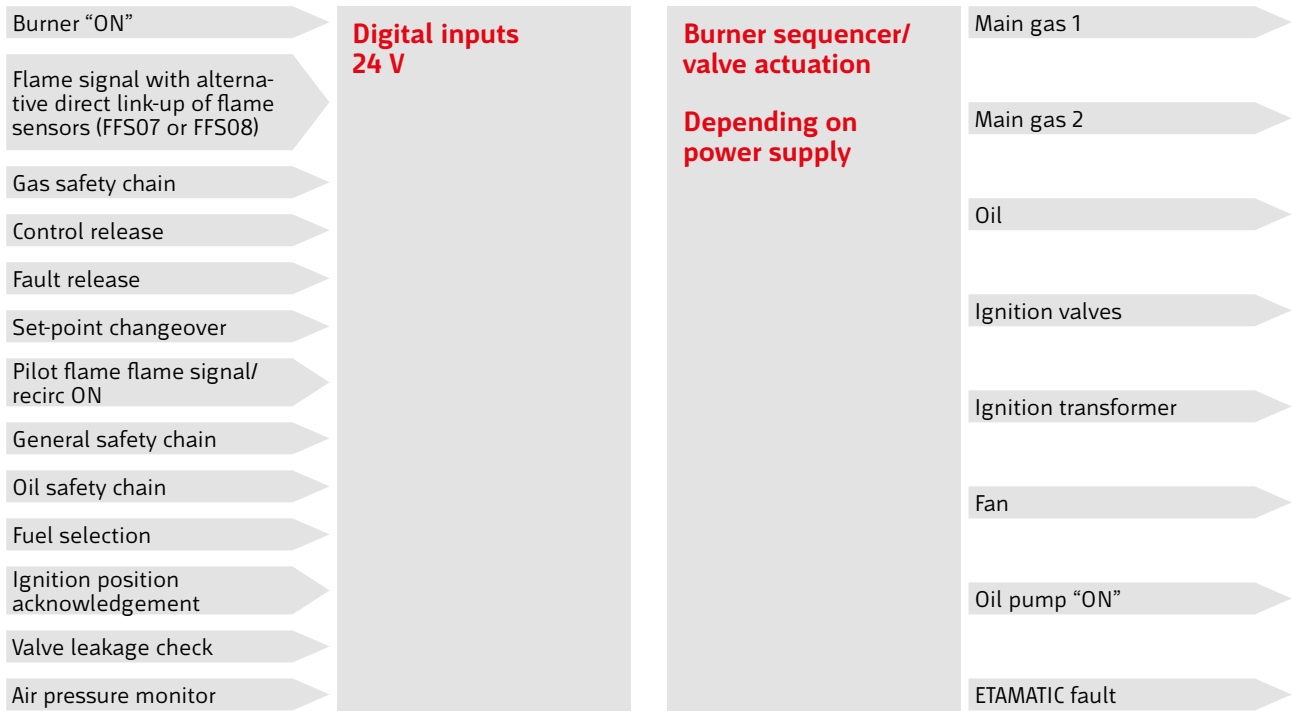
### Integrated start-up and operating hour counters

Start-up and operating hours counters count both the total start-ups and burner operating hours as well as for each operating mode (gas, oil) separately.

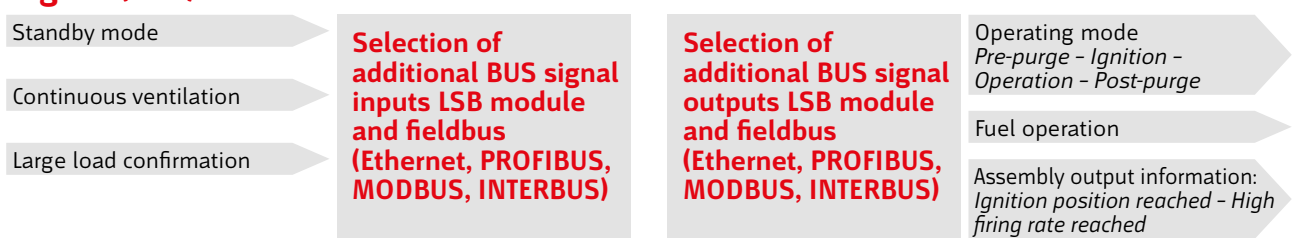


# Inputs

# Outputs



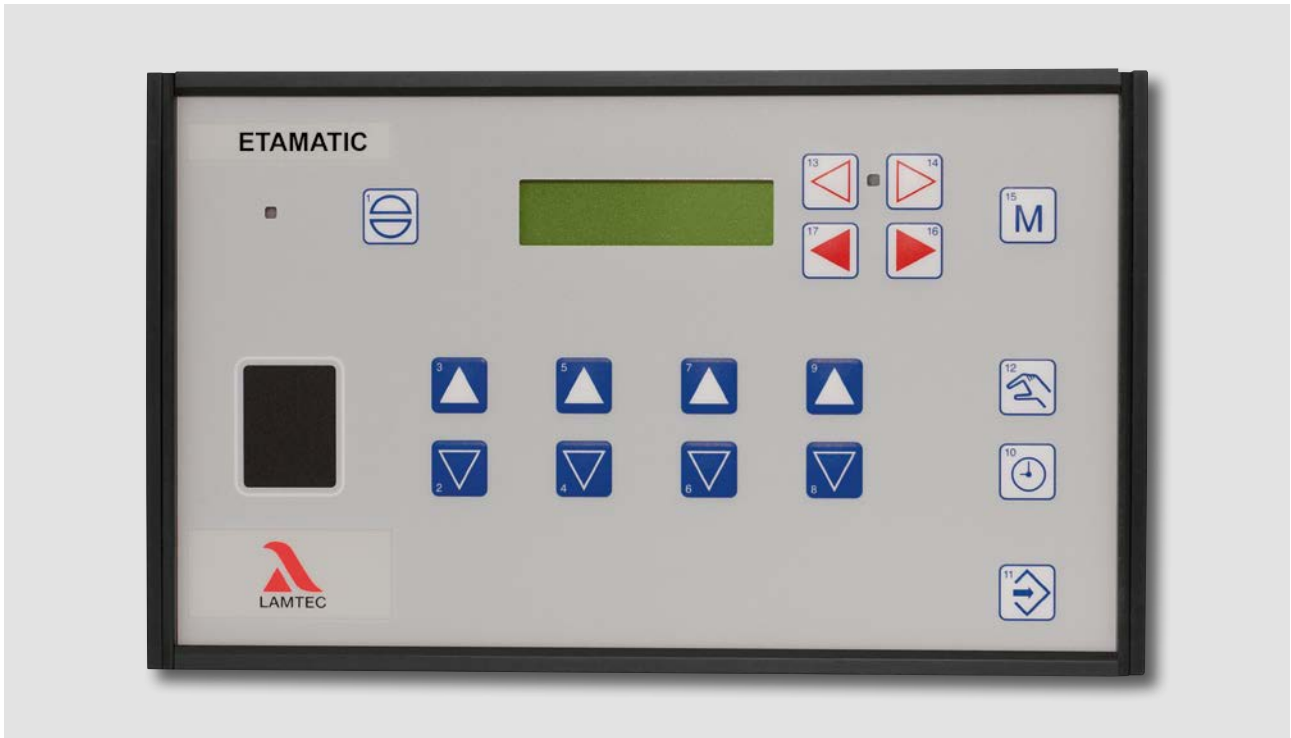
## Digital (LSB)



## Analogue (LSB)



# Basic unit.



ETAMATIC front.



ETAMATIC rear.

The compact burner control unit itself forms the basis of the LAMTEC ETAMATIC. A control unit with a complete operating element allowing full parameterisation of a burner system. The password-protected menu offers all options for management of the access levels.

And of course, it can also be controlled via PC (PC interface on the rear of the unit).



# Optional components.

## Programming unit

The ETAMATIC operating unit can also be done by the PC Software (optionally available) or the programming unit. The Startup Manager function also supports the commissioning engineer both during the initial installation of the burner and when adjusting the burner setting using the wizard.



Programming unit with Startup Manager.

## LAMTEC SYSTEM BUS module

Each ETAMATIC comes with one LAMTEC SYSTEM BUS (LSB) interface. The LSB module compatible across the range allows LAMTEC devices to be networked with one another - easy, fast and without a lot of wiring work. It is also possible to activate fieldbus modules in top rail mounting via an adjustable address to forward the input status conditions as well as modifications to the fieldbus.



Analogue input/output.



Digital input/output.

## Control technology link-up

The ETAMATIC can be very easily combined with existing control technology. It "speaks" virtually all languages of standard fieldbuses. Connections for PROFIBUS-DP, TCP/IP (MODBUS TCP), MODBUS and INTERBUS-S are available as options (other bus systems on request).



PROFIBUS DP fieldbus.



Ethernet fieldbus.



MODBUS fieldbus.

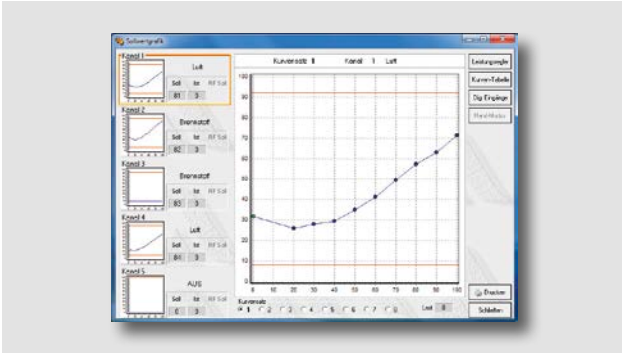


INTERBUS fieldbus.



### PC interface (RS232)

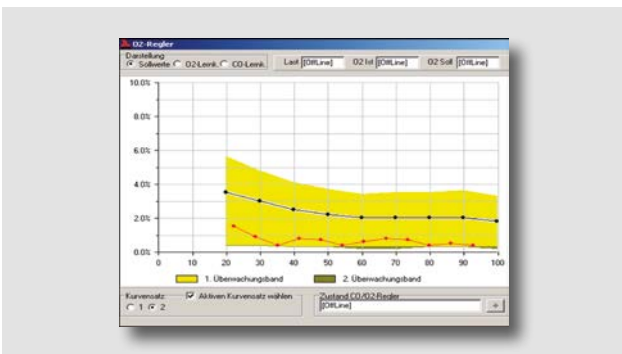
The PC interface makes working with the ETAMATIC even easier: The device can be operated remotely via notebook. The set configuration and the curve data can be archived - a data back-up that can be re-imported in the event of an emergency and then returned to operational readiness in just a few minutes. By using an industrial modem, the ETAMATIC can also be queried from your office so that you can detect faults and their causes, without having to be on-site.



Screenshot from Remote Software: Setpoint graphic.

### CO/O<sub>2</sub> controller

Combustion processes are subject to continuous interference via changes in temperature, air humidity and pressure as well as the quality of the fuel (oil viscosity, gas fuel value). The CO/O<sub>2</sub> control integrated into the ETAMATIC helps to compensate for these influences during ongoing operation (shift in the assembly curves). It includes a software module that we are developing specifically for combustion control - and that the precise values from our CO/O<sub>2</sub> measuring devices are effectively translated in realtime into an automatic, needs-based regulation of the air supply. This automatically reduces the air supply until CO is produced. Even the smallest quantities are detected. The assembly then increases the air supply by one step and thus determines an individual operating curve in line with the local conditions with which the burner still just burns without CO. The system learns and optimises effectively automatically - sustainably and in a fail-safe way - so that virtually any combustion system can be operated consistently at the optimal combustion point.



Screenshot from Remote Software: O<sub>2</sub> controller.

### Speed sensor

There are two different speed sensors available for the ETAMATIC. The 663R8101 speed sensor is equipped with two-line technology and has a switching distance of 2 mm. The 663R8103 speed sensor is an inductive proximity switch with switch contact in three-line technology and has a switching distance of 4 mm. A correct sensor selection can always be made taking account of the design features. As the elements to be entered are not always known, proximity shut be given for the sizing of the damping elements and the selection of the appropriate sensor. Due to the variety of sensors that can be used, LAMTEC only has a two-line and a three-line element in the range. These have been selected to cover most measuring tasks with just these two elements. If a specific measuring task cannot be implemented with these, simply ask us.



Speed sensor with 2 wires, Namur.



Speed sensor with 3 wires.

**Flame monitoring**

The LAMTEC ETAMATIC is available with and without integrated flame monitors. The continuous, precise monitoring of the flame ensures safety and efficiency. Naturally the key issue is the rapid detection of flame On/Off. In addition, the digital evaluation of the spectrum, frequency or intensity also helps to optimise the combustion process. With the LAMTEC ETAMATIC you can therefore fit leading, integrated flame monitoring technology with minimal investment - or connect an existing device to the corresponding terminal.



FFS07 flame scanner.



FFS08 flame scanner.

**Actuating motor**

To drive the flaps and control valves on your combustion systems, LAMTEC also offers safety approved motors tried and tested in operation for the electronic assembly in line with the concept of "everything from one source".

These motors naturally fulfil the safety requirements relating to the use of tested potentiometers with a coordinated, perfect-fit connection. Four types of standard motors are available from LAMTEC: 6 Nm, 20 Nm, 30 Nm and 40 Nm, all at 60 Sec. runtime. Alongside these standard types we can also supply motors up to 200 Nm with different equipment in terms of limit switches and potentiometers as well as different runtimes. LAMTEC also offers other types in electronic manual adjustment, electronic control and special types.



Actuating motor.

# Notes.

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