

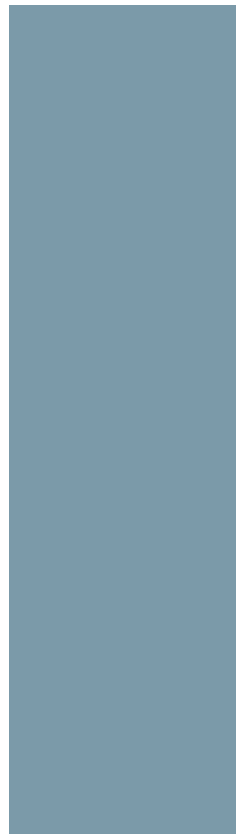
OEM Heat Control Systems

Solutions for any size of burner



Answers for infrastructure.

SIEMENS



Perfect solutions for any type of application

Using the experience and know-how in the field of forced draft oil and gas burners, Siemens has become a leading and reliable partner for burner manufacturers over the past few decades. We offer matching high-quality components for a very broad application area. The extensive mix of mechanics, electronics and sensors is unique in the marketplace.

What's more, we offer you the most comprehensive product portfolio in this market segment. The security and reliability of the products form the basis of our success. New requirements placed on high-efficiency burners, low emission levels and the use of bio fuels demand innovative solutions.

Together with our partners and with research institutes, Siemens pursues active research and develops solutions for the future.



Products for any application area

Always the right solution at hand – products and systems from Siemens for the heating market

We specialize in the development, production and global marketing of reliable and innovative products and systems for use on forced draft burners, heating boilers and alternative heating systems. Our comprehensive product portfolio includes system solutions, burner controls, actuators, flame detectors, sensors, control systems, valves and related test equipment.

Thanks to specialization and decades of experience in these fields, our products and systems offer optimum solutions for all market segments ranging from single- and multi-family houses (residential buildings) to commercial buildings and a host of industrial applications.

All from a single source – teamwork optimized processes and quality

Efficient teamwork has a major impact on our way of thinking, in our actions and innovation processes. In the OEM team of Siemens, the joint efforts of qualified and motivated staff and the exchange of experience have been decisive for success. We continually rely on teamwork, both within the company and in close cooperation with our customers and suppliers.

In the fields of heat generation and heat distribution, Siemens is a preferred controls supplier to leading OEMs throughout the world – thanks to our working methods, the quality and reliability of the products, our customer approach and business processes which have been matched to the specific needs of the OEM market. Employing advanced production processes, such as Kanban or just-in-time, we are able to respond quickly to the latest customer needs.

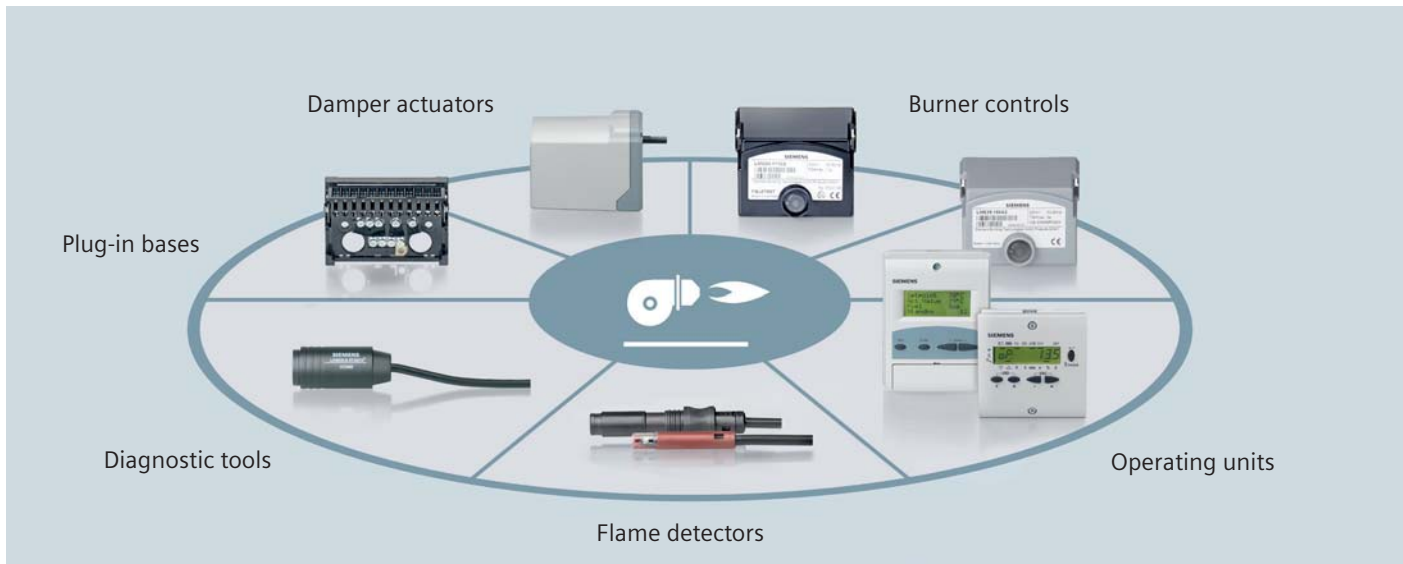
As a global market leader, we are also part of your market. This means that we not only work for you, but also think like you. For certain!

Highlights

- Broad range of products
- Matching components for all types of application
- Global approvals (CE, UL, CSA)



	Residential Buildings	Commercial Buildings	Industry
Wall-hung boilers	■		
Floor-standing boilers	■		
Alternative heating systems	■		
Forced draft burners (small)		■	
Forced draft burners (medium / large)			■
Industrial burners			■



The suitable system for any capacity

Efficient components for small burners

■ Extensive application area

Siemens offers a broad range of components for use with forced draft oil and gas burners. The application area is extensive and covered by a comprehensive range of products.

The products we market are suited not only for burners used on residential and commercial applications but also for industrial burners. This includes 1-stage, 2-stage and modulating burners.

■ Standard product range from Siemens

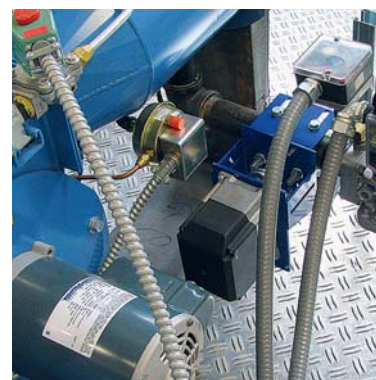
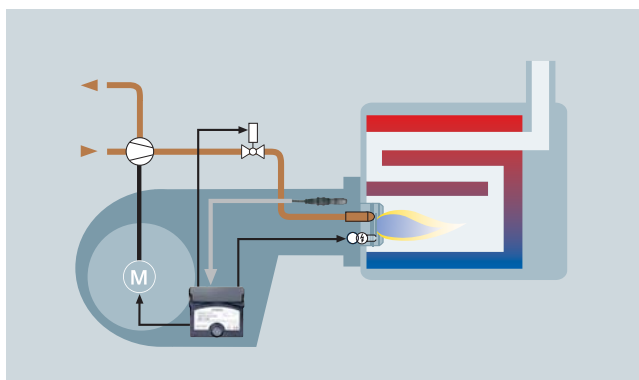
LME burner controls for gas and LMO for oil ensure reliable burner operation. These products have proven their worth in millions of installations and set market standards.

Every LME and LMO burner control features a multi-color LED for status indication: Green for operation, yellow for burner startup, and red for lockout. To simplify diagnostics, the fault code can be output via the LED.

Whether plug-in base or ready mounted and wired unit – it's the customer's choice. Actuators in different versions control the air dampers in multi-stage or modulating mode. Flame detectors for intermittent operation are used in connection with yellow- or blue-flame burners.

Highlights

- Program versions for forced draft and atmospheric burners
- Programmable times
- Multicolor LED for status information and fault status messages
- Burner control's fault history can be read out via software tool





Powerful solutions for large facilities

■ Largest capacities

Our products cover capacity ranges from 2 MW to 30 MW, delivered by burners for use on large industrial plants.

Every burner application – be it in connection with water boilers, steam boilers, thermo oil, or industrial process plants – can be covered by one of our products.

■ Compact systems for standard and high-end applications

Burner controls are available for any type of application, be it with basic sequence control and a fixed time program or complex ratio control including up to 6 actuators. Secure and reliable burner controls and flame detectors for intermittent or continuous operation with matching

components, such as actuators, valves and controllers, ensure optimum interplay.

■ Perfect interplay

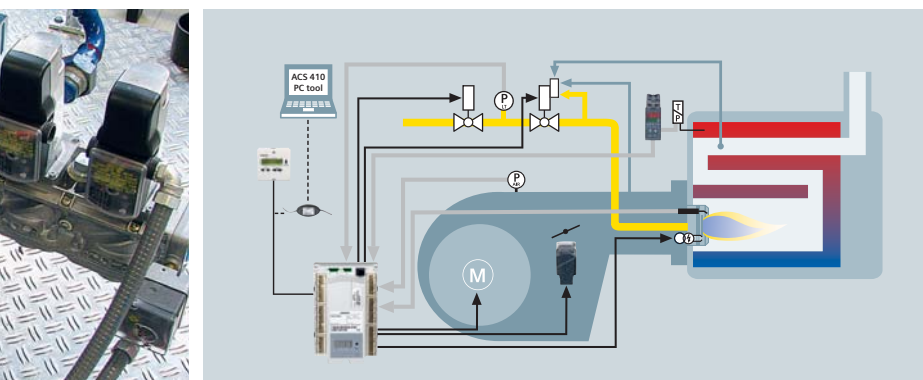
Standard burner controls, such as the LME7 and LFL/LAL, can be employed with a large number of different actuators driven by synchronous motors.

Accurately working damper actuators in combination with combustion optimization via O₂ trim control and LMV5 ratio control ensure low emission levels and high efficiency.

Flexible parameter settings make it possible to choose from an array of different configurations.


Highlights

- Integrated functions such as VSD control, gas valve proving and load controller
- Display of operating states, program phases and fault codes
- Combustion optimization via O₂ trim control
- Gas valve sizes up to DN 150 and modular gas valves actuators with different types of governor
- Damper actuators up to 40 Nm































































Optimally matched components for all tasks

		Type of fuel	Burner capacity (typically)	Control outputs for fuel valves	Ionization current supervision	Connection facility for oil preheater	Connection facility for pilot burner	Connection facility for fan	Air pressure supervision	Air damper control	Parameterizable times	Connection facility for display	Field of use											
													Field of use											
Burner controls		LME11	Gas (oil)	< 120 kW	<input type="checkbox"/>	■			■	■														
		LME21/22	Gas (oil)	> 120 kW	<input type="checkbox"/> x2	■			■	■	■													
		LME23	Gas (oil)	> 120 kW	<input type="checkbox"/> x2				■	■	■													
		LME39	Gas (oil)	> 120 kW	<input type="checkbox"/> x2	■			■ ³⁾	■	■	■	■	■										
		LME41/44	Gas	> 120 kW	<input type="checkbox"/> x2	■			Atmo															
		LMO14	Oil	< 30 kg/h	<input type="checkbox"/>		■		■															
		LMO24	Oil	< 30 kg/h	<input type="checkbox"/> x2		■		■															
		LMO39	Oil	< 30 kg/h	<input type="checkbox"/> x2		■		■ ³⁾				■	■										
		LMO44	Oil	> 30 kg/h	<input type="checkbox"/> x2		■		■															

		Type of fuel	Burner capacity (typically)	Control outputs for fuel valves	Ionization current supervision	Connection facility for pilot burner	Continuous operation	Dual-fuel operation	Modbus interface	Gas valve proving	Parameterizable times	Connection facility for display
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Field of use

Burner controls		LAL/LOK16	Oil	> 30 kg/h	 x2		 ¹⁾					
		LGK16/LFL1	Gas Oil	> 350 kW (30 kg/h)	 x2		 ²⁾					
		LME7	Gas Oil	> 350 kW (30 kg/h)	 x2							

Burner management systems		LMV26/36	Gas Oil	> 350 kW (30 kg/h)	 x3								
		LMV27	Gas Oil	> 350 kW (30 kg/h)	 x3								
		LMV37	Gas Oil	> 350 kW (30 kg/h)	 x3								
		LMV51	Gas Oil	> 350 kW (30 kg/h)	 x9								
		LMV52	Gas Oil	> 350 kW (30 kg/h)	 x9								

Legend:

 Control outputs for fuel valve

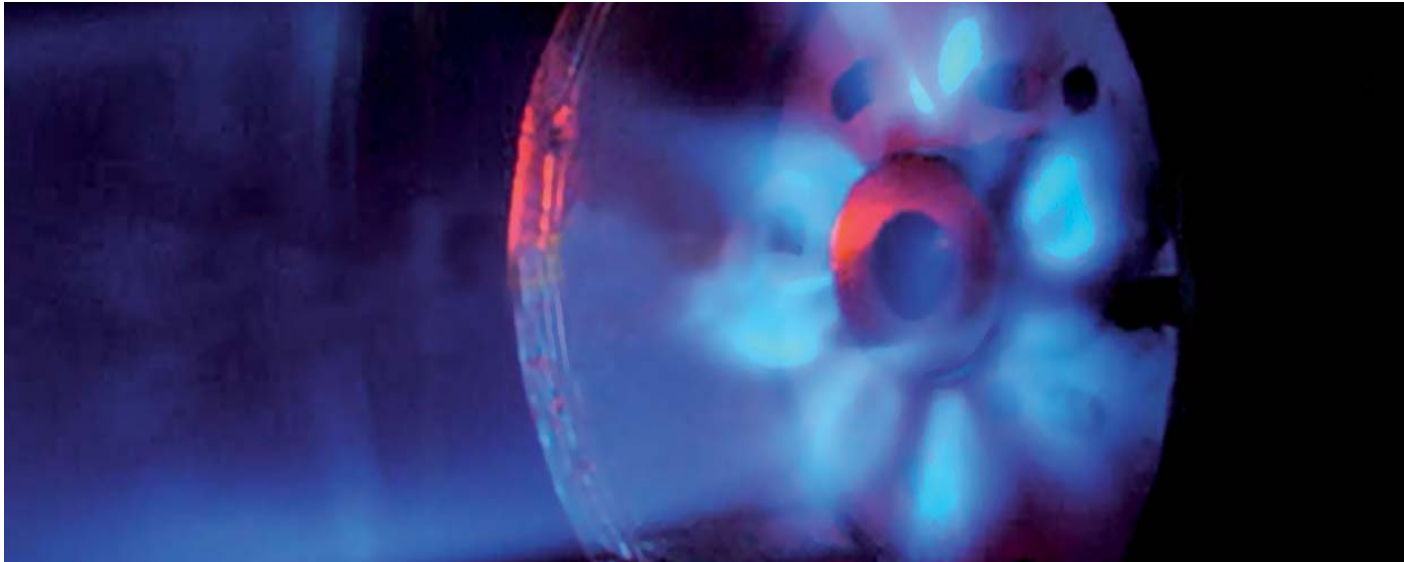
 Connection facility for pilot burner

 Continuous operation

1) Only LOK16

2) Only LGK16

3) Postpurge function



Sensitive detectors and sensors for perfect combustion

■ Highly specialized flame detectors for any type of process

To ensure perfect process control, we have focussed for many years on the development of highly sensitive flame detectors.

For the supervision of yellow-burning oil flames, RAR silicon photocell detectors and QRB photoresistive detectors are available.

For small- and medium-capacity blue-flame oil and gas burners, the QRC detector with UV diode is used.

The range of flame detectors also includes QRA detectors with UV cell, highly sensitive QRI infrared detectors, plus the ionization current principle for intermittent or continuous operation.

■ Sensor for combustion optimization

The range of detectors and sensors is rounded off by the QGO, an O₂ sensor used for determining the residual oxygen content in flue gases.

Highlights

- Matched to the range of burner controls
- Universal flame detectors for continuous operation on the basis of UV or IR sensitivity
- Combustion optimization with O₂ sensor
- Ready to use, no settings required
- Optional combination with Siemens flame safeguards



		Oil	Gas	Yellow flame	Blue flame	Housing	Degree of protection	Type of flame detector	Matching burner controls and burner management systems	
									For use with	
Field of use										
Flame detector (intermittent operation)		QRB1	■		■		Plastic	IP40	Photo-resistor	LAL, LMV2/3/5, LME7, LMO
		QRB3	■		■		Metal	IP40	Photo-resistor	LMO, LAL, LMV2/3/5, LME7
		QRC1	■	■	■	■	Plastic	IP40	UV diode	LMO, LME23, LMV2/3, LME7
		QRA10	■	■	■	■	Metal	IP54 IP65 (Kit)	UV cell	LFL, LMV2/3, LME7
		QRA2	■	■	■	■	Plastic	IP40	UV cell	LFL, LMV2/3, LME7
		QRA2+AGQ	■	■	■	■	Plastic	IP40	UV cell	LMV5, LME21/22/39/4
		QRA4	■	■	■	■	Metal	IP54	UV cell	LFL, LMV2/3, LME7
Flame detectors (contin. oper.)		QRA53/55 QRA73/75	■	■	■	■	Plastic	IP54 IP65	UV cell	LGK (QRA53/55) LMV5 (QRA73/75)
		QRI	■	■	■	■	Plastic	IP54	IR flicker	LMV5
		RAR	■		■		Plastic	IP40	Photocell	LOK
O ₂ sensor		QGO20	■	■			Metal	IP40	ZrO ₂	LMV52 + PLL52



Accurate damper actuators for any type of application

■ New generation of actuators

A total of 9 lines of actuators are available offering solutions for any size of burner and almost any type of application.

The SQN1, SQM33 and SQM45/48 actuators are specifically matched to the requirements of our burner managementsystems. Special features include the communication facility for systems and the high accuracy and small hysteresis accomplished by the control. The torque range is from 1.2 to 30 Nm.

■ Universal use

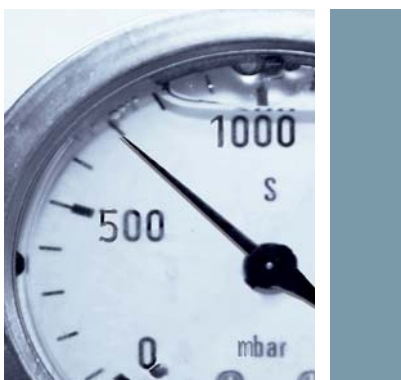
Extremely versatile are the universal actuators SQN3, SQN7 and SQN9, delivering torques up to 3 Nm, and the more powerful versions SQM1/2, SQM40/41 and SQM5, delivering a maximum torque of 40 Nm. There is a large number of mounting options and drive shaft versions available.

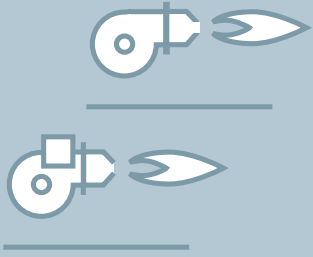























All types of actuator are suited for universal mounting and are protected from dirt and humidity. Some models feature analog inputs and outputs.

The design of these actuators is the result of many years of experience, meaning that they are capable of satisfying demanding requirements.



Highlights

- 9 product lines delivering torques from 1.2 to 40 Nm
- Clockwise or counterclockwise rotation (4.5 to 120 s)
- High accuracy, small hysteresis
- Different types of drive shaft available
- Electronic versions with analog inputs
- Degree of protection IP54 or IP65



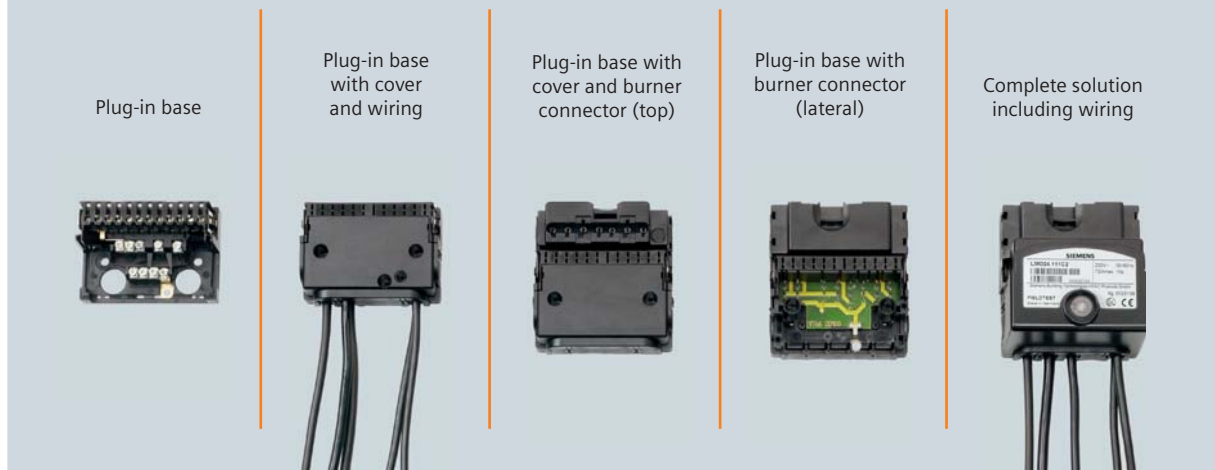
		Stepper motor	Synchronous motor	Torque (Nm)	Analog input	Potentiometer	Drive shaft version	End of drive shaft	Angular rotation	Degree of protection	Approvals	Matching burner controls and burner management systems
Dampener actuators	 SQN9	■		2.4			1		0...90°	IP40	CE	LAL, LOK, LFL, LGK, LME, LME7, LMO
	 SQN7	■		2.5			5		0...90°	IP40	CE	LAL, LOK, LFL, LGK, LME, LME7, LMO
	 SQN3 SQN4	■		3.0 6.0			4		0...90°	IP40	CE	LAL, LOK, LFL, LGK, LME, LME7, LMO
	 SQM40/41	■		10.0	■		4		0...90°	IP65	CE, UL, CSA	LAL, LOK, LFL, LGK, LME, LME7, LMO
	 SQM10 SQM20	■		10.0 20.0			1		0...130°	IP54	CE	LAL, LOK, LFL, LGK, LME7
	 SQM5	■		40.0	■		6		0...130°	IP54 IP65 (Kit)	CE, UL	LAL, LOK, LFL, LGK, LME7
	 SQN1	■		1.0			1		0...90°	IP40	CE	LMV2/3
	 SQM33	■		3.0			1		0...90°	IP54	CE, UL, CSA	LMV2/3
	 SQM45/48	■		35.0			2		0...90°	IP54	CE, UL	LMV5

Legend:

-  Drive shaft on one side
-  Drive shaft on both sides

 Potentiometer

From simple plug-in bases to extensive wiring solutions



The right connection at any time

■ Ease of use

The AZL operator units are used in connection with the LMV5 burner management system and the LMV2/3, LME7 and LME39 burner controls and are designed for direct connection to the burner, or for installation in the control panel close to the burner.

They are used for display, operation and allow the setting of parameters for specific safety- and non-safety-related burner functions. The most important plant data and fault codes can be interrogated and displayed.

■ Connection technique and more

The product range is rounded off by bases and consoles for use with the burner controls, coded connectors for plug-in bases and our systems with RAST5 connection facility.

AGK11 bases with screw terminals or AGK13 plug-in bases are supplied in black for small burner controls which – via thermostat – also supply mains voltage to the units, and in grey for burner controls featuring a permanent phase and triggering burner start via a thermostat.

The coded and marked RAST5 connectors cannot be plugged into wrong places should it become necessary to replace a burner control.

■ Customized solutions

You want not only a base but a complete solution from a single source? Please contact us, we can deliver ready wired solutions.

Highlights

- Operating units with clear-text display
- AGK plug-in bases or bases with screw terminals for LMO/LME
- Ready wired consoles
- Coded RAST5 connectors, protected from interchange





What's more ...

■ An array of choices

The burner controls, burner management systems, sensors, detectors, actuators and valves we supply are the key components for use with burners.

However, additional products, such as pressure switches and pilot valves, are required also.

We see ourselves as a system provider. For this reason, we constantly extend the product portfolio we market – accessory items needed for burner operation.

The accessories we supply satisfy the same demanding requirements as our key products. We also specify and test such products in compliance with Siemens standards and will further extend our product portfolio in the future.

■ Smart ancillary valve

When used as a pilot gas valve, the VGS solenoid valve perfectly matches the pressure range of the double gas valves.

■ Pressure switches

To complement gas control systems, the QPL pressure switches can be used for monitoring gas shortages or for detecting excessive pressures.

■ Universal process control






The RWF40 universal controller is the ideal product for controlling temperatures and pressures in process plants.

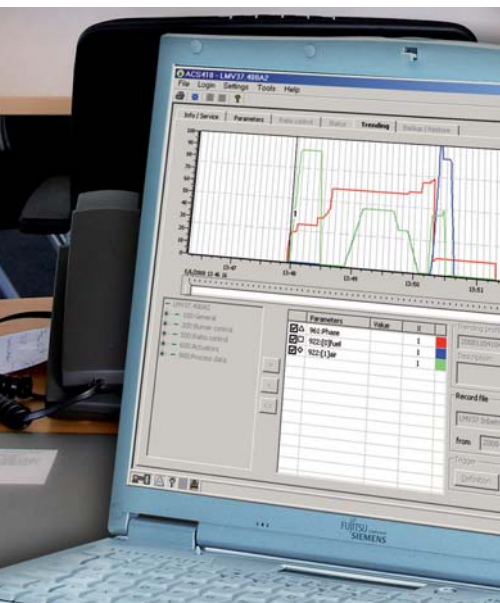
Highlights

- Solenoid valves of the VGS line
- Pressure switch for air and gas pressures in gas trains
- Universal controller RWF



Communication at the highest level

		Matching software	Triggering fault history/ counter reading	Changing parameters	Display of current parameter state	Setting the ratio curves	Recording of status and trend data	Backup/restore of complete data sets	Modbus	Matching burner controls and burner management systems
Field of use										For use with
Interface	 OCI400	ACS410	■		■		■	■		LMO1-6, LME1-6
	 OCI410	ACS410	■	■	■	■	■	■		LMO1-6, LME1-7, LMV2/3
Software	 ACS410		■	■	■	■	■	■		LMO1-6, LME1-7, LMV2/3
	 ACS450		■	■	■	■		■		LMV5
Accessory	 OCI412.10							■		LMV2/3



Always the right connection

Our range of interfaces and software enable you to make the right connections. Both interface and software are suited for use with our standalone LME burner controls and LMV2/3 and LMV5 burner management systems.

The data read out by the burner components via OCI interface are transferred to the computer where they are handled by the ACS410 or ACS450 software from Siemens. The current operating states, settings, parameters, fault history, etc. are read out.

The data logger shows the changes of the inputs and outputs over time.

An important feature in the backup/restore facility, which is used to retrieve former parameter settings to be transferred back to the burner control.

Another key feature of the comprehensive software functions is the operation of printing customized reports.

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The information in this document contains general descriptions of technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.

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