SIEMENS

Ingenuity for life

Solution for any size of burner

Control Products & Systems OEM

www.siemens.com/buildingtechnologies-oem

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.

The right 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		■	■

Burner controls

Diagnostic tools

Plug-in bases

Damper actuators

Operating units

Flame detectors

Efficient components for small burners

Extensive application area

Siemens offers a broad range of compo-nents for use with forced draft oil and gas burners. The application area is extensive and covered by a compre-hensive 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

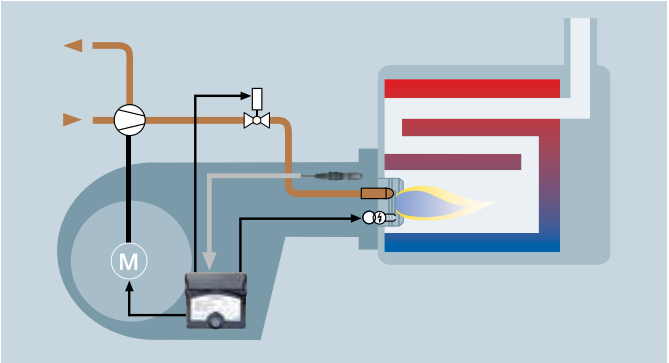
LME burner controls for gas and LMO for oil ensure reliable burner opera-tion. These products have proven their worth in millions of installations and set market standards.

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 mount-ed 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 too



Burner management systems | Burner controls | Infrared flame detectors | Damper actuators | UV flame detectors | Universal controllers | Gas valves/ actuators

Powerful solutions for large facilities

Largest capacities

Capacity ranges from small to large 30 MW burners can be realized with our components.

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.

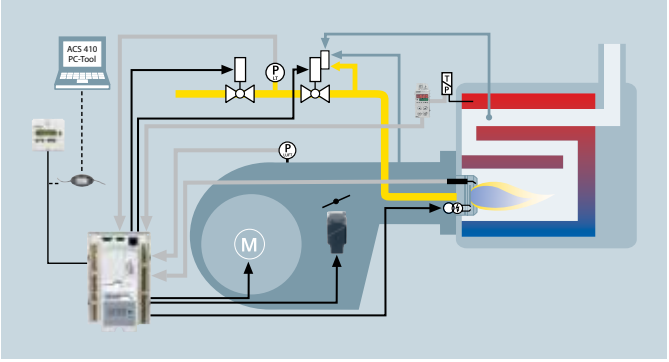
Perfect interplay

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. The ease with which the compact LMV2/3 ratio control can be integrated into the burner is impressive. Thanks to a “red flag” mode, commissioning really is very easy. The program guides the user through the setting of the key parameters.

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
- Damper actuators up to 60 Nm



Optimally matched components for all tasks

			Type of fuel	Burner capacity (typically)	Control outputs for fuel valves	Intermittent operation (flame detectors)	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										
BURNER CONTROLS		LME11	Gas (Oil)	< 120 kW	▭⧖	QRA2+ AGQ3, ION			■	■			
		LME21/ 22	Gas (Oil)	> 120 kW	▭⧖ x2	QRA2+ AGQ3, ION			■	■	■		
		LME23	Gas (Oil)	> 120 kW	▭⧖ x2	QRC			■	■	■		
		LME39	Gas (Oil)	> 120 kW	▭⧖ x2	QRA2+ AGQ3, ION		☞	■ [1]	■	■	■	BCI
		LME41/44	Gas	> 120 kW	▭⧖ x2	QRA2+ AGQ3, ION		☞	Atmo				
		LMO14	Oil	< 30 kg/h	▭⧖	QRB QRC	■		■				
		LMO24	Oil	< 30 kg/h	▭⧖ x2	QRB QRC	■		■				
		LMO39	Oil	> 30 kg/h	▭⧖ x2	QRB QRC	■		■ [1]			■	BCI
		LMO44	Oil	> 30 kg/h	▭⧖ x2	QRB QRC	■		■				
		LMO64	Oil	< 30 kg/h	▭⧖	QRB QRC	■		■ [1]				

			Type of fuel	Burner capacity (typically)	Control outputs for fuel valves	Intermittent operation (flame detectors)	Continuous operation (flame detectors)	Connection facility for pilot burner	Dual-fuel operation	Modbus interface	Gas valve proving	Parameterizable times	Connection facility for display
			FIELD OF USE										
BURNER CONTROLS		LAL1/2	Oil	> 30 kg/h	⊏⧖ x2	QRB	---						
		LAL3				QRB	RAR						
		LOK16				---	RAR						
		LFL1	Gas/Oil	> 350 kW (30 kg/h)	⊏⧖ x2	QRA2/4 QRA10/	--- ---	☞					
		LGK16				ION ION	QRA5						
		LME7	Gas Oil	> 350 kW (30 kg/h)	⊏⧖ x2	QRA2 QRA4 QRA10/ ION		☞			■	■	BCI
BURNER MANAGEMENT SYSTEMS		LMV26/36	Gas Oil	> 350 kW (30 kg/h)	⊏⧖ x3	QRA2/4 QRA10 QRB QRC	ION [4]	☞	■	■	■	■	BCI
		LMV27	Gas Oil	> 350 kW (30 kg/h)	⊏⧖ x3	QRA2/4 QRA10 QRB QRC		☞		■	■	■	BCI
		LMV37	Gas Oil	> 350 kW (30 kg/h)	⊏⧖ x3	QRA2/4 QRA10 QRB QRC	ION	☞		■	■	■	BCI
		LMV50 [2]	Gas Oil	> 350 kW (30 kg/h)	⊏⧖ x9	QRA2/4 QRA10 QRB	QRA7 QRI ION	☞	■	■	■	■	CAN
		LMV51	Gas Oil	> 350 kW (30 kg/h)	⊏⧖ x9	QRA2/4 QRA10 QRB	QRA7 QRI ION	☞	■	■	■	■	CAN
		LMV52 [3]	Gas Oil	> 350 kW (30 kg/h)	⊏⧖ x9	QRA2/4 QRA10 QRB	QRA7 QRI ION	☞	■	■	■	■	CAN
FLAME DETECTOR		LFS1.1	Oil	> 30 kg/h			RAR					■	BCI
		LFS1.2	Gas Oil	> 350 kW		QRA2 QRA4 QRA10	ION					■	BCI

Legende:

⊏⧖ Control outputs for fuel valve

ION Ionisation flame detector

BCI Burner communication interface

CAN CAN-Bus

☞ Connection facility for pilot burner

1) Postpurge function

2) Industrial application

3) Flue gas recirculation

4) for LMV36 without AGM60

Archiv Weishaupt

Robust detectors and sensors for perfect combustion

Oil or gas burner, blue or yellow flame – Siemens sensors are supplied ready for immediate use in all areas.

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
- Optimal combination also with flame safeguards from Siemens.
- 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

			Oil	Gas	Yellow flame	Blue flame	Housing	Degree of protection	Type of flame detector	Matching burner controls and burner management systems
			FIELD OF USE							FOR USE WITH
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, LFS1.2
		QRA2	■	■	■	■	Plastic	IP40	UV cell	LFL, LMV2/3, LME7, LFS1.2
		QRA2+ AGQ	■	■	■	■	Plastic	IP40	UV cell	LMV5, LME21/22/39/4
		QRA4	■	■	■	■	Metal	IP54	UV cell	LFL, LMV2/3, LME7, LFS1.2
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, LFS1.1
O_2 SENSOR		QGO20	■	■			Metal	IP40	ZrO_2	LMV52 + PLL52

Accurate damper actuators for any type of application

Comprehensive range

A total of 10 lines of actuators are available offering solutions for any size of burner and almost any type of application.

The SQN1, SQM33 and SQM45/48/91 actuators are specifically matched to the requirements of our burner management systems. 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 60 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

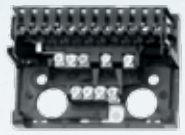
- Wide range thanks to 10 product lines delivering torques from 1.2 to 60 Nm
- Different types of drive shaft available
- High accuracy, small hysteresis
- Electronic versions with analog inputs
- Degree of protection IP54 or IP66

Siemens can supply the right drive for every system. Solutions are available for boiler ratings up to 35 MW across a total of ten ranges.

			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, damper actuators and burner management systems
			FIELD OF USE										FOR USE WITH
DAMPER 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
		SQN72		■	2.5			2	□–	0...90°	IP54	CE	LAL, LOK, LFL, LGK, LME, LME7, LMO
		SQN3 SQN4		■	3.0 6.0		Option	4	□–	0...90°	IP40	CE	LAL, LOK, LFL, LGK, LME, LME7,LMO
		SQM40/41		■	10.0 20.0	■	Build-in	4	□–	0... 135°	IP65	CE, UL, CSA	LAL, LOK, LFL, LGK, LME, LME7,LMO
		SQM5		■	40.0	■	Option	6	□–	0... 130°	IP54 IP65 (Kit)	CE, UL	LAL, LOK, LFL, LGK, LME7
		SQN1	■		1.0			1	□–	0...90°	IP40	CE	LMV2/3
		SQM33	■		1.2 3.0 10.0			1	□–	0...90°	IP54	CE, UL, CSA	LMV2/3
		SQM45/48	■		3.0 20.0 35.0			2	□–	0...90°	IP54	CE, UL, CSA	LMV5
		SQM9	■		60.0			1	□–	0...90°	IP66	CE, UL	LMV5
DAMPERS		VKP ½"...2"			≥1			2		0...90°		CE	SQM13, SQN30, SQN72, SQM33, SQM40, SQM45, SQM50
		VKG10/20* DN32... DN80			≥1			2		0...90°		CE	SQM13, SQN30, SQN72, SQM33, SQM40, SQM45, SQM50
		VKF41...C DN40... DN200			≥2.5			1		0...90°		CE	SQM33, SQM40, SQM45, SQM50
		VKF41...H DN65... DN200			≥2.5			1		0...90°		—	without coupling and brackets

Legende: □– Drive shaft on one side –□– Drive shaft on both sides Potentiometer * VKG20: reduced diameter

From simple plug-in bases to extensive wiring solutions



Plug-in base

Plug-in base with cover and wiring

Complete solution including wiring

The right connection at any time

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 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.

Ease of use

The AZL operator units are used in connection with the LMV5 burner management system and the LMV2/3, LME7 and LME/LMO39 burner controls and are designed for direct connection to the burner, or for installation in the control panel close to the burner.

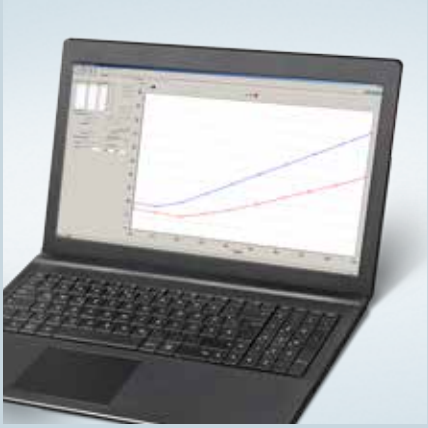
They are used for display, operation and allow the setting of parameters for specific safety- and non-safety-related burner functions. The most important plant data and fault codes can be interrogated and displayed.

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

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	■	■	■	■	■	■		LME39, LME7, LMO39, LMV2/3
SOFTWARE		ACS410		■	■	■	■	■	■		LMO1-6, LME1-7, LMV2/3
		ACS411		■	■	■			■		RWF5
		ACS450		■	■	■	■		■		LMV5
ACCESSORY		OCI412.10		■	■	■				■	LME39, LME7, LMO39, LMV2/3



Always the right connection
Our range of interfaces and software enable you to made 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 transfered 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 transfered back to the burner control.

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

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.

Proportional controlling element
When combined with SQN/SQM actuators, our VKP40 proportional controlling element provides the ideal valve for wide modulation ranges.

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 particularly versatile RWF50 and RWF55 universal controllers have been designed for controlling temperature and pressure. The controllers are compatible for use in all manner of different applications. Some models feature the latest communication modules (Modbus, ProfiBus).

HIGHLIGHTS

- Proportional controlling element
- ressure switch for air and gas pressures in gas trains
- Universal controller RWF

Siemens can supply everything you need for a compact package. The right products for the system can be put together from our portfolio in line with your requirements and applications. Whether your system is large or small, we are sure to be able to meet your every need.

Equipment combinations

		Nominal size	Permissible inlet pressure (mbar)	Connections	Bio-/recycling gases	Design	Open/closed	Open/closed with pressure governor	Open/closed with pressure governor adjustable via electromotoric actuator	Open/closed with differential pressure governor	Open/closed with pressure ratio controller
		FIELD OF USE									
VALVES AND VALVE ACTUATORS	SKP15				■		■				
	SKP25				■ 1)			■			
	SKP55				■ 1)					■	
	SKP75				■ 1)						■
	VGD20	1" ... 2"	60 KPa	⊕		⊥⊥					
	VGD40	DN 40 ... DN 150	70 ... 100 KPa	⊕	■	⊥⊥					
	VRD40	DN 40 ... DN 150	70 ... 100 KPa	⊕	■ 2)	⊥⊥					
	VGG	½" ...3"	...120 KPa	⊕		⊥					
	VGF	DN 50 ... DN 80	60 KPa	⊕	■	⊥					
	VRF	DN 50 / DN 80	60 KPa	⊕	■ 2)	⊥					

All types of valve and electrohydraulic valve actuator can be combined and are approved, including approval for the U.S. market

Legende:

⊕ Flanged connections

⊕ Threaded connections

⊥ Seat

⊥⊥ Double seat

1) On request

2) Non-ferrous metal-free: VRD40 and VRF with SKP15 suitable up to 1 % H_2S, 1% NH3

When building technology creates perfect places –
that's Ingenuity for life.

Never too cold. Never too warm.
Always safe. Always secure.

With our knowledge and technology, our products,
our solutions and our services, we turn places into
perfect places.

We create perfect places for their users' needs –
for every stage of life.

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Siemens AG

Siemens Switzerland Ltd
Building Technologies Division
International Headquarters
Gubelstrasse 22
6301 Zug
Switzerland
Tel +41 41 724 24 24

Siemens AG
Building Technologies Division
Berliner Ring 23
76437 Rastatt
Germany
Tel +49 7222 598 279

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