



Burner Controls

**RMO503SE
RMO503SE/K2
RMG508SE
RMG508SE/GB
RMG509SE
RMG509SE/K**

Microcontroller-based burner controls for the supervision of single- or multi-stage forced draft gas / oil burners in intermittent operation. Oil throughput above 30 kg / h and maximum capacity above 120 kW when firing on gas.

RMO... / RMG... and this Data Sheet are intended for use by OEMs which integrate the burner controls in their products.

Use, features

Use	The burner controls are designed for the startup and supervision of single- or multi-stage forced draft burners in intermittent operation. The RMO... is for use with forced draft oil burners, the RMG... for forced draft gas burners. When firing on oil, yellow-burning flames are supervised with photoresistive detectors QRB1B..., and blue-burning flames with blue-flame detectors QRC... When firing on gas, the flame is supervised with an ionization probe or flame detector QRA... (with ancillary unit AGQ2...A27).
Firing on oil	<ul style="list-style-type: none"> - Forced draft oil burners conforming to EN 267 - Burner controls for use with atomization oil burners of monoblock design to EN 230
Firing on gas	<ul style="list-style-type: none"> - Forced draft gas burners conforming to EN 676 - Burner controls conforming to EN 298

Application-specific features

When firing on oil

- Contact for preheating the oil
- Monitoring of time for preheating the oil
- Limitation of the number of repetitions

When firing on gas

- Monitoring of air pressure with functional check of the air pressure switch during startup and operation

General

- Undervoltage detection
- Accurate and reproducible program sequence owing to digital signal handling
- Controlled intermittent operation after 24 hours of continuous operation
- Multicolor display of fault and status messages

Warning notes



To avoid injury to persons, damage to property or the environment, the following warning notes should be observed!

Do not open, interfere with or modify the unit!

- All activities (mounting, installation and service work, etc.) must be carried out by qualified staff
- Before performing any wiring changes in the connection area, completely isolate the burner control from the mains supply (all-polar disconnection)
- Ensure protection against electric shock hazard by providing adequate protection for the burner control's terminals
- Check to ensure that wiring is in an orderly state
- Press the lockout reset button of the burner control or the reset button extension AGK20.43 only manually (applying a force of no more than 10 N), without using any tools or pointed objects
- Fall or shock can adversely affect the safety functions. Such units may not be put into operation, even if they do not exhibit any damage

Mounting notes

- Ensure that the relevant national safety regulation are complied with

Installation notes

- Observe the permissible lengths of the detector cables (refer to «Technical data»)
- Always run the high-voltage ignition cables separately while observing the greatest possible distances to the unit and to other cables
- Install switches, fuses, earthing, etc., in compliance with local regulations
- Ensure that the maximum permissible current ratings will not be exceeded (refer to «Technical data»)
- Do not feed external mains voltage to the control outputs of the unit. When testing the devices controlled by the burner control (fuel valves, etc.), the burner control may never be connected
- Live and neutral conductors may not be interchanged

Electrical connection of ionization probe and flame detector

It is important to achieve practically disturbance and loss-free signal transmission:

- The cable length must not exceed 1 m
- Never run the detector cable together with other cables
 - Line capacitance reduces the magnitude of the flame signal
 - Use a separate cable
- Insulation resistance
 - Must be a minimum of 50 MΩ between ionization probe and ground
 - Soiled detector holders reduce the insulation resistance, thus supporting creep currents
- Earth the burner in compliance with the relevant regulations; earthing the boiler alone does not suffice

Only when firing on gas

- Observe the polarity
With supervision of the ionization current, the burner controls can detect wrong polarity of live and neutral conductors, in which case they initiate lockout at the end of «TSA»
- The ionization probe must be protected against electric shock hazard
- Locate the ionization probe such that
 - the ignition spark cannot arc over to the ionization probe (risk of electrical overloads)
 - the ignition spark cannot adversely affect supervision of the ionization current
- In networks with nonearthened neutral conductor and ionization current supervision, terminal 6 must be connected to burner ground

Commissioning notes

- When commissioning the plant or when doing maintenance work, make the following safety checks:

	Safety check	Anticipated response
a)	Burner startup with flame detector darkened or with open-circuit to the ionization probe	Lockout at the end of «TSA»
b)	Burner startup with flame detector exposed to extraneous light (only when firing on oil)	Lockout after no more than 25 seconds or immediate lockout during the prepurge time
c)	Burner operation with simulated flame failure; for that purpose, darken the flame detector during operation and maintain that status or interrupt the gas supply	Firing on oil: Repetition followed by lockout at the end of «TSA» Firing on gas: immediate lockout after the flame has extinguished
d)	Burner startup with response from air pressure switch (only when firing on gas)	Lockout at the end of the waiting time «tw»
e)	Burner operation with simulated loss of air pressure (only when firing on gas)	Immediate lockout

Standards



Conformity to EEC directives

- Electromagnetic compatibility EMC (immunity) 89 / 336 EEC
- Directive for gas appliances 90 / 396 EEC
- Low-voltage directive 73 / 23 EEC



ISO 9001: 2000
Cert. 00739



ISO 14001: 1996
Cert. 38233

Type reference	DVGW	TÜV CERT
RMO503SE	---	---
RMO503SE/K2	---	---
RMG508SE	X	X
RMG508SE/GB	---	---
RMG509SE	X	X
RMG509SE/K	---	---

Service notes

- Each time a unit has been replaced, check to ensure that wiring is in an orderly state. Make the safety checks as listed in «Commissioning notes»

Disposal notes



The unit contains electrical and electronic components and may not be disposed of together with household garbage.
Local and currently valid legislation must be observed.

Mechanical design

The housing of the burner controls is made of impact-proof, heat-resistant and flame-retarding plastic.

The housing accommodates the

- microcontroller which controls the program sequence, and the relays for load control
- electronic flame signal amplifier (for the ionization probe when firing on gas, for the flame detector when firing on oil)
- lockout reset button with its integrated 3-color signal lamp for status and error messages and the socket for connecting the interface adapter OCI400
- terminals (maximum 15) for connecting the Riello base (part nos. 2061506 and 2221314)
- Central fixing screw for securing the housing to the Riello base (part nos. 2061506 and no. 2221314)

Display and diagnosis

- Multicolor display of status and error messages
- Transmission of status and error messages and detailed service information via additional interface adapter OCI400 and PC Windows software ACS400

Type summary

Type references
 Riello and Siemens
 Building Technologies

Riello	Siemens Building Technologies
RMO503SE	LMO88.580A2RL
RMO503SE/K2	LMO88.582A2RL
RMG508SE	LMO88.680A2RL
RMG508SE/GB	LMO88.683A2RL
RMG509SE	LMO88.681A2RL
RMG509SE/K	LMO88.682A2RL

Firing on oil

Type reference	Mains voltage	tw max.	TSA max.	t1 min.	t3 min.	t3n min.	t4 min.	t42 min.	Response in the event of loss of flame during operation
RMO503SE	AC 220...240 V ¹⁾	2 s	5 s	37 s	20 s	7 s	7 s	6 s	Max. 3 repetitions, then lockout
RMO503SE/K2	AC 220...240 V ¹⁾	2 s	5 s	37 s	20 s	7 s	7 s	---	Max. 3 x repetitions, then lockout

Firing on gas

Type reference	Mains voltage	tw ²⁾ max.	TSA max.	t1 min.	t3n min.	t4 min.	t10 max.	Response in the event of loss of flame during operation
RMG508SE	AC 220...240 V ¹⁾	2 s	3 s	38 s	2 s	10 s	10 s	Lockout
RMG508SE/GB	AC 220...240 V ¹⁾	2 s	3 s	38 s	2 s	10 s	10 s	Lockout
RMG509SE	AC 220...240 V ¹⁾	2 s	2 s	64 s	1,3 s	10 s	15 s	Lockout
RMG509SE/K	AC 220...240 V ¹⁾	2 s	3 s	53 s	2,2 s	8 s	12 s	Lockout

Legend	TSA	Ignition safety time	t3n	Postignition time
	tw	Waiting time	t4	Interval «BV1-BV2»
	t1	Prepurge time	t42	Interval «BV2-BV3»
	t3	Preignition time	t10	Specified time for air pressure signal («LP» time)
	¹⁾	For applications outside the European Community, operation at mains voltage AC 200...240 V ±10 % is ensured		
	²⁾	Max. 20 s, when «CPI» or «LP» are not in the idle position		

Ordering

Burner control including plug-in base

refer to «Type summary»

Photoresistive detector
 (refer to Data Sheet 7714)

QRB1B...

Blue-flame detector
 (refer to Data Sheet 7716)

QRC1...



Ancillary unit for UV supervision
 - Cable length 500 mm
 - Cable length 300 mm

AGQ2.1A27
AGQ2.2A27

Diagnostic tool
 (refer to Data Sheet 7614)

- Hardware
- Software

OCI400
ACS400



Lockout reset button extension

AGK20.43

Technical data

General unit data	Mains voltage	AC 220...240 V +10 % / -15 % ¹⁾
	- RMO..., RMG...	¹⁾ For applications outside the European Community, operation at mains voltage AC 200...240 V \pm 10 % is ensured
	Mains frequency	50...60 Hz \pm 6 %
	Built-in fuse (F)	T6,3H250V (IEC 60 127-215)
	Power consumption	20 VA
	Mounting position	optional
	Weight	approx. 260 g
	Safety class	I
	Degree of protection	IP 20 (user must ensure min. IP 40 when built in)
	Tightening torque fixing screw M4	max. 0.8 Nm
	Perm. cable length thermostat	max. 20 m at 100 pF / m
	Perm. cable length oil preheater	max. 20 m at 100 pF / m
	Perm cable length air pressure switch	max. 1 m at 100 pF / m
	Perm. cable length CPI	max. 1 m at 100 pF / m
	Perm. cable length gas pressure switch	max. 20 m at 100 pF / m
	Perm. cable length detector cable	max. 1 m
	Undervoltage protection, switch-off voltage	
	- RMO..., RMG...	approx. AC 165 V (AC 160...170 V)

Max. perm. amperage at $\cos\varphi \geq 0.6$	RMO503SE	RMO503SE/K2	RMG508SE RMG509SE RMG509SE/K	RMG508SE/GB
Terminal 1	5 A	5 A	5 A	5 A
Terminal 2	---	---	---	---
Terminal 3	---	---	---	---
Terminal 4	---	---	---	---
Terminal 5	1 A	1 A	1 A	1 A
Terminal 7	5 A ³⁾	---	5 A	5 A
Terminal 10	1 A	1 A	---	---
Terminal 11	1 A ³⁾	5 A	1 A ⁴⁾	1 A ³⁾
Terminal 12	2 A ²⁾	2 A ²⁾	1 A	1 A
Terminal 13	1 A	1 A	2 A ²⁾	2 A ²⁾
Terminal 14	1 A	---	1 A ⁴⁾	1 A ³⁾

²⁾ 3 A at a maximum of 150,000 switching cycles

³⁾ Max. 5 A, total of terminals 7 and 11

⁴⁾ Max. 1 A total of terminals 11 and 14

Environmental conditions

Transport	DIN EN 60 721-3-2
Climatic conditions	class 2K2
Mechanical conditions	class 2M2
Temperature range	-20...+70 °C
Humidity	< 95 % r.h.
Operation	DIN EN 60 721-3-3
Climatic conditions	class 3K5
Mechanical conditions	class 3M2
Temperature range	-5...+60 °C
Humidity	< 95 % r.h.



Condensation, formation of ice and ingress of water are not permitted!

Flame supervision with ionization probe (only when firing on gas)

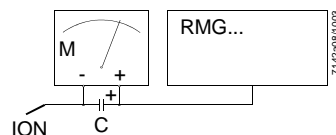
	At mains voltage UN = AC 220...240 V ¹⁾
Detector voltage across ionization probe and ground (AC voltmeter, $R_i \geq 10 \text{ M}\Omega$)	AC 115...240 V
Switching threshold (limit values): Switching on (flame on, DC ammeter $R_i \leq 5 \text{ k}\Omega$) Switching off (flame off, DC ammeter $R_i \leq 5 \text{ k}\Omega$)	$\geq \text{DC } 1.5 \text{ }\mu\text{A}$ $\leq \text{DC } 0.5 \text{ }\mu\text{A}$
Detector current recommended for reliable operation	$\geq \text{DC } 6 \text{ }\mu\text{A}$
Maximum short-circuit current between ionization probe and ground (AC ammeter $R_i \leq 5 \text{ k}\Omega$)	AC 100...300 μA

¹⁾ For applications outside the European Community, operation at mains voltage AC 200...240 V $\pm 10 \%$ is ensured

Flame supervision is accomplished by making use of the conductivity and rectifying effect of the flame.

The flame signal amplifier responds only to the DC component of the flame signal.
→ A short-circuit between ionization probe and ground causes the burner control to initiate lockout!

Measuring circuit



For detector currents, refer to «Technical data»

Legend

C Electrolytic capacitor 100...470 μF ; DC 10...25 V
ION Ionization probe
M Microammeter, R_i max. 5000 Ω

Flame supervision with AGQ2...A27 and flame detector QRA...

Mains voltage	AC 230 V $\pm 10 \%$ / -15%
Mains frequency	50...60 Hz $\pm 6 \%$
Perm. cable length from QRA... to AGQ2...A27 (lay separate cable)	max. 20 m
Perm. cable length from AGQ2...A27 to RMG...	max. 2 m
Weight of AGQ2...A27	approx. 140 g
Mounting position	optional
Degree of protection	IP 40
Power consumption	4.5 VA

	At mains voltage Un	
	AC 220 V	AC 240 V
Detector voltage at QRA... (with no load)		
Until the end of «tw» and after controlled shutdown	DC 400 V	DC 400 V
After the end of «tw»	DC 300 V	DC 300 V
Detector voltage Load by DC measuring instrument $R_i > 10 \text{ M}\Omega$		
Until the end of «tw» and after controlled shutdown	DC 380 V	DC 380 V
After the end of «tw»	DC 280 V	DC 280 V
DC current detector signals with flame detector QRA...	Min. required	Max. possible
Measurement at the flame detector	DC 200 μA	DC 500 μA

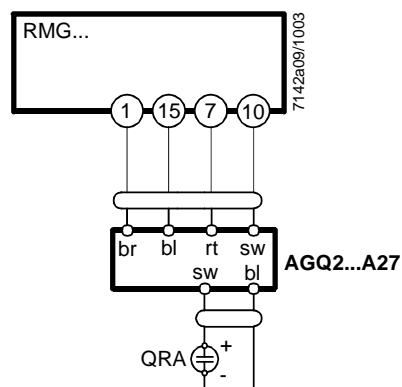
Ancillary unit
AGQ2...A27

In connection with burner controls RMG..., use of the UV ancillary unit AGQ2...A27 is mandatory.

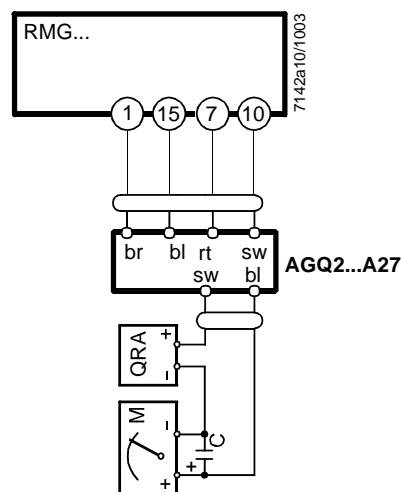
Operation with permanent line:

UV test with higher supply voltage across the UV cell on startup and after controlled shutdown.

Connection diagram



Measuring circuit



Measurement made at flame detector

Legend

C Electrolytic capacitor 100...470 μ F; DC 10...25 V
M Microammeter R_i max. 5000 Ω
QRA... Flame detector

bl blue
br brown
rt red
sw black

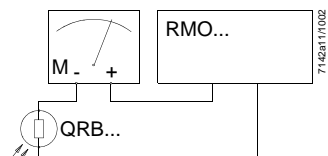
Flame supervision with
QRB1B... (only when
firing on oil)

At mains voltage $U_N = AC\ 220...240\ V^1$)

	Detector current			
	Minimum required (with flame)	Recommended for reliable operation	Maximum permitted (without flame)	Maximum possible with flame (typically)
QRB1B...	DC 25 μ A	DC 35 μ A	DC 5.5 μ A	DC 100 μ A

¹⁾ For applications outside the European Community, operation at mains voltage AC 200...240 V $\pm 10\%$ is ensured

Measuring circuit for
detector resistance
measurement



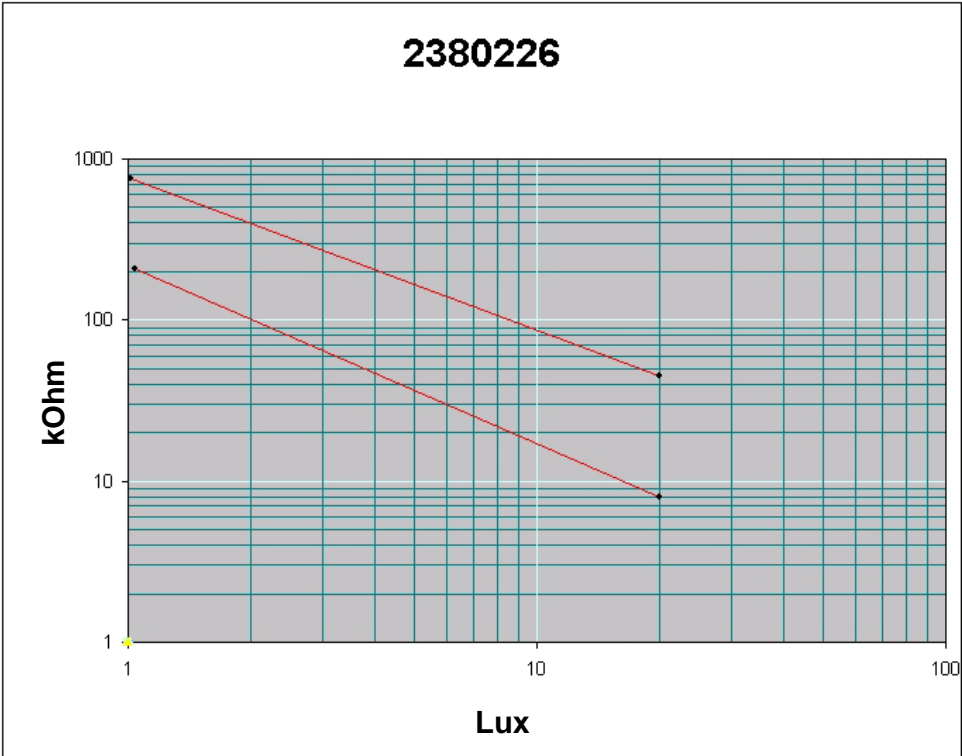
For detector currents, refer to «Technical data»

Legend
QRB1B... Photoresistive detector
M Microammeter, R_i max. 5,000 Ω

As an alternative to the detector resistance measurement, the diagnostic tool OCI400 / ACS400 can be used. In that case, use of a DC microammeter is not required.

Flame supervision with
Riello photoresistive
detector no. 2380226

Photoresistive detector	Switching off (flame off)	Switching on (without flame)
No. 2380226	100...200 kΩ	300...450 kΩ



7142d03/1102

Function

Preconditions for startup	<ul style="list-style-type: none">• Burner control is reset• All contacts in the line are closed• Only when firing on gas:<ul style="list-style-type: none">– Air pressure switch «LP» is in its idle position– CPI contact is closed• No undervoltage• Heat demand contact is closed• Flame detector is darkened, no extraneous light
Undervoltage	<p>Safety shutdown from operating position in the event mains voltage drops below approx. AC 165 V.</p> <p>Repetition in the event mains voltage exceeds approx. AC 175 V.</p>
Controlled intermittent operation	<p>After no more than 24 hours of continuous operation, the burner control will automatically initiate a safety shutdown followed by an unshortened repetition of startup.</p>
CPI	<p>Only when firing on gas:</p> <p>During the startup phase at the beginning of the waiting time «tw», the CPI (Closed Position Indicator) contact in the gas valve «BV1» is checked by the RMG... to ensure it is closed.</p> <p>When the CPI contact subsequently opens, there is no response from the burner control during the times «t10 / t1 / t12».</p> <p>From program phase «B», that is, at the start of the safety time «TSA», the CPI contact is continuously checked to ensure it is open. If not, lockout will occur.</p>
Oil preheater	<p>Only when firing on oil:</p> <p>When the oil is sufficiently preheated, contact «OW» in the external oil preheater closes.</p>
Monitoring of time of oil preheater	<p>If the oil preheater's release contact does not close after 600 seconds, lockout will be initiated.</p>
Detection of extraneous light	<p>Only when firing on oil:</p> <p>If extraneous light is detected, lockout will take place within the period of time «t3». Before a demand for heat is received (standby phase), only extraneous light is indicated by the red-green flash light in the lockout reset button. Extraneous light is indicated for a maximum of 25 seconds. If extraneous light is detected for a longer period of time, lockout will be initiated.</p> <p>Only when firing on gas:</p> <p>If extraneous light is detected, lockout will take place within the periods of time «t1» and «t12». During the times «t0» and «tw», only extraneous light is indicated by the red-green flash light from the LED in the lockout reset button. Extraneous light is indicated for a maximum of 25 seconds. If extraneous light is detected for a longer period of time, lockout will be initiated.</p>
Flame supervision	<p>When changing from the operating state to standby or repetition (only when firing on oil), a flame signal is permitted for a period of 10 seconds after the heat demand contact has opened. Otherwise, lockout will occur.</p>
Loss of air pressure	<p>Only when firing on gas:</p> <p>If air pressure switch «LP» switches to its idle position during the prepurge time «t1», the program will return to the beginning of «t10».</p> <p>Loss of air pressure during «t1» may occur no more than 4 times.</p> <p>If loss of air pressure occurs on completion of «t1», the burner control will immediately initiate lockout.</p>
Fuse	<p>If fuse is blown due to overload, the unit's life expectancy will be shortened.</p>

Control sequence in the event of fault

If lockout occurs, the outputs for the fuel valves and ignition will immediately be deactivated (< 1 second).

Cause	Response
General	
Mains failure	Repetition with unshortened program sequence
Voltage has dropped below the undervoltage threshold	Repetition with unshortened program sequence
Burner does not ignite after «TSA»	Lockout
Afterburn time > 10 seconds	Lockout
Only when firing on oil	
Loss of flame during operation	Maximum 3 repetitions, followed by lockout
Oil preheater's release contact does not close	Lockout 600 seconds after demand for heat
Extraneous light during «t0» and «tw»	Red-green signal lamp steady on, lockout after 25 seconds
Extraneous light during «t1»	Lockout
Only when firing on gas	
Loss of flame during operation	Immediate lockout
Contacts of air pressure switch «LP» have welded in their idle position	Lockout 10 seconds after the end of «t10»
«CPI» contact is open during «tw»	Lockout approx. 20 s
Contacts of air pressure switch «LP» have welded in their working position	Prevention of startup and lockout after about 20 seconds
Loss of air pressure during «t1»	Maximum 4 repetitions at the start of «t10», followed by lockout
Loss of air pressure after the fuel valve has opened	Immediate lockout
Extraneous light during «t0» and «tw»	Red-green signal lamp flashes, lockout after 25 seconds
Extraneous light 5 seconds after completion of «tw» until start of «TSA»	Lockout

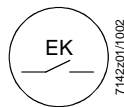
Lockout

In the event of lockout, the burner control remains locked (lockout cannot be changed) and the red signal lamp will light up.
This status is also maintained in the event of a mains failure.

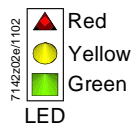
Resetting the burner control

If lockout occurs, the burner control can immediately be reset. To do this, keep the lockout reset button depressed for about 1 second.

Operation



Lockout reset button EK... is the key operating element for resetting the burner control and for activating / deactivating the diagnostic functions.



The multicolor LED is the key indicating element for both the visual diagnosis and the interface diagnosis.

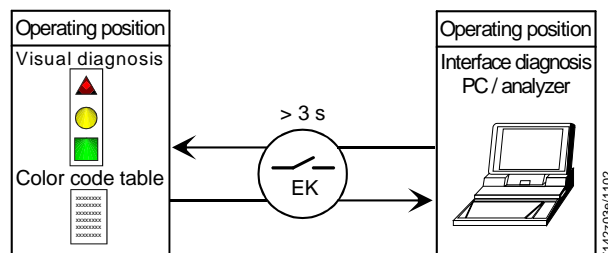
Both EK... and LED are located under the transparent cover of the lockout reset button.

There are 2 diagnostic choices available:

1. Visual diagnosis: Indication of the operating state.
2. Interface diagnosis: With the help of the interface adapter OCI400 and PC software ACS400 or flue gas analyzers of different makes.

Visual diagnosis:

In normal operation, the different operating states are displayed in the form of color codes according to the color code table below. The interface diagnosis is activated by pressing the lockout reset button for at least 3 seconds (refer to Data Sheet 7614). If, by accident, the interface diagnosis has been activated, in which case the slightly red light of the signal lamp flickers, it can be deactivated by again pressing the lockout reset button for at least 3 seconds. The moment of switching over is indicated by a yellow light pulse.



Indication of operating state

During startup, indication is according to the following table:

Color code table		
Sequences used	Color code	Color
«tw», standby with permanent phase, waiting statuses	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	Off
Oil: Oil preheater on Gas: Prepurging	●.....	Yellow
Ignition phase, ignition controlled	● ○ ● ○ ● ○ ● ○ ● ○ ●	Yellow-off
Operation, flame o.k.	□.....	Green
Operation, poor flame (when detector current drops below the recommended level for reliable operation)	□ ○ □ ○ □ ○ □ ○ □ ○	Green-off
Undervoltage, built-in fuse	● ▲ ● ▲ ● ▲ ● ▲ ● ▲ ●	Yellow-red
Fault, alarm	▲.....	Red
Extraneous light	▲ □ ▲ □ ▲ □ ▲ □ ▲ □ ▲	Red-green
Error code output (e.g. 2 blinks)	▲ ▲ ○ ▲ ▲ ○ ▲ ▲ ○	Red-off

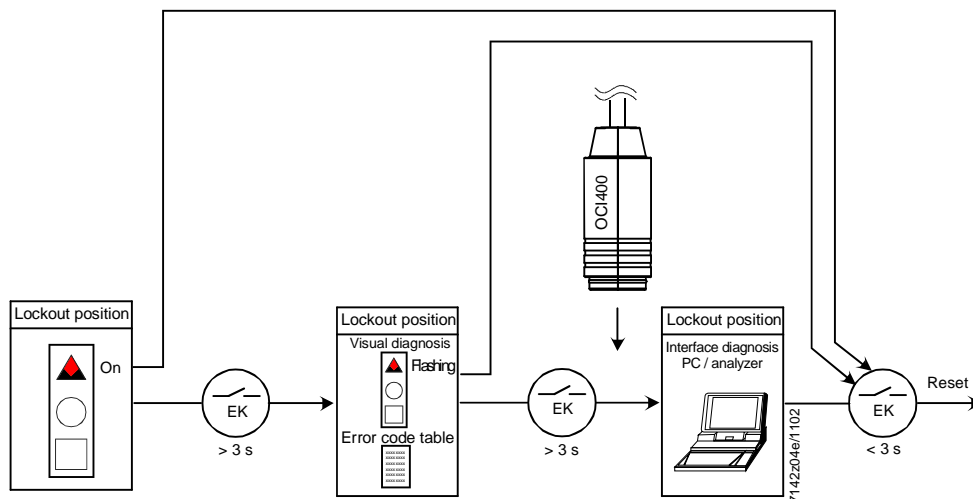
Legend

.....	Steady on	○	Off
●	Yellow	□	Green
▲	Red		

Diagnosis of cause of fault

After lockout, the red fault signal lamp remains steady on. In that condition, the visual diagnosis of the cause of fault according to the error code table can be activated by pressing the lockout reset button for more than 3 seconds. Pressing the reset button again for at least 3 seconds, the interface diagnosis will be activated. The interface diagnosis works only if the lockout reset button AGK20.43 extension is not fitted. For more detailed information, refer to Data Sheet 7614.

The following sequence activates the diagnosis of the cause of fault:



Error code table			
Oil RMO...	Gas RMG...	Blink code	Possible cause
x	x	2 x blinks • •	No establishment of flame at the end of «TSA» - Faulty or soiled fuel valves - Faulty or soiled flame detector - Poor adjustment of burner, no fuel - Faulty ignition
---	x	3 x blinks • • •	Faulty air pressure switch
x	x	4 x blinks • • • •	Extraneous light
x	x	5 x blinks • • • • •	«CPI» contact is open during «tw»
x	x	6 x blinks • • • • • •	Free
x	x	7 x blinks • • • • • • •	Loss of flame during operation - Faulty or soiled fuel valves - Faulty or soiled flame detector - Poor adjustment of burner
x	---	8 x blinks • • • • • • • •	Monitoring of oil preheater time
x	x	9 x blinks • • • • • • • • •	Free
x	x	10 x blinks • • • • • • • • • •	Wiring error or internal error, output contacts; faults that cannot be detected, such as simultaneous faults

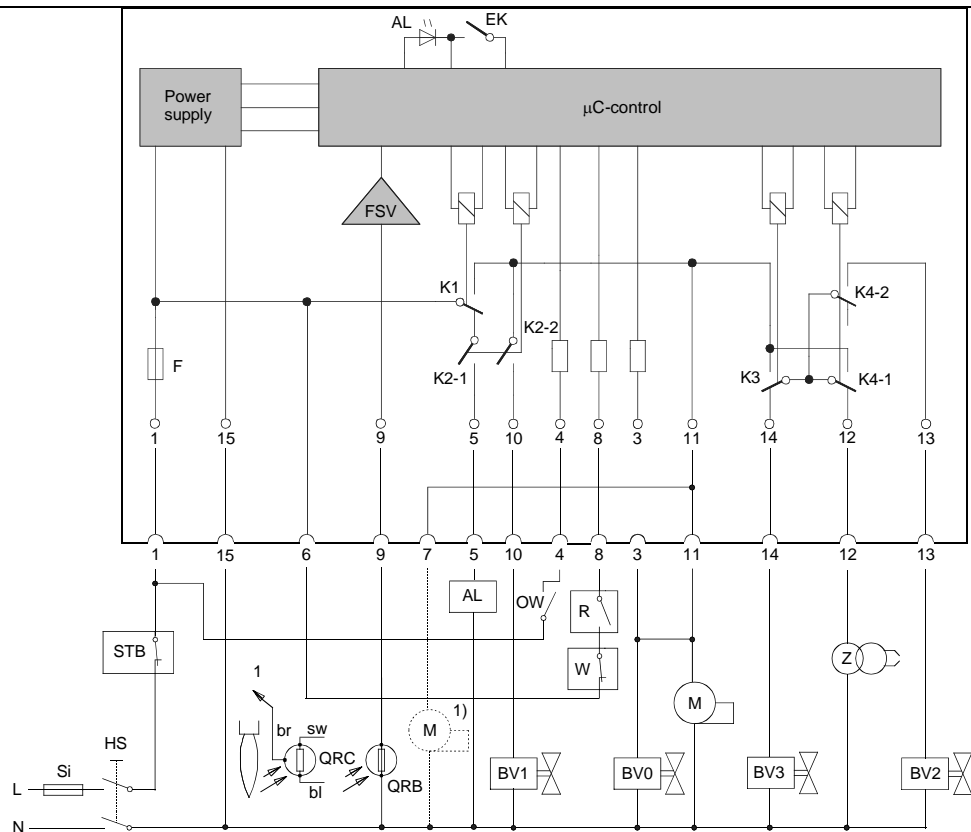
During the time the cause of the fault is diagnosed, the control outputs are deactivated.

- Burner remains shut down
- External fault indication remains deactivated
- Fault signal «AL» is activated

The fault diagnosis is quit and the burner switched on again by resetting the burner control. To do this, press lockout reset button for about 1 second.

Connection diagrams and internal diagrams

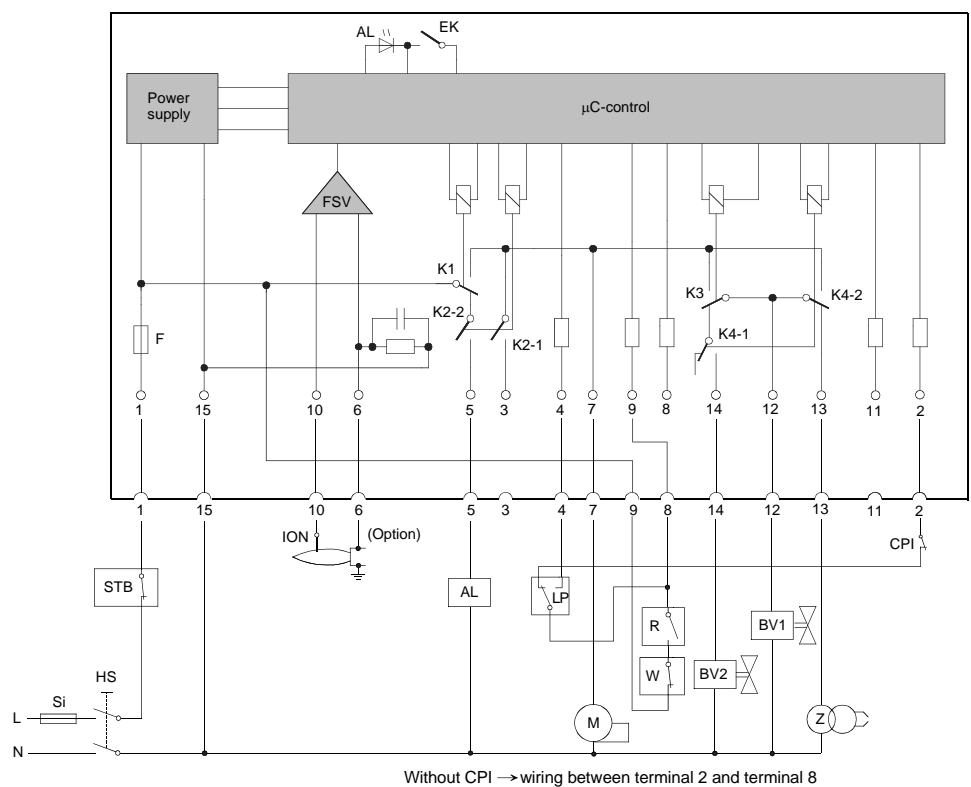
RMO503SE
RMO503SE/K2



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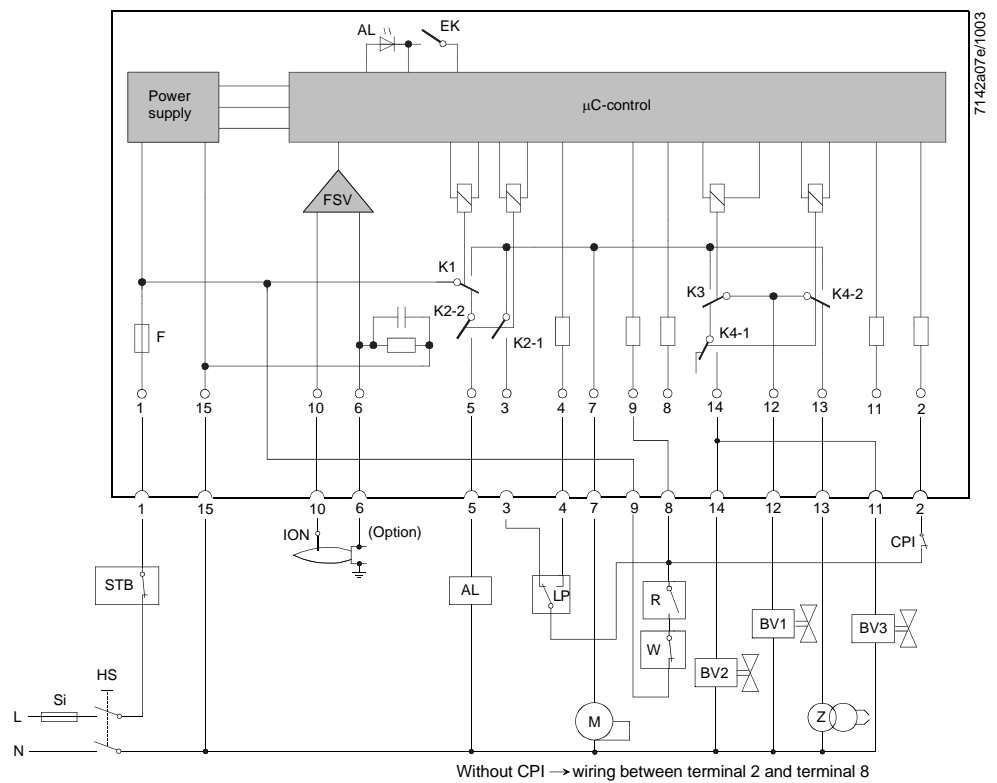
1) Alternativer Gebläsemotoranschluss für RMO503SE

RMG508SE/GB



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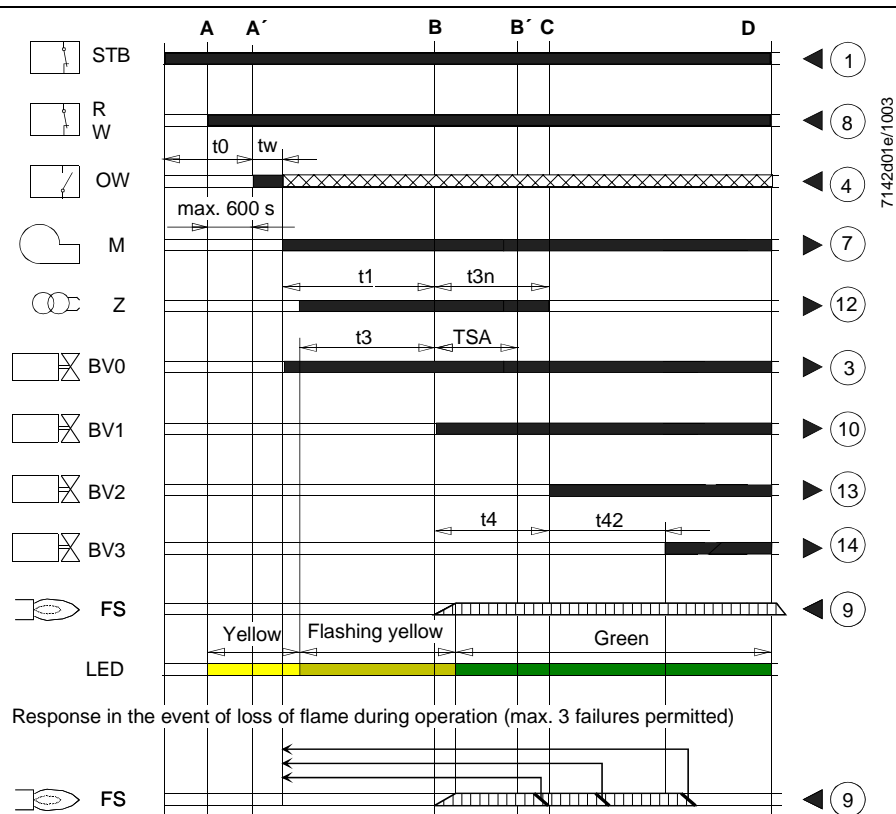
RMG508SE
RMG509SE
RMG509SE/K



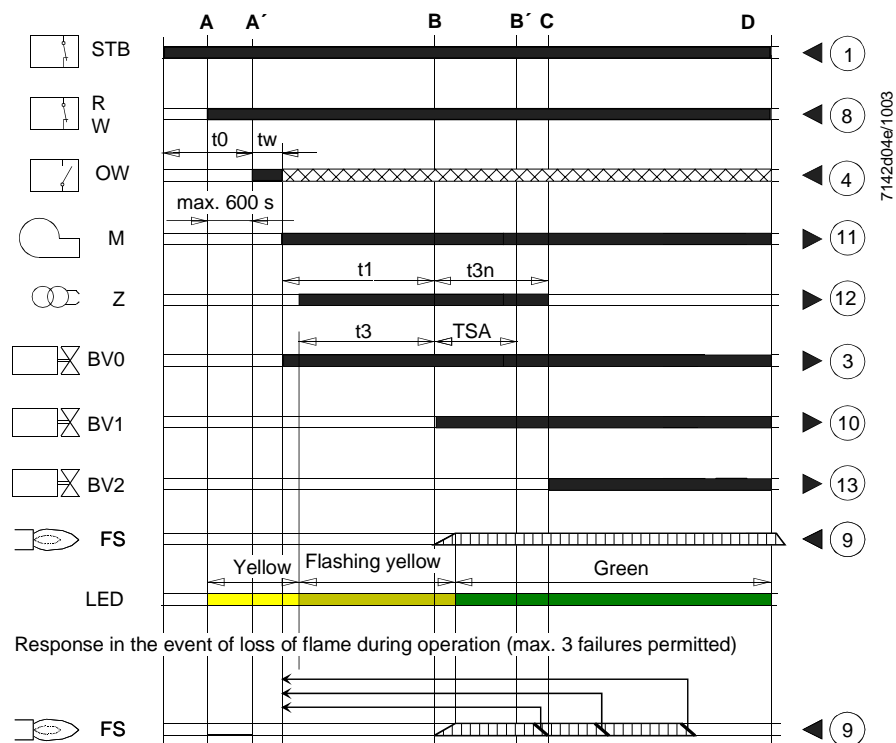
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Control sequence

RMO503SE

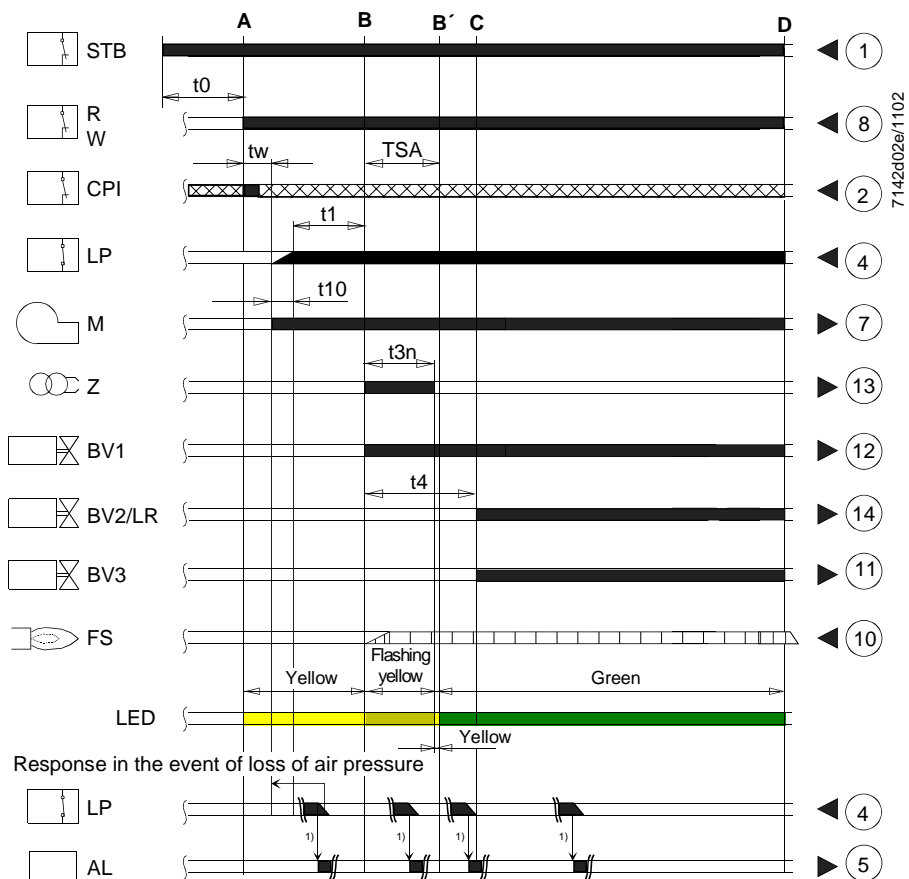


RMO503SE/K2



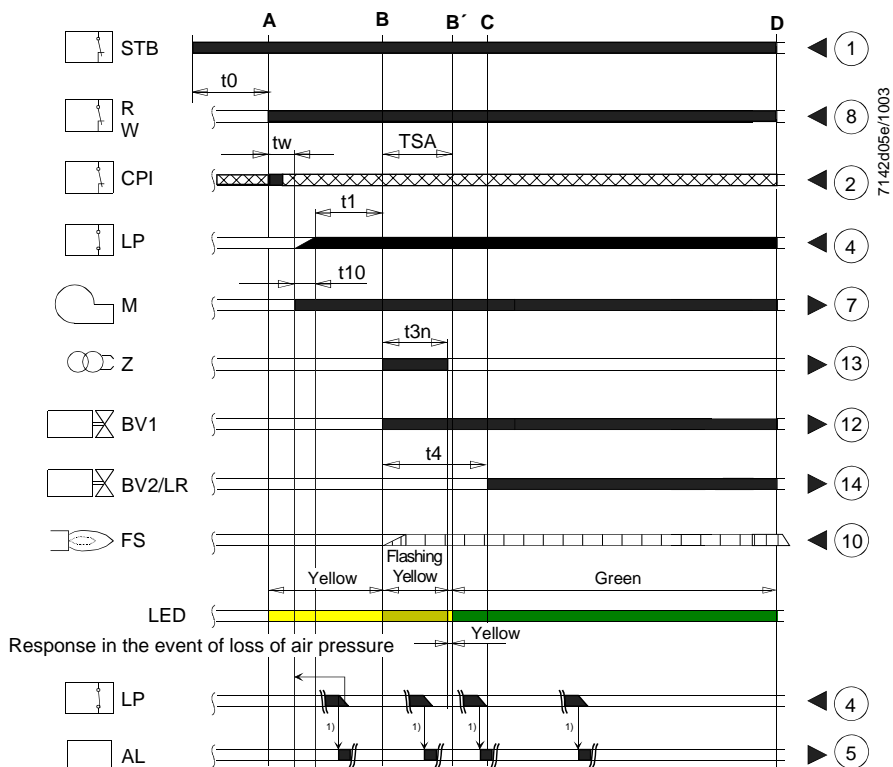
Control sequence (cont'd)

RMG508SE
RMG509SE
RMG509SE/K






7142d02e/1102

RMG508SE/GB



7142d05e/1003

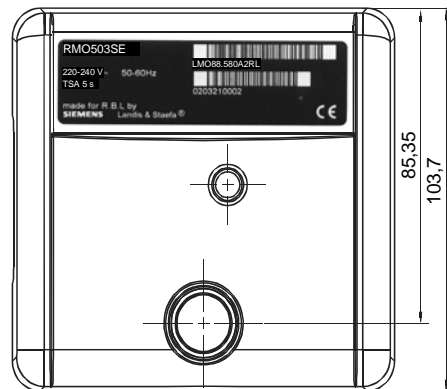
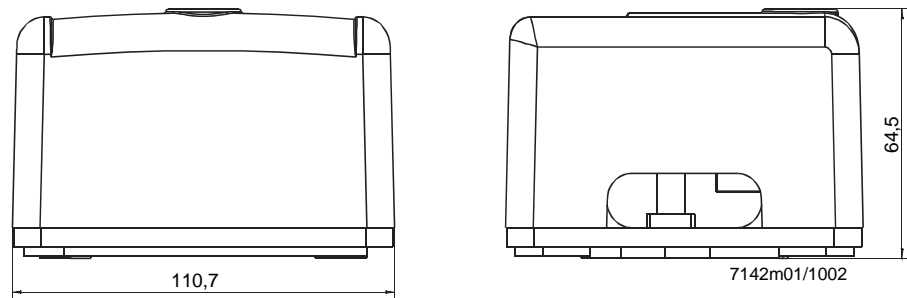
Legend

AL	Alarm device	M	Burner motor
BV...	Fuel valve	QRB...	Photoresistive detector
CPI	Closed Position Indicator	QRC...	Blue-flame detector
EK	Lockout reset button	bl	Blue
F	Built-in fuse	br	Brown
ION	Ionization probe	sw	Black
FS	Flame signal	R	Control thermostat or pressurestat
FSV	Flame signal amplifier	Si	External primary fuse
HS	Main switch	STB	Safety limit thermostat
K...	Contacts of control relay	OW	Release contact of oil preheater
LP	Air pressure switch	W	Limit thermostat or pressure switch
LR	Load controller	Z	Ignition transformer
A'	Beginning of startup with burners using «OW»	B-B'	«TSA»
A	Heat demand	C	Change to operation
B	End of prepurging, start of «TSA»	C-D	Operation
		D	Change to standby
	Control signals of burner control	1)	Lockout
	Required input signals		
	Permitted input signals		
tw	Waiting time	t3n	Postignition time (ignition time during «TSA»)
TSA	Ignition safety time	t4	Interval «BV1-BV2»
t0	Waiting for heat demand from «R»	t10	Specified time for air pressure signal
t1	Prepurge time	t42	Interval «BV2-BV3»

Dimensions

Dimensions in mm

Burner control with
plug-in base



Burner control complete
with lockout reset but-
ton extension
AGK20.43 and plug-in
base

