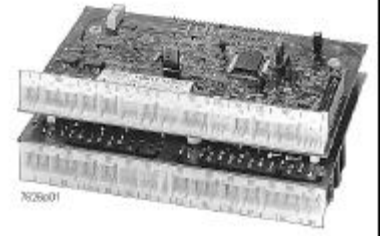


Gas Burner Controls

LGM11.44...

with automatic ignition and control functions for the heating and domestic hot water circuit



Microprocessor-based gas burner controls providing all control functions required for modern gas-fired heating boilers in intermittent operation with automatic ignition.

LGM11.44... have been designed for use in forced draught gas burners conforming to EN676 for boiler capacities up to 120 kW and higher with modulating premix burners via pneumatic air/fuel ratio control, offering high efficiencies and extremely low emission levels.

The LGM11.44... and this data sheet are intended for use by OEMs that integrate the burner controls in their products!

Main Features

- **High level of flexibility:**
All LGM11.44...-specific burner, controller and plant parameters can be set with the help of an external handheld operating unit.
- **Customer-specific parameter settings:**
Landis & Staefa presets the burner- and controller-specific parameters according to prior agreement with the customer.
- **Approvals:**
The burner controls are tested to EN 298 and DIN 3440 (test of thermal reset limit thermostat, for recommended detector configuration only) and are CE-certified.

Functions

(Version 7.00)

Eco functions

- Startup and shutdown program
- Flame supervision (ionization)
- Weather-compensated heating circuit control with room temperature influence and automatic adaptation of the heating curve (while giving consideration to the building's thermal storage capacity)
- Communication with a maximum of seven RVP... zone controllers via gateway in an interconnected system
- Modulating boiler / domestic hot water (d.h.w.) temperature control via speed control of the DC fan operating on AC 230 V mains voltage
- Weekly program with seven individual 24-hour programs each with three heating periods holiday program
- Boost heating / quick setback
- Room temperature limitation / automatic 24-hour heating limit

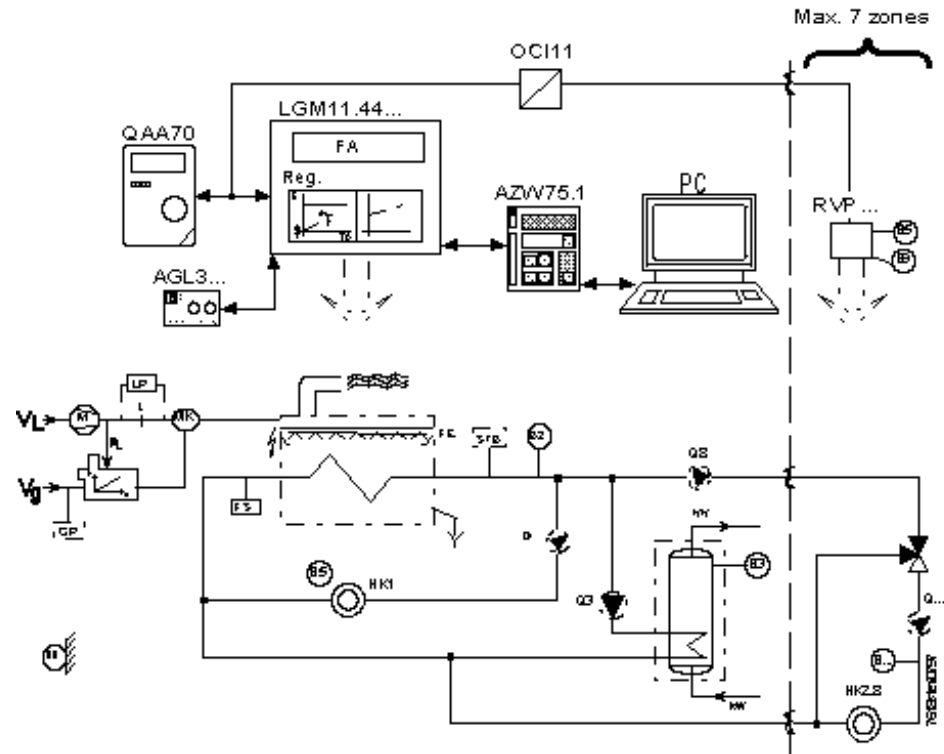
Protective functions

- Automatic summer / winter changeover
- Frost protection for the building, the plant, d.h.w., and the boiler
- Pump kick and kick of changeover valve / burner cycling protection
- Legionella function / emergency operation
- Automatic intermittent operation if continuous operation exceeds 24 hours
- Fan speed limitation

Operating functions

- System diagnostics, indication of program position via multifunctional display
- Hours run meter and startup counter
- Operating mode changeover via telephone network with an external switch
- Programmable AC 230 V output for:
 - status signal, common fault signal, primary pump or fan with a fixed speed
- Activation of various selection functions via operating section
- Visualization of all LGM... parameters via user-friendly PC software tool

Basic diagram



Legend

B...	...detector	MK	Mixing chamber
B2	Boiler temperature detector	pL	Air pressure (compensating variable for VDA...)
B3	D.h.w. temperature detector	Q...	...pump
B5	Room temp. det. (integrat. in QAA70...)	Q1	Heating circuit pump
B9	Outside detector	Q3	D.h.w. storage tank charging pump
FA	Burner control	Q8	Primary pump
FE	Ionization current detector electrode	Reg.	Controller
FS	Flow switch	STB	Manual reset safety limit thermostat
GP	Gas pressure monitor	TA	Outside temperature
HK...	Heating circuit...	TK	Boiler water temperature
KW	Cold water	Vg	Volumetric gas flow
L	Air orifice	VL	Volumetric air flow
LP	Air pressure monitor	WW	Hot water
M	Fan motor		

Type summary

Management unit

- Ni1000 as a boiler and d.h.w. temperature detector
- NTC as a boiler and d.h.w. temperature detector

LGM11.44A259...
on request

Accessories

- Ignition module
- Safety transformer conforming to IEC 742 / VDE 0551 with integrated RAST5 socket
- Room unit
- Room temperature controller (2-position)
- Boiler and d.h.w. temperature detector Ni1000 (B2...B4)
- Boiler and d.h.w. temperature detector Ni1000 (B2...B4)
- Outside detector (B9)

TQG21.A8

AGL24.A2501
QAA70...
REV...
QAK21...
QAZ21...
QAC31

- Zone controller (SIGMAGYR® RVP DIGITAL)
- Heating controller (SIGMAGYR® RVP DIGITAL)
- Gateway

RVP45.500
RVP75...
OCI11

- Ignition cable (by agreement)
- Operating unit / display unit (by agreement)
- Handhelp operating unit for programming, commissioning and service

AGL11.A98
AGL3...
AZW75.1

Technical data

LGM11.44...

Mains voltage	AC 230 V +10 % / -15 %	Mounting position	optional
Mains frequency	50 Hz ±5 %	Weight	approx. 0.35 kg
Power consumption (excl. transformer and loads)	15 VA max.	Identification code to EN 298	F M C L B N
Degree of protection (without housing)	IP00		
– mandatory after mounting	IP40 min.		
Environmental conditions			
- Transport	IEC 721-3-2		
Climatic conditions	class 2K2		
Temperature	-20...+70 °C		
Humidity	< 95 % r.h.		
Mechanical conditions	class 2M2		
- Operation	IEC721-3-3		
Climatic conditions	class 3K5		
Temperature	0...+60 °C		
Humidity	< 95 % r.h.		

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

Program times
LGM11.44...

Pre-purge time t_v	0...51 s	All times are adjustable with the handheld operating unit AZW75.1 !
Pre-ignition time t_{vz}	0...5 s	
Safety time t_s	1.8...9.8 s	
Post-purge time t_n	0...51 s	

Flame supervision

Required ionization current:		Required insulation resistance of the detector electrode and wire with respect to the earthed burner parts	> 50 MΩ
– Switching threshold	2.8μA max.	Lay detector cable separately and protect against condensation!	
– Typically	1.4 μA		
Reaction time in the event of flame failure	< 1 s		

Fan motor

Speed-controlled interface DC 39 V	e.g.	G1G126AA29... (ebm)
DC fan operating on AC 230 V mains voltage		G1G160AB41... (ebm)
		Other types on demand!
The Landis & Staefa specifications H 4 741 9500 0 must be complied with and the fan must be approved by Landis & Staefa!		

Inputs / outputs

Safety extra low voltage		Fuel valve	
General		– Voltage	AC 24 V ±15 %
– Voltage	AC 24 V	– Current consumption	each < 0.8 A, cosφ > 0.9
– Current (typical)	10 mA	Higher current ratings on demand!	
– N.O. contact	1	Manual reset safety limit thermostat (STB)	
– Contact material (recommended)	silver or silver-nickel	- Voltage	AC 24 V ±15 %
		- Current	same as fuel valves BV1 + BV2
Changeover valve		Gas pressure monitor (GP)	
– Voltage	AC 24 V ±15 %	- Voltage	AC 24 V ±15 %
– Current consumption	< 0.33 A, cosφ > 0.8	- Current	same as fuel valves BV1 + BV2
– Running time	4...15 s		
Mains voltage:			
Heating circuit pump, d.h.w. charging pump, programmable output			
– Voltage	AC 230 V +10 % / -15 %		
– Current consumption	total < 2.2 A max., cosφ > 0.6		
(max. total current at all three outputs together !)			
– Switch-on pulse	< 4.5 x I Nenn		
(Imax. total < 9.9 A for e-function and $\tau \leq 0.1$ s; but max. 5 A cosφ > 0.6 per output for e-Funktion and $\tau \leq 0.1$ s!)			

Permissible cable lengths / cross sections

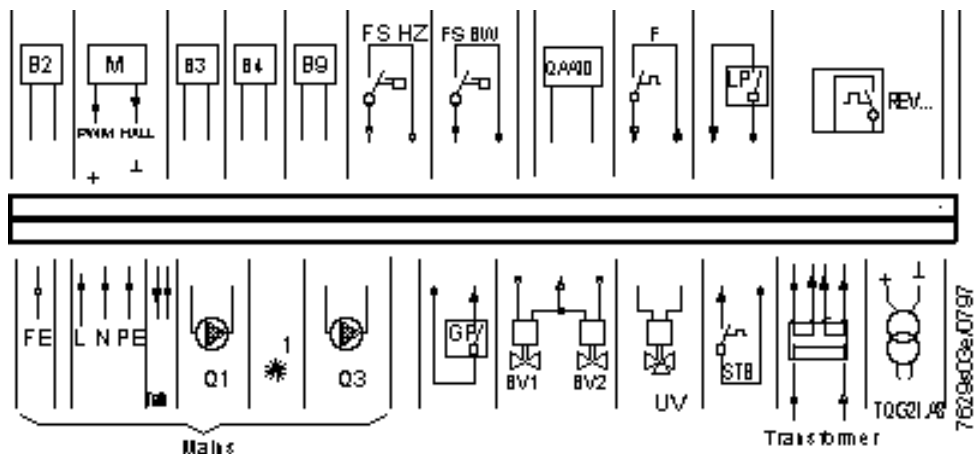
Within the boiler casing generally	< 3 m / ≥ 0.75 mm ²	Outside the boiler casing general	< 40 m / ≥ 1.5 mm ²
– Ribbon cable to the operating unit	< 0.6 m		
– Ign. cable TQG21... to ign. electrode	< 0.6 m		

Connections

RAST5 connector system with coding and latching possibility

Connection facilities

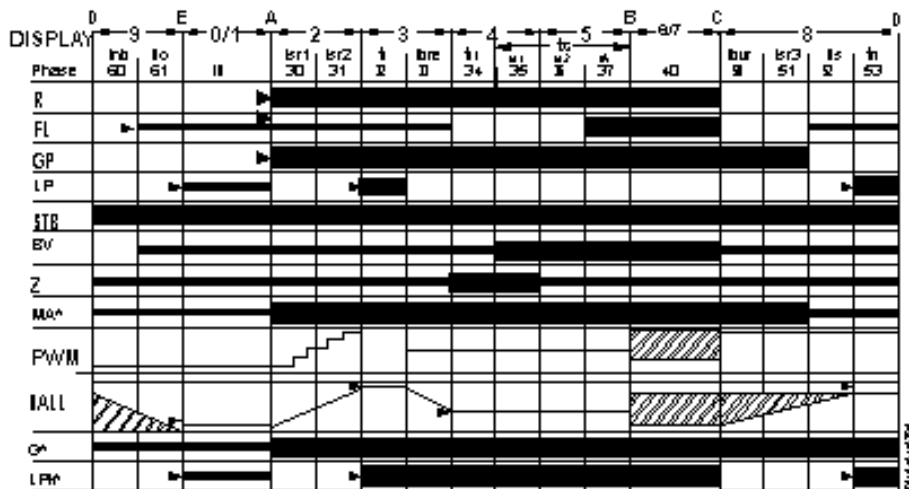
! Observe product information P7618 prior to commissioning !



Legend

B2	Boiler temperature detector	FE	Ionization current detector electrode
M	DC fan (AC 230 V)	L, N, PE	Phase, neutral conductor and protective earth
PWM	Puls with modulation: Fan motor control signal	Q1	Heating circuit pump
HALL	Checkback signal	*1	Programmable output (optional)
B3/B4	D.h.w. temperature detector	Q3	D.h.w. storage tank charging pump (optional)
B9	Outside detector	GP	Gas pressure monitor
FS HZ	Flow switch heating circuit	BV...	Fuel valve
FS BW	Flow switch d.h.w. circuit	UV	Changeover valve (optional)
F	Frost protec. / remote teleph. switch (opt.)	STB	Safety temperature limiter
LP	Air pressure monitor	Trafo	Mains transformer connections
		Netz	Mains voltage

Sequence diagram



Legend

0000	Required signals	DISPLAY	7-segment display on operating unit LGM11.44...
BBBB	Inadmissible signals	Phase	Program phase (display on AZW75.1...)
▶	Transition criterion	R	Heat demand by controller
A	Controller start	FL	Flame signal
B	Operating position of burner	GP	Gas pressure monitor
C	Controlled shutdown	LP	Air pressure monitor
D	End of shutdown	STB	Manual reset safety limit thermostat
E	End of home run	BV	Fuel valve
9	Home run	Z	Ignition
0/1	Standby	PWM	PWM signal
2...5	Start-up	HALL	Fan motor: speed checkback signal
6/7	Operation	*	(provided parameters have been set)
8	Shutdown		
tv	Pre-purge time	Programmable output: the parameters of one function can be set!	
tvz	Pre-ignition time	- G	Fan with a fixed speed
ts	Safety time	- LPK	Air pressure monitor when using a fan with a fixed speed
tn	Post-purge time	- MA	Status output

Dimensions

Dimensions in mm

