BRUCIATORI A GAS PROGRESSIVI E MODULANTI
MODULATING AND PROGRESSIVE GAS BURNERS
BRULEURS GAZ PROGRESSIVES ET MODULANTS
QUEMADOR DE GAS PROGRESIVOS EN MODULANTE

Ecoflam

ISO 9001
registered by
GASTEC

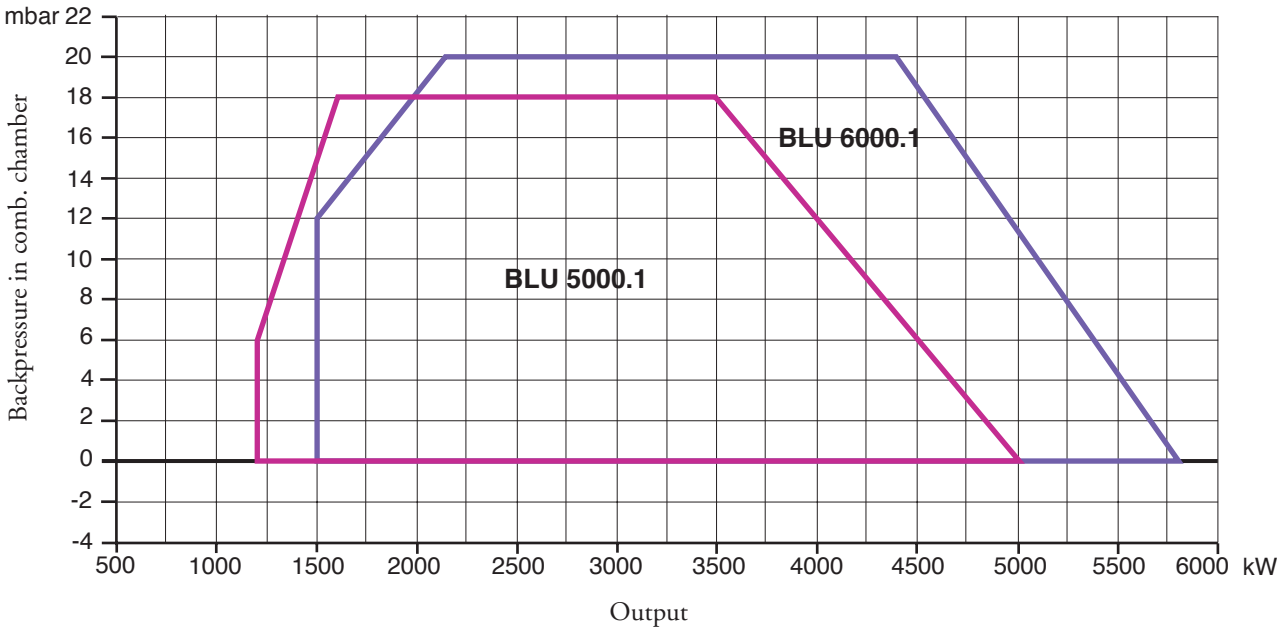
BLU 5000.1 PR / MD
BLU 6000.1 PR / MD

G20 - 70÷300 mbar

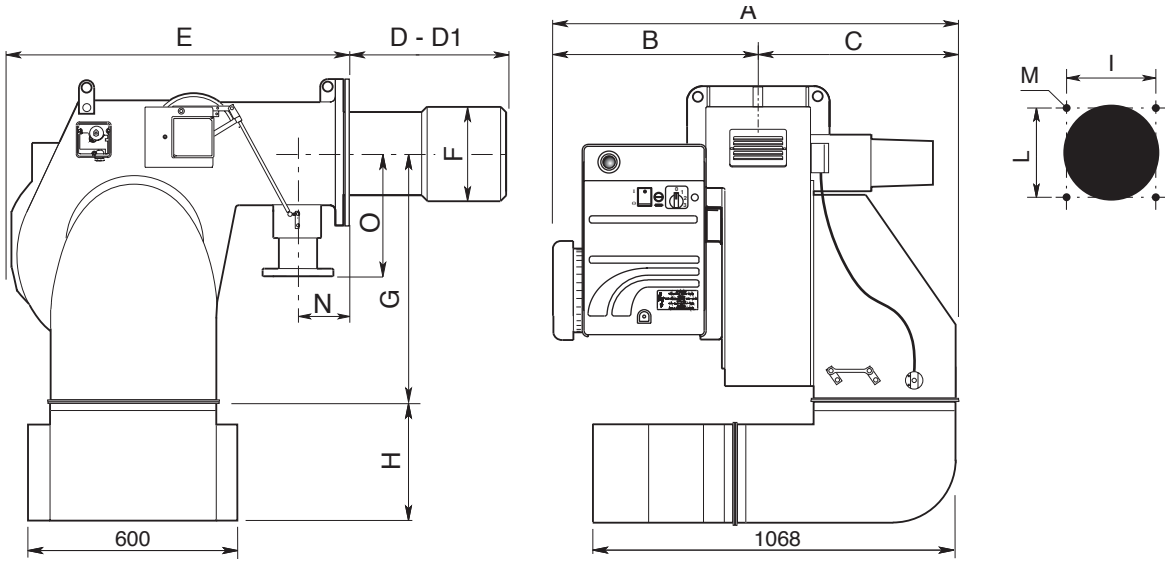
LB 832
28.04.2004

Technical data		Blu 5000.1 PR	Blu 6000.1 PR	Blu 5000.1 MD	Blu 6000.1 MD
Thermal power max.	kW	5.000	5.800	5.000	5.800
	kcal/h	4.310.000	5.000.000	4.310.000	5.000.000
Thermal power min.	kW	1.200	1.500	1.200	1.500
	kcal/h	1.034.500	1.290.000	1.034.500	1.290.000
Max. natural gas capacity	Nm^3/h	500	580	500	580
Min. natural gas capacity	Nm^3/h	110	150	110	150
Natural gas pressure	mbar	70÷300	70÷300	70÷300	70÷300
Voltage 50 Hz	V	230/400	230/400	230/400	230/400
Motor power	kW	11	15	11	15
Rpm	N°	2800	2800	2800	2800
Fuel :		P.c.i. Natural gas = 35,9 Mj / Nm^3 = 8.570 kcal / Nm^3			

WORKING FIELDS



OVERALL DIMENSIONS



MODELS	A	B	C	D	D1	E	F	G	H	I	L	M	N	O
Blu 5000.1	1019	495	524	375	575	970	320	565	400	330	330	M16	195	250
Blu 6000.1	1069	545	524	375	575	970	320	565	400	330	330	M16	195	250

D= Short head D1= Long head

CONNECTION TO THE GAS PIPELINE

Once connected the burner to the gas pipeline, it is necessary to control that this last is perfectly sealed. Also verify that the chimney is not obstructed. Open the gas cock and carefully bleed the piping through the pressure gauge connector, then check the pressure value trough a suitable gauge. Power on the system and adjust the thermostats to the desired temperature. When thermostats close, the sealing control device runs a seal test of valves; at the end of the test the burner will be enabled to run the start-up sequence.

ELECTRICAL CONNECTIONS

All burners factory tested at 400 V 50 Hz three-phase for motors and 230 V 50 Hz monophase with neutral for auxiliary equipment. If mains supply is 230 V 50 Hz threephase withuot neutral, change position of connectors on burner as in fig. Protect burner supply line with safety fuses and any other devices required by safety standards obtaining in the country in question.

BURNER START-UP

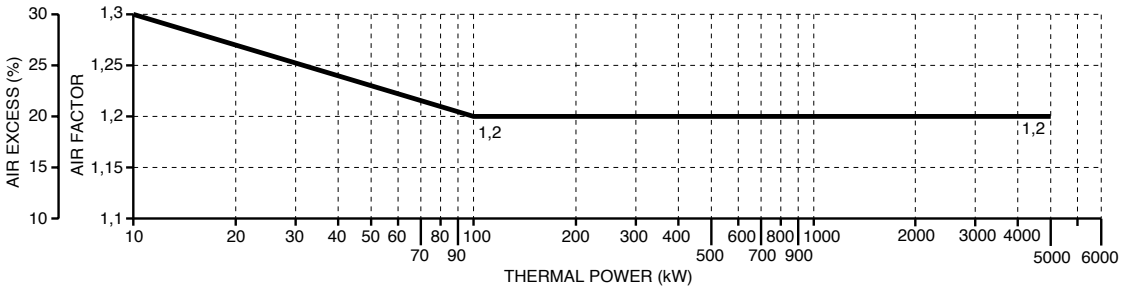
Once connected the burner to the gas pipe make sure that there are no leakages. Air bleed the pipe through the pressure gauge fixing point and check the pressure with a pressure gauge . Turn the thermostats to the desired temperature.
PRELIMINARY CHECKS
- Before starting up the boiler check the following: - gas type and feed pressure; - gas valves closed;
- the seals in the pipe fittings; - gas pipe breather and input pressure; - that the cable complies with the diagram and the phase and neutral wires correspond; - that the burner shuts down when the boiler thermostat opens;- the seal of the boiler furnace which prevents air from entering; - the seal on the flue-boiler pipe fitting; - the condition of the flue (sealed, free from blockage, etc).If all these conditions are present, start the burner. The control device starts the motor to carry out prewashing of the combustion chamber. During this prewash period (about 30 seconds) the device checks that air pressure is correct via the air pressure switch. At the end, it supplies power to the transformer and opens the gas valves. The flame must be lit and stabilize within 3 seconds, which is the device's safety time limit. Check to ensure the flame is lit before placing any control instrument in the flue. Adjust and check the gas flow necessary for the boiler at the meter. Adjust the air flow according to the gas flow to obtain correct combustion.

ADJUSTING THE COMBUSTION PROCESS

IMPORTANT: to obtain the right adjustment of the combustion and thermal capacity it is important to analyze the reducts of combustion with the aid of suitable instruments. The combustion and thermal capacity adjustment is done simultaneously, together with the analysis of the products of combustion, making sure that the measured values are suitable and that they comply with current safety standards. On this matter, please refer to the table and figure below.
THESE OPERATIONS MUST BE DONE BY PROFESSIONALLY-QUALIFIED TECHNICIANS.

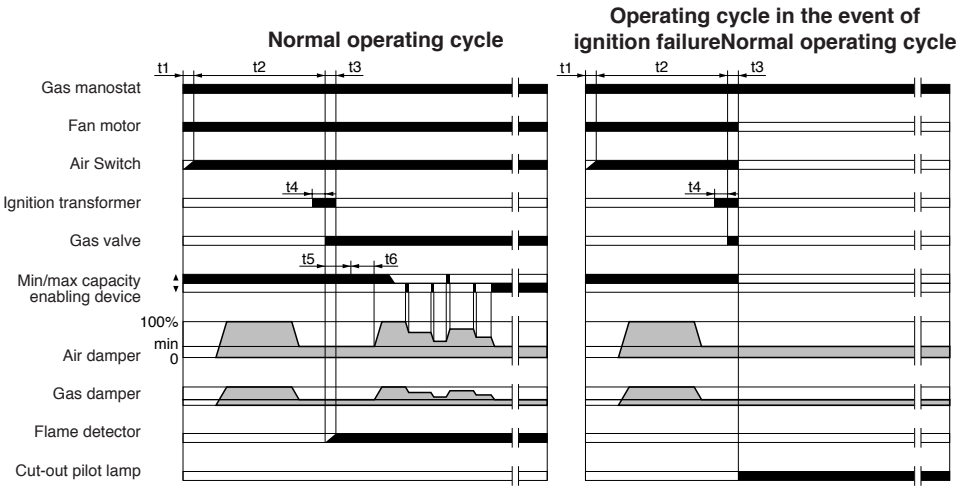
	Natural Gas
CO_2	9,6%
CO	<50 ppm

	LPG
CO_2	11,7%
CO	<50 ppm



LANDIS & STAEFA, Model LFL1.622 OPERATING CYCLE

Ref.	Description	Duration
t1 t2	Duration Waiting time for confirmation of air pressure	8”
t3	Preventilation time	66”
t4	Safety time	2”
t5	Pressurizing time	4”
	Time for enabling operation of the main gas valve on minimum capacity	10”
t6	Time for enabling operation of the main gas valve on maximum capacity	10”

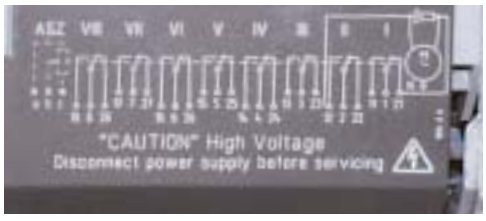


The control box starts the burner fan, to carry out the prepurging of the combustion chamber, and cheks the vent air pressure through the air pressure switch. At the end of prepurging, the ignition transformer cuts-in and generates a spark between the electrodes. At the same time the two gas valves open (Vs safety valve and Vl working valve). The total safety, in case of missed ignition or casual burner's flame-out, is granted by a ionisation probe which cuts-in and sets the burner shutdown within the safety time. In case of gas lack or a major pressure drop, the minimum air pressure switch shuts down the burner.

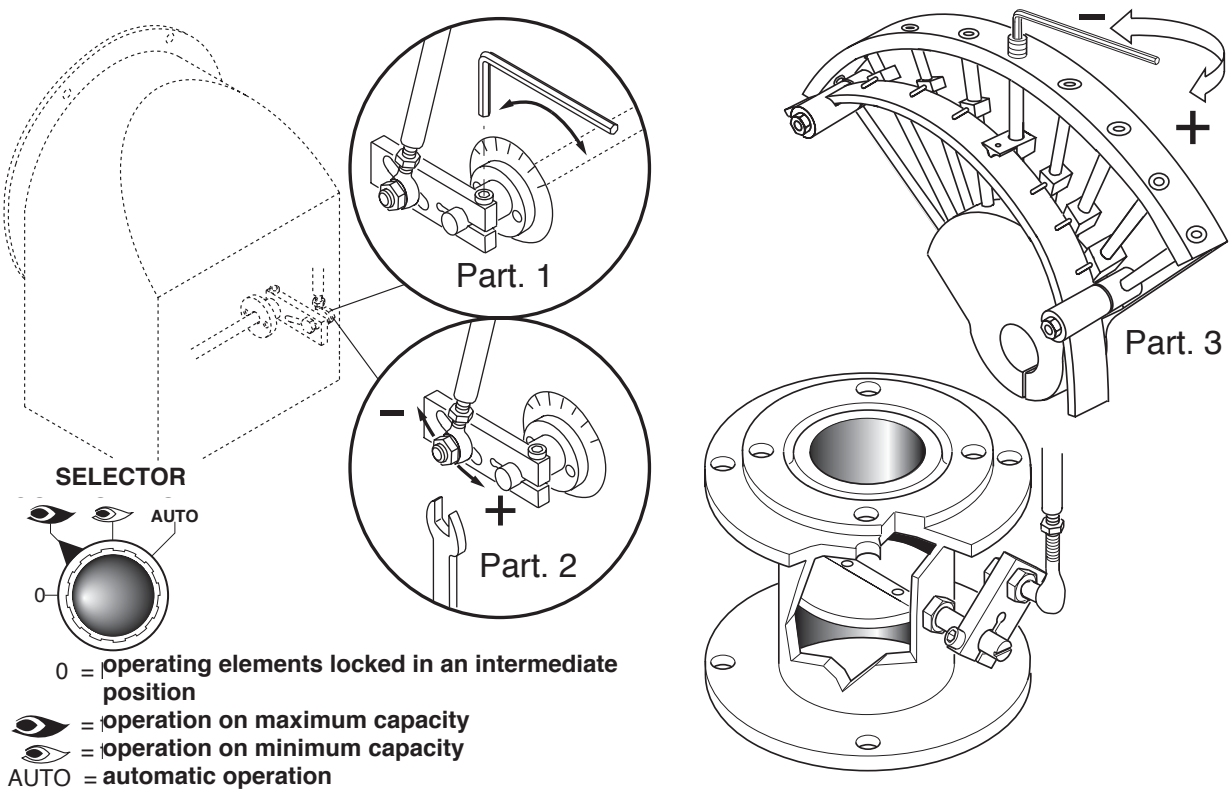
LANDIS & STAEFA SQM 50.481A2 AIR DAMPER MOTOR

Remove cover to gain access to the adjusting cams.The cams are to be adjusted through the suitable key provided for. Description:

I - High flame opening position adjusting cam (Air)
II - Min. flame opening position adjusting cam (Air).
III - Low flame opening position adjusting cam (Air)
IV - Not used cam
V - Not used cam
VI - Not used cam
VII - Not used cam
VIII - Not used cam



AIR ADJUSTMENT



ADJUSTING THE MINIMUM CAPACITY OF THE BURNER – AIR and GAS

Position the selector placed on the control panel on position 2 and proceed as follows:
Adjust the minimum gas flow rate using a suitable wrench, turn the butterfly valve until you reach the correct gas flow, as established by analyzing the combustion process.

ADJUSTING THE MAXIMUM CAPACITY OF THE GAS

Position the selector, situated on the control panel, on position 1 and proceed as follows:
Adjusting the maximum gas flow rate (see figure on solenoid valve adjustments) or adjust the gas pressure in the governor.

ADJUSTING THE MAXIMUM AIR FLOW RATE

Adjusting the maximum air flow rate (see figure, detail 2). Loosen the nut holding the air damper transmission rod;
The correct air flow as established by analyzing the combustion process.

ADJUSTING THE INTERMEDIATE BURNER CAPACITY

Using the selector, start the servomotor (closing or opening) and position on 0 to stop the stroke; the adjustment is made as outlined below. Repeat the operation for the other cam points.
Adjustment the intermediate gas flow rates (see figure, detail 3): - using a suitable Allen wrench, change the position of the cam guide blade; if you screw it down, the flow rate is reduced; if you unscrew it, the flow rate increases.

CALCULATING THE BURNER CAPACITY

To calculate the burner's capacity in kW, proceed as follows: Check the gas flow rate (in liters) on the counter and the time of the reading in seconds.

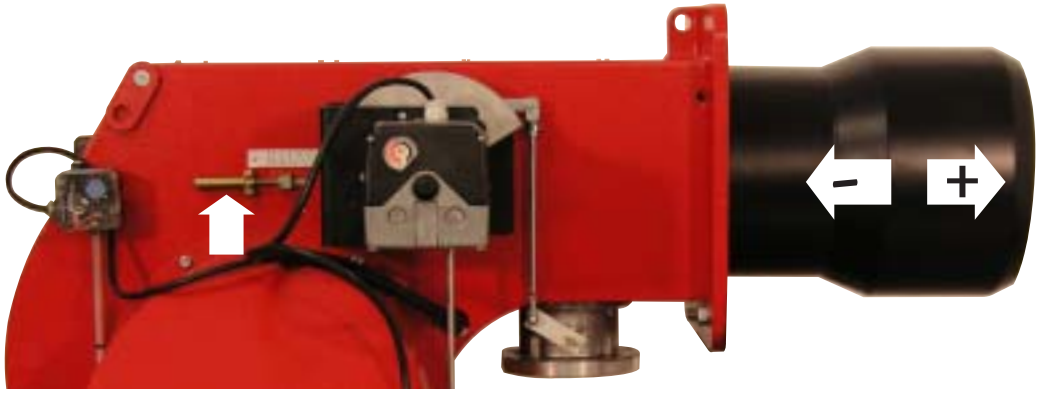
Proceed with the calculation using the following : $\frac{e}{sec} \times f = kW$

e = Litres gas
sec = Time in second
f: G20 = 34,02; G30 = 116; G31 = 88

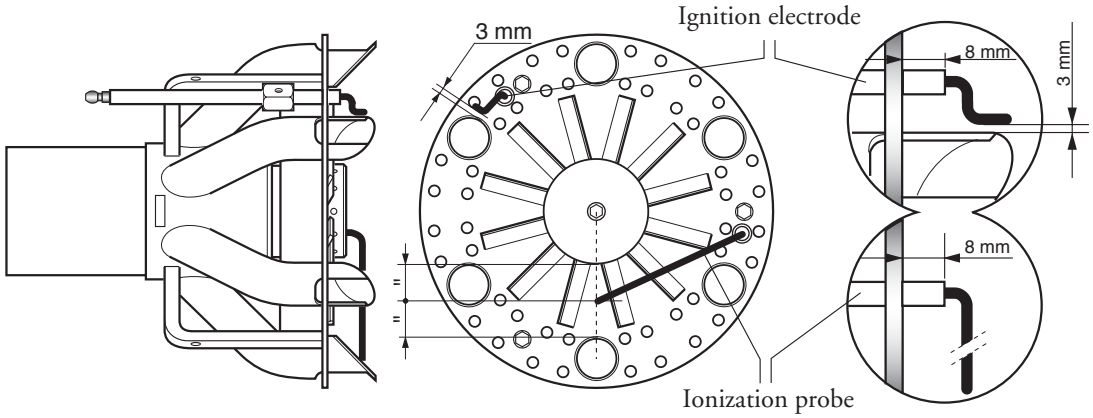
COMBUSTION ADJUSTMENT

WARNING: In order to have a correct combustion and thermal output adjustments, these must be carried out together with a combustion analysis, to be executed through suitable devices, taking care that the values are the correct ones and are in accordance with the local safety regulations. The adjustments must be carried out by qualified and skilled technicians authorised by Ecoflam S.p.A.

FIRING HEAD SETTING

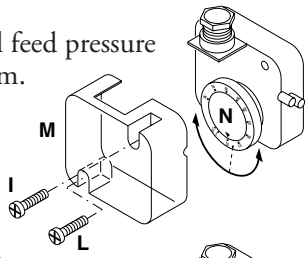


IGNITION ELECTRODE



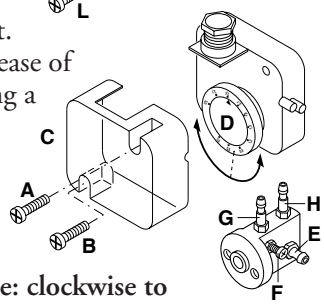
ADJUSTMENT OF GAS MINIMUM PRESSURE SWITCH

Unscrew off and remove cover M. - Set regulator N to a value equal to 60% of gas nominal feed pressure (i.e. for nat. gas nom. pressure = 20 mbar, set regulator to a value of 12 mbar; for L.P.G. nom. pressure of G30/G31- 30/37 mbar, set regulator to a value of 18 mbar).Screw up cover M



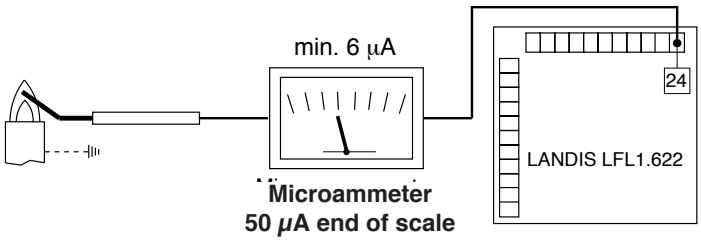
ADJUSTMENT OF THE AIR PRESSURE SWITCH

Unscrew screws A and B and remove cover C.- Set the pressure switch to the minimum by turning regulator D to position 1.
- Start the burner and keep in low flame running, while checking that combustion is correct. Through a small cardboard, progressively obstruct the air intake until to obtain a CO2 increase of 0,5÷0,8% or else, if a pressure gauge is available, connected to pressure port E, until reaching a pressure drop of 1 mbar (10 mm of W.G.). - Slowly increase the adjustment value of the air pressure switch until to have the burner lockout. Remove the obstruction from the air intake, screw on the cover C and start the burner by pressing the control box rearm button.



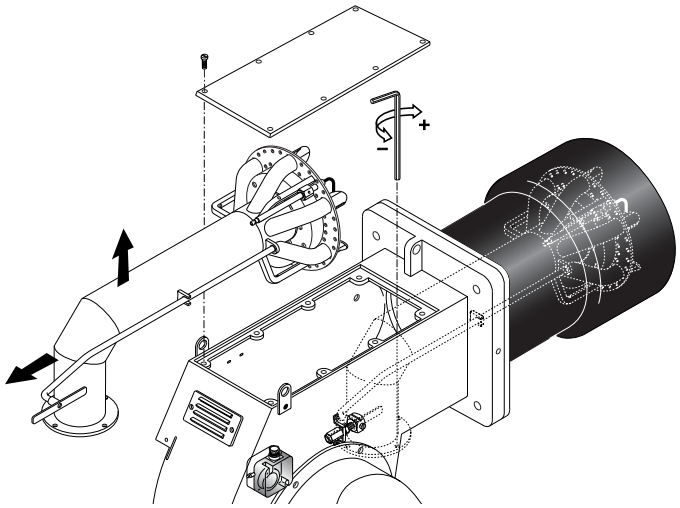
Note: The pressure measured at pressure port E must be within the limits of the pressure switch working range. If not, loose the locking nut of screw F and gradually turn the same: clockwise to reduce the pressure; counterclockwise to increase. At the end tighten the locking nut.

IONIZATION CURRENT

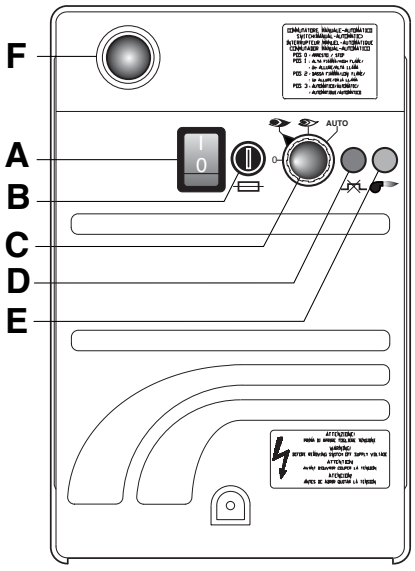


The ionization current is checked by inserting a microammeter with an end of scale of 50 µA (d.c.) in series with the ionization probe. A faulty position of the electrode can lead to a reduction in the ionization current and cause a safety cut-out of the burner due to a flame detection failure. In this case, check the position of the electrode, its electric connection and the earthing of the burner.

FIRING HEAD DISASSEMBLY



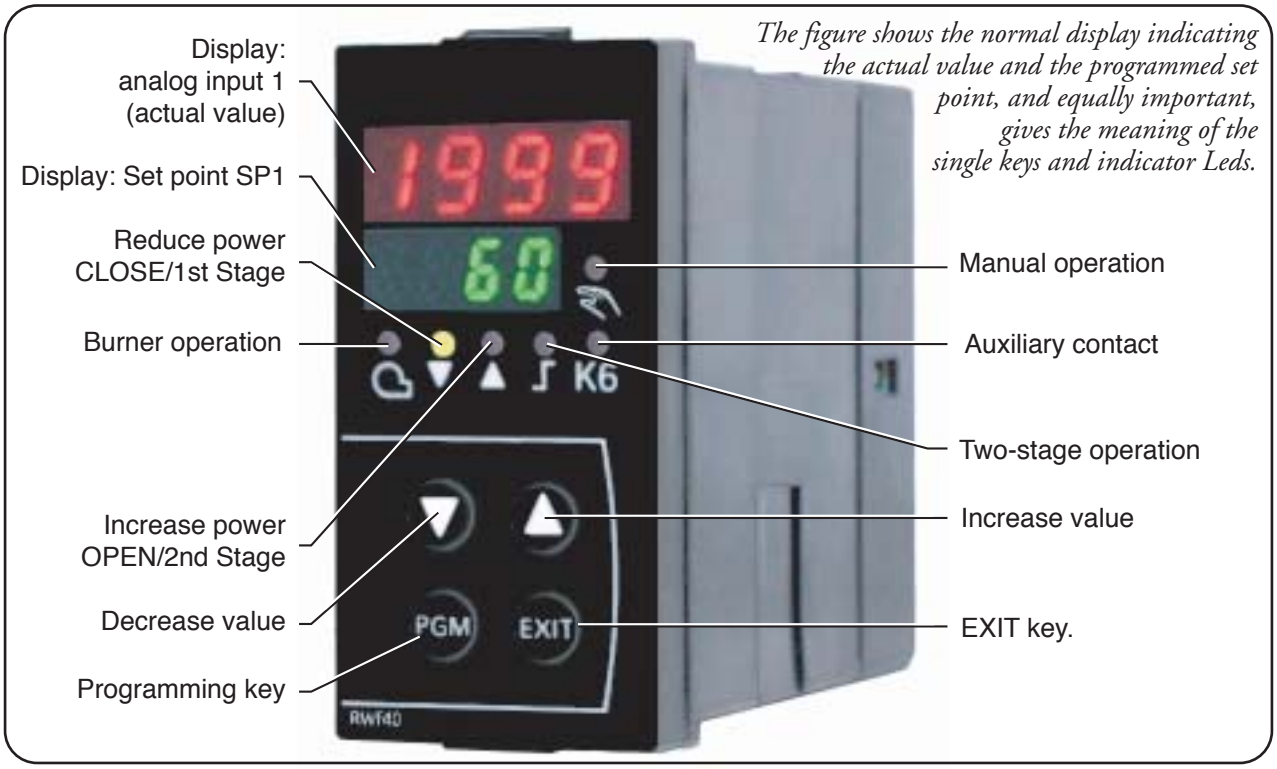
DESCRIPTION OF THE CONTROL PANEL OF THE BURNER



A- main switch I / O
B- fuse
C- selector :
0 = operating elements locked in an intermediate position
= operation on maximum capacity
= operation on minimum capacity
AUTO = automatic operation
D- thermal relaylock-out lamp
E - working lamp
F - reset key

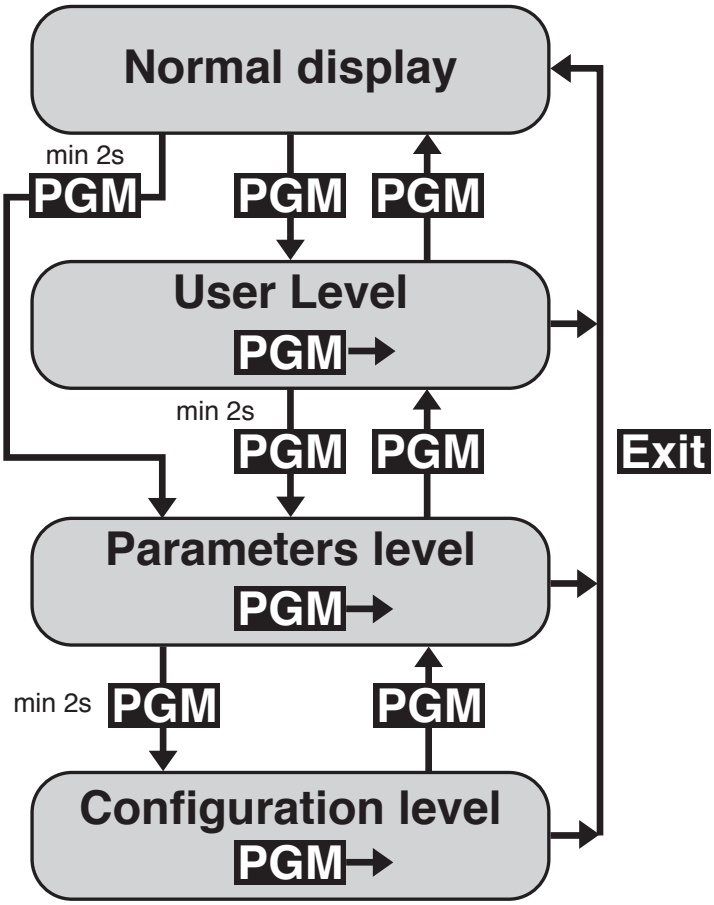
RWF 40 MICROPROCESSOR REGULATOR

Description of display and keys on the RWF 40 microprocessor regulator



The figure shows the normal display indicating the actual value and the programmed set point, and equally important, gives the meaning of the single keys and indicator Leds.

PROGRAMMING LEVELS



SETTING PARAMETERS

When the burner is ignited all displays of the regulator light up. The set point display will blink for about 10 seconds. The value in the upper field of the display (red) indicates the actual value. The value in the lower field of the display (green) indicates the set point currently programmed.

CHANGING THE SET POINT

To change the set point, proceed as follows: - Press the ***PGM*** button to access the user level. SP1* will appear in the lower display - Change the value of set point SP1 using the t and s keys.▼e ▲. - After a 2 second delay the value set is stored automatically – To return to normal display press ***EXIT***.

***** The value of SP1 depends on the value set previously in configuration level **C111**.

SETTING PID PARAMETERS

PID parameters are factory set to standard mean values. The operation of the regulator can be self-adapted to suit the system by activating the "tunE" function. The regulator will set the PID parameters automatically. To activate the "tunE" function proceed as follows: - With the burner in operation, press ***PGM*** + ▼. - the caption "tunE*" will blink in the display. – When "tunE" stops blinking, the self-adaptation routine has been completed. - Confirm the computed parameters by pressing the ▲ key for 2 seconds.

***** The "tunE" function cannot be activated in Manual mode, or when the burner is off.

The PID parameters can be corrected manually from the parameters level, working on the proportional band Pb1, the derivative action time dt and the integral action time rt.

To change parameters Pb1, dt and rt, proceeds as follows: - Press the ***PGM*** button to access the parameters level. - To move from one parameter to the next, press ***PGM*** . - When **Pb1** is displayed, the value can be increased or decreased using the s and t keys. - Confirm the changed parameters by pressing ***PGM***. - If confirmation is not given within 2 seconds the value will be stored automatically. - Press ***PGM*** to access the next parameter. - When dt is displayed, repeat the procedure described above. - Press PGM to access the next parameter. - When rt is displayed, repeat the procedure above. - To return to normal display press ***EXIT***.

DIFFERENTIAL SETTING FOR IGNITION AND SHUTOFF

The regulator allows the selection of an adjustable switching differential that establishes burner ignition and shutoff values. HYS1 indicates the lower ignition limit, below which the regulator switches the burner to maximum power. HYS3 indicates the upper shutoff limit, above which the regulator switches the burner off. To set HYS1 and HYS3 proceed as follows: - Press the ***PGM*** key to access the parameters level. - To move from one parameter to the next, press ***PGM*** . - When **HYS1** is displayed (burner ignition differential-stage II), increase or decrease the value using the ▼ and ▲ keys. - Confirm the changed parameters by pressing ***PGM***. - If confirmation is not given within 2 seconds the value will be stored automatically. - Press ***PGM*** to access the next parameter. - When **HYS2** is displayed (burner shutoff differential-stage II), repeat the procedure described above. - Press ***PGM*** to access the next parameter. - When **HYS3** is displayed (upper shutoff differential) repeat the procedure described above. - To return to normal display press ***EXIT***.

MANUAL/AUTOMATIC MODE

To access "MANUAL" mode, press and hold ***EXIT*** for at least 5 seconds. Manual mode can only be selected when the burner is in operation. It is deactivated automatically when the burner shuts off. When the LED above the hand symbol is alight, the regulator is in manual mode and the position of the servocontrol can be changed using the ▼ and ▲ keys. The LEDS on the front of the regulator indicate whether the servocontrol OPEN or CLOSE command is currently active. Pressing the ▼ key the servocontrol OPENS. Pressing the ▲ key the servocontrol CLOSES. To select automatic mode press and hold ***EXIT*** for at least 5 seconds. The LED above the hand symbol goes out and the regulator reverts to automatic.

CLIMATIC COMPENSATION

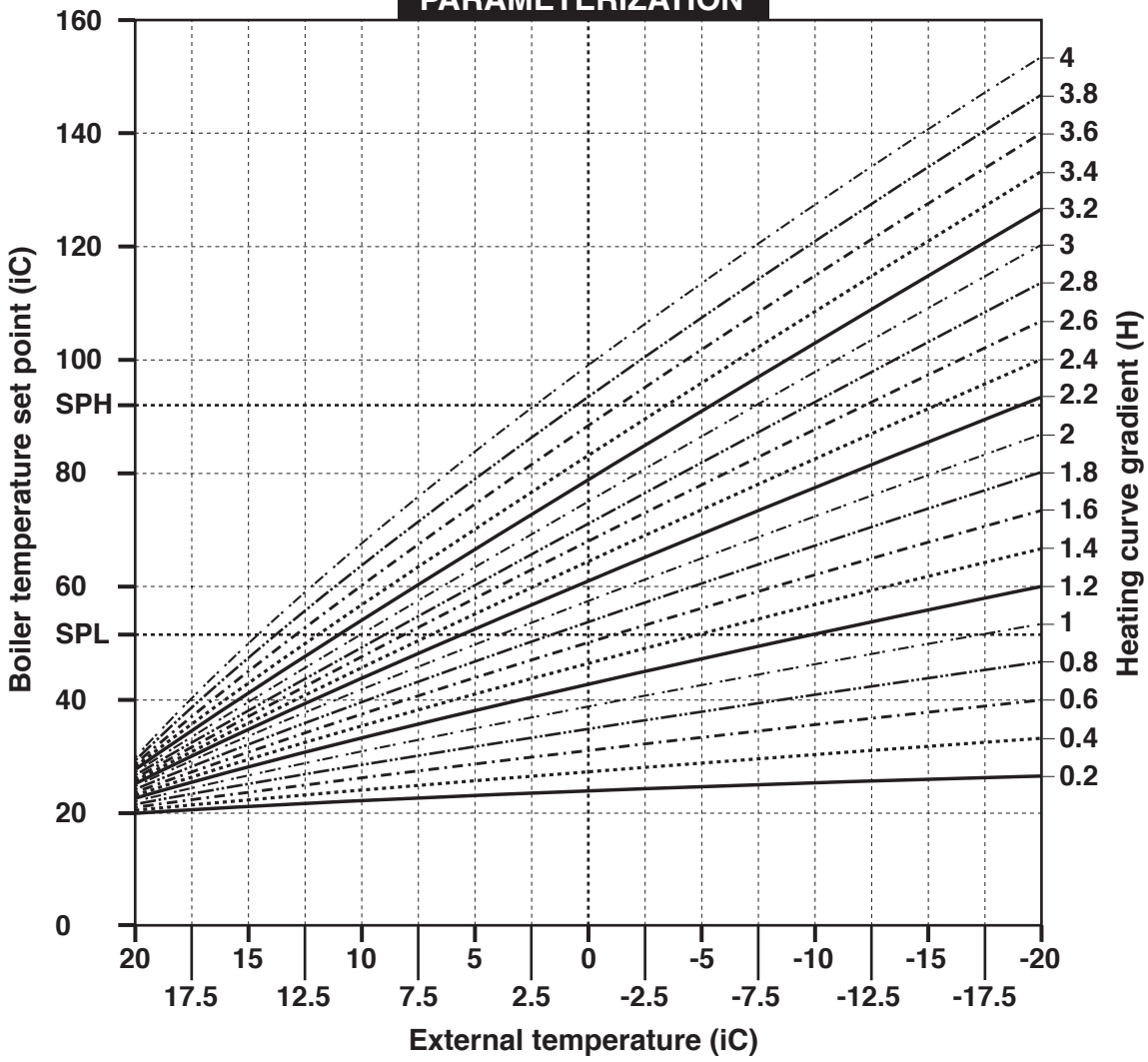
The RWF 40 regulator can be set with the set point interlocked to the external probe. To select this operating mode, proceed as follows: - Connect the required probe as in the wiring diagram. - Change the regulator settings. When using an external probe the regulator must be set as follows: - Press the ***PGM*** key to access the configuration level. When the caption **C111** (XXXX) is displayed, use the ▲ key to access the second figure (XXXX). Use the ▼ key to select the type of probe (XX3X). - Confirm the change of parameters by pressing ***PGM***. If this is not done within 2 seconds, the value is stored automatically - Press ***PGM*** to access the configuration level. When the display reads **C112** (XXXX), use the ▲ key to access the second figure (XXXX). Press the ▼ key to set the type of probe (XX3X). - Confirm the changed parameters by pressing ***PGM***. - If confirmation is not given within 2 seconds the value will be stored automatically.

- To return to normal display press ***EXIT***. To establish the heating curve, proceed as follows:

- Press ***PGM*** to access the parameters level. - Press ***PGM*** to move from one parameter to the next. - When the letter H is displayed (heating curve gradient), increase or decrease the value using the ▼ and ▲ keys. - Confirm the changed parameters by pressing ***PGM***. - If confirmation is not given within 2 seconds the value will be stored automatically.

- To return to normal display press ***EXIT***.

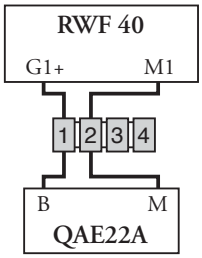
PARAMETERIZATION



PROBE CONNECTION DIAGRAMS

Cod. S721

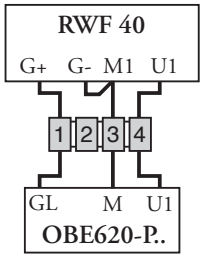
Connection for probe
QAE2..(passive probe)
Water probe
Configuration code
C111 = 9XXX



Cod. S704

Connection for probe
FT-TP/..(passive probe)
(Degusa probe)
Configuration code
C111 = 5XXX

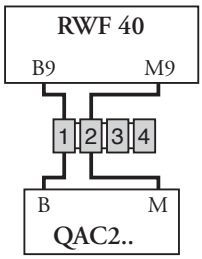
Cod. S731
S731/1
S731/2
S731/3
S731/4



Connection for probe
QBE620-P..(active probes)
Configuration code
C111 = GXXX
S731 - 0…4 bar / 0…400 kPa
QBE620-P4
S731/1 - 0…10 bar / 0…1 MPa
QBE620-P10
S731/2 - 0…16 bar / 0…1.6 Mpa
QBE620-P16
S731/3 - 0…25 bar / 0…2.5 MPa
QBE620-P25
S731/4 - 0…40 bar / 0…4 MPa
QBE620-P40

Cod. S720/1

Connection for probe
QAC22 (passive probe)
Configuration code
C111 = XX3X
C112 = XX1X



C111 – C112 INPUT CONFIGURATION INDICATIONS

Analog input 1 (actual value)	
Pt1000, 2-wire, Landis & Staefa IEC 751 FT-TP/… (passive probe)	5
Ni1000, 2-wire, Landis & Staefa QAE2 … (passive probe - water probe)	9
Standard Signal DC 0…10 V QBE620P… (active probe - pressure probe)	G

Analog Input 3 (external temperature)	
No function (probe not active)	0
External probe Pt 1000, 2-wire, QAC22 (passive probe)	1

AUXILIARY CONTACT, TYPE OF REGULATOR, SET POINT *"SP1"* BLOCK *C112.* Parameter configuration

Set point "SP1"	
Set point SP1 - data input from keys	0
Set point SP1 - interlocked to external probe (configure)	1

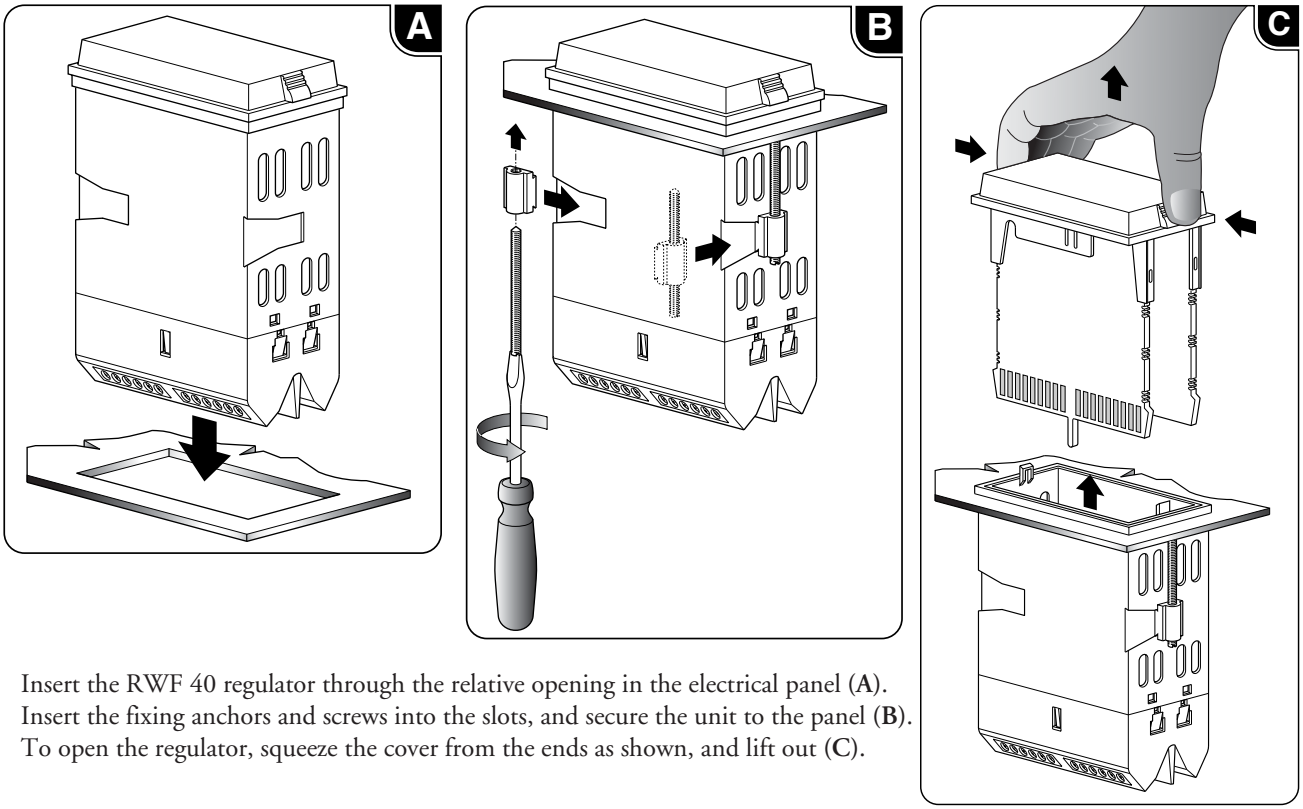
ERROR/FAULT INDICATION NUMBERS BLINKING IN DISPLAY

- ***Situation*** - The number ***1999 blinks*** in the display as the actual value, with the set point value displayed normally.
- ***Cause*** - The real value is not being measured. This means that the upper or lower limit of the measurement range on analog input 1 (real value) has been exceeded.
- ***Remedy*** - Check the electrical connections and the state of the probe. If the probe is faulty, the regulator will not indicate the real value of the physical quantity monitored. This will result in automatic shutdown (failsafe), **deactivation of the self-adapt function and inhibition of manual operation.** The response of the auxiliary contact will depend on the configuration of parameter C113.

- ***Situation*** - The number ***1999 blinks*** in the display as the actual value, with **tA** showing in the set point field.
- ***Cause*** - The external temperature is not being measured. This means that the upper or lower limit of the measurement range on analog input 3 (real value) has been exceeded.
- ***Remedy*** - Check the electrical connections and the state of the probe. If the probe is faulty, the regulator will not indicate the real value.

- ***Situation*** - The number ***1999 blinks*** in the display as the actual value, with **SP .E** showing in the set point field.
- ***Cause*** - The external set point value is not being measured. This means that the upper or lower limit of the measurement range on analog input 2 (real value) has been exceeded.
- ***Remedy*** - Check the electrical connections and the external set point signal. If the probe is faulty, the regulator will not indicate the real value of the physical quantity monitored. **This will result in automatic shutdown (failsafe), deactivation of the self-adapt function and inhibition of manual operation.**

WHEN REPLACEMENT IS NECESSARY, PROCEED AS SHOWN IN FIGURES A-B-C BELOW



Insert the RWF 40 regulator through the relative opening in the electrical panel (**A**).
Insert the fixing anchors and screws into the slots, and secure the unit to the panel (**B**).
To open the regulator, squeeze the cover from the ends as shown, and lift out (**C**).

MAINTENANCE

ANNUAL CHECK
The burner (combustion head, electrodes, etc.) must be checked regularly by an authorized technician, once or twice a year, depending on how much it is used. Before proceeding withe the maintenance check-up on the burner, it is advisable to check the general condition of the burner and take the following steps: Disconnect the burner (remove the plug).
- Close the gas shut-off cock.
- Remove the cover from the burner, clean the fan and air intake.
- Clean the combustion head and check the position of the electrodes.
- Re-install the parts.
- Check the seal on the gas connectors.
- Check the state of the flue.
- Start the burner.
- Check the combustion parameters

BEFORE TAKING ANY ACTION, CHECK:
- that there is power in the circit and the burner is connected;
- that the gas pressure is right and the gas shut-off cock is open;
- that the control systems are properly connected. If all these conditions have been satisfied, start the burner by pressing the reset button. Check the burner cycle.

IF THE BURNER FAILS TO START:
check the switch, the thermostats, the motor and the gas pressure.

IF THE BURNER PROCEEDS WITH PREVENTILATION BUT CUTS OUT AT THE END OF THE CYCLE:
check the air pressure and the fan. Check the air pressure switch.

IF THE BURNER PROCEEDS WITH PREVENTILATION BUT DOES NOT LIGHT:
check the installation and position of the electrodes. Check the ignition cable.
Check the ignition transformer. Check the safety device.

IF THE BURNER LIGHTS BUT CUTS OUT AFTER THE SAFETY INTERVAL:
check that the phase and neutral wires are connected correctly.
Check the gas solenoid valve. Check the position and connection of the detector electrode.
Check the detector electrode. Check the safety device.

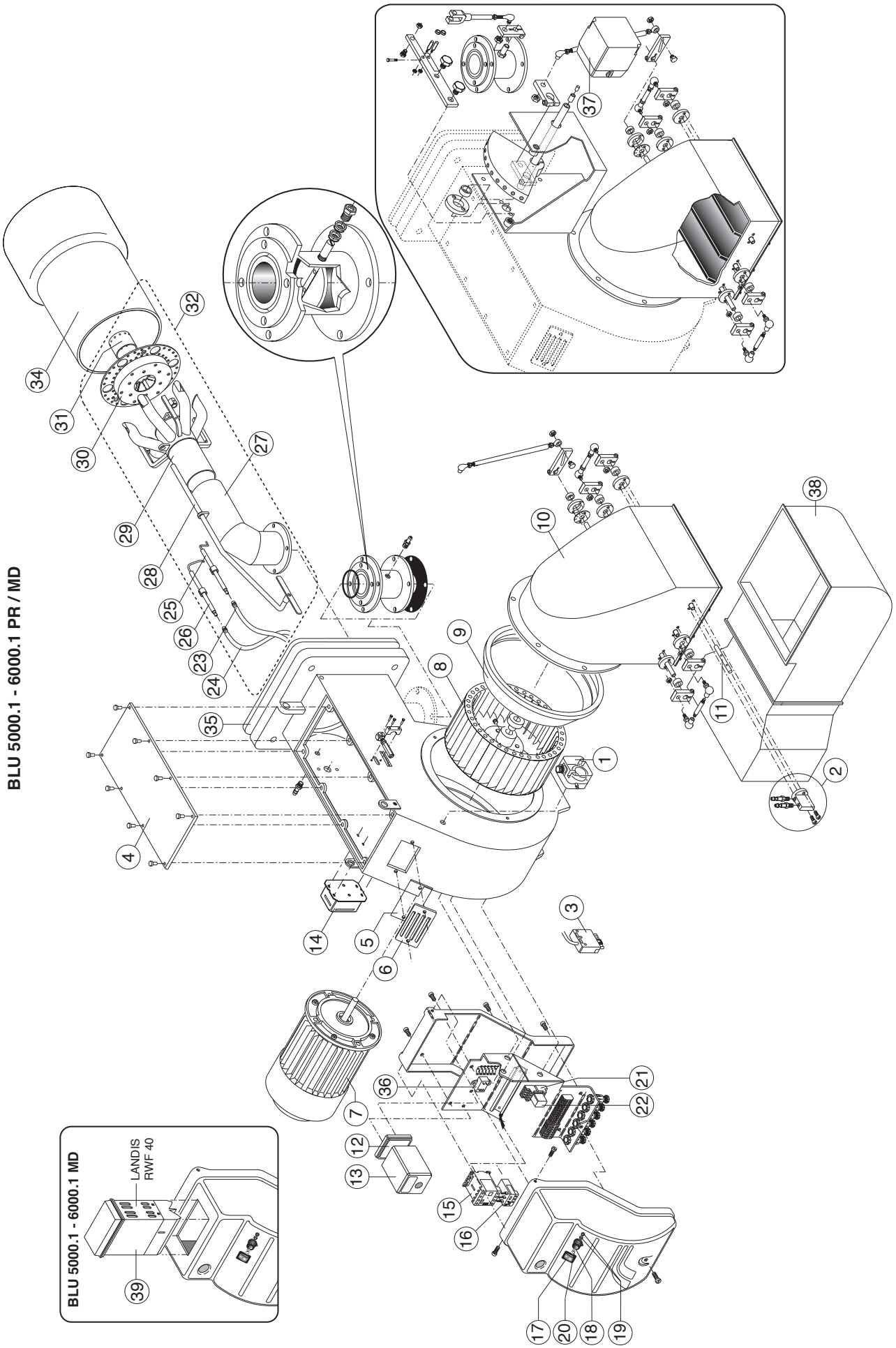
IF THE BURNER LIGHTS BUT CUTS OUT AFTER OPERATING FOR A FEW MINUTES:
check the pressure regulator and gas filter. Check the gas pressure with a pressure gauge. Check the detector value (at least 6 µA).

PARAMETERS

Parameter	Display	Ecoflam setting (passive probe) QAE22	Ecoflam setting (passive probe) FT-TP/1000	Ecoflam setting (active probe) QBE620-P...
Limit value of limit comparator	AL	0	0	0
Switching differential for limit comparator	HYSt	0	0	0
Proportional band	Pb.1	8	8	1
Derivative time	dt	20	20	3
Integral action time	rt	80	80	15
Dead band (neutral zone)	db	0.5	0.5	0.5
Actuator running time (sec.)	tt	25	25	25
Switch-on threshold burner / stage II	HYS1	-2	-2	-0.2
Switch-off level stage II	HYS2	0	0	0
Upper switch-off threshold	HYS3	5	5	0.5
Response threshold	q	0	0	0
Heating curve slope	H	2	2	2
Parallel displacement	P	0	0	0

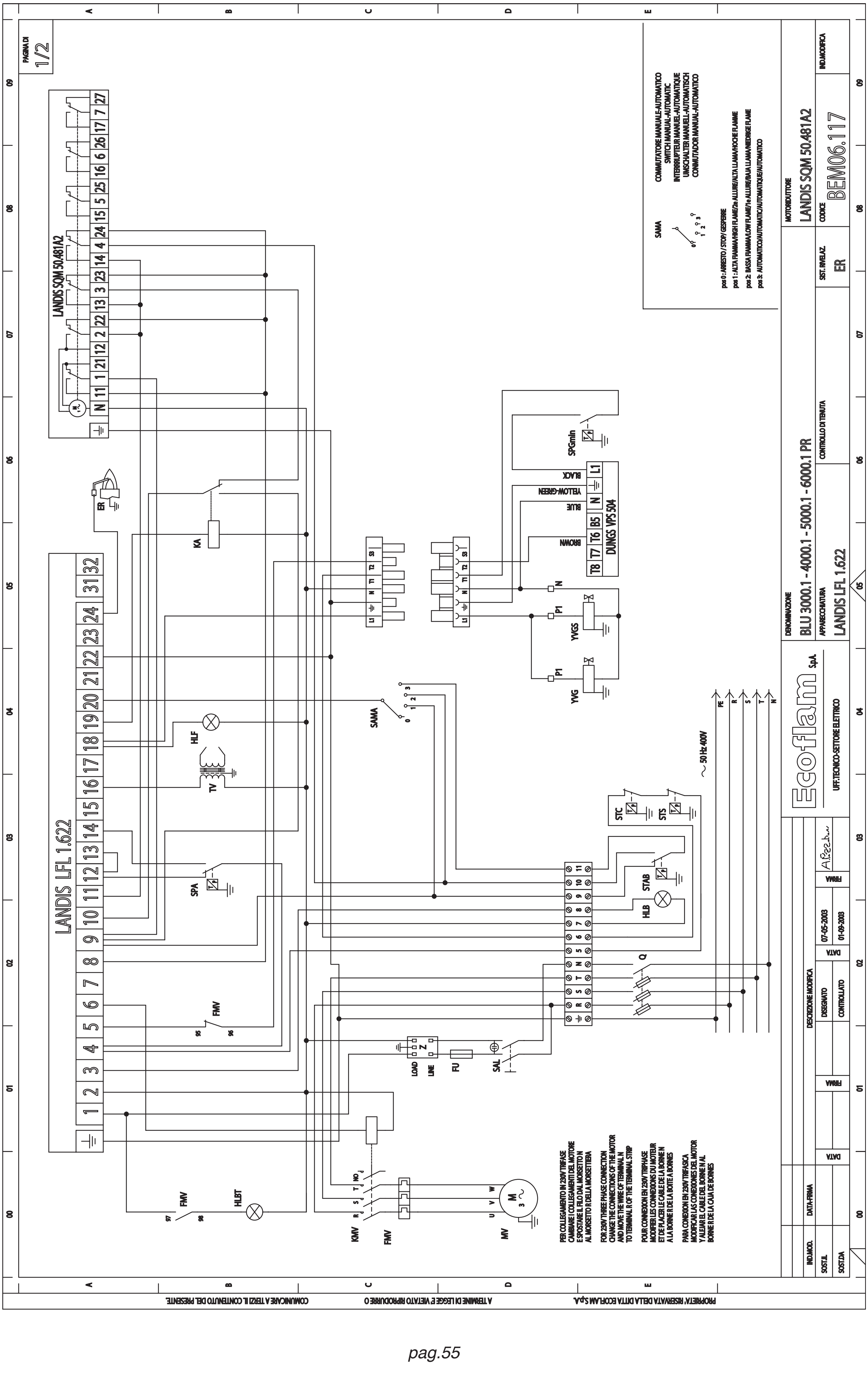
CONFIGURATION

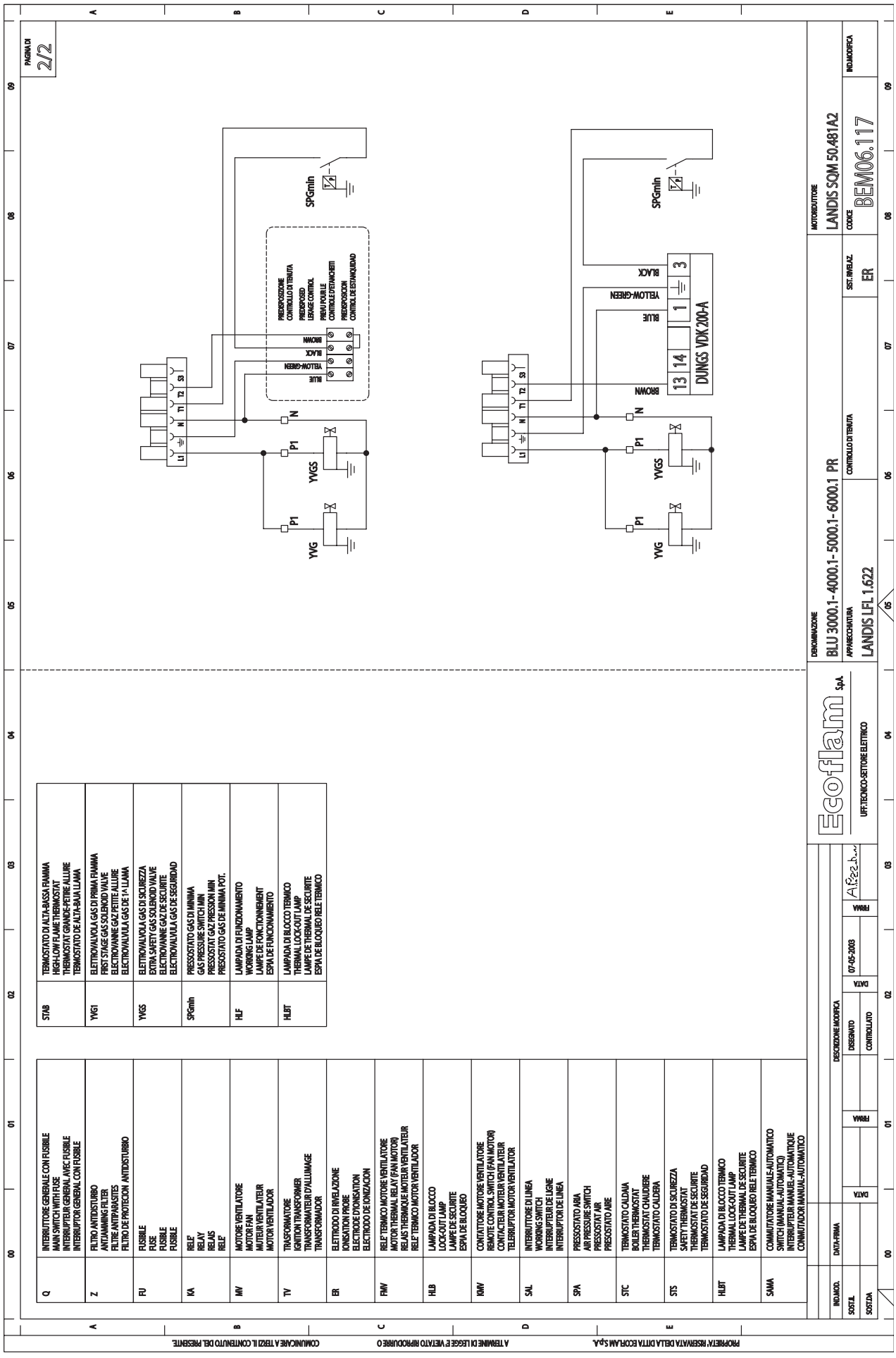
Parameter	Display	Ecoflam setting (passive probe)		(active probe) QBE620-P...				
		QAE22	FT-TP/1000	-P4	-P10	-P16	-P25	-P40
Analog input 1, 2 and 3; setpoint changeover / shift	C111	9030	5030	G000	G000	G000	G000	G000
Limit comparator; controller type; setpoint 1; locking	C112	0010	0010	0010	0010	0010	0010	0010
Unit address; decimal place / unit, signal for out-of-range	C113	0110	0110	0110	0110	0110	0110	0110
Measured value range start analog input 1	SCL	0	0	0	0	0	0	0
Measured value range analog input 1	SCH	100	100	4	10	16	25	40
Measured value range analog input 2	SCL2	0	0	0	0	0	0	0
Measured value range analog input 2	SCH2	0	0	0	0	0	0	0
Lower setpoint limit	SPL	60	60	0	0	0	0	0
Upper setpoint limit	SPH	88	88	4	10	16	25	40
Actual value correction,analog input 1	OFF1	0	0	0	0	0	0	0
Actual value correction,analog input 2	OFF2	0	0	0	0	0	0	0
Actual value correction,analog input 3	OFF3	0	0	0	0	0	0	0
Filter time constant for digital filter, analog input 1	dF1	1	1	0	0	0	0	0

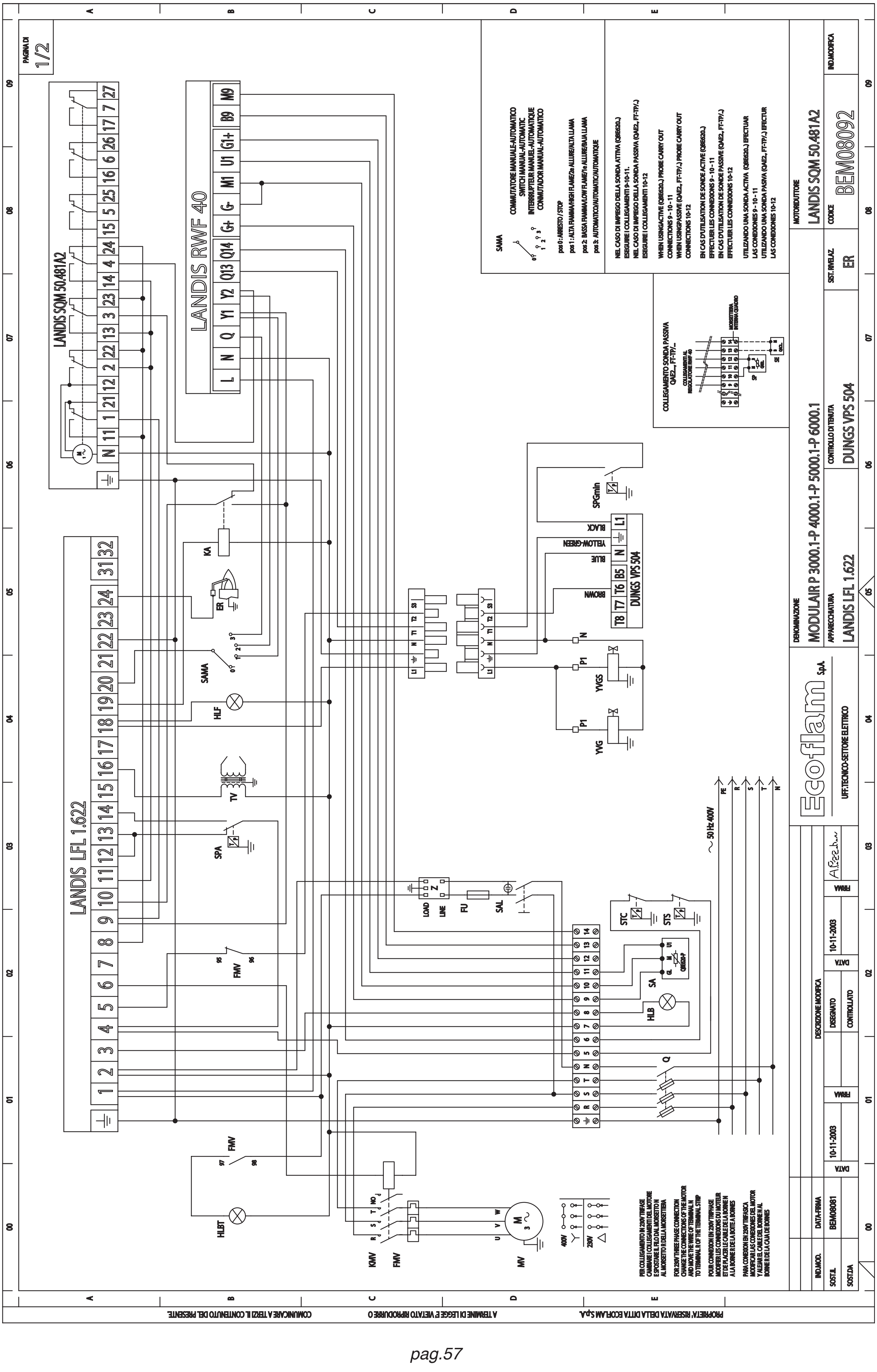

BLU 5000.1 - 6000.1 PR / MD
BLU 5000.1 - 6000.1 MD
LANDIS
RWF 40
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
34
35
36
37
38
39

N°	DESCRIPTION		Modulair P 5000.1 BLU PR 5000.1 code	Modulair P 6000.1 BLU PR 6000.1 code
1	- AIR PRESSURE SWITCH	DUNGS LGW10 A2P	Q120	Q120
2	- AIR INTAKE SET		GRPA100	GRPA100
3	- PLUG WIELAND	6 pin	E226	E226
4	- COVER		BFC09252/038	BFC09252/038
5	- GLASS		BFC02004	BFC02004
6	- PEED WINDOM FRAME		BFC02006	BFC02006
7	- MOTOR	11 k W	M176/1	-
		15 k W	-	M170/3
8	- FAN	360 x 135	BFV10305/001	-
		380 x 135	-	BFV10306/001
9	- AIR CONVEYOR		BFC08255	BFC08255
10	- AIR INTAKE		GRCA380	GRCA380
11	- AIR INTAKE PIPE		BFS02208/201	BFS02208/201
12	- CONTROL BOX BASE	LANDIS	A401	A401
13	- CONTROL BOX	LANDIS LFL1.622	A113	A113
14	- IGNITION TRANSFORMER	COFI 820 PM	T106/4	T106/4
15	- REMOTE CONTROL SWITCH	BF40.00	R616	R616
16	- MOTOR THERMAL RELAY	Lovato RF95 20-33 A	R510/7	R510/7
17	- MAIN SWITCH	cod.40100I1509	R1020	R1020
18	- MANUAL / AUTOMATIC SELECTOR		R1020/5	R1020/5
19	- LAMP	Elettrospring EL/N-SC4	E1510	E1510
20	- FUSE SUPPORT	FUSIT FH-B528	E802/2	E802/2
21	- RELAY BASE	Finder 5532	R905	R905
22	- RELAY	Finder 5532	R711	R711
23	- IGNITION CABLE	TC		
		TL	BFE01402/5	BFE01402/5
24	- IONIZATION CABLE	TC		
		TL	E1102/28	E1102/28
25	- IGNITION ELECTRODE		BFE01057/1	BFE01057/1
26	- IONIZATION PROBE		BFE01057/2	BFE01057/2
27	- PIPE	TC	BFT14015/101	BFT14015/101
		TL	BFT14015/201	BFT14015/201
28	- ROD	TC	BFA08021/101	BFA08021/101
		TL	BFA08021/201	BFA08021/201
29	- FIRING HEAD		BFT14016/001	BFT14016/001
30	- FRONT DISC		BFD03020	BFD03020
31	- FRONT PIPE		BFT12113/3	BFT12113/3
32	- INNER ASSEMBLY	TC		
		TL		
34	- BLAST TUBE	TC	BFB07022/103	BFB07022/103
		TL	BFB07022/203	BFB07022/203
35	- GASKET		BFG04052/1	BFG04052/1
36	- ANTIJAMMING FILTER		S132/4	S132/4
37	- AIR DAMPER MOTOR	SQM50.481A2	M212/91	M212/91
38	- SILENCER		GRSIL07	GRSIL07
Only Modulating gas burners:			**Modulair P 5000.1**	**Modulair P 6000.1**
39	- MODULATING UNIT	LANDIS RWF 40	E1215	E1215

TC = SHORT HEAD TL = LONG HEAD


PAGINA DI
1/2
LANDIS SQM 50.481A2
LANDIS LFL 1.622
DUNGS VPS 504
SAMA
COMMUTATORE MANUALE-AUTOMATICO
SWITCH MANUAL-AUTOMATIC
INTERRUPTEUR MANUEL-AUTOMATIQUE
UMSCHALTER MANUELL-AUTOMATISCH
CONMUTADOR MANUAL-AUTOMATICO
~ 50 Hz 400V
DENOMINAZIONE
BLU 3000.1 - 4000.1 - 5000.1 - 6000.1 PR
APPARECCHIATURA
LANDIS LFL 1.622
MOTORIDUTTORE
LANDIS SQM 50.481A2
SIST. RIVELAZ.
ER
CODICE
BEM06.117
Ecoflam SpA
UFF.TECNICO-SETTORE ELETTRICO
07-05-2003
01-09-2003
PROPRIETA' RISERVATA DELLA DITTA ECOFLAM S.p.A.
A TERMINE DI LEGGE E' VIETATO RIPRODURRE O
COMUNICARE A TERZI IL CONTENUTO DEL PRESENTE

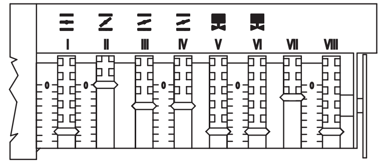

PAGINA DI 2/2
Q INTERRUTTORE GENERALE CON FUSIBILE / MAIN SWITCH WITH FUSE / INTERRUPTEUR GENERAL AVEC FUSIBLE / INTERRUPTOR GENERAL CON FUSIBLE
Z FILTRO ANTIDISTURBO / ANTIJAMMING FILTER / FILTRE ANTIPARASITES / FILTRO DE PROTECCION ANTIDISTURBIO
FU FUSIBILE / FUSE / FUSIBLE / FUSIBLE
KA RELE' / RELAY / RELAIS / RELE
MV MOTORE VENTILATORE / MOTOR FAN / MOTEUR VENTILATEUR / MOTOR VENTILADOR
TV TRASFORMATORE / IGNITION TRANSFORMER / TRANSFORMATEUR D'ALLUMAGE / TRANSFORMADOR
ER ELETTRODO DI RIVELAZIONE / IONISATION PROBE / ELECTRODE D'IONISATION / ELECTRODO DE IONIZACION
FMV RELE' TERMICO MOTORE VENTILATORE / MOTOR THERMAL RELAY (FAN MOTOR) / RELAIS THERMIQUE MOTEUR VENTILATEUR / RELE' TERMICO MOTOR VENTILADOR
HLB LAMPADA DI BLOCCO / LOCK-OUT LAMP / LAMPE DE SECURITE / ESPIA DE BLOQUEO
KMV CONTATTORE MOTORE VENTILATORE / REMOTE CONTROL SWITCH (FAN MOTOR) / CONTACTEUR MOTEUR VENTILATEUR / TELERRUPTOR MOTOR VENTILADOR
SAL INTERRUTTORE DI LINEA / WORKING SWITCH / INTERRUPTEUR DE LIGNE / INTERRUPTOR DE LINEA
SPA PRESSOSTATO ARIA / AIR PRESSURE SWITCH / PRESSOSTAT AIR / PRESOSTATO AIRE
STC TERMOSTATO CALDAIA / BOILER THERMOSTAT / THERMOSTAT CHAUDIERE / TERMOSTATO CALDERA
STS TERMOSTATO DI SICUREZZA / SAFETY THERMOSTAT / THERMOSTAT DE SECURITE / TERMOSTATO DE SEGURIDAD
HLBT LAMPADA DI BLOCCO TERMICO / THERMAL LOCK-OUT LAMP / LAMPE DE THERMAL DE SECURITE / ESPIA DE BLOQUEO RELE TERMICO
SAMA COMMUTATORE MANUALE-AUTOMATICO / SWITCH (MANUAL-AUTOMATIC) / INTERRUPTEUR MANUEL-AUTOMATIQUE / CONMUTADOR MANUAL-AUTOMATICO
STAB TERMOSTATO DI ALTA-BASSA FIAMMA / HIGH-LOW FLAME THERMOSTAT / THERMOSTAT GRANDE-PETITE ALLURE / TERMOSTATO DE ALTA-BAJA LLAMA
YVG1 ELETTROVALVOLA GAS DI PRIMA FIAMMA / FIRST STAGE GAS SOLENOID VALVE / ELECTROVANNE GAZ PETITE ALLURE / ELECTROVALVULA GAS DE 1ª LLAMA
YVGS ELETTROVALVOLA GAS DI SICUREZZA / EXTRA SAFETY GAS SOLENOID VALVE / ELECTROVANNE GAZ DE SECURITE / ELECTROVALVULA GAS DE SEGURIDAD
SPGmin PRESSOSTATO GAS DI MINIMA / GAS PRESSURE SWITCH MIN / PRESSOSTAT GAZ PRESSION MIN / PRESOSTATO GAS DE MINIMA POT.
HLF LAMPADA DI FUNZIONAMENTO / WORKING LAMP / LAMPE DE FONCTIONNEMENT / ESPIA DE FUNCIONAMIENTO
HLBT LAMPADA DI BLOCCO TERMICO / THERMAL LOCK-OUT LAMP / LAMPE DE THERMAL DE SECURITE / ESPIA DE BLOQUEO RELE TERMICO
L1 N T1 T2 S3
P1 YVG YVGS
SPGmin
PRESPOSIZIONE CONTROLLO DI TENUTA / PRESPOSED LEAKAGE CONTROL / PREMA POUBLE CONTROLE D'ETANCHEITE / PRESPOSICION CONTROL DE ESTANQUIDAD
BROWN BLACK YELLOW-GREEN BLUE
DUNGS VDK 200-A
13 14 1 3
DENOMINAZIONE: BLU 3000.1-4000.1-5000.1-6000.1 PR
APPARECCHIATURA: LANDIS LFL 1.622
CONTROLLO DI TENUTA
SIST. INVIL.AZ. ER
MOTOREDUTTORE: LANDIS SQM 50.481A2
CODICE: BEM06.117
INT.MODIFICA
Ecoflam S.p.A.
UFF.TECNICO-SETTORE ELETTRICO
INT.MOD. DATA-FIRMA
DESCRIZIONE MODIFICA
SOSTIT. SOSTITA. DATA FIRMA
DISEGNATO 07-05-2003 CONTROLLATO
A TERMINE DI LEGGE E' VIETATO RIPRODURRE O COMUNICARE A TERZI IL CONTENUTO DEL PRESENTE
PROPRIETA' RISERVATA DELLA DITTA ECOFLAM S.P.A.


LANDIS SQM 50.481A2
LANDIS RWF 40
LANDIS LFL 1.622
DUNGS VPS 504
MODULAIR P 3000.1-P 4000.1-P 5000.1-P 6000.1
BEM08092
10-11-2003
UFF.TECNICO-SETTORE ELETTRICO
PROPRIETA' RISERVATA DELLA DITTA ECOFLAM S.p.A. A TERMINE DI LEGGE E' VIETATO RIPRODURRE O COMUNICARE A TERZI IL CONTENUTO DEL PRESENTE

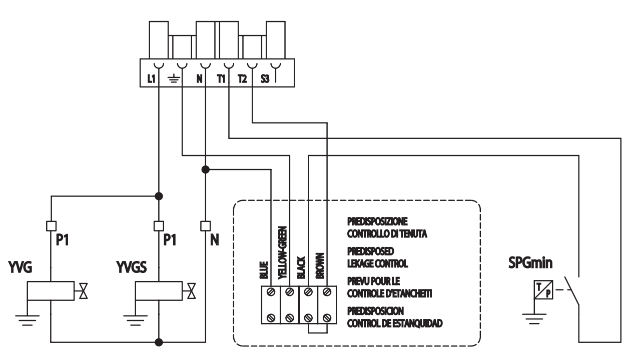
Q	INTERRUTTORE GENERALE CON FUSIBILE MAIN SWITCH WITH FUSE INTERRUPTEUR GENERAL AVEC FUSIBLE INTERRUPTOR GENERAL CON FUSIBLE
Z	FILTRO ANTIDISTURBO ANTJAMMING FILTER FILTRE ANTIPARASITES FILTRO DE PROTECION ANTIDISTURBIO
ER	ELETTRODO DI RIVELAZIONE IONISATION PROBE ELECTRODE D'IONISATION ELECTRODO DE IONIZACION
FU	FUSIBILE FUSE FUSIBLE FUSIBLE
MV	MOTORE VENTILATORE MOTOR FAN MUTEUR VENTILATEUR MOTOR VENTILADOR
SA	SONDA ATTIVA USIN GATTIVE SONDE SCTIVE SONDA SCTIVA
SP	SONDA PASSIVA USING PASSIVE SONDE PASSIVE SONDA PASIVA
SE	SONDA ESTERNA OUTDOOR PROBE SONDE EXTERIEURE SONDA EXTERIOR
TV	TRASFORMATORE IGNITION TRANSFORMER TRANSFORMATEUR D'ALLUMAGE TRANSFORMADOR
FMV	RELE' TERMICO MOTORE VENTILATORE MOTOR THERMAL RELAY (FAN MOTOR) RELAIS THERMIQUE MOTEUR VENTILATEUR RELE' TERMICO MOTOR VENTILADOR
HLB	LAMPADA DI BLOCCO LOCK-OUT LAMP LAMPE DE SECURITE ESPIA DE BLOQUEO
HLF	LAMPADA DI FUNZIONAMENTO WORKING LAMP LAMPE DE FONCTIONNEMENT ESPIA DE FUNCIONAMIENTO
KMV	CONTATTORE MOTORE VENTILATORE REMOTE CONTROL SWITCH (FAN MOTOR) CONTACTEUR MOTEUR VENTILATEUR TELERRUPTOR MOTOR VENTILATOR
SAL	INTERRUTTORE DI LINEA WORKING SWITCH INTERRUPTEUR DE LIGNE INTERRUPTOR DE LINEA
SPA	PRESSOSTATO ARIA AIR PRESSURE SWITCH PRESSOSTAT AIR PRESOSTATO AIRE

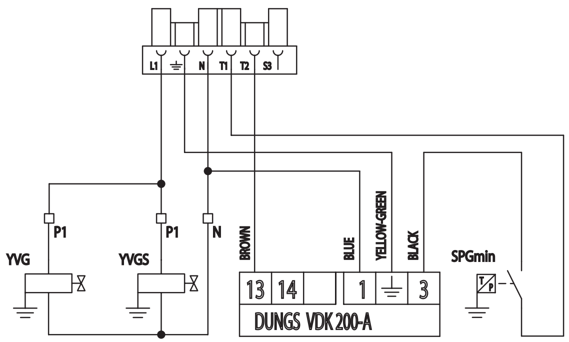
STC	TERMOSTATO CALDAIA BOILER THERMOSTAT THERMOSTAT CHAUDIERE TERMOSTATO CALDERA
STS	TERMOSTATO DI SICUREZZA SAFETY THERMOSTAT THERMOSTAT DE SECURITE TERMOSTATO DE SEGURIDAD
YVG	ELETTROVALVOLA GAS GAS SOLENOID VALVE ELECTROVANNE GAZ ELECTROVALVULA DE GAS
SAMA	COMMUTATORE MANUALE-AUTOMATICO SWITCH (MANUAL-AUTOMATIC) INTERRUPTEUR MANUEL-AUTOMATIQUE CONMUTADOR MANUAL-AUTOMATICO
YVGS	ELETTROVALVOLA GAS DI SICUREZZA EXTRA SAFETY GAS SOLENOID VALVE ELECTROVANNE GAZ DE SECURITE ELECTROVALVULA GAS DE SEGURIDAD
SPGmin	PRESSOSTATO GAS DI MINIMA GAS PRESSURE SWITCH MIN PRESSOSTAT GAZ PRESSION MIN PRESOSTATO GAS DE MINIMA POT.
HLBT	LAMPADA DI BLOCCO TERMICO THERMAL LOCK-OUT LAMP LAMPE DE THERMAL DE SECURITE ESPIA DE BLOQUEO RELE TERMICO

PAGINA DI 2/2



(70°) I: CAMMA DI REGOLAZIONE ARIA ALTA FIAMMA
(0°) II: CAMMA DI REGOLAZIONE ARIA CHIUSURA TOTALE
(20°) III: CAMMA DI REGOLAZIONE ARIA FIAMMA DI ACCENSIONE
(30°) IV: CAMMA REGOLAZIONE ARIA BASSA FIAMMA
(0°) V: CAMMA NON UTILIZZATA
(0°) VI: CAMMA NON UTILIZZATA
(0°) VII: CAMMA NON UTILIZZATA
(0°) VIII: CAMMA NON UTILIZZATA





IND.MOD.	DATA-FIRMA	DESCRIZIONE MODIFICA			
SOST.IL	DATA	FIRMA	DISEGNATO	DATA 10-11-2003	FIRMA
SOST.DA			CONTROLLATO		

Ecoflam S.p.A.
UFF.TECNICO-SETTORE ELETTRICO

DENOMINAZIONE			MOTORIDUTTORE	
MODULAIR P 3000.1-P 4000.1-P 5000.1-P 6000.1			LANDIS SQM 50.481A2	
APPARECCHIATURA	CONTROLLO DI TENUTA	SIST. RIVELAZ.	CODICE	IND.MODIFICA
LANDIS LFL1.622	DUNGS VPS 504	ER	BEM08092	

PROPRIETA' RISERVATA DELLA DITTA ECOFLAM S.p.A. A TERMINE DI LEGGE E' VIETATO RIPRODURRE O COMUNICARE A TERZI IL CONTENUTO DEL PRESENTE.

Ecoflam

Ecoflam S.p.A. si riserva il diritto di apportare ai propri prodotti, senza alcun preavviso, tutte quelle modifiche che riterra utili e/o necessarie, al fine di migliorarne la qualit , senza pregiudicarne le caratteristiche principali.

Ecoflam S.p.A. reserves the right to make, without any prior notice, all those modifications which it deems usefull and/or necessary, in order to improve the quality of its products, without affecting their main features.

Ecoflam S.p.A. se r serve le droit d apporter ses produits, sans aucun avis pr alable, tous ces modifications qu elle jug ra outiles et/ou n cessaires pour en am liorer la qualit , sans en pr juger leurs caract ristiques principales

Ecoflam S.p.A. se reserva el derecho de aportar a sus productos, sin previo aviso, todas aquellas modificaciones que considere oportunas para mejorar su calidad, sin perjudicar sus caracteristicas principales.

Ecoflam S.p.A.
via Roma, 64 - 31023 RESANA (TV) - Italy - tel. 0423/715345 r.a.
telefax 0423-715444 (Italy 480009 - Export 480873, 715538).
http://www.ecoflam.it - e-mail: ecoflam@ecoflam.it