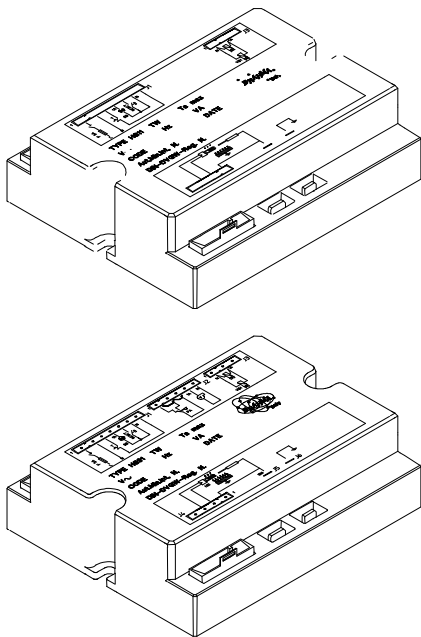


**EUROFLAT SERIES
TYPES MT11 MT31**

AUTOMATIC GAS BURNER CONTROL SYSTEMS FOR GAS BURNERS AND GAS BURNING APPLIANCES WITH OR WITHOUT FAN MONOELECTRODE WITH EXTERNAL IGNITION DEVICE.



Application

This range of electronic gas burner control systems has been designed specifically for atmospheric and fan assisted burners for intermittent operation (systems for non-permanent operation).

These types of automatic burner control units differ from the standard model essentially in the operating cycle and in the features of the ignition-detection device. Due to the design and the technical-structural characteristics, the controls of this series can be used in general in gas firing installations with atmospheric burner.

Features

Table 1 shows the main features of this series. Other important features are:

- in accordance with EN298 (European standard for automatic gas burner control systems);
- flame monitoring by the rectification property of the flame: ionization;
- electrical service life at max. loading >250.000 operations;
- two independent safety contacts in series on the gas valve output;
- electronic ignition device (transformer TC1 – TD1 series).

TABLE 1

	BURNER			classification code according to EN298
	single flame	atmospheric without fan	atmospheric with fan	
MT11	*	*		AMCLXN
MT31	*		*	FMCLXN

TECHNICAL DATA

Supply Voltage:	230V~ 50-60Hz
Operating temperature range:	-20°C +60°C
Ambient humidity:	95% max at 40°C
Protection degree:	IP 00

Times:

- Waiting or pre-purge time (**TW**):
1,5/3/5/10/20/30/40 s
- Safety time (**TS**):
3/5/8/10/20/50/60 s
- Ignition time (**TSP**):
(40% di TS) s
- Drop out time on running flame failure: < 1 s

The times given on the burner control label correspond to the values guaranteed. The actual values differ slightly from the values given, warm time is in fact longer and safety time shorter than their nominal values.

Power consumption, at starting up:

atmospheric burner	13 VA
atmospheric fan-assisted burner	15 VA

Contact rating:

-Thermostat:	4A	$\cos \varphi \geq 0.4$
-VG1:	0.5 A	$\cos \varphi \geq 0.4$
-Fan:	1A	$\cos \varphi \geq 0.4$
-Alarm:	0,5 A	$\cos \varphi = 1$

Max. length of the cables of

external components: 1 m

Fuse rating internal: 4A T

Fuse rating external: 3,15 A F

Flame control:

The ionization flame detector device makes use of the rectification property of the flame.

The ionization flame detector device is not a safe to touch output (no provision with protective impedances).

-Minimum ionization current:
0.5µA
1.2µA

-Recommended ionization current:
3 ÷ 5 times the minimum ionization current

-Max length of the cable:
1 m

-Minimum insulation resistance of cable and flame detector device to earth:
 $\geq 50M\Omega$

-Max. parasitic capacitance of detection probe:
 $\leq 1nF$

-Max. short circuit current:
< 200µA AC

Weight: 200 g

CONSTRUCTION

The enclosure made of plastic material protects the control from mechanical damage, dust and dirt from the conditions of installation.

The printed circuit board dimensions have been reduced by means of a module with surface mounted components.

A varistor protects the control from voltage transients on the mains supply. An internal fuse protects the relays of the control in case of short circuits on the outputs (valve, fan, lock-out signal and ignition / detection device). This is not an accessible fuse and the control must be protected with a fuse of the fast blow type suitable to the load connected and never exceeding 3,15A.

Overall Dimensions

The following figure Fig. 1 shows the overall dimensions of the controls.

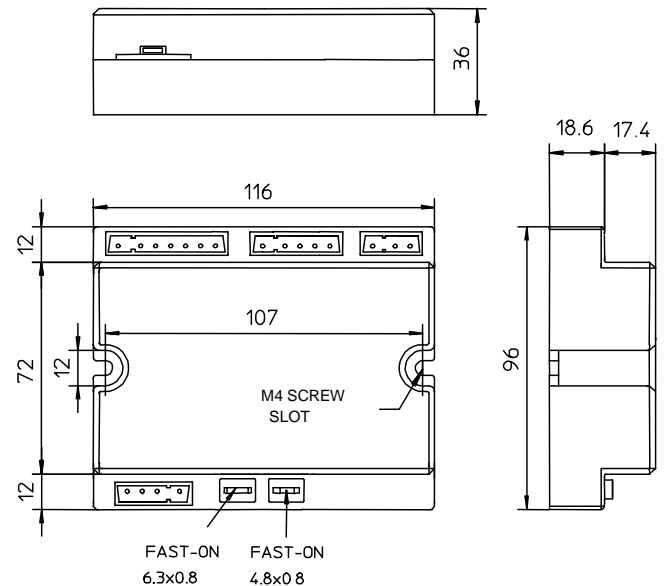


Fig. 1

Accessories

The control units are usually supplied with a kit of female connectors and/or reset button. Do not fit terminals and female connectors of different types.

These accessories can be supplied upon request (see Fig.2).

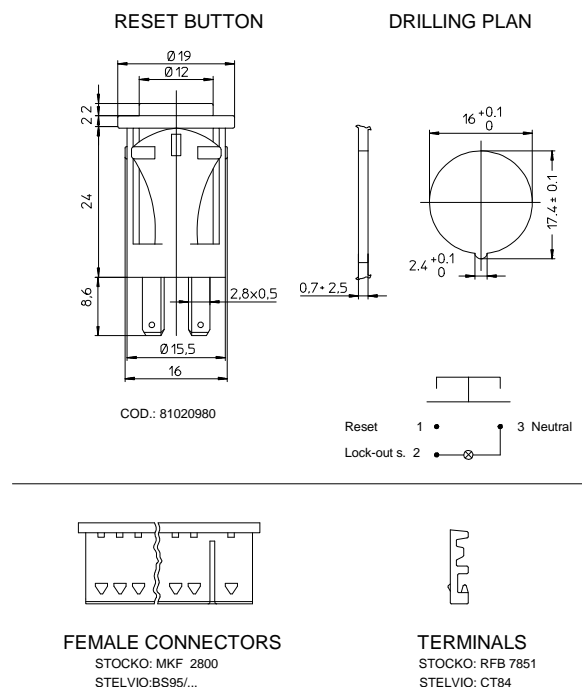


Fig.2

Connection

Using non reversible connectors with different number of poles makes the connection easy and reliable.

One-way fast-on connectors of different sizes permit their easy installation and replacement.

Regarding the connection of the control units, provisions such as strain reliefs, sufficient earth terminals and neutral terminals should be present in the appliance or in external connection boxes.

The controls are prearranged to operate with only one electrode for ignition and flame detection (the ignition electrode also makes the flame detection function by means of wire connection between pin 16 of J4 and fast-on J5 as shown in figure 4a); they can also correctly operate with separate ignition electrode and detection electrode (as shown in figure 4b).

DIRECTIONS FOR THE USE

- For technical-safety reasons a regulation shutdown must occur every 24 hours (systems for non-permanent operation).
- Automatic controls are safety devices and shall not be opened. Responsibility and guarantee of the manufacturer is invalidated if the control is opened.
- The control must be connected and disconnected only without the main power.
- The control can be mounted in any position.
- Avoid exposure of the control unit to dripping water.
- Ventilation and the lowest temperature ensures the longest life of the control.
- Make sure that the type (code and times) you are using is correct before installing or replacing the control.
- The gas appliance in which the control is installed must provide adequate protection against the risk of electrical shock (at least IP20).

Electrical installation

- The applicable national regulation and European standards (e.g. EN60335-1/EN50165) regarding electrical safety must be respected.
- Live and neutral should be connected correctly, a mistake could cause a dangerous situation, i.e. the valve would still be live with the thermostats and limits switched off. Besides, if live-neutral polarity is not respected the control performs a non-volatile at the end of the safety time at starting up.
- Before starting check the cables carefully. Wrong connections can damage the control and compromise the safety.
- Take great care while connecting the lock-out signal and reset button: an inversion in the connection can damage the control.
- The earth terminal of the control, the metal frame of the burner and the earth on the mains supply must be well connected.
- Use an ignition cable as short and straight as possible and keep it far from other conductors.
- Using the control with separate detection electrode, a heat resistant cable and detection probe must be used, well insulated to the ground and protected from possible moisture (or water in general).

IMPORTANT: in the event of "partial" short circuits or bad insulation between phase(s) and earth the voltage on the ionization device can be reduced until it causes the lock-out of the control.

Checking at start

Always check the control before the first start and also after substitutions or a long period of non operation of the system. Before any ignition attempt make sure that the combustion chamber is free from gas.

Then make sure that:

- if the attempt to start occurs without the gas supply the control performs a non-volatile or volatile lock-out after TS;
- when stopping the gas flow (while the control is in running state) supply to the gas valve is interrupted within 1 second and after a recycling, the control proceeds to a non-volatile lock-out;
- operating times and sequence are suitable;
- the level of the flame signal is sufficient, see Fig.4 for the measuring test;
- the intervention of limiters or safety devices causes a safety shut-down according to the application.

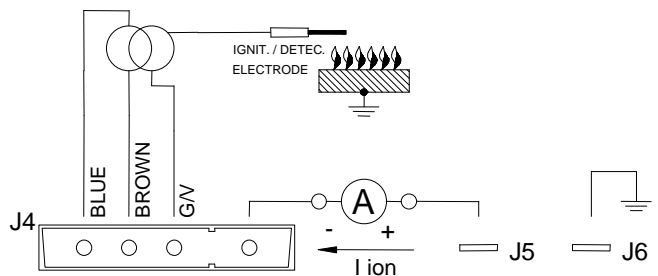


Fig.3

Operation

At every start the control unit proceeds to a self-checking of its own components.

In the type with control of the fan, before the elapsing of pre-purge time (TW), the air pressure switch contacts are checked to prove their "no air flow" state.

Only if the test is positive the fan is started and with the air pressure switch in "air flow" state, pre-purge time begins.

At the end of waiting or pre-purge time the gas valve is supplied and the ignition device, so that safety time TS and ignition time TSP begin.

The ignition device is kept in operation for 40% of the safety time TS under all operating condition (time TSP ending). If during remaining time TS, the control unit will keep the gas valve supplied until a flame failure occurs (followed by a recycling) or the regulation ring opens. On the contrary, if the control doesn't detect a flame by the end of TS, it proceeds to non-volatile (or volatile) lock-out, the gas valve is switched off while the lock-out signal output is supplied.

The attached diagrams are useful to understand how each control operates.

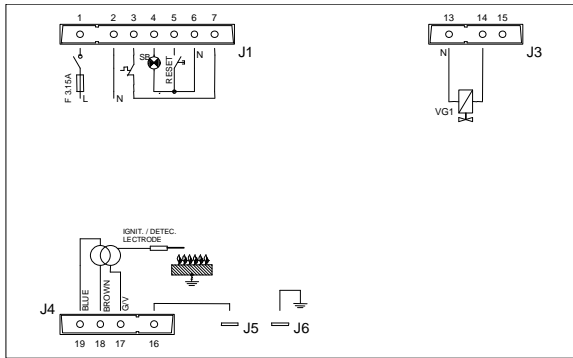
Reset of the control

When a control has gone to non-volatile or volatile lock-out, an interval of 10 seconds should be allowed before attempting to reset the control unit; if this time is not observed then the control may not reset correctly.

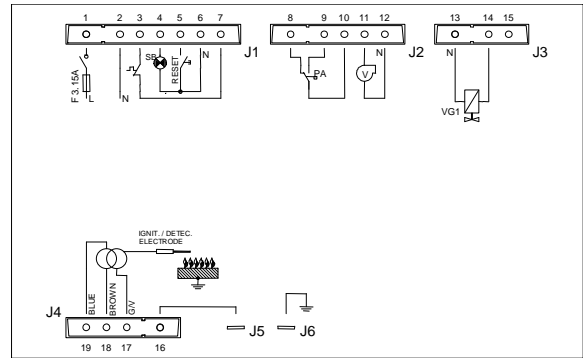
In general, resetting of the appliance must occur in sight and in the near vicinity of the appliance. Resetting must also occur by means of a conscious manual action and not by means of automatic device like thermostats or timers.

Please note that it is allowed to combine the reset button together with the main switch on the appliance. In this case the alarm light will have to be installed too.

CONNECTION DIAGRAMS

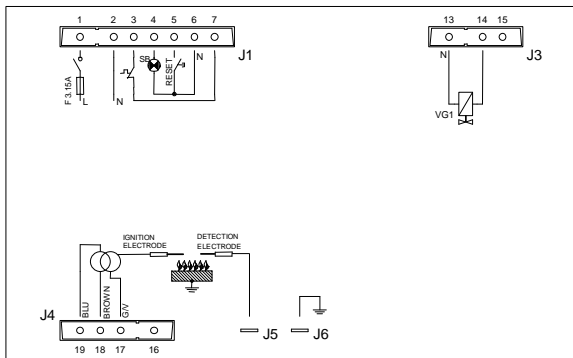


TYPE MT11

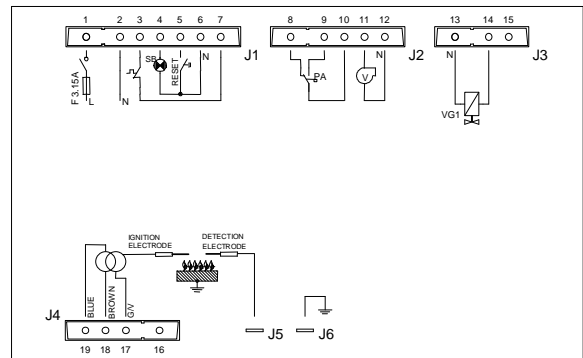


TYPE MT31

Fig. 4a CONNECTION DIAGRAMS WITH SINGLE IGNITION / DETECTION ELECTRODE



TYPE MT11

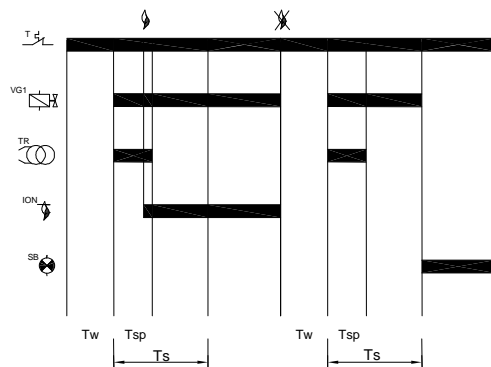


TYPE MT31

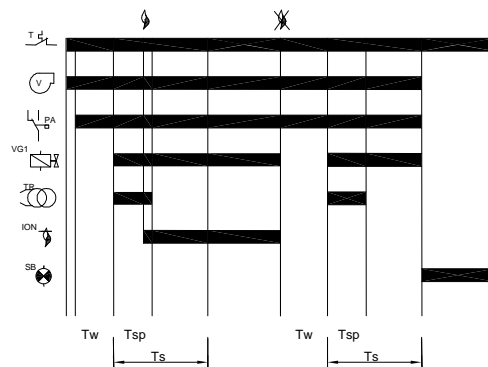
Fig. 4b CONNECTION DIAGRAMS WITH SEPARATE DETECTION ELECTRODE

NOTE: the limit thermostat has to be wired in series to the live

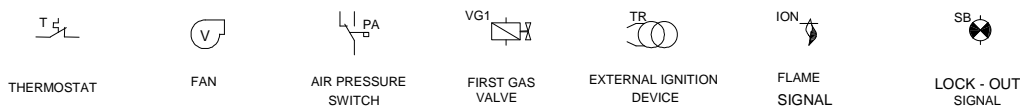
OPERATING CYCLES



TYPE MT11



TYPE MT31



ATTENTION -> Company Brahma S.p.A. takes no responsibility for any damage resulting from Customer's tampering with the device.

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