

MicroGas™ P25 Series

A Family of Full Sequence Controls

Certified to EN 298 : 2003



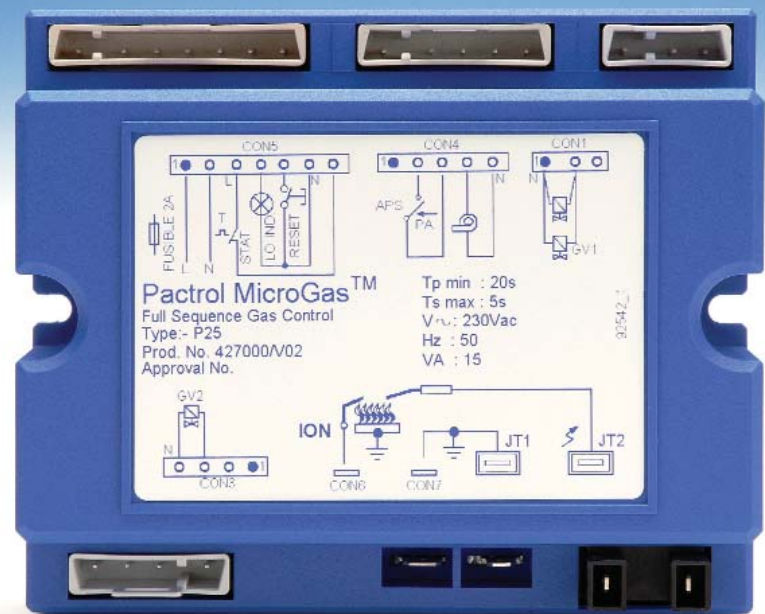
technology factfile

Microcontroller technology lies at the heart of this microgas™ range of full sequence controls, offering a large number of control and timing options not normally available from simpler units.

This compact family of control units offer safe start-up and supervision of a wide range of gas burning appliances, for domestic, commercial and industrial applications. An equally wide range of control sequences and timing options are available, all based on an integral spark ignition system.

By a combination of hardware and software selection, customers can be offered forced or atmospheric sequences, volatile or non-volatile lockout, a range of spark rates and many timing and logic functions, including multiple ignition attempts and post purge.

This 4270 series is CE Certified and fully complies with the requirements of the GAD via EN 298 : 2003.



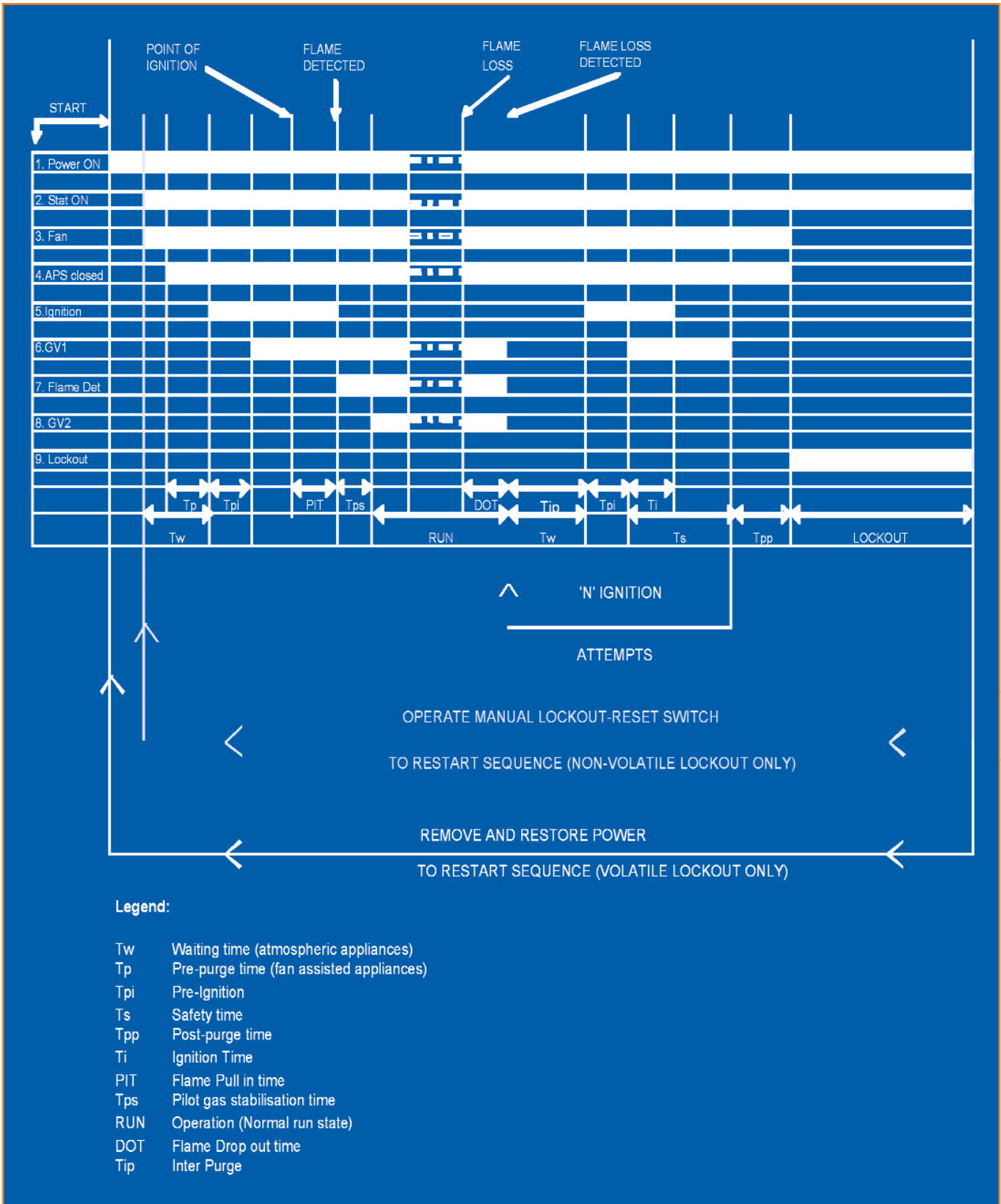
Typical applications

- Combination Boilers
- Condensing Boilers
- Heating Boilers
- Water Heaters
- Warm Air Heaters
- Radiant Tube Heaters

key features

- Programmable logic and timings
- Atmospheric or fanned application
- Integral spark and flame detection
- Multiple ignition attempts
- Volatile or non-volatile lockout
- Dual or single probe for ignition and flame detection
- Post purge
- Compact size
- Optional 'floating supply' capability for flame detector
- Dual, self-checking safety system
- CE Certification to EN 298 : 2003

system operation sequence



To keep abreast of current developments, controls may be subject to change without notice. Such changes may affect the accuracy of information contained in this data-sheet, and the manufacturers advice should be sought if any problems arise.

Technical specification

Electrical Supply	
Voltage	230 V + 10% - 15%
Frequency	50 - 60Hz (+/- 3Hz)
Power Consumption	15VA
Supply Phase Relationship	Sensitive to Live and Neutral phase reversal
Internal fuse	2A HPC (20mm)

Contact Ratings	
All relay drives where used	1A Inductive 0.6pf @230V ac
	Total maximum load current: 2A

Ignition	
Open circuit voltage	15kV Minimum (30pf loading)
Spark energy	> 4mJ (W.H.I.T.B.)
Spark gap tolerance	2.5mm to 4.5mm
Spark rate	as specified in description of function

Flame Detection	
Principle	Rectification
Electrode configuration	Dual or single probe ignition & detection
Flame detector response	Flame on = 1 second max
	Flame off = as specified in description of function
Minimum flame current required	1uA @230Vac supply

Environmental Conditions	
Ambient temperature range	-10°C to 70°C
Humidity	90% RH Maximum

Hardware Options

The P25 series of controls is available with several factory selectable options. These are shown in the adjacent diagram.

"L" Lockout indication with reset (indication and reset are connected to CON5).

"F" Fanned with optional 2-wire APS (CON4).

"1" Single stage direct burner ignition (valves connected to CON1).

"2" Pilot + main burner (all valves connected to CON1).

"1+1" Pilot + main burner (pilot valve connected to CON1, main valve to CON3).

"X" External isolating transformer for flame detector (connected to CON3). This option can only be selected in conjunction with option "1" or "2".

If this option is not specified then a jumper link must be connected to CON3 in place of the transformer. (See below.)

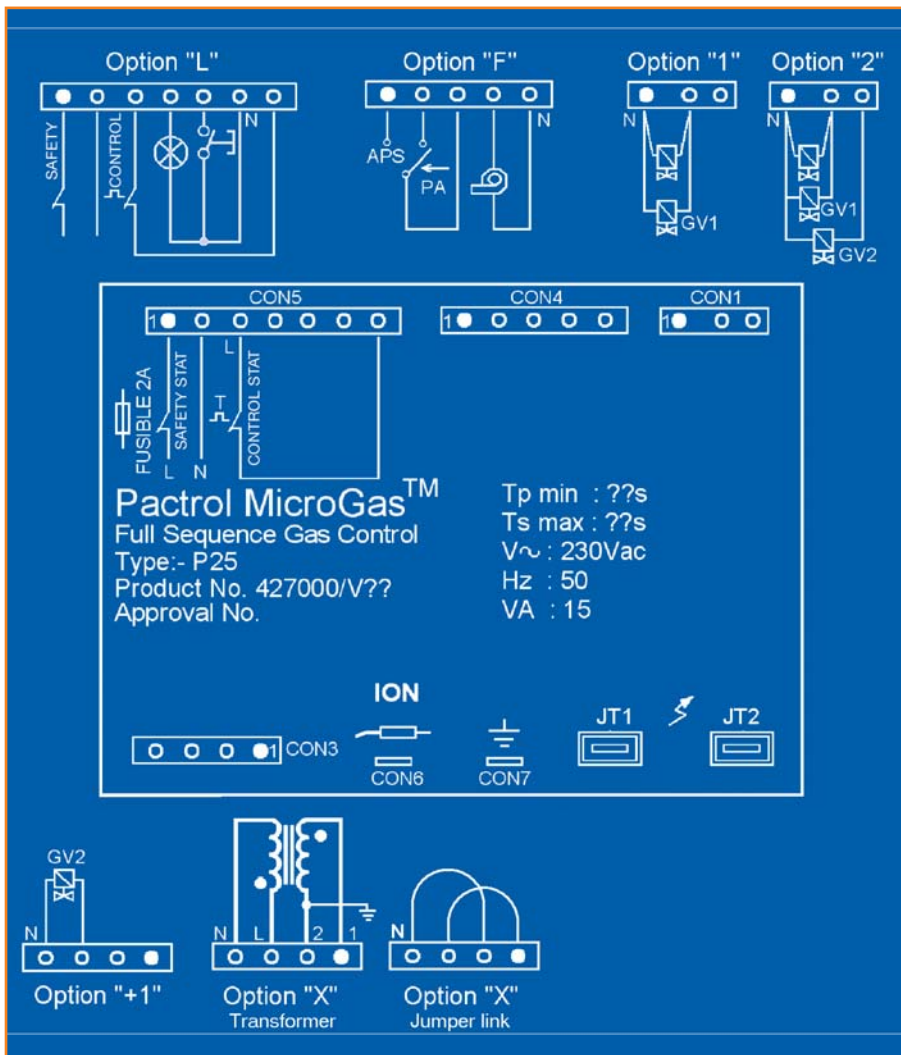
Electrical Supply Options

The control can be specified with either:

- A fixed phase-earth relationship (the earth is bonded to one of the phases in the property electrical installation). In this case the flame detector circuit is phase sensitive.
- An external 230V:230V 2VA transformer with earthed secondary. In this case the flame detector circuit is completely isolated from the mains supply and is non-phase sensitive. (This is for applications where the phase-earth relationship is floating or fixed at mid-rail).
- An external link which creates a phase-earth relationship (fitted instead of the external transformer).

operation

Connections details



Timing and Control Options

Pre-purge time: 1.5 - 50 seconds

Wait or pre-purge time for atmospheric burners, is the time from the start signal, to energisation of the ignition device.

Pre-purge time for fanned appliances, is the time from the air pressure switch closing (signaling sufficient airflow) to energisation of the ignition device.

Pre-ignition time: 1.0 - 50 seconds

Pre-ignition time is the time following the pre-purge period when the ignition device, alone, is energised.

Ignition time: 1.0 - 50 seconds

Ignition time is the time that the ignition device is energised for during ignition, whilst the flame detector signals an absence of flame.

Safety time: 1.0 - 50 seconds

Safety time is the time that GV1 is energised for during ignition, whilst the flame detector signals an absence of flame.

Safety GV1 time: 0.3 - 3.0 seconds

Safety GV1 time is the time that GV1 remains energised for, after the failure of the flame.

Post purge time: 1.5 - 50 seconds

Post purge time is the time that the fan is energised for after the control has gone into a shut down state.

Pilot Stabilisation time: 0.1 - 50 seconds

Pilot stabilisation time is the time between the pilot flame being detected and the main gas valve opening.

Lockout type volatile or non-volatile

Appliance type fanned or atmospheric

APS type 2 or 3 terminal or not present

Number of ignition attempts: 1 - 5

A number of ignition attempts can be programmed into the control to allow it to try again if the burner does not light on the first attempt.

Minimum ignition required

Tells the control to remove the means of ignition immediately a flame is detected (or to leave it energised until the end of the ignition period).

Ignition type: 3/5/12/25/50 Hz

On flame loss the following events can be programmed to occur:

Lock-out

If the control is programmed to have lock-out on flame loss, then it will immediately go to lock-out when the flame signal is lost during the Run state. Either volatile or non-volatile lock-out, as required.

Re-cycling

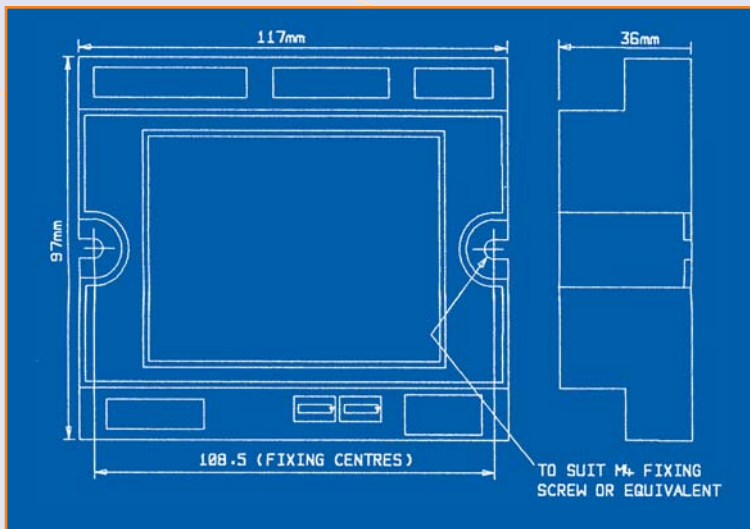
If the control is programmed NOT to go into lock-out on flame loss, then the valve(s) will be closed and at the end of post-purge time, the control will re-cycle from the start of its sequence, with a new ignition attempt. If the control fails to detect a flame, it will re-cycle for the programmed number of ignition attempts, then if it fails to detect a flame during the final ignition attempt, it will go to lock-out.

Spark restoration

If the control is programmed with spark restoration, then if there is a loss of flame signal (either, within the Safety Time or during the Run state) the control will initiate a re-ignition attempt within 1 second without closing the gas valve.

Note: In applications with pilot and main burner, then the main burner only will close.

mechanical details



Control Housing

The control defined by this data sheet is housed in a high impact, flame retardant plastic enclosure which has two fixing points and which provides a dirt free environment to protect the printed circuit board.

Control Orientation and Mounting Position

The orientation of the control is not critical, but a minimum spacing of 15mm between the HT terminal end of the control and adjacent metalwork should be ensured. The sides of the housing should also be position 3mm minimum from adjacent metalwork.