

## PACTROL PRODUCT SPECIFICATION NO. 4049S

### Automatic Gas Control Type 4049S

#### Description

The 4049S control unit provides for automatic ignition and safe supervision of a single or two stage gas burner, operating with A.C. valves.

The unit is suitable for use in a single burner appliance or, when combined with other units, will provide the basis for a multiburner control system.

The start-up sequence can either be initiated by a manually operated switch mounted on the control housing or by an automatic process interlock such as a thermostat.

The control begins its sequence by checking that the flame detector is signalling 'no-flame' while proceeding through a prepurge or wait period. The internal, high voltage spark generator is then energised together with the first stage gas valve terminal.

The spark and valve will remain energised until the gas is lit or the ignition safety period is completed.

When the gas is lit the flame is detected either via a flame probe or by a Pactrol U.V. monitor causing the spark generator to be de-energised but maintaining the first stage gas valve open. As the spark goes off, the second stage gas valve terminal is energised and both valves remain energised until the electrical supply to the unit is removed or the flame goes out.

If the gas fails to ignite or the flame subsequently fails, the gas valve(s) will automatically be de-energised and the control unit will go into a state of lockout.

Reset of the lockout condition followed by a new start-up sequence can only be achieved by interrupting the electrical supply to the unit for a minimum of 3 seconds.

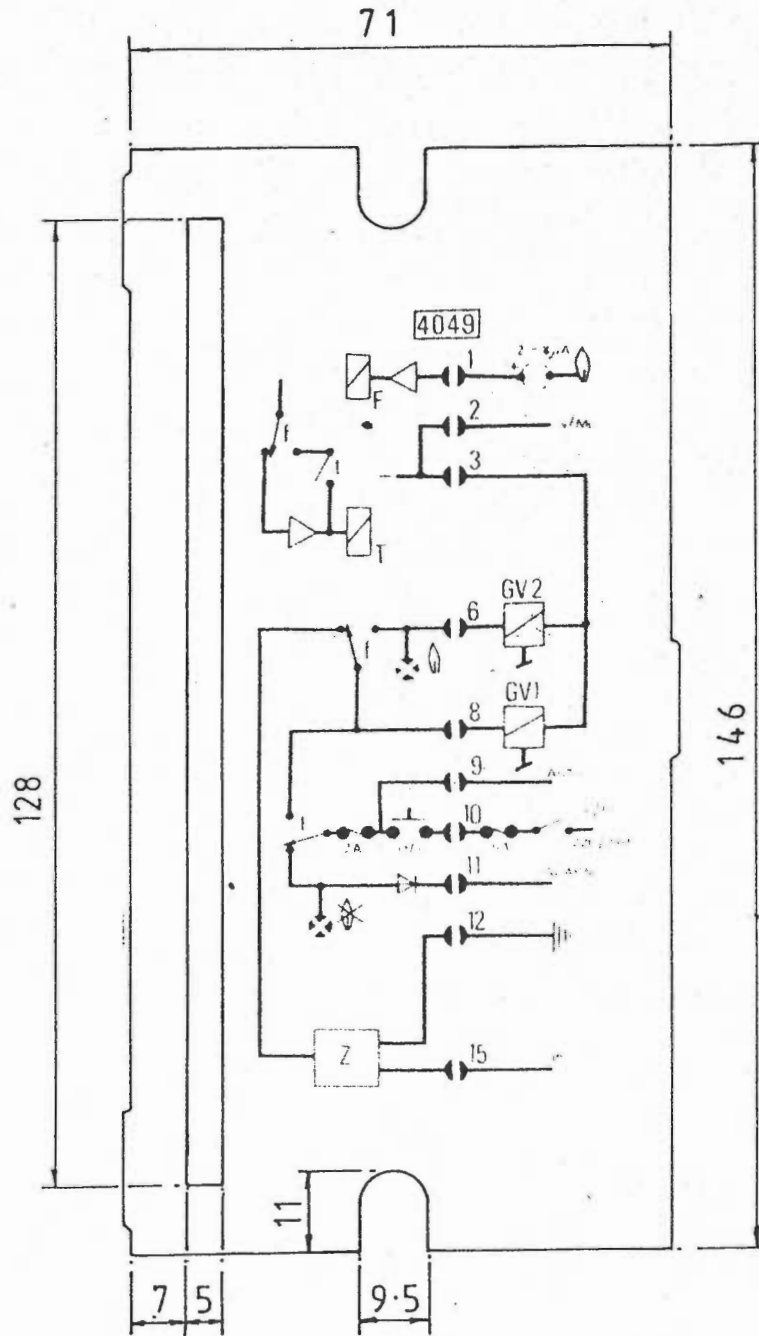
#### Single Probe Operation

A conventional two electrode system can be used with this control unit to provide separate ignition and detection of a gas burner flame. However, where the main burner is lit by the spark at a full or reduced rate the control can provide simultaneous ignition and detection of the flame using only one electrode. The electrode should be where possible positioned to take advantage of the earthed metal of the burner or its combustion chamber.

This feature is obtained by simply linking terminals 1 and 7 together and connecting the single probe to terminal 15.

This feature has particular advantages where space is limited and only one electrode can be fitted. The use of the single probe facility also reduces the cost of installation and servicing.

Note: to measure the probe current during single probe operation a sensitive ammeter should be connected in place of the link.



ALL DIMENSIONS IN MM

DO NOT SCALE

|                                     |      |           |  |                              |         |           |                |
|-------------------------------------|------|-----------|--|------------------------------|---------|-----------|----------------|
| ISSUE No                            | APP. | 1-20-3-80 | TOLERANCES:-   | MATERIAL DATA PLATE          |         |           |                |
|                                     |      |           | DIMS TO 1<br>DECIMAL PLACE<br>± 0.5mm<br>DIMS TO 2<br>DECIMAL PLACE<br>± 0.25mm<br>ANGLES ± 1.0° | FINISH BLACK ON GREY PLASTIC |         |           |                |
|                                     |      |           |  | DRAWN                        | CHECKED | SCALE 1:1 | USED ON 404900 |
| DESCRIPTION DATA PLATE MAN DRG 4049 |      |           |  | DRG No 90895/1               |         |           |                |

## TECHNICAL DATA

### Electrical Supply

voltage 220-240v + 10% -15%  
frequency 55<sup>±</sup> Hz  
consumption 7VA maximum  
internal fuse 2A. HRC 20mm  
earth-neutral relationship essential for efficient flame detec

### Environmental Conditions

ambient temperature typically -5 to +60°C for 3 years  
typically 0 to +40°C for 8 years  
humidity 95%RHmax at 40°C  
mounting position front facia vertical  
switching life 100,000 operations minimum under rated conditions

### Timings

prepurge 30s -0+10s. at 240v  
ignition 4.5s<sup>±</sup>1.5s

### Ignition

peak open circuit  
voltage 15KV.min at 240v 10pF  
potential spark  
energy 25mJmin at 240v  
spark gap 3.5<sup>±</sup>0.5mm  
repetition rate 50 sparks per second

### Flame sensing

nominal flame  
current 2µA  
minimum flame  
current 1µA  
response time,  
flame on 0.2s typical  
flame out 1s + 0 -0.5s

### Switching capacity

start gas valve, 1A resistive 240vAC  
GV1 0.5 inductive.240VAC  
main gas valve, 1A resistive 240vAC  
GV2 0.5A onductive 240vAC  
alarm 0.5A 240vAC half-wave rectified to give a  
common alarm bus in a multiburner system