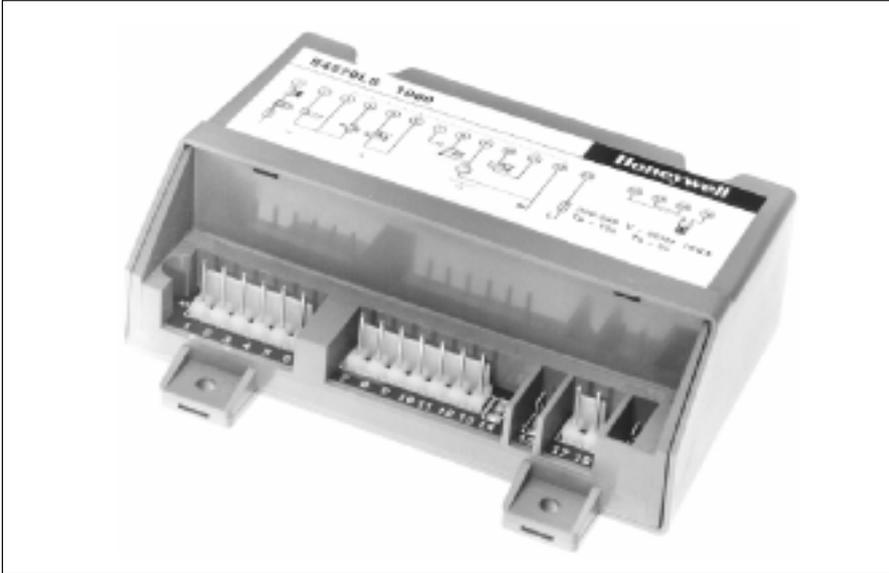


# S4570AS, BS, LS, PS, QS, TS

## SINGLE ELECTRODE HOT SURFACE AUTOMATIC IGNITION CONTROLLER

### INSTRUCTION SHEET



GB

#### Application

The S4570 provides automatic hot surface ignition sequence control for intermittent operation for:  
Gas burners in accordance with European safety standards Pr EN 298 including low temperature application such as warm air heaters and infra red heaters.

D

#### Anwendung

Der Gasfeuerungsautomat S4570 ermöglicht eine automatische Glühzündung und Überwachung für intermittierend Betrieb von:

- Gasbrenner ohne Gebläse bis zu 350 kW nach DIN 4788 Teil 1 und 3 sowie für Warmlufterzeuger nach DIN 4794 Teil 3.
- Gasbrenner mit Gebläse bis zu 350 kW nach DIN 4788 Teil 2 und 3 sowie für Warmlufterzeuger nach DIN 4794 Teil 3.

NL

#### Toepassing

De branderautomaat S4570 is geschikt voor niet permanent brandende verwarmingstoestellen en voorziet in een automatische ontsteking en beveiliging van: Atmosferische- en ventilatorbranders volgens Europese veiligheidsnorm Pr EN 298, inclusief lage temperatuur toepassing en infrarood stralers.

English Page 4  
Deutsch Seite 6  
Nederlands Bladzijde 8

Operating instructions  
Bedienungsanleitung  
Gebruiksaanwijzing

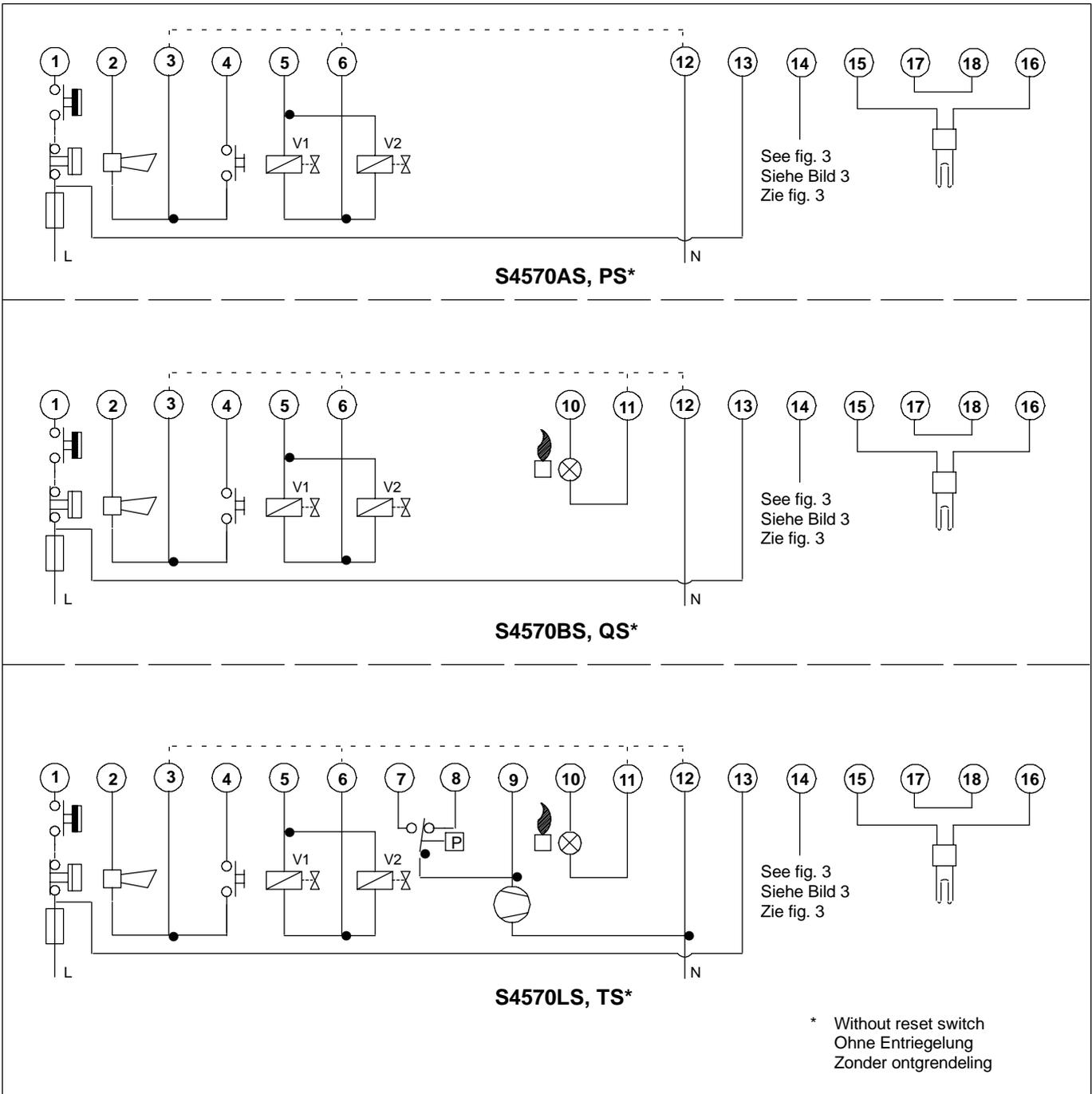


Fig. 1 S4570 with combined flame detection  
S4570 mit kombinierter Flammenmeldung  
S4570 met gecombineerde vlamwaarneming

<b>GB</b>	Thermostat	Gas valve	Hot surface igniter	Flame detection	Fan	Limiter	Reset switch	Alarm	Air proving switch	Flame presence
<b>D</b>	Temperaturregler	Gasventil	Glühzündung	Flammenmeldung	Gebläse	Begrenzer	Entriegelung	Alarm	Luftschalter	Flammenbildungssignal
<b>NL</b>	Regelthermostaat	Gasklep	Ontsteking	Vlamwaarneming	Ventilator	Maximaalbeveiliging	Ontgrendeling	Alarm	Luchttransport-schakelaar	Vlaam aanwezigheids-sig-naal

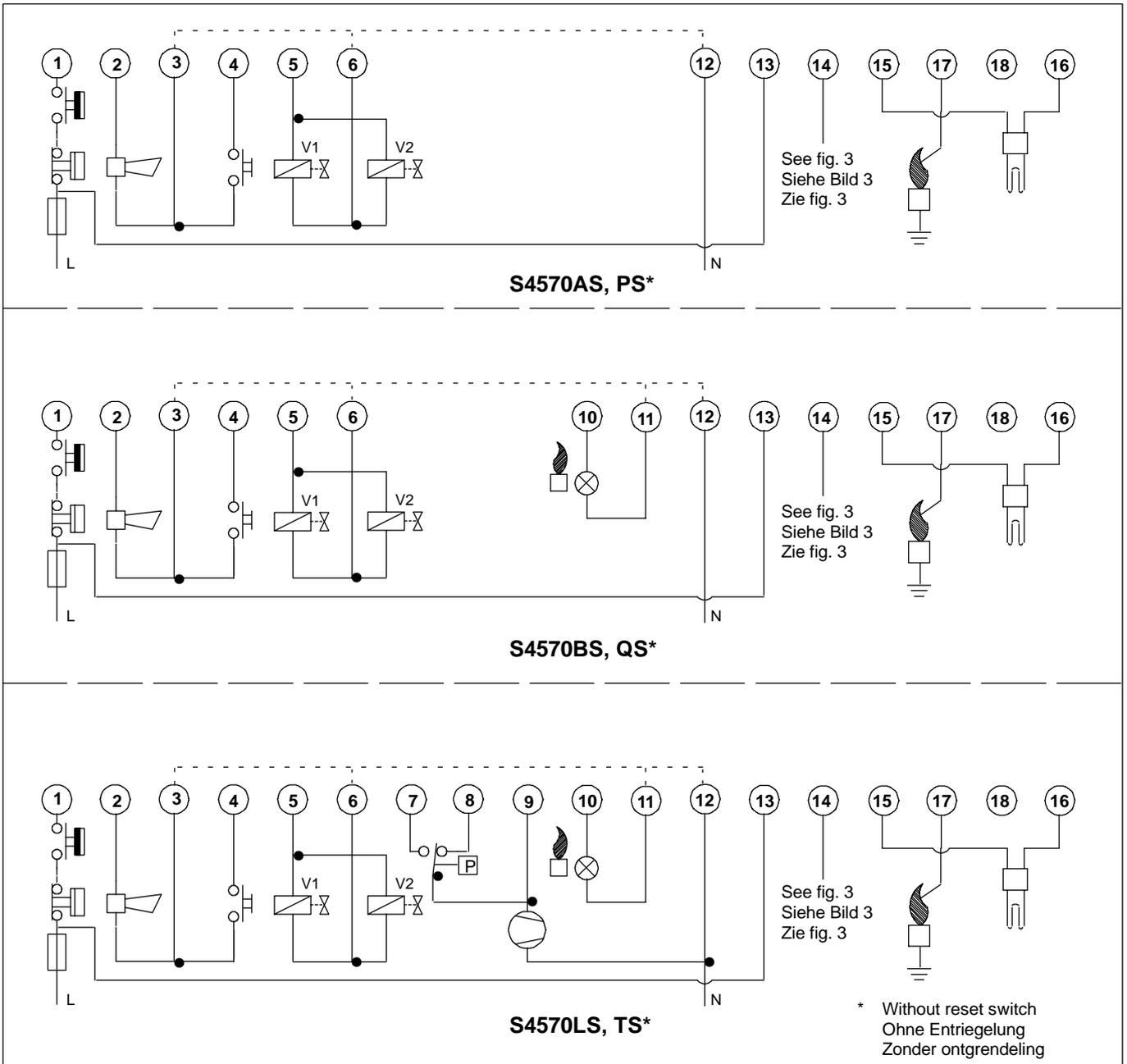


Fig. 2 S4570 with separate flame detection  
S4570 mit einzelner Flammenmeldung  
S4570 met afzonderlijke vlamwaarneming

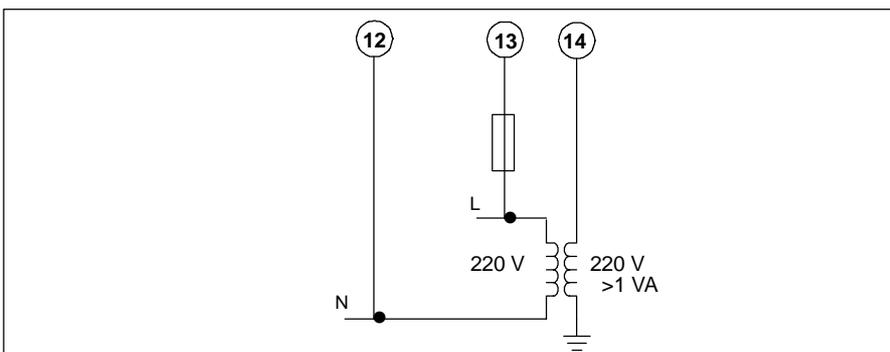


Fig. 3 Application of S4570AS/BS/LS to floating mains  
Verwendung von S4570AS/BS/LS in einer Schwefungsnetz  
Toepassing van S4570AS/BS/LS in een zwevend net

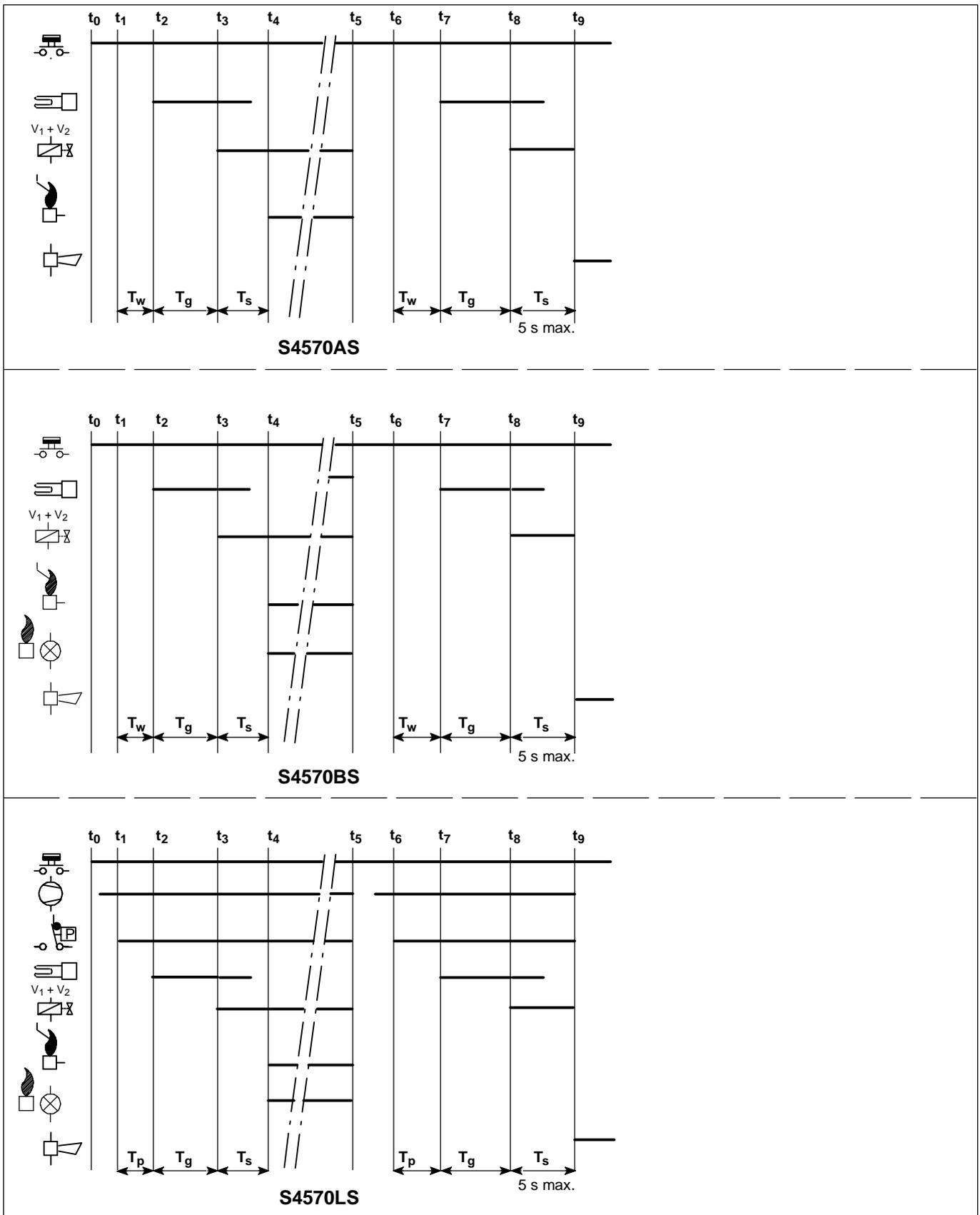


Fig. 4

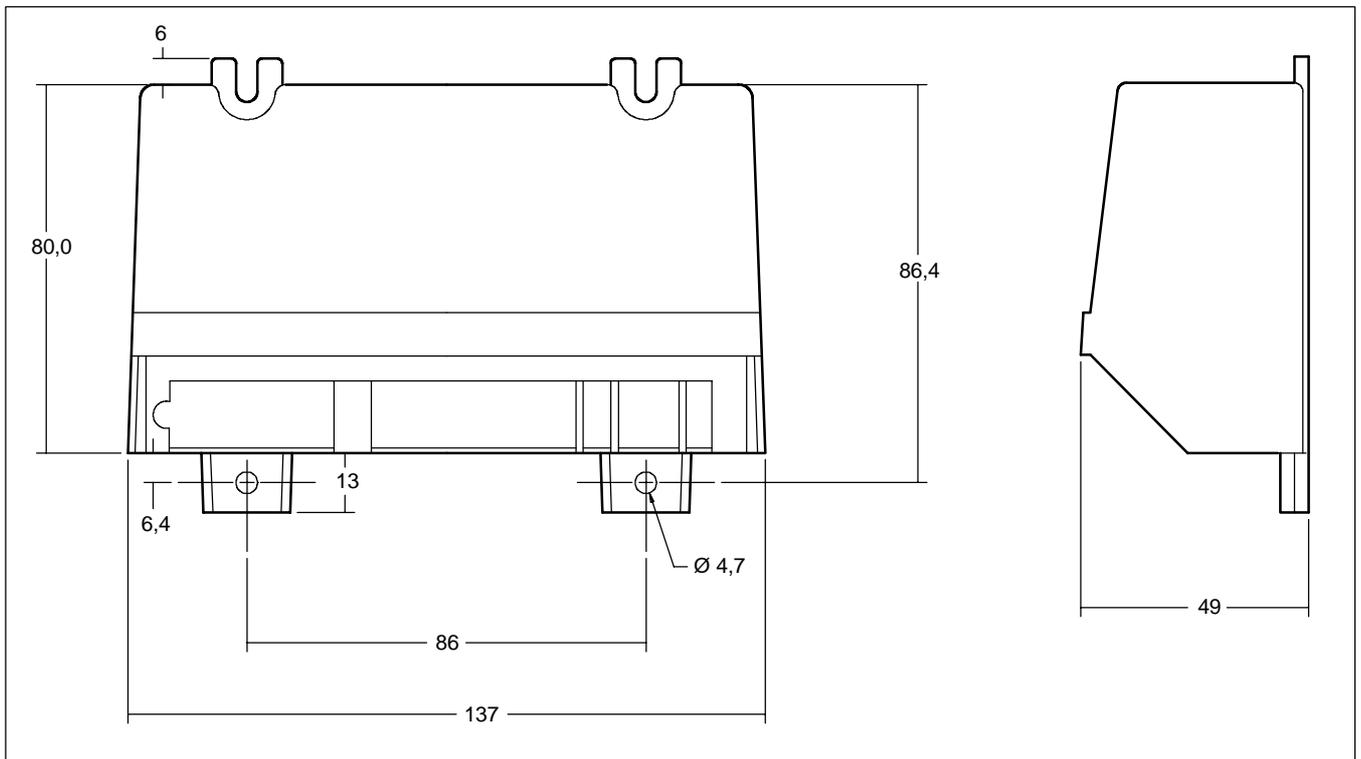


Fig. 5

## ENGLISH

## SPECIFICATIONS

### Model

S4570: 220 ... 240 V, 50 Hz.

Suffix AS: For atmospheric burners.  
Manual reset according  
DIN 4788 part 3.

Suffix BS: For atmospheric burners.  
Flame presence signal  
available after flame  
detection

Suffix LS: For power burners.  
Flame presence signal  
available after flame  
detection.

Manual reset according  
DIN 4788 part 3.

Lock out on false flame.

Suffix PS: As AS except volatile lock  
out in accordance with  
BS : 6795

Suffix QS: As BS except volatile lock  
out in accordance with  
BS : 6795

Suffix TS: As LS except volatile lock  
out in accordance with  
BS : 6795

### Dimensions

See fig. 5

### Ambient temperature

-20 ... 60 °C

### Relative humidity

90% max. at 30 °C (non condensing)

### Supply voltage

Line voltage, 220 V (-15%) ... 240 V  
(+10%), 50 Hz ( $\pm 2$  Hz)

### Power consumption

10 VA max.

### Electrical rating

Valve(s) output: 1 A  $\cos \varphi = 0.6$

Fan output: 1 A  $\cos \varphi = 0.6$

Flame presence output: 1 A  $\cos \varphi = 0.6$

Alarm output: 1 A  $\cos \varphi = 0.6$

Hot surface igniter  
output: 4 A  $\cos \varphi = 1$

### Electrical connection

Hot surface igniter: 4.8 x 0.5 mm  
spade terminal

Multiple connector: Molex 3001  
series

### Timing (depending on O.S. number)

Waiting time ( $T_w$ ): 3 s

Prepurge time ( $T_p$ ): 15 or 30 s

Glowing time ( $T_g$ ): 20 or 35 s

Safety time ( $T_s$ ): 3, 5 or 10 s

### Flame sensing

1. Combined with Hot Surface Igniter  
(see fig.1) or

2. Separate (see fig. 2)

Flame sensing is based on the  
rectification principle.

Minimum flame current: 1  $\mu$ A

Response time "ON"

(at 2  $\mu$ A flame current): < 500 ms

Response time "OFF": < 1 s

### Ignition

Integral electronics for Hot Surface  
Igniter.

Hot Surface Igniter type: Norton 271

### Fusing

Automatic ignition controller should be  
externally fused to prevent damage to  
automatic ignition controller, wiring or  
peripherals.

External fuse: 16 A slow max.

## Enclosure

IP 22 when mounted on a vertical surface with the protected connectors downwards, otherwise IP 00

## Accessories

(to be ordered separately)  
Multiple connectors including 1 m leads, order number:  
2 pole (AS,BS,LS,PS,QS,TS) 45.900.419-020

3 pole (AS,PS)	45.900.419-019
4 pole (BS,QS)	45.900.419-018
6 pole (AS,BS,LS,PS,QS,TS)	45.900.419-011
7 pole (LS,TS)	45.900.419-017

# SYSTEM OPERATION

## Automatic ignition controller for atmospheric burners (Suffix AS, BS, PS and QS, see fig. 4)

When thermostat calls for heat the waiting period ( $T_w$ ) starts. After ( $T_w$ ) the hot service igniter starts heating up and after the glowing time ( $T_g$ ) the gas valve is switched on.

After the gas valves ( $V_1 + V_2$ ) are energized for 2.5 s, the glowing stops and the flame existence can be detected.

A flame presence output signal after flame detection is available. (suffix BS, QS).

If flame is not established within the safety time ( $T_s$ ), the automatic ignition controller locks out.

If flame is lost during normal run, the automatic ignition controller repeats start sequence.

## Automatic ignition controller for power burners

(Suffix LS and TS see fig. 4)

When thermostat calls for heat, fan is energized if air proven switch is in the "NO AIR" position.

When sufficient air flow is proven by the air proving switch, a prepurge period ( $T_p$ ) elapses.

At the end of the prepurge time the glowing time ( $T_g$ ) starts, while the fan stays running.

The gas valve will be energized at the end of the glowing time. After the gas valve is energized for 2.5 s, the glowing stops and the flame existence can be detected.

A flame presence output signal after flame detection is available. (suffix LS, TS).

If flame is not established within the safety time ( $T_s$ ), the automatic ignition controller locks out.

If air flow is not proven by air proving switch, automatic ignition controller will remain in a waiting mode with fan energized.

If flame is lost during normal run, the automatic ignition controller repeats start sequence.

## Flame presence output

Suitable for flame indication or high/low applications.

## Lock out reset

The auto ignition controller will be reset by depressing the internal or the external reset button.

If a first reset is not successful wait at least 15 seconds before making another reset.

# INSTALLATION AND CHECKOUT

## Important

- Installer must be a trained experienced service man.
- Disconnect power supply to prevent electrical shock and/or equipment damage.
- Before installing or replacing any control check that type number is correct for the application.
- The appliance manufacturer's instructions should always be followed when provided. If such instructions are not provided see fig. 4 for typical systems.
- Ensure combustion chamber is free of gas before start up.
- Conduct a thorough check out when installation is completed.
- At the first start the ignition controller can be in lock out; depress reset button to free control.

## Mounting

The automatic ignition controller should be mounted on a flat surface by means of 4 mounting holes (see fig. 5). The automatic ignition controller functions position independently.

## Hot surface igniter

Refer to the appliance manufacturer's instructions for recommended igniter position.

## Wiring

- Wiring must be in accordance with local regulations
- Use untinned receptacles for easier connection.
- Use leadwire which can withstand 105 °C ambient.
- Use leadwire which is proven against moisture.
- Wiring between automatic ignition controller and hot surface igniter probe should have good quality insulation, suitable for the temperatures encountered.

## Supply voltage polarity

### Warning

If automatic ignition controller seems to operate normally but does not detect ignition flame, check for right polarity of power supply (line, neutral).

## Checking flame current

- The minimum value should be 1  $\mu$ A.
- To check flame current at combined flame sensing (see fig. 1) connect a DC micro-Ampèremeter between pin 17 and pin 18.
- To check flame current at separate flame sensing (see fig. 2) connect a DC micro-Ampèremeter in series with the flame electrode.
- If flame current is insufficient check that hot surface igniter/flame electrode is fully enveloped by the flame.

## Checkout

After installation, set burner system in operation and observe through a complete cycle to ensure that burner system components function correctly.

---

## GENERAL CONSIDERATIONS

The automatic ignition controller should be externally fused.

The automatic ignition controller contains no serviceable parts. Any attempt of replacement of parts will affect the safety of this device and is therefore not allowed.

When the automatic ignition controller is built in an appliance, the total protection must be IP 40 at least.

To ensure reliable long term operation, mount automatic ignition controller at a position in the appliance with a low ambient temperature and a low radiation.

High temperatures will affect product life.

For safety a high limit thermostat must be connected in series with the comfort controls to de-energize the automatic ignition controller in case of over temperature.

### **Note**

Electrical rating of connected controls and air proving switch should be appropriate for the load that is switched by the automatic ignition controller.