# Heated sample lines

## RELIABILITY WITH SAFETY

The Signal Heated sample line was primarily developed for carrying heated diesel exhaust gas to hydrocarbon and NOx analysers, such as the Signal 3000 and 4000 analysers. If the temperature of the sample gases falls below the dew point of the gas being measured, then the gas will become liquid and condense in the sample line. As the flame ionisation detector which is used in such instruments can only measure gaseous hydrocarbons, it is essential to avoid such condensation.

A constant high temperature must therefore be maintained throughout the entire line assembly, and Signal achieves this by the use of a braided heating element. The braiding is made of flexible stainless steel, which completely surrounds the inner PTFE tube. The braided tube is bedded in pure silicone sponge for thermal insulation, and a sleeve of wire reinforced PVC anti-scuff hosing completes the assembly.

This method of heating ensures constant high temperature throughout the sample line, with no cold spots. Despite internal temperatures of up to 200ºC, the efficiency of the insulation keeps the line relatively cool on the outside, at a maximum of 40ºC, and therefore quite comfortable to handle.

Signal has designed the heated sample line with safety as a major consideration, and a low voltage is therefore used, of approximately 1.5V per foot length. The braiding is so robust that there is virtually no possibility of heating element failure.

The controller is a zero voltage switch type, connected to a transformer to supply the low voltage. This transformer electrically isolates from mains power, thereby rendering the entire heated line assembly safe from the power supply.

Whenever mains power is connected to the line, the controller switches it on and off only during the zero in the ac cycle. This results in a surge-free transition, and eliminates any electrical interference which might otherwise arise when being used near to sensitive analyser.

## MADE TO ORDER

Signal make all heated sample lines to customers' orders, with up to 100ft or more in one length being available if required. The transformer is selected and wound to individual order, according to the voltage required for the specific length of line. Sample line and transformer can be supplied with a separate controller (as shown overleaf) for customers wishing to build the controller into their own control panel.

Alternatively, Signal can supply, at extra cost, a small, portable carrying case containing both transformer and controller. This is especially recommended for customers who wish to use the controller in a laboratory or on site.

## SPECIFICATION

**CONSTRUCTION:**
PTFE braided tube, thermally insulated with silicone sponge and surrounded with wire reinforced PVC hosing. Continuous lengths of 100ft and more available.

**HEATING ELEMENT:**
Flexible, stainless steel braiding.

**VOLTAGE AND CURRENT:**
Approximately 1.5V/ft, 18Amp constant

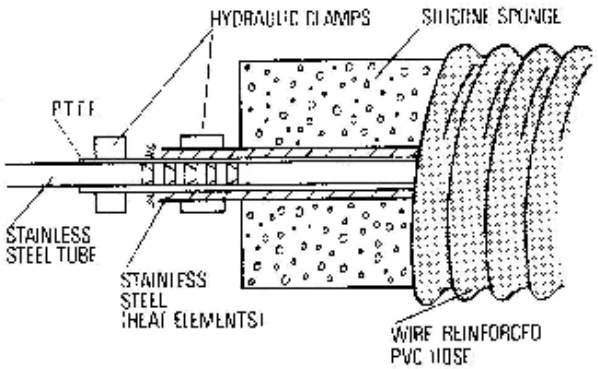
**DIAMETER:**
⅛in, ¼in and ⅜in are standard in either normal thickness (0.04in) or heavy duty (0.06in). Other diameters are available on request.

**CONTROLLER:**
Zero voltage switch type, all solid state, housed in standard 96x96mm panel mounted case. Proportional band for temperature stability.

**TEMPERATURE STABILITY:**
± 5ºC

**TRANSFORMER:**
Individually wound to voltage required.

**OPTIONS:**
Portable carrying case for laboratory use containing controller and transformer.




**Authorised Representative:**

SIGNAL GROUP
www.signal-group.com

**Signal Group Ltd**
Standards House, Doman Road, Camberley, Surrey GU15 3DF
United Kingdom

Tel: +44 (0)1276 682841 Email: sales@signal-group.com

QMS ISO 9001 : 2015 REGISTERED
Cert No. 317012019