



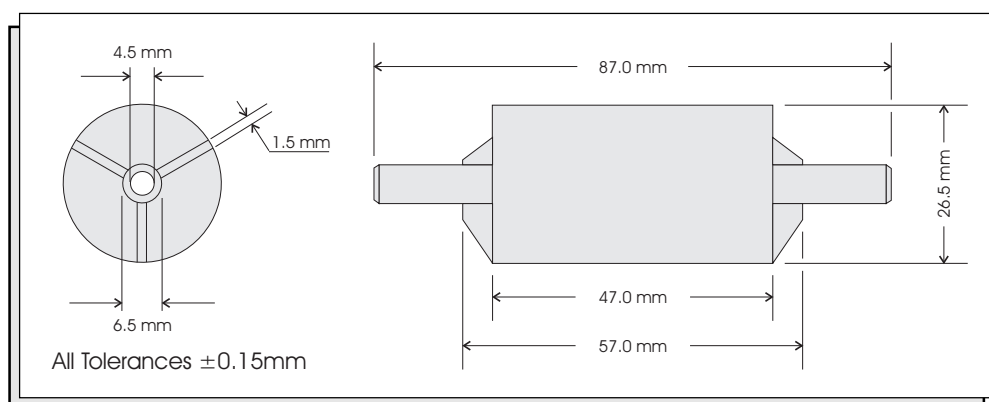
Application Note 12 **In-line SO_x/NO_x filters**



If a particular application involves unusually high levels of cross-sensitive gases, it may be desirable to supply additional filter capacity to protect a CiTiceL's internal filter. This is particularly relevant in emissions applications involving heavy oils or woodburners which liberate high levels of nitrogen dioxide, nitric oxide and sulphur dioxide. These gases can cause problems when measuring carbon monoxide.

City Technology has developed a replaceable filter system for use with carbon monoxide CiTiceLs in pumped systems. The filter is designed to remove the SO₂, NO and NO₂ in a sample gas without affecting the CO concentration. These cartridge filters are inserted in the gas sampling system to absorb acid gases which may give rise to a false signal. The filter is intended for use only with the CO sensor, to absorb SO₂, NO and NO₂, and is easy to replace when exhausted (as indicated by a colour change).

Figure 12.1
In-line SO_x/NO_x Filter:
Outline drawing



(a) Construction

The dimensions of the filter are shown in Figure 12.1. The housing is constructed from a modified polyamide material, selected for its high strength and resistance to chemical attack. However, it is not designed to be used in high concentrations of the following substances:

<i>Alcohols</i>	<i>Ketones</i>	<i>Phenols</i>
<i>Amines</i>	<i>Pyridine</i>	<i>Chlorinated Solvents</i>

The spigots of the filter can accommodate 6mm flexible tubing for connection purposes, provided the pressure of the gas line does not exceed three atmospheres.



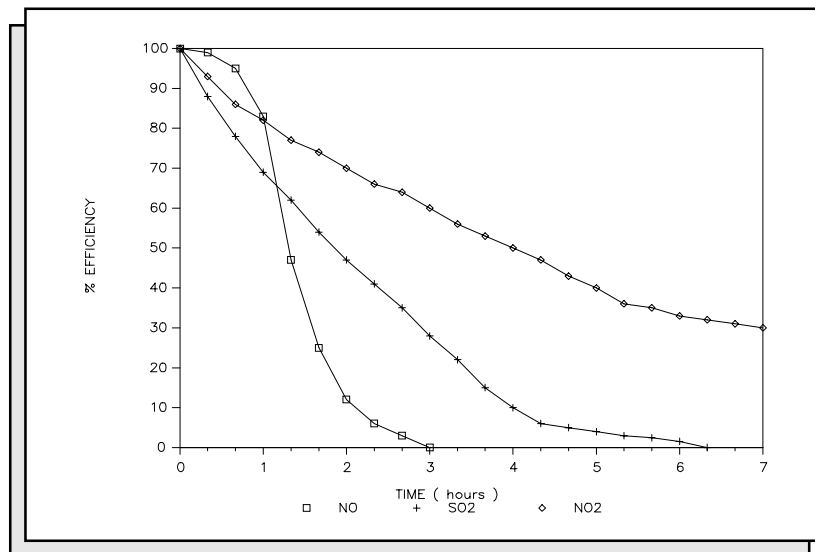
(b) Filter Life

Figure 12.2 shows the removal capacity of the filter with a 1 litre/min gas stream containing NO, NO₂, and SO₂, each at 1000 ppm. In practice the filter life will vary according to the application and will depend on many other operational factors.

When new, the filter material is purple, and as it gradually loses its capacity to remove acid gases, the colour of the material slowly changes to a dark brown.

Filters are supplied in packs of ten, with protective caps to prevent contamination of filter material during transit and storage.

Figure 12.2
In-line SO_x/NO_x Filter:
% Efficiency (1000ppm at
1litre/min)



Order Code

In-line SO_x/NO_x Filter B100