

# Application Note

## TGH Pickup Tube Length



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The Senva TGH model installation involves connecting pickup tubes from the duct to the enclosure hose barbs for air sampling. This application note gives recommendations on those pickup tube lengths based on the rate of airflow in the duct.

## RESPONSIVENESS

Utilizing pickup tubes for air samples on the TG Series causes a delay based on the time to refresh the air inside the TG sensor enclosure. To minimize this impact, Senva recommends minimizing the length of pickup tubes during installation.

Below is a logarithmic graph that, given a flow velocity and a tube length, one can find the time required for the sensor to register 90% of any change in air composition.

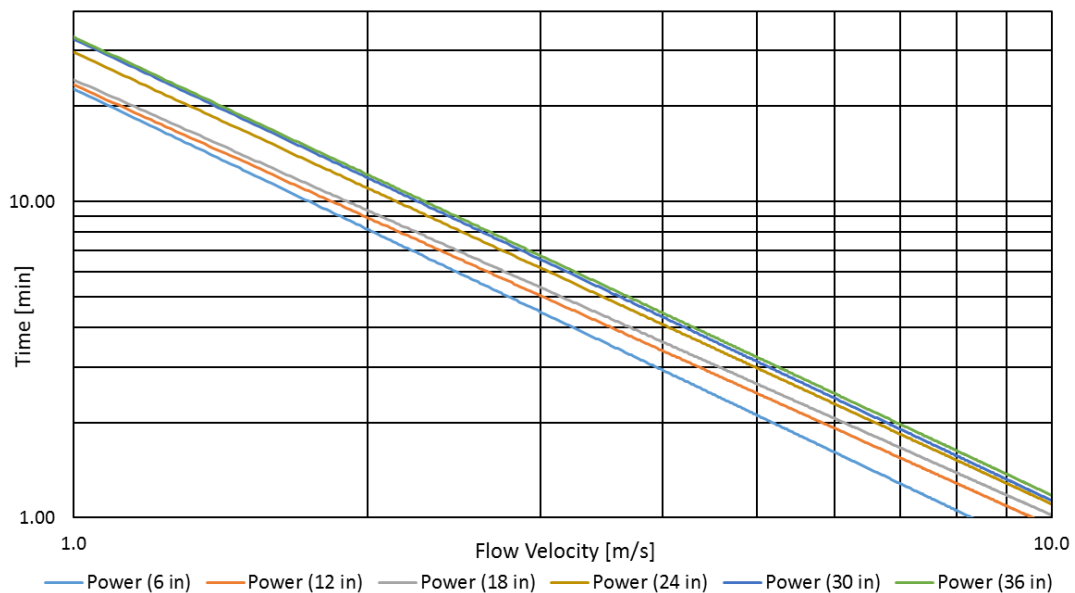


Figure 1\*: Time required for 90% change in gas composition as a function of duct flow velocity.

Based upon this data and a maximum 15-minute response time, the table below gives recommended minimum duct air speed for a given tube length.

Given Tube Length	Recommended Minimum Flow Velocity for 15 min 90% change		
	<i>m/s</i>	<i>ft/min</i>	<i>mph</i>
6	1.3	261	3.0
12	1.4	270	3.1
18	1.4	279	3.2
24	1.6	317	3.6
30	1.7	335	3.8
36	1.7	340	3.9

\*Tests performed for Figure 1 used Kele 4 inch impact probe 1/4" outer diameter connector and Watts vinyl .17" inner diameter tubing