

CONFIGURATIONS

SINGLE PATH LATERAL-45

CONFIGURATION INFORMATION

Where many operators may specify dual path installations as standard, Fluenta systems can achieve unparalleled accuracy with a single pair of transducers. Our standard single path, lateral-45 system achieves better than $\pm 5\%$, and with calibration, can achieve better than $\pm 1\%$.

This is important, not just for installation cost reasons, but because the costs of servicing, maintenance and spares of Fluenta systems can also reduce in multi-path installations, offering significant advantages when a single path is deemed sufficient.

The typical justifications for dual path requirements are related to reliability and accuracy, both of which are largely academic when you're using a Fluenta system.

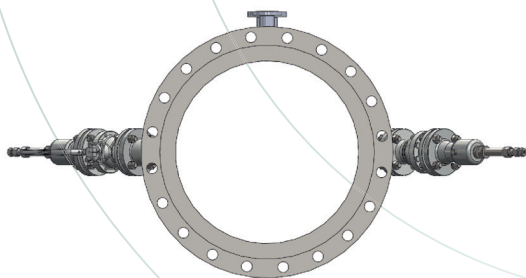
Fluenta transducers are inherently more reliable. As they are typically installed in a non-intrusive lateral-45 configuration, the sensor tips (which are also manufactured from Titanium) are never fully exposed to the hostile gasses and velocities within

the flare line. Our engineers regularly attend sites where other sensors have been bent or damaged through this exposure, so it's something we're very conscious of.

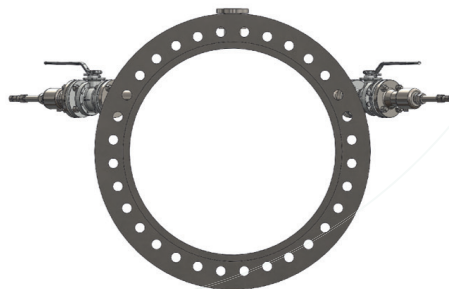
For servicing and cleaning, it's a simple process to remove our sensors from the line without an expensive shutdown process. All our sensors are designed to be removable from the ball-valve through a simple and safe process.

Where extreme pipe sizes are required, of course we're able to install our sensors with a suitable offset, and we can also offer computation fluid dynamic analysis of the overall pipe system to enhance the accuracy where the mix of gasses, or other factors might create an uneven flow profile.

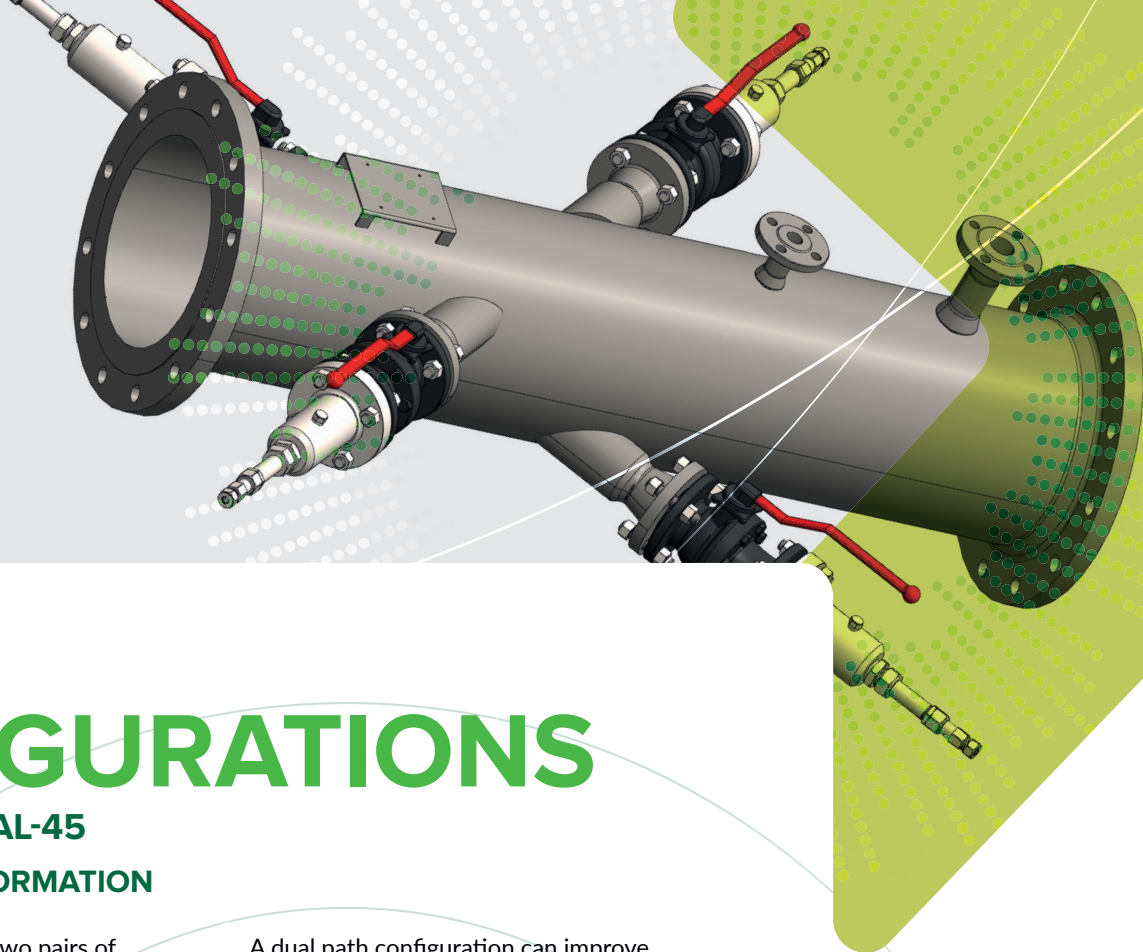
We have installed many thousands of flare gas measurement systems around the world, in some of the most extreme environments, the overwhelming majority of which are still in operation today, providing reliable, accurate and consistent measurements for full regulatory compliance.



Transducers installed as a single path configuration at zero-offset



Transducers installed as a single path configuration at an offset chord



CONFIGURATIONS

DUAL PATH LATERAL-45

CONFIGURATION INFORMATION

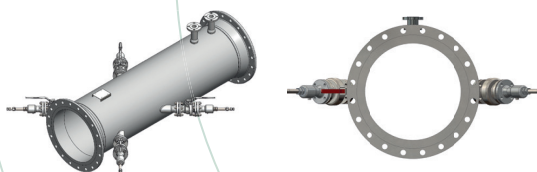
A dual path configuration uses two pairs of ultrasonic transducers connected to a single FGM 160 flow computer. All four transducers act as both, emitters and receivers of ultrasonic signals.

A dual path configuration can improve measurement accuracy to up-to $\pm 0.75\%$, but is also a valuable configuration when redundancy is a core consideration.

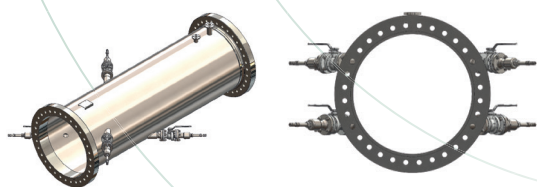
WHY DUAL PATH?

Dual Path for Accuracy

With two pairs of transducers being employed, the accuracy can be improved to $\pm 0.75\%$. This is possible by measuring the same flow and taking an average of the values. They can be installed in a centre-cross or an offset configuration as shown in the picture below.



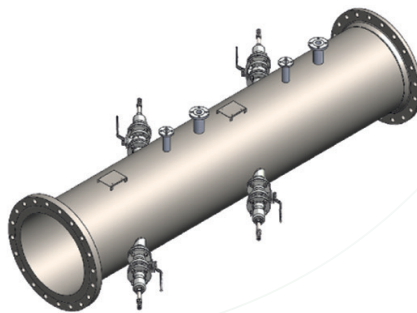
Centre-cross dual path configuration



Offset dual path configuration

Dual Path for Redundancy

For clients who want to safeguard against measurement loss, two pairs of transducers can be installed to make sure that one pair is always functioning. The FGM 160 flow computer will automatically detect and disregard the readings from a pair of transducers which are malfunctioning or inaccurate. Dual path for redundancy can be achieved with centre line measurement, offset measurement or Bias-90 measurement but the accuracy will remain $\pm 1\%$ (for wet calibrated systems), same as single path configuration.



Centre line dual path configuration for redundancy