

New Feature Announcement

SHIFTING GAS CONCENTRATION

Correcting for Shifting Gas Concentrations

Most chemical and manufacturing processes (such as primary air for combustion, compressed air in pneumatic systems, and nitrogen flow for inerting) are designed around a structure that utilizes a single gas or a fixed gas mixture to produce a desired outcome.

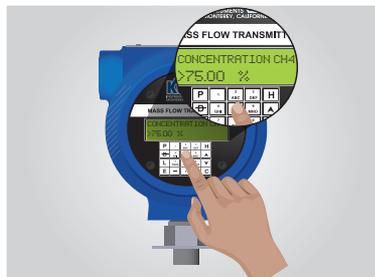
However, selected key process measurements must be made in locations where the gas changes or the composition shifts due to process upset or process life cycle. Common flare measurements can often be any one of or any combination of several gases. The off-gas composition in biogas applications is affected with biomass content, seasonal changes, rate of decomposition, and moisture levels. Historically, these processes have precluded thermal instrumentation because the technology requires a constant gas composition to accurately report process flow.

Kurz B-Series flow meters now support the capability to accommodate Shifting Gas Compositions via manual or automatic adjustment.

In simple binary gas applications (gas mixes composed of only two gases), the customer selects a “target gas” — the gas for which the concentration can be defined. After configuration, the flow meter has the ability to accept field adjustments to the correlation response based on the desired percentage of that target gas. Field adjustments are made either manually (through the keypad, Modbus, or USB connections) or automatically by providing a linear (4-20 mA) external signal to the instrument.

In gas compositions containing more than two gases, such as a typical mixed hydrocarbon with fluctuating hydrogen content, several gases often can be grouped together for similar response. The “odd-gas-out” (in terms of heat transfer) is utilized to correct the response of the instrument for a better fit to the actual gas mix at any specific time.

For mixes other than CH₄/CO₂, contact Kurz to have the gas composition evaluated for applicability.



The Shifting Gas Composition feature is available through Option 17. However, Option 17 has dual-purpose functionality that is configured per user specifications — either for Shifting Gas Concentrations or for Multiple Gas Calibrations. The two functionalities are mutually exclusive, and the specified functionality cannot be changed.

Ordering the Shifting Gas Composition Feature

To order the Shifting Gas Composition feature for changing gas compositions:

454FTB	Feature 8, Option 8K
454FTB-WGF	Feature 10, Option H
504FTB	Feature 6, Option 8K
534FTB	Feature 6, Option 8K0

To access the Shifting Gas Composition feature using the Product Configurator in the Kurz online Pricing Program, choose **Gas Mix** for the Process Gas:

Process Gas

Gas Mix

Select Process Gas

Air

Argon

Butane

Carbon Dioxide

Dry Ammonia

Dry Chlorine

Ethane

Ethylene

Helium

Hydrogen

Methane

Digester Gas: 50% CH₄, 50% CO₂

Digester Gas: 60% CH₄, 40% CO₂

Digester Gas: 70% CH₄, 30% CO₂

Nitrogen

Oxygen

Propane

Gas Mix

Special Gas

For the Specialty Gas Velocity Calibration feature, choose the **User-Defined Binary Gas Composition** feature.

Specialty Gas Velocity Calibration (F8) Correlation

Select Option

Select Option

(8K) User Defined Binary Gas Composition

(8M) One Gas Curve

(8N) Two Gas Curves

(8O) Three Gas Curves

(8P) Four Gas Curves

(8Q) Five Gas Curves

Click **Enter Gas Compositions**, and then enter the gas composition into the Binary Gas Mix field. The gas composition can contain up to five (?) gases. For example, methane, carbon dioxide, nitrogen, oxygen, and air.

Specialty Gas Velocity Calibration (F8) Correlation (8K) User Defined Binary Gas Composition

- Enter Gas Compositions -

Gas Compositions

Binary Gas Mix:

Finished Cancel

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