Option 17 — Configured for Multiple Gases

Option 17 has dual-purpose functionality that is configured per user specifications. The two functionalities are mutually exclusive, and the specified functionality cannot be changed.

Important:

> *This section contains Information for selecting from the available list of multiple gas calibration curves. Information for configuring a shifting gas composition is available with "Option 17— Configured for Shifting Gases."*

An optional feature available with Kurz flow meters is the ability to adjust for shifting gas (also referred to as "binary gas") compositions or to select a different predefined gas calibration.

- A shifting gas composition is a gas mix with only the percentages of the gases within the mix changing based on the key gas within the mix.

- Multiple gas calibrations support up to five unique gases or gas mixes.

Important:

> *Two different sets of parameters appear depending on Option 17 being configured for the shifting gas feature or the multiple gas feature.*
>
> *Make sure you are referring to the correct set of feature parameters for Option 17.*

Multiple Gas Calibrations

Multiple gas calibrations are useful in applications that run a primary gas, but require another gas for a line purge function, or when the flow meter needs to be used in different process gas lines. The flow meter can contain up to five predefined calibration curves. The flow meter can switch to another gas calibration curve using manual entry or automatically using the 4-20mA input signal.

The flow meter uses the 4-20mA ranges shown in the following table to select between the predefined calibration curves.

4-20mA Ranges for Predefined Calibration Curves

Modbus RTU Communication Parameters	Modbus ASCII Communication Parameters
Curve 1	< 6.0mA
Curve 2	7mA to 9mA
Curve 3	10mA to 12mA
Curve 4	13mA to 15mA
Curve 5	> 16mA

The gas calibration can be changed two ways:

- Manually by selecting a predefined alternate gas calibration.
- Automatically changing the gas calibration through the 4-20mA external input signal read by the flow meter.

Changing to Another Gas Curve Manually

Changing to another calibration curve using Manual mode:

1. Press **P**.
2. Enter the Advanced Access password, and then press **E**.
3. Press **2** to invoke the Quick Jump option.
4. Press **17** for the Calibration Curve Selection menu, and then press **E**.

   The prompt for configuring the source of the gas calibration curve appears.

   ```
   CURVE SEL MODE
   >MANUAL       ^v
   ```

5. Use the arrow keys to select **MANUAL**, and then press **E**.

   The prompt for the first gas curve appears.

   ```
   SELECT CAL CURVE
   >50CH4+40CO2+ ^v
   ```

   Each curve can be a single gas or a gas mix. For gas mixes, the entire gas mix name might extend beyond the available character spaces in the display. Refer to your calibration data sheet for complete information.

6. Press the **up** or **down** arrow to scroll through the list of available gas curves.
7. Press **E** to select a specific gas curve.

   ```
   MOLWT 28.997
   KG/M3= 1.157254
   ```

   The molecular weight and calculated density of the gas mix appears.

8. Press **E** to return to the main menu.

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Changing to Another Gas Curve Automatically Through the External Input

Before setting up Option 17 for the external input, you must define **Option 20** to use **CAL DATA SW** as the external input.

To access the External Input Setup option in Program mode:

1. Press **P**.

2. Enter the Advanced Access password, and then press **E**.

3. Press **2** to invoke the Quick Jump option.

4. Press **20** for the External Input Usage menu, and then press **E**.

5. Select **CAL DATA SW**.

    The prompt returns to the main menu.

Changing to another calibration curve using Automatic mode from an external input:

1. Press **P**.

2. Enter the Advanced Access password, and then press **E**.

3. Press **2** to invoke the Quick Jump option.

4. Press **17** for the Calibration Curve Selection menu, and then press **E**.

    The prompt for configuring the source of the gas calibration curve appears.

    ```
    CURVE SEL MODE
    >EXT INPUT LEV^v
    ```

5. Use the arrow keys to select **EXT INPUT LEV**, and then press **E**.

    The molecular weight and calculated density of the active gas curve appears.

    ```
    MOLWT 28.997
    KG/M3= 1.157254
    ```

6. Press **E** to return to the main menu.

Viewing the External Analog Input for Multiple Gas Curves

To view the External Analog Input in Display mode:

1. Press **D**.

2. Press **2** to invoke the Quick Jump option.

3. Press **41** for the input current and the equivalent gas curve.

    _____

    ```
    INPUT CURRENT
    AT 0.012 mA
    ```

    _____

    The input current read by the flow meter appears. Use the **4-20mA Ranges for Predefined Calibration Curves** table to determine the active calibration curve being used by the flow meter.

4. Press **H** to exit.

The main Display mode (DSP) prompt appears.

Troubleshooting Multiple Gas Curves

The flow meter will not provide an accurate measurement of the flow when the 4-20mA signal reading is

out of range ($\leq$ 3.6mA or $\geq$ 21.0mA).

*   Curve 1 is used when the signal is ≤ 3.6mA.

*   The last curve (up to 5) is used when the signal is ≥ 21.0mA.

The flow meter engages the NE-43 alarm level on the 4-20mA output when the 4-20mA input signal that provides the gas curve selection is out of range. The flow meter also activates an alarm output connected to the digital output (DO1) connected to TB6-3/TB6-4, and the following information appears in the display:

    _____

    ```
    EXT ANALOG INPUT
    OUT OF RANGE
    ```

    _____