

Configurable Features Already Added by Customer Request...

What feature would you like to add to the List?

Dual Calibration:

Pneucleus MFC's have two signal conditioning circuits that can be calibrated for different flow ranges and different gases. There is a default calibration and a secondary calibration that is selectable by remotely applying an "enable" signal (Signal Ground) to pin-9 of the connector or locally by re-positioning a jumper located on the MFC enclosure. The Dual-Cal capability allows the user to select one-of-two totally different calibrations within a single MFC. So, for example, an MFC can have a 2 slpm Nitrogen and a 300 sccm Argon calibration in the same unit. Both are accurately calibrated using the specified gas. This eliminates the 6% to 15% errors typically seen when using gas correction factors.

Local Dual-Cal Select:

Initially, the Dual-Cal feature was only selectable through the 9-pin connector. In time a request came in to make it selectable locally from the top of the MFC's enclosure. So now, by connecting or disconnecting a 2-pin jumper located on the top of the unit, the calibration can be toggled from Cal-A to Cal-B.

Local Set-point Adjust:

By moving an external jumper from position-one to position-two, the control signal is changed from an external (remote) source to an internal (local) source. This allows the user to set a flow rate by accessing a potentiometer located on the top of the MFC's enclosure having applied only power and ground through the connector.

External Isolation Valve:

The output port of the Pneucleus MFC's is equipped with mounting holes for an optional isolation valve to improve the internal leak integrity from 1×10^{-6} to 1×10^{-10} . The valve is bolted on and plugged into the MFC using a 2-pin connector on the MFC enclosure. When the control signal exceeds 0.4% of scale the valve is energized and opened automatically. This eliminates the extra circuitry often needed by OEM's when using an isolation-valve in concert with an MFC from another manufacturer.

RF Immunity:

Special filter circuitry along with RF shielding between the enclosure and the base was added to make the MFC immune to RF interference. This is particularly helpful in military applications where RF activity is high.

Active Thermal Regulator:

A heater was added using thermal sensor feedback for accurate temperature control inside the MFC enclosure. This is particularly useful where the MFC would be exposed to thermally dynamic environments and repeatability is required to stay within the 0.15% of scale specification as the temperature changes over the entire range of 0-500°C. Bypass style MFC's could never meet this specification.

Manifold Mountable Input/Output:

To conserve space, especially when multiple MFC's have a common input or common output, the Pneucleus MFC's are designed with a 45° mounting hole pattern to allow the user to attach a manifold to it using an o'ring face seal. Special 90° adapters can also be fitted to allow manifold mounting to the bottom side of the MFC.

Dual MFC/MFM Capability:

This modification allow the user to switch the device from a mass flow controller to a mass flow meter simply by applying signal ground to pin-9 and pin-4 of the input connector. This drives the valve full "ON" allowing the output signal to indicate a flow rate being controlled by other means. This is a slight twist on the Dual-Cal capability in that the Cal-B circuitry is calibrated to drive a meter.

Custom Characterization:

Pneucleus offers a variety of performance levels to each product we sell. The idea is that the OEM should not pay for a Mercedes if a Ford will do the job well. Another way we try to offer high precision in a low cost device is to provide a custom characterization curve for the device that can provide an accuracy of better than 0.5% of reading. The material cost would remain the same however characterization is labor intensive and will increase cost slightly. If an OEM engineer is clever and capable enough to imbed this characterization data into the control software for the MFC then he got himself an ultra-high precision MFC for a fraction of the cost of a standard 1% accurate MFC.