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The Pneumatics Control Module

Using a Pneumatics Control Module

The Pneumatics Control Module (PCM) provides one channel of flow or pressure control, replacing the standard electronic flow control module (ECM) for that channel. It does not need to be connected to any particular type of inlet.

The PCM can control gas flows and pressures for a number of applications including:

- Non-Agilent standard inlets.
- Any valve application where no inlet is required. For example, the PCM can provide flow or pressure to a column connected to a gas sampling valve. Other valving applications may involve providing auxiliary gas flow, especially when using packed columns.
- Sample preparation devices. The Agilent Headspace Sampler and the Agilent Purge and Trap often require a controlled source of purge gas.
- Catalyst tubes or other conversion devices, such as the nickel catalyst tube. These devices often require a controlled source of makeup or reagent gas.

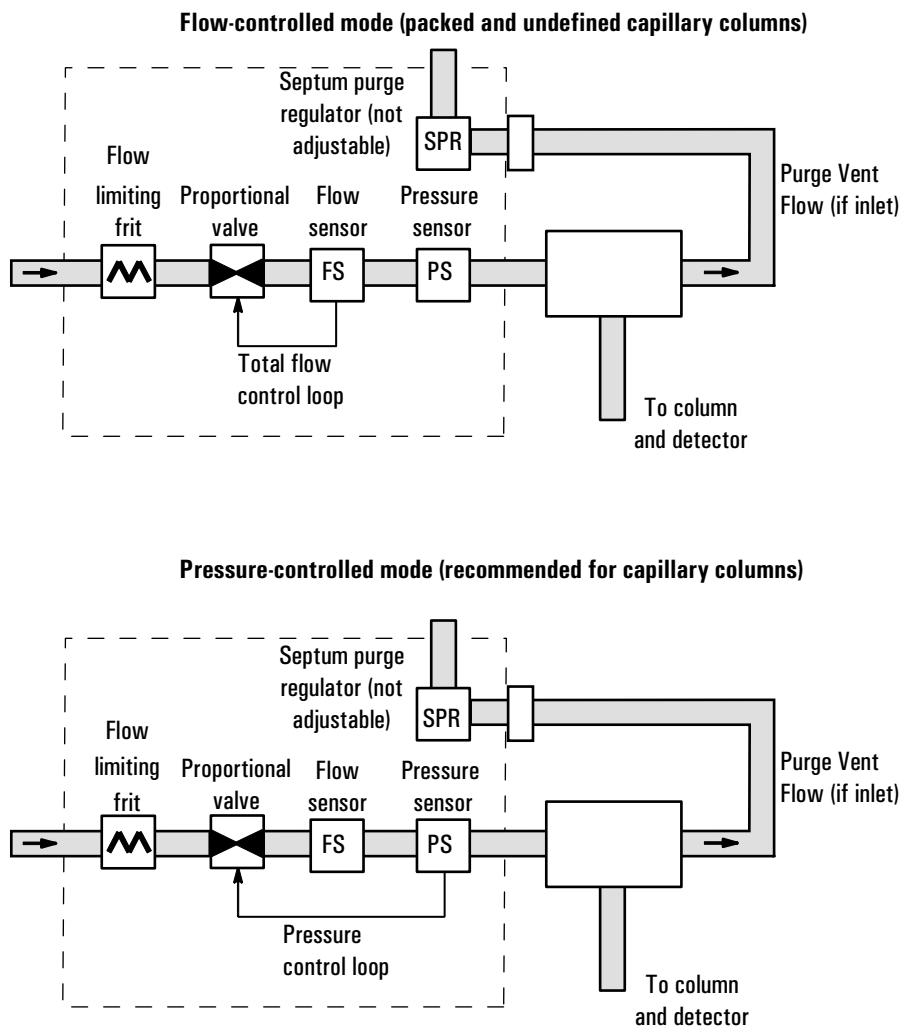


Figure 72 Pneumatics control module

Operating the PCM

With an inlet

Some inlet types use compressed air cooling to reduce the thermal cycle time. The compressed air cooling must be configured before use.

To configure compressed air cooling:

1. Press the [Config] key followed by the [Front Inlet] key. Your display should be similar to the one below.

```
CONFIG FRONT INLET
Gas type           He<
Cooling type       Air
Air Cooling        Off
Coolant fault      On
```

2. Scroll down to the line that displays Air Cooling and press the [ON] key. Your display should now look similar to the one below.

```
CONFIG FRONT INLET
Gas type           He<
Cooling type       Air
Air Cooling        On
Coolant fault      On
```

When Air Cooling is On, power is available at the back valve connector to drive the compressed air actuator.

3. Your inlet is now configured for air cooling and ready for use.

With a valve or other device

When using the PCM with a valve, the PCM is often connected in series with the valve (or device) and column, providing regulated gas flow through the valve (or device) and onto the column.

The control tables

The PCM can control either the flow to the inlet/valve/device or the pressure applied to a column attached to it. The column configuration uniquely determines whether the PCM delivers pressure control or flow control. If a capillary column is used and the column is defined, the inlet is pressure-

controlled. If the column is not defined (packed columns and undefined capillary columns), the inlet is flow-controlled.

For more details about the procedures for configuring columns, setting pressures, etc., see [“Flow and Pressure Control”](#).

Packed column or column not defined

BACK INLET (PCM)		
Temp	24	Off
Pressure	0.0	
Tot flow	0.0	Off

Inlet

COLUMN 1 (He)		
Dimensions unknown		
Pressure	0.0	
Flow	0.0	Off
Mode: Constant flow		

Column

Temp The setpoint and actual temperature values are shown if a heated inlet/device is installed.

Pressure The actual pressure (in psi, bar, or kPa) supplied to the inlet. You cannot enter a setpoint here.

Tot flow Enter your setpoint here; the actual value is displayed.

Defined capillary columns

BACK INLET (PCM)		
Temp	24	Off<
Init time	0.00	
Rate 1 (off)	0.00	
Pressure	0.0	
Total flow	0.0	Off

Column defined

Temp The setpoint and actual temperature values are shown if a heated inlet/device is installed.

Pressure Inlet pressure controlled. Enter your setpoint here (in psi, bar, or kPa) and the actual value is displayed.

Tot flow The actual total flow to the inlet. This is a reported value, not a setpoint.

Procedure: Using packed and undefined capillary columns

If the column is not defined, only the flow-controlled modes are available.

1. Verify that the column, carrier gas, and flow or pressure program (if used) are configured correctly. See [“Flow and Pressure Control”](#).
2. If an inlet is installed, press [Front Inlet] or [Back Inlet] and enter a temperature.

BACK INLET (PCM)		
Temp	24	Off<
Init time	0.00	
Rate 1 (off)	0.00	
Pressure	0.0	Pressure (display only)
Total flow	0.0	Set flow

Column undefined

3. Inject the sample (or toggle the valve).

Procedure: Using defined capillary columns

The following procedure assumes that you have already set the flow or pressure.

1. Verify that the column, carrier gas, and flow or pressure program (if used) are configured correctly. See [“Flow and Pressure Control”](#).
2. If an inlet is installed, press [Front Inlet] or [Back Inlet] and enter a temperature.

BACK INLET (PCM)		
Temp	24	Off<
Init time	0.00	
Rate 1 (off)	0.00	
Pressure	0.0	Off
Totalflow	0.0	

— Set pressure
— Flow (display only)

Column Defined

3. Inject the sample (or toggle the valve).

Maintaining a PCM

Procedure: Leak testing the gas plumbing

Leaks in the gas plumbing system can affect chromatographic results dramatically.

Liquid leak detectors are not recommended, especially in areas where cleanliness is very important.

If you do use leak detection fluid, immediately rinse the fluid off to remove the soapy film.

WARNING

To avoid a potential shock hazard when using liquid detection fluid, turn the GC off and disconnect the main power cord. Be careful not to spill leak solution on electrical leads, especially the detector heater leads.

Materials needed:

- Electronic leak detector (recommended) or liquid leak detection fluid. If you use leak detection fluid, wipe off excess fluid when you have completed the test.
 - Two 7/16-inch wrenches
1. Using the leak detector, check each connection you have made for leaks. Check the connections leading to and from the PCM.
 2. Correct leaks by tightening the connections. Retest the connections; continue tightening until all connections are leak-free.

If the PCM (rather than its connections) is leaking, contact Agilent service.