



## Gas Analysis

### Connecting with Hiden's HPR-20 QIC Gas Analysis System

#### Summary

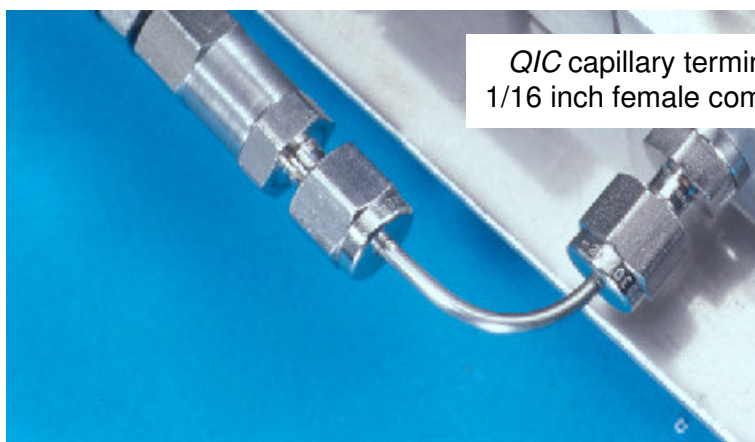
The following details the standard connections available with Hiden's HPR-20 QIC Gas analysis system, detailing typical reactor connections, recommended sample flow rates, and sample consumption.

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The HPR-20 QIC inlet is supplied with two Swagelok connectors:

- A 1/16 inch female compression fitting
- A 1/8 inch male tube fitting
- Other terminations available



*QIC* capillary termination shown connected with the 1/16 inch female compression fitting.

For applications where fast response to vapors is important, ensure that cold spots at the connection are avoided. Short lengths of connecting pipe can be heated with heater tape.

A T – connection is suited for connection to gas streams with sample flow > 5 atm cc/min.

Provided that the sample flow is greater than the capillary consumption, there will always be positive flow to the analyser with no back streaming from the sample exhaust leg of the T connection

## QIC -Capillary configuration and sample consumption – air at atmospheric pressure.

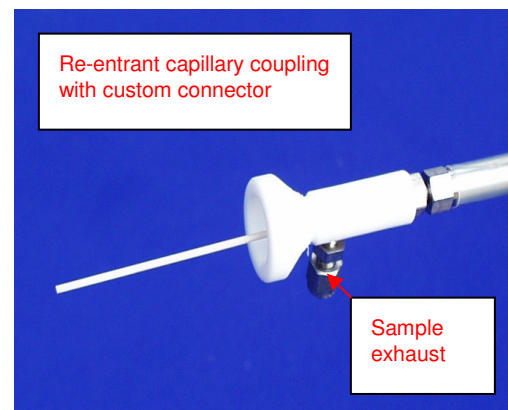
Type	Internal diameter (mm)	Orifice Diameter (mm)	Consumption at ambient temperature (atm cc/min)	Consumption at 1600 C (atm cc/min)
Standard	0.30	0.02	20.0	16.0
Low flow	0.20	0.02	4.0	3.2
Very low flow	0.15	0.03	1.0	0.8

For applications where the sampling from within a reactor is required, coupling to a thermo-balance for example, the QIC inlet is configured with a re-entrant ceramic-sheathed capillary with adapter custom designed to suit. The coupling and interface of the HPR-20 gas analysis system to the reactor or thermo-balance is critical to ensure high quality results. The HPR-20 system is available with custom designed couplings to suit a wide range of reactor and thermo-balance types.

### Key features of the coupling system include:

- Re entrant capillary coupling - minimal dead volume from sample to analyser.
- Heated sample inlet - no cold spots.
- Flexible and inert silica lined sampling capillary.

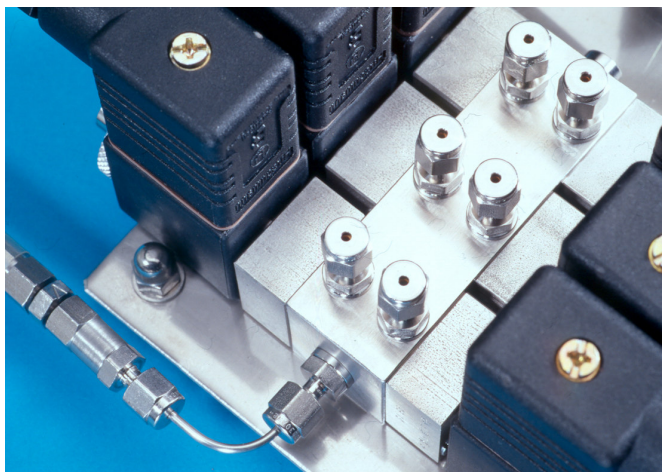
High performance sampling for a range of carrier gases, including helium



*Re-entrant ceramic sheathed silica capillary*

## Multi stream sampling – Stream selection for up to 80 sample lines

The HPR-20 QIC system is available with stream selection, with low dead volume manifold designs for up to 8 streams, and Proteus selector valve for 40 or 80 way sampling.



6- way manifold with controller, providing for both manual and automatic MASsoft controlled operation.

The multistream system includes manual and automatic valve control.

Automatic operation provides for the data to be collected and displayed stream-by-stream. Stream switching, data acquisition and purge timing are user controllable in software. Each stream may be assigned individual timings.

The 40 and 80 way systems, Hiden Analytical's HYDRA™ systems, are detailed in the HYDRA™ literature pack.