



APPLICATION NOTE

Single Line Sample Panel

The Single Line Sample Panel is a pre-piped assembly used to reduce the temperature and pressure of hot, high pressure steam and water samples to levels at which they can be handled and analyzed. The customer is saved from the task of selecting compatible components, using several purchase orders and the expense of on-site assembly by people who normally do not do this sort of work.

There are two versions of the Sentry Single Line Sample Panel:

1. **Model SL-100:** For grab samples only
2. **Model SL-200:** To condition samples for both grab samples and for one or more on-line chemical analyzers

Each style has base configurations for high pressure/temperature and low pressure/temperature plus a variety of optional components. Depending on the component selections, the panel will be suitable for samples up to 500 psig (34 bar) at 450°F (232°C), or up to 3030 psig (209 bar) at 1000°F (538°C).

Grab Sample Model: SL-100

The base configuration includes a back panel with the sample cooler, cooling water throttling, inlet/drain valves, sample isolation, sink, thermometer and flow control valves – all mounted and piped.

The cooling water must be throttled on the downstream side of the cooler, not the inlet side. Downstream throttling creates the maximum cooling water pressure inside the cooler shell, which in turn assures the highest possible temperature at which boiling might occur on the tube surface. Boiling not only encourages scaling, but also can cause tube vibration and possibly eventual fatigue failure.

Many chemists prefer to have the initial sample cooling done close to the sample source rather than transport the hot sample through sample tubing to a central area. The reasons include:

- more reliable chemical results
- reduced thermal cycling of the sample tubing
- personnel safety

The SL-100 is well suited for this application.



Model SL-200



2-Line Wall Mount Rack

APPLICATION NOTE SINGLE LINE SAMPLE PANEL

Analyzer Model: SL-200

The base configuration of the includes not only the SL-100 base components, but also a constant pressure header with a backpressure regulator/relief valve, a sample flowmeter and a connection for the analyzer(s).

When an on-line analyzer is used, it is important to have a constant sample flow past the sensor. A valved rotometer (customer supplied) is normally used to set the flow through the analyzer, so if the sample header is at constant pressure, the flow through the analyzer will remain constant. Pressure in the header is maintained by a fixed level [approximately 20 psig (1.4 bar)] backpressure valve, which also acts as a sample line relief valve. This pressure is maintained regardless of source pressure changes. Placing the flowmeter before the backpressure valve helps the operator set the proper total flow for the analyzers plus the required grab sample. When a flow to the analyzer(s) is turned on, the flow through the panel flowmeter is reduced by the amount diverted to the analyzer(s). The grab sample flow is the discharge from the backpressure valve.

Single Line System Configuration

Sentry also engineers and constructs multi-line systems. These systems incorporate the standard individual Single Line Sample Panel into pre-piped and assembled frame structures, also called racks. The racks are engineered to order and can include any combination of Single Line Sample Panels, with on-line analysis. The racks can be floor or wall mounted and typically have common cooling water headers and sample sinks. Complete mechanical and electrical systems with full documentation are available.

You Choose the Options

- Create a complete sample system with analyzers and conditioning on the same rack.
- Use the back side of a freestanding floor rack to mount analysis equipment.
- Combine critical conditioning and analysis on a portable skid.

▲WARNING

It is solely the responsibility of the end-user, through its own analysis and testing, to select products and materials suitable for their specific application requirements, ensure they are properly installed, safely applied, properly maintained, and limit their use to their intended purpose. Improper selection, installation, or use may result in personal injury or property damage.



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