# 500 Series Portable Sample Conditioning System


Model 514SS Shown

The 500 series portable sample chiller is a staple to the mobile stack testing and laboratory setting. In order to analyze stack gas or exhaust from any combustion process, a method to remove moisture from the sample without removing gas components of interest is a must. The Universal Analyzers Thermoelectric Sample Cooler, which derives its cooling from the Peltier Effect, is an ideal way to decrease the dew point of combustion gasses to a low dew point. For gas analyzers where water vapor interferes with the reading, a stable, repeatable, low dew point becomes a part of the gas analyzer's performance specification. The Universal Analyzer Gas Sample Coolers prevent water condensation in sample pre-filters, sample pumps, and gas analyzers. The Universal Analyzers sample cooler provides this constant water concentration resulting in an accurate analysis of the components of interest.

The gas sample that is intended for analysis is typically brought to the sample cooler, first through a sample probe which usually contains a heated filter, and then through a heated sample line which keeps the sample above its dew point. The Universal Analyzers Sample Cooler then condenses moisture from the sample lowering the dew point to 4°C (39°F) in a controlled fashion.

A diaphragm gas sample pump is integral to the 500 series portable sample chiller. In addition, there is a moisture alarm linked to the sample pump which will cease pump operation if moisture is detected downstream of the sample chiller – this protects equipment downstream of the sample chiller from damage due to excess moisture.

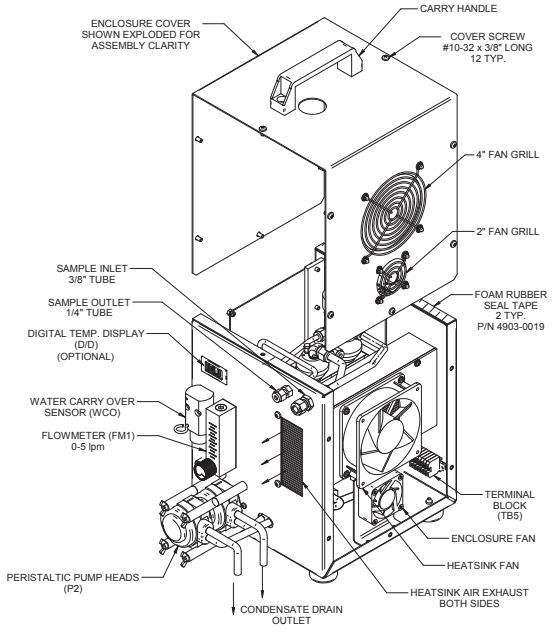
The portable chiller is also equipped with a 0-5 l/m, adjustable sample flow meter. This flow meter is visible to the operator, and can be adjusted via needle valve. Condensate removal from the chiller is also done internally via a continuously running peristaltic pump.

## Applications

- Stack Testers
- Laboratory Environment
- Portable Chiller Requirements
- Provides ability to perform spot check gas analysis with ease at different measuring points

## Features

- Thermoelectric Gas Cooler
- Peristaltic Drain Pump
- Diaphragm Gas Sample Pump
- Condensate Carry-Over Sensor
- Gas Flow Meter
- Gas Inlet/Outlet Bulkheads
- Lightweight Stainless Steel carrying case with handle
- Digital Temperature Display



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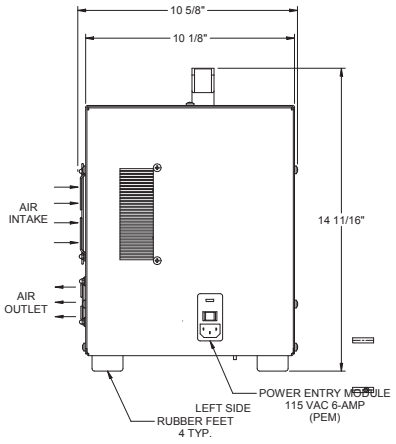


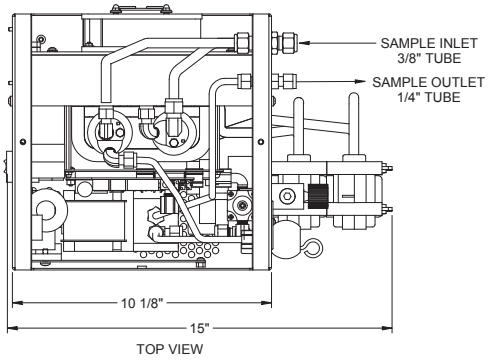


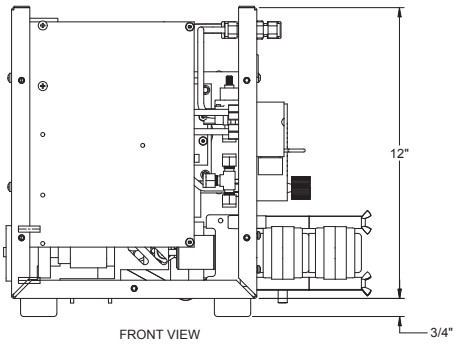


## Flow Capacity Chart:

| Model | Ambient 77 °F/25 °C Water Vapor | | | | Ambient 90 °F/35 °C Water Vapor | | | | Ambient 105 °F/41 °C Water Vapor | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12% | 15% | 30% | 50% | 12% | 15% | 30% | 50% | 12% | 15% | 30% | 50% |
| 512 | 2.5 l/m | 2 l/m | 1 l/m | 0.6 l/m | 2 l/m | 1.8 l/m | 0.9 l/m | 0.5 l/m | 1.5 l/m | 1.2 l/m | 0.6 l/m | 0.3 l/m |
| 513 | 4 l/m | 4 l/m | 4 l/m | 4 l/m | 3 l/m | 3 l/m | 3 l/m | 3 l/m | 2 l/m | 2 l/m | 2 l/m | 2 l/m |
| 514 | 5 l/m | 4 l/m | 2 l/m | 1 l/m | 4 l/m | 3.5 l/m | 1.8 l/m | 0.9 l/m | 3 l/m | 2.5 l/m | 1.3 l/m | 0.7 l/m |

## Technical Information:

| | |
|---|---|
| Sample Flow Rate: | (Specific to model; See Capacity Chart) |
| Maximum Inlet Sample Temperature:<br>Stainless Steel Heat Exchanger:<br>Kynar/Glass Heat Exchanger: | <br>700°F. (371°C.)<br>280°F. (138°C.) |
| Maximum Inlet Water Concentration: | 50%* |
| Maximum Ambient Temperature: | 105°F. (41°C.)* |
| Maximum Cooling Power: | 63 BTU'S/Hr (60 kJ/Hr) (Model 512,513)<br>126 BTU'S/Hr (120 kJ/Hr) (Model 514) |
| Outlet Sample Dew Point: | 39°F. (4°C.) |
| Voltage: | 115 VAC (175 W) 50/60 Hz or 230 VAC (250W) 50/60 Hz |
| Electrical Classification: | General Purpose/Safe Area |
| Weight: | 35 LBS (16 KG) |
| Soluble Gas Removal Rates: | NO 0% LOSS<br>NO2 <10% LOSS<br>SO2 < 2% LOSS<br>CO 0% LOSS<br>CO2 < 2% LOSS |

**At reduced flow rates, see capacity chart*



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