



PERMA PURE LLC

1001 NEW HAMPSHIRE AVE
LAKEWOOD, NEW JERSEY 08701

732.244.0010 800.337.3762 FAX 732.244.8140 INFO@PERMAPURE.COM

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Perma Pure Mini GASS System Supplemental Quick Start Guide, Operational Parameters, and Notes

- Refer to the Mini GASS User manual for proper operation, as noted below
- Connect to utilities and sample gas stream as described in Mini GASS User Manual.
- Verify that gas sample line is heated to a minimum of 100C and insulated up to the point of entry into the heated enclosure
- **DO NOT start sample gas flow at this time.** The Mini GASS must operate for a minimum of 30 minutes **AFTER** it has reached the temperature set point to stabilize.

Temperature Controller Operation

1. During initial start-up, the Temperature Controller will automatically ramp up to the 70°C temperature setpoint.
100°C is the maximum temperature setpoint. The maximum temperature should not be changed.
Do not allow sample gas to flow into the Mini GASS System until the Mini GASS System has reached the temperature setpoint. Once the temperature reaches setpoint, the temperature alarm is enabled. A drop in temperature of 5C below the setpoint will trigger the temperature alarm.
2. **If power is lost to the system, verify that the Temperature Controller has reached the setpoint before restarting sample flow.**

Since both alarm relays are energized during normal operation, both alarm outputs will trigger during a power failure.

It is recommended that if a Programmable Logic Controller (PLC) is connected to the Mini GASS system, and used to control a sample pump, the alarm outputs should be latched to prevent sample flow from starting immediately after the power is restored. It must be confirmed that the system has come back up to operating temperature before the sample pump is manually restarted.

Failure to prevent sample flow with the Mini GASS system in a previously alarmed state could cause permanent damage to the PD Nafion Dryer.

Set compressed air pressure settings and flow settings

1. Set compressed air pressure via the right compressed air regulator to 15PSIG
2. Set the compressed air Purge Gas Flow rate to 20 LPM as the initial setting
3. Set the Purge Eductor setting using the left compressed air pressure regulator to read 5-10 InHg on the Purge Eductor Vacuum gauge.

Note : The Purge Gas Flow Rate is affected by the Purge Eductor pressure. It is likely that they will both have to be adjusted to get them to the specified settings.

Monitor Temperature Controller

1. Allow the Mini GASS to reach the set point temperature
2. Monitor the sample line that connects to the entrance of the PD Nafion Dryer in the heated enclosure. Verify that there are no droplets forming. If droplets are present, increase the temperature in 5C increments until the droplets are no longer present.
3. **Wait an additional half hour for the Mini GASS temperature to stabilize and heat all of the components in the heated enclosure to the set point.**



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Sample Gas Flow

1. When sample gas flow is started, it is a normal situation to see the Temperature Controller's displayed temperature increase or decrease. This is primarily due to the sample gas having been flowing through a heated sample line, causing the sample gas to pick up some of this heat. The sample gas entering the system should always be non-condensing with its temperature ideally 10C above the dew point temperature of the gas.
2. Monitor the sample line that connects to the entrance of the PD Nafion Dryer in the heated enclosure. Verify that there are no droplets forming. If droplets are present, increase the temperature in 5C increments until the droplets are no longer present.
3. If adjustments were made in step 2 , wait a half hour for the temperature to stabilize.
4. Set the purge gas flow to 2.5-3 times the sample gas flow. If the sample gas contains concentrations of acids, set to 10 times the sample flow.
5. Reset the purge eductor setting regulator to maintain 5-10 InHg of vacuum on the gauge.
6. Verify that the incoming air pressure gauge is still set to 15PSIG.
7. Repeat steps 4, 5, 6 until the target settings are reached