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NOxy Inlet

June 2011
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Table of Contents

List of Figures

1. INTRODUCTION

2. INLET

2.1 OVERVIEW

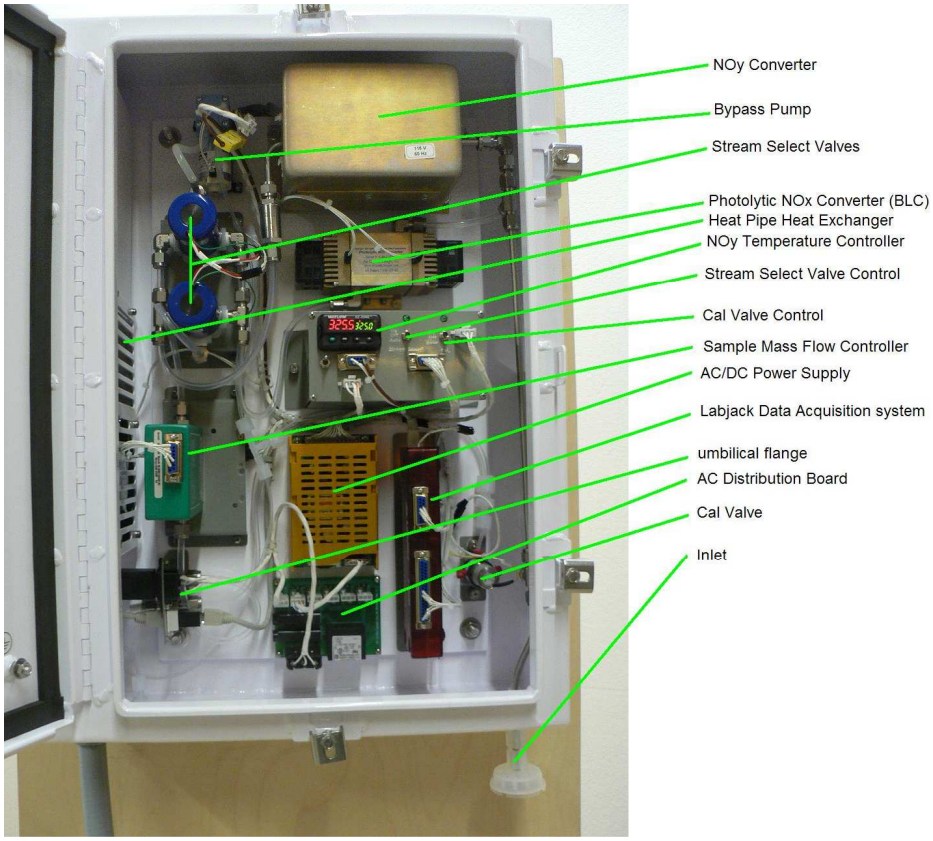

Figure 1. Photograph of inlet identifying the major components.

2.2 PLUMBING

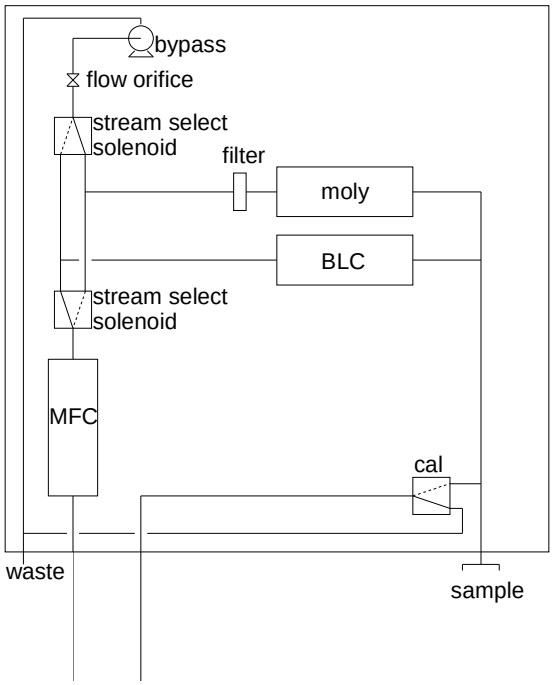

Figure 2. NOxy Inlet plumbing.

2.3 SETUP

Sample mass flow controllers are set through the labjack and have been set in software to 1000sccm. The temperature controller for the molybdenum converter has been tuned to run at 325C. Valves can be switched manually off and on, or left in the automatic position to allow control via the labjack. The bypass pump flow orifice gives about 1 lpm flow. The integrated heat pipe heat exchanger will maintain the inlet at 6-10 degrees C above ambient temperatures. The inlet is weathertight to a NEMA 4X rating, and the external fan and connector are rated to IP66 (splashproof). The inlet will draw about 130W of power when running, but at startup can draw as much as 180W, The inlet weighs about 27 lbs without the umbilical.

For maintenance, the back plate can be removed. First disconnect the power, Ethernet, sample and cal connections at the umbilical flange. Then unplumb the Cal Valve, BLC and Moly converter from the sample line. Then remove the 4 nuts holding the plate and finally, remove the plate.

3. SOFTWARE CONTROL

3.1 NETWORK STRUCTURE AND ADDRESSES

IP Addresses:

Inlet Labjack: 192.168.5.2

This can be changed by connecting via USB from the Labjack to a computer that has the Labjack software.

3.2 INLET LABJACK ASSIGNMENTS

Analog Inputs:
Channel 0: MFC_read, 1V = 1000 sccm
Channel 2: Moly_temp, 1 V = 100 C
Channel 133: Inlet_temp, reading is in K
Analog Outputs:
Channel 0: MFC_set, 1V = 1000 sccm
Digital Outputs:
Channel 8 (EIO-0): BLC (Enabled = BLC On / Measure NO2)
Channel 9 (EIO-1): Stream_Select (Enabled = Valves On / Measure NO_y)
Channel 10 (EIO-2): Cal (Enabled=Valve On / Cal)