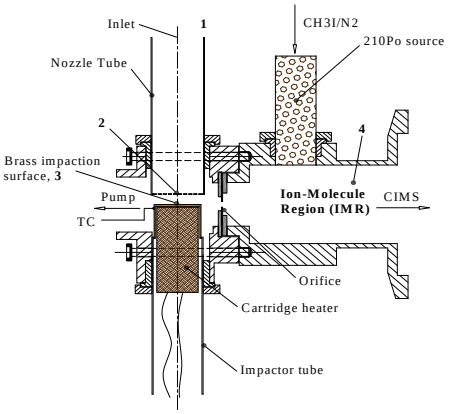
Overview of MOVI Electronics
4:40 10 min

Micro-Orifice Volatilization Impactor (MOVI).



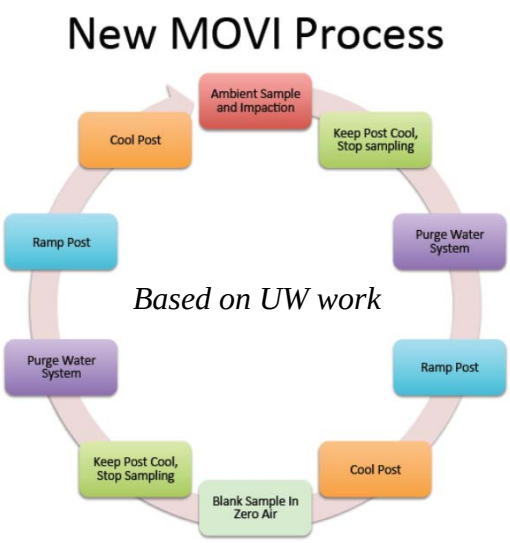
Reddy Yatavelli & Joel Thornton, AS&T 2010

ToF CIMS Deliveries with the MOVI

- CU/Jimenez
- UNC/Surratt
- EPA/Offenberg
- Toronto/Abbatt
- 3 systems to China (Hefei, Nanjing, Fudan)
- Julich

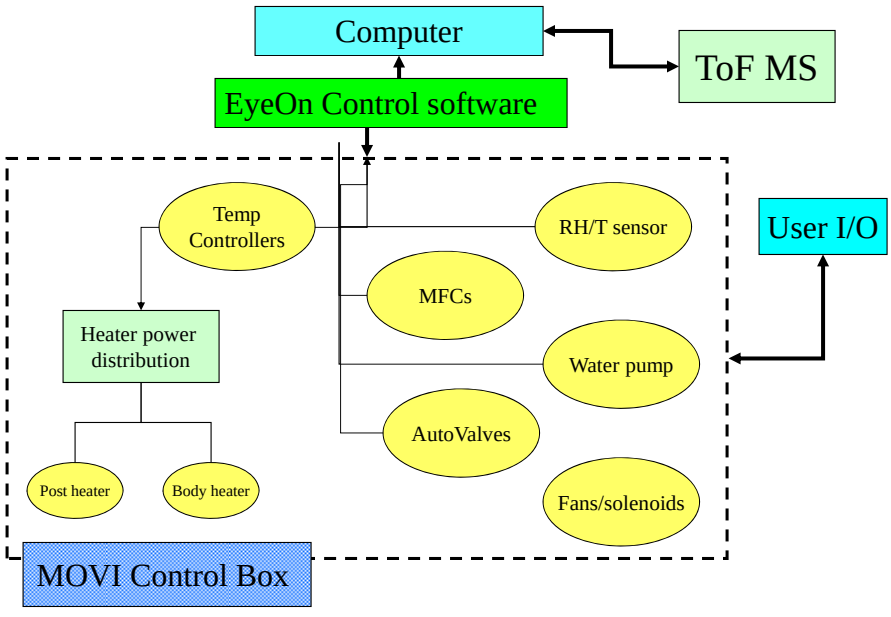
Multiple MOVI control systems needed

What is required to control the MOVI



Felipe Lopez-Hilfiker

MOVI Control Box and Connected Components



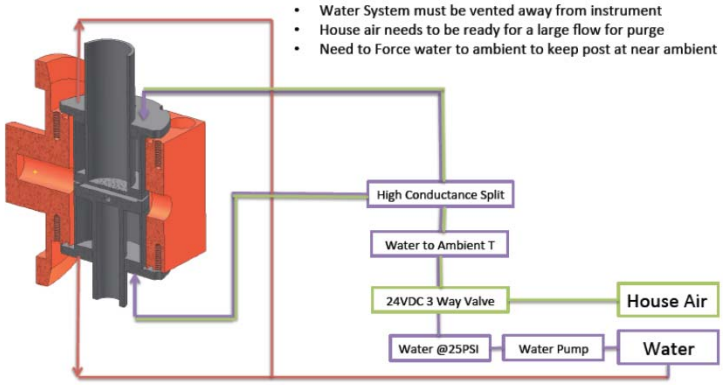
Sept, 2012

Heat isolation of MOVI Collector

Water System

Felipe - UW

Water flows



Some notes on water system:

- Conductance limiting 1/8" tubes (keep in mind for pump)
- HOT exiting water (need heat sink on water reservoir)
- Water System must be vented away from instrument
- House air needs to be ready for a large flow for purge
- Need to Force water to ambient to keep post at near ambient

Prototype MOVI Control Box

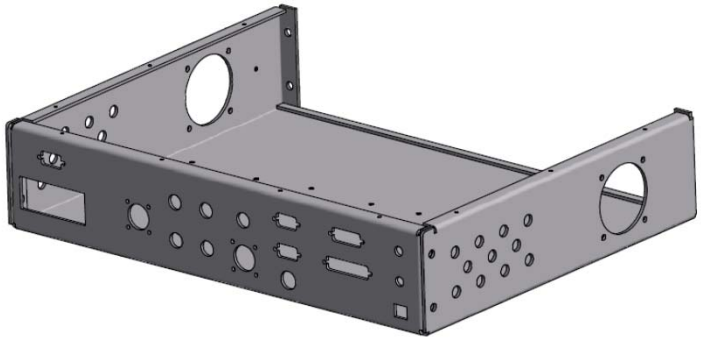
Front and rear panels





Two prototypes built and ready for testing/integration

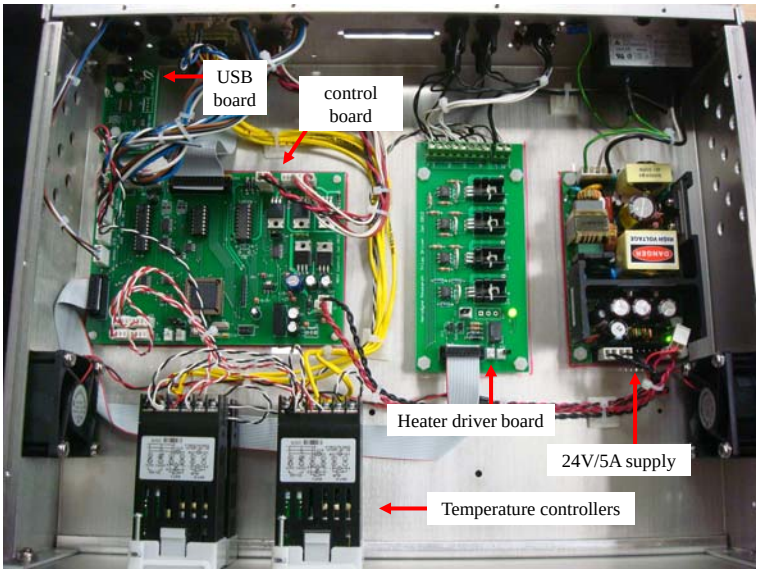
New MOVI Control box has been designed and is being fabricated



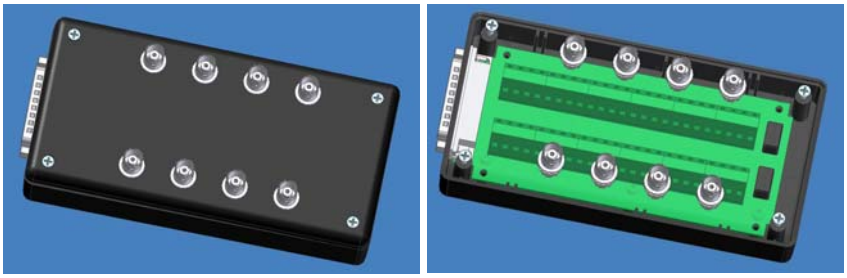
2U 19” rack box

Completed Prototype MOVI Control Box

2U 19” rack mount, 13” deep



Analog and Digital User interface



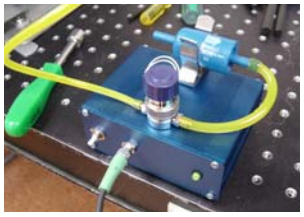
8 analog inputs (+/-10V)

4 analog outputs (0-10V)

8 digital lines (configurable as inputs or outputs)

2 mechanical relays

IMR/CDC Pressure Regulation Scheme



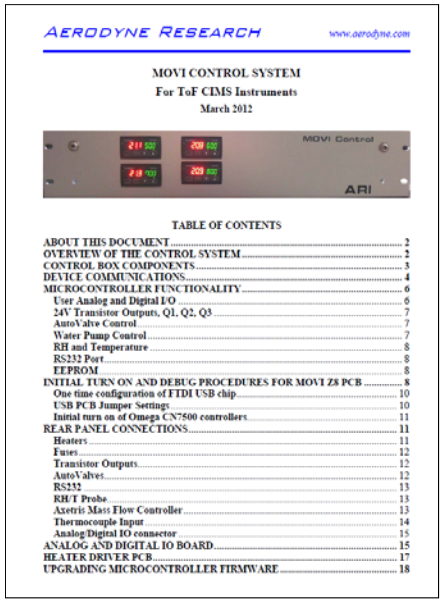
-builds off our existing controllers
-does not require an additional pressure gauge

https://sites.google.com/site/citofms/

MOVI-CIMS support site maintained by Harald and Joel

MOVI Control Box Manual

Should get combined with EyeOn



AERODYNE RESEARCH www.aerodyne.com

MOVI CONTROL SYSTEM
For ToF CIMS Instruments
March 2012

TABLE OF CONTENTS

ABOUT THIS DOCUMENT 2
OVERVIEW OF THE CONTROL SYSTEM 2
CONTROL BOX COMPONENTS 3
DEVICE COMMUNICATIONS 4
MICROCONTROLLER FUNCTIONALITY 6
User Analog and Digital I/O 6
24V Transistor Outputs, Q1, Q2, Q3 7
AutoValve Control 7
Water Pump Control 7
RH and Temperature 8
RS232 Port 8
EEPROM 8
INITIAL TURN ON AND DEBUG PROCEDURES FOR MOVI Z8 PCB 8
One time configuration of FTDI USB chip 10
USB PCB Jumper Settings 10
Initial turn on of Omega CN7500 controllers 11
REAR PANEL CONNECTIONS 11
Heaters 11
Fuses 12
Transistor Outputs 12
AutoValves 12
RS232 13
RH/T Probe 13
Azetris Mass Flow Controller 13
Thermocouple Input 14
Analog/Digital IO connector 15
ANALOG AND DIGITAL IO BOARD 15
HEATER DRIVER PCB 17
UPGRADING MICROCONTROLLER FIRMWARE 18

Summary

- Two prototypes built and bench tested.
- EyeOn software development on-going.
- First delivery planned for early 2013 to Toronto Abbatt group.