Modular Sampling System

Although initially developed for Oil Refining, MSS / ISA-76 is continuing to expand into multiple industries Including:

Petrochemicals
Plastics & Paint
Pharmaceuticals

Electronics
Transport
Food and Beverage

The following are some examples of the application of Modular Sampling Systems technology in these industries. Examples include sampling systems using components from each of the main MSS suppliers (CIRCOR, Parker and Swagelok).
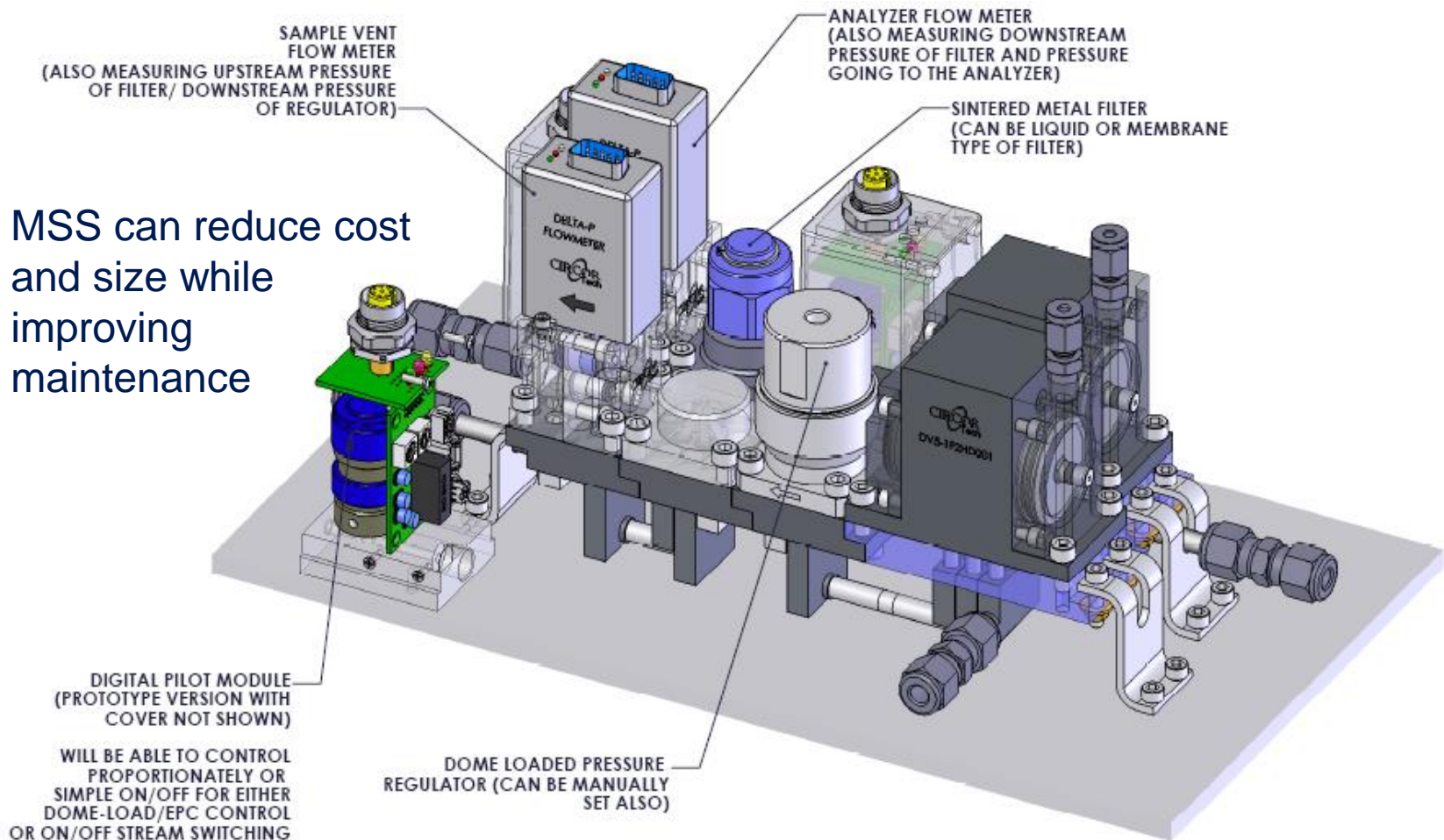

Simple Sample Conditioning in Field Cabinet

MSS can provide quick, low cost solutions to every-day sample extraction applications.
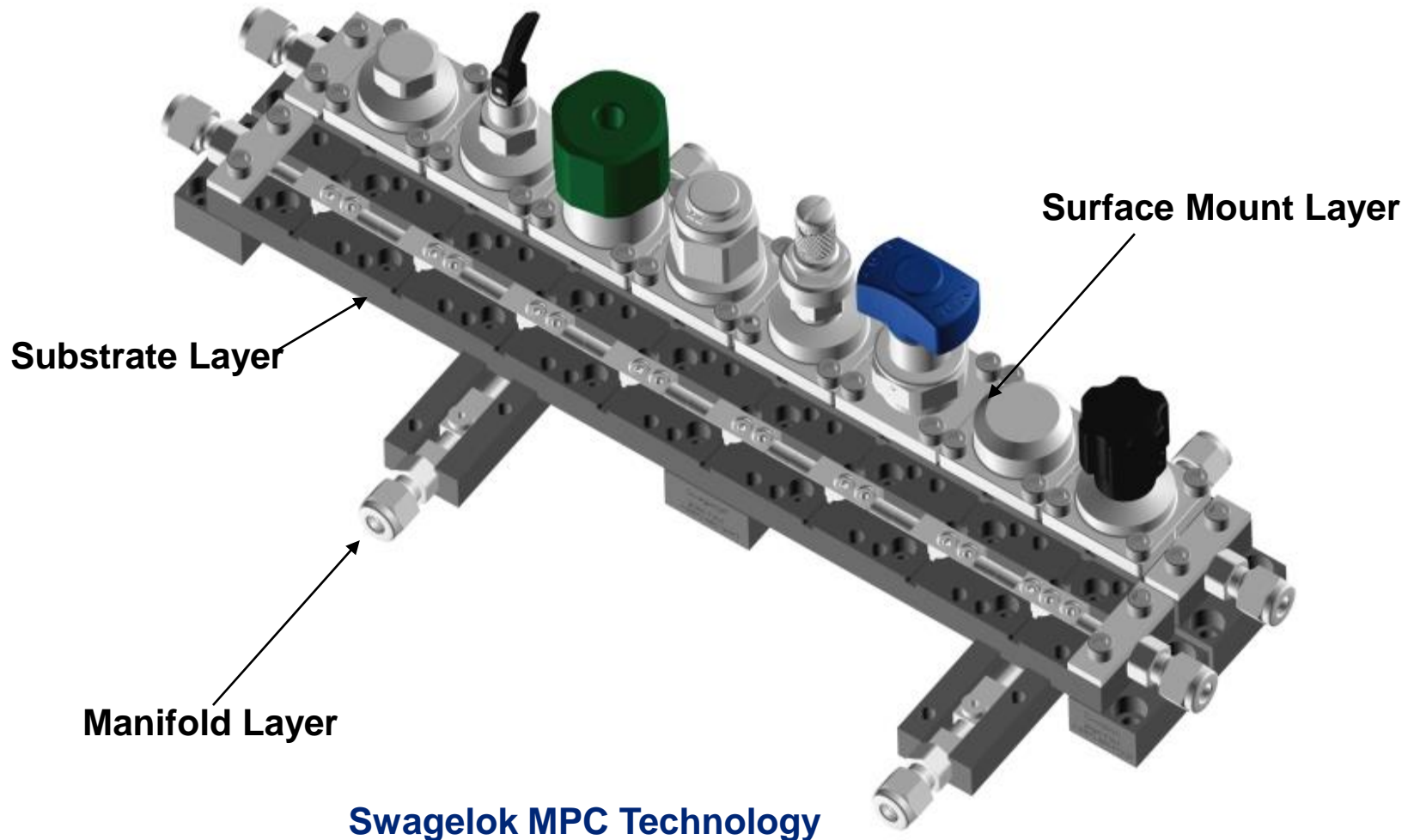
Parker IntraFlow™

Integrated Sample Conditioning and Analyzer

MSS can reduce cost and size while improving maintenance

SAMPLE VENT
FLOW METER
(ALSO MEASURING UPSTREAM PRESSURE
OF FILTER/ DOWNSTREAM PRESSURE
OF REGULATOR)

ANALYZER FLOW METER
(ALSO MEASURING DOWNSTREAM
PRESSURE OF FILTER AND PRESSURE
GOING TO THE ANALYZER)

SINTERED METAL FILTER
(CAN BE LIQUID OR MEMBRANE
TYPE OF FILTER)

DELTA-P
FLOWMETER

CIRCOR
tech

DVS-1P2HD001

DIGITAL PILOT MODULE
(PROTOTYPE VERSION WITH
COVER NOT SHOWN)

WILL BE ABLE TO CONTROL
PROPORTIONATELY OR
SIMPLE ON/OFF FOR EITHER
DOME-LOAD/EPC CONTROL
OR ON/OFF STREAM SWITCHING

DOME LOADED PRESSURE
REGULATOR (CAN BE MANUALLY
SET ALSO)

CIRCOR Tech CT76 System

A "Manifold Layer May be added below the Pegboard

Surface Mount Layer

Substrate Layer

Manifold Layer

Swagelok MPC Technology

Redundant System for Hazardous Plant Area

MSS may be used to design and build complex high-integrity systems such as this triple- redundant, chromatographic analyzer, with stringent leak detection and hazardous area classification.

Example MSS Analyzers

Virtually any analyzer device for a modern sampling system is available in MSS-compatible form including the following:

NDIR Analyzer from:
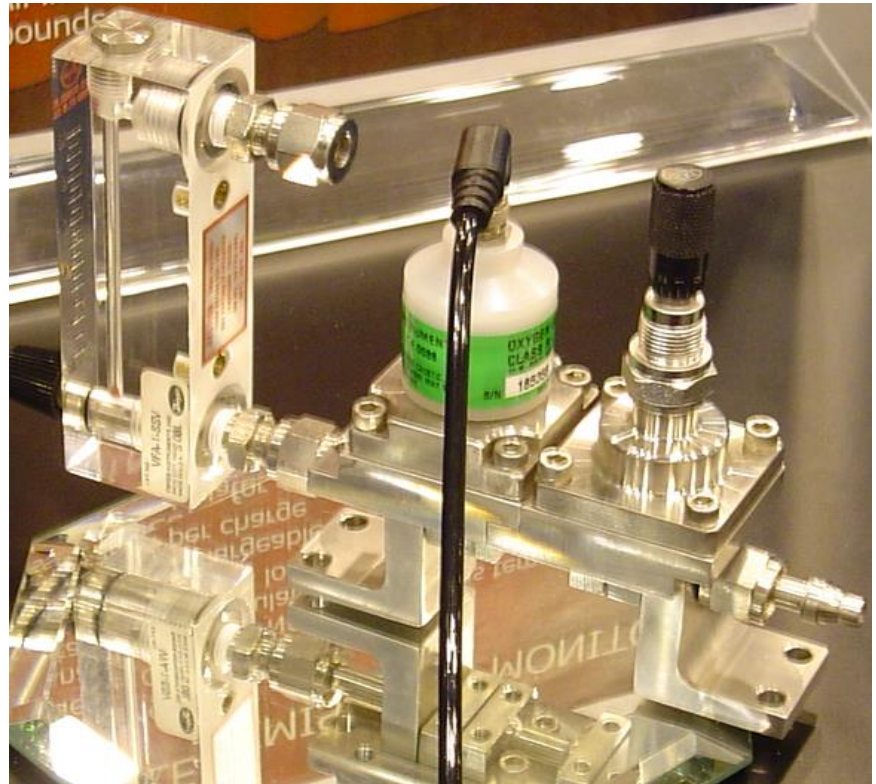- Star Instruments, Inc.

PPM Oxygen from:
- Teledyne Analytical (on right)
- GE Sensing

PPM Moisture
- GE Sensing

Refractive Index
- Applied Analytics

Example MSS Sampling & Analysis Users

Some Parker IntraFlow™ Customers

Imperial Oil	Dupont	Etc.…….
PetroCanada	Hemlock Semiconductor	Etc….
Dow	Restek	
Eastman	Johnson Matthey	
UOP	Linde	
Lanxess	Scanraff	
Sterling	Rose Technologies	
Exxon Baytown	Dalkia	
Oxy Vinyls		

Acknowledgements

- Slides were copied from the CPAC / MSS website
  - http://www.cpac.washington.edu/MSS/MSS.htm
- Original Companies / Authors were:
  - CIRCOR Tech: Patrick Lowery and David Faulkner
  - Parker: Steve Doe and Mike Cost
  - Swagelok: David Simko and John Wawroski
- The actual "MSS" / "Modular Standard" citations are:
  - US Standard: ANSI / ISA –76.00.02 (2002)
  - World Standard: IEC 62339-1: 2006(E) (listed 2007)