

# Process Instrumentation

Analysis by Gas Chromatography



*Engineered Solutions, Guaranteed Results.*



WASSON - ECE  
INSTRUMENTATION

# Process Gas Chromatography

## Features of Process Chromatographs

- Agilent 7890A gas chromatograph
- Complete range of detectors (FID, PDHID, MS, TCD, ECD, and PFPD)
- Fully developed and supported analytical methods
- Capillary columns and temperature programming
- Electronic pressure control
- Custom sample systems (gas, LPG and liquid phase streams)
- Digital outputs (MODBUS)
- Analog outputs (4-20 mA)
- Remote supervision
- Custom calculations
- Agilent ChemStation

## Wasson-ECE Instrumentation offers process solutions.

The need for an accurate, precise, dependable, on-line analysis increases every day. Process control demands the best technology to maximize its effectiveness, and that means being able to deploy the most advanced process analyzers. Wasson-ECE represents a new generation in on-line technology, providing unparalleled capability and performance.

### Why a Wasson-ECE process solution?

When you call us to discuss your analytical needs, Wasson-ECE will provide you with a free consultation that will help you decide what system works best for you. This includes deciding everything from how many sample streams to what types of GC detectors are required to analyze your process. Detailed discussions provide you with a process analyzer that is tailored to your analytical needs, saving time and money. The system will be shipped to your facility and our service engineers will install and train your personnel on the new on-line analyzer.

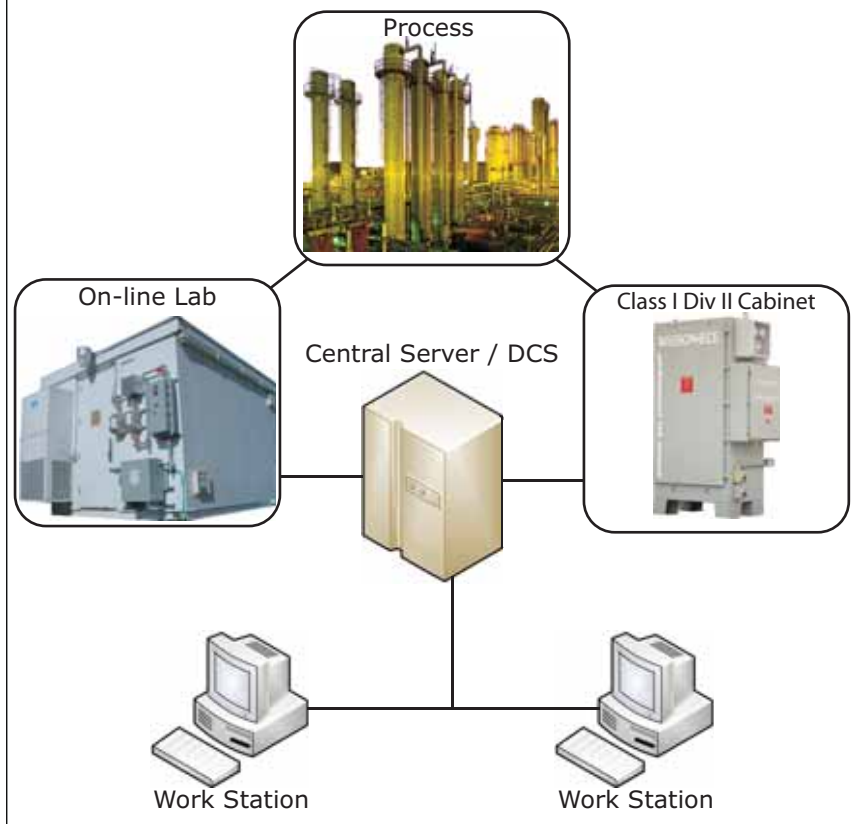
All of our systems come with a one year warranty, including support. If you run into problems with your system you can contact us at any time, and we will provide you with the support that you deserve.

We are a US based company that can provide you with the service you have come to expect.



# Process Gas Chromatography

## Process Diagram



## Start with the best chromatograph and add the best application technology.

We've designed our process gas chromatograph with an emphasis on custom, guaranteed analyses. We can mold our system to meet your specific analytical and communication needs. We add custom valving, columns, additional detectors, and auxiliary ovens to provide concise separations and analyses that are sophisticated, yet rugged enough for on-line use.

## Environmental Control

Our analyzer shelters are air conditioned and heated to yield a consistent operating environment. The air conditioner and heater are fully rated for duty in Class I, Div 2, Groups B, C, & D rated areas. In systems used in hot, humid locations, dehumidifiers and hot-bypass options are available.

## Sample System Integration

Our sample systems can accommodate up to twelve different streams including calibration blends. Stream selection is controlled with double block and bleed valves to prevent cross contamination and carry-over. Sample system control is provided through Wasson-ECE's process control software WinIStatus.

## Method Support

With the same method on-line as in the lab, the lab system can be used to support the on-line systems. Any unusual data can be explored in the lab and methods can be tested in the lab before being moved to process.

# Process Gas Chromatography



## Stand-Alone Cabinet

The stand-alone cabinet is a hazardous rated Class I, Division 2, Groups C & D process enclosure. The cabinet has its own purge system with a pressure switch and interconnect, which will remove power upon loss of purge. An air conditioner and heating system is placed directly outside eliminating the need for an additional shelter. The sample system is mounted to the outside of the cabinet, providing access to twelve different process streams and calibration standards. The streams are multiplexed using double block and bleed valving to eliminate cross contamination and carry-over. The stand-alone cabinet can be upgraded to work in Group B areas.



## On-Line Lab

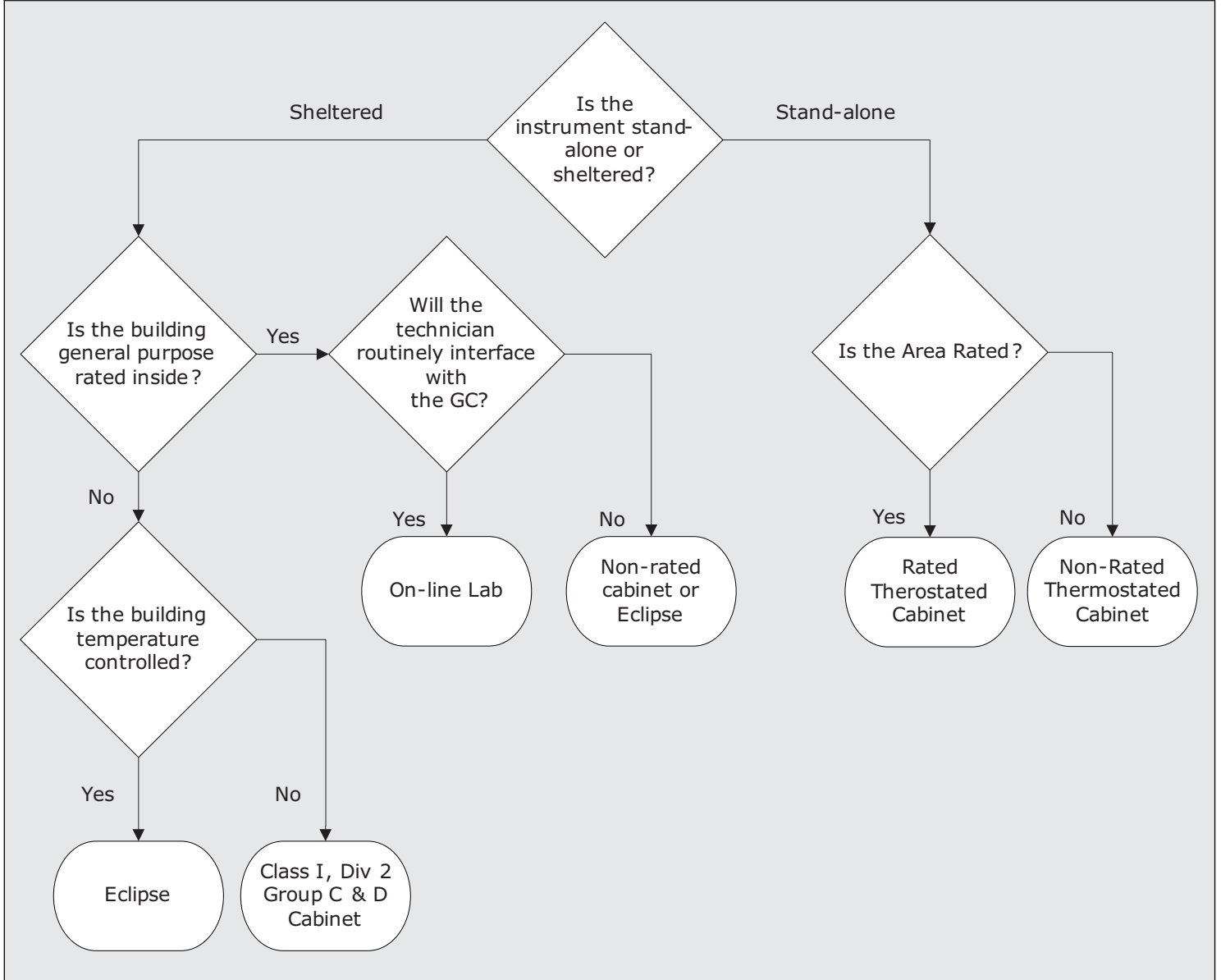
The on-line lab can be purchased as a complete package including the hazardous rated building with sample system and gas chromatographs mounted inside, or we can retrofit your existing shelter or laboratory. The instrument shelter is air conditioned, heated, and purged. NFPA 'X' and 'Z' purges are available. Hydrocarbon sensors are mounted in the shelter, along with oxygen and carbon monoxide monitors. The exterior of the instrument shelter is rated for service in hazardous areas Class I, Division 2, Groups C & D. The interior of the shelter is rated for general purpose.



## Eclipse Wall Mount

Eclipse is the world's most advanced wall mount process gas chromatograph. Utilizing the latest technology in high-speed programmable oven GC, Eclipse gives you the ability to perform more complex chromatography on-line. The advanced electronic pressure control insures that consistent retention times are achieved, even when running very fast capillary analyses. Now you can tap into the latest in sampling systems, detectors, and column technologies with the new Eclipse Process Analyzer.

## Process Decision Diagram



# Process Data Communications



## Process data can be transferred through an analog or digital format.

Stream data flows automatically to a Distributed Control System (DCS), a Programmable Logic Controller (PLC), or a Laboratory Information Management System (LIMS).

### Analog 4-20mA

The most common implementation of the analog format is the 4-20 mA current loop signal. In this case, one signal is required for each analyte in each stream and the resulting analyte concentrations can be independently scaled onto their respective 4-20 mA signals. The DCS will perform level alarming, data archiving, and data trending. This method is simple, but requires a lot of cabling as one wire pair is needed for each 4-20 mA signal.

### MODBUS

One of the most common digital formats is MODBUS, which is a family of polled serial interface protocols. The hardware can be configured as single instrument RS422, multidrop RS485 or single instrument fiber optic RS232.

### Local Area Network (LAN)

Various LAN interfaces are supported by our on-line systems including simple network file transfer where the data can be a text file or site specific FTP format, OLE for process control (OPC), and Distributed Component Object Model (DCOM).

### Local Data Storage

Our on-line systems also incorporate their own local data storage. Chromatograms for all runs are stored for one month. Component reports are automatically appended to our WinVision database that can be extracted with our search engine or Microsoft Access.

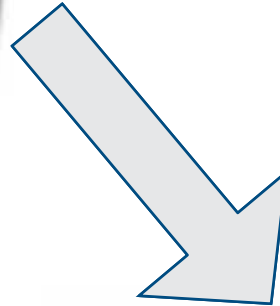


# Lab Analysis to Process Analysis



Agilent 7890A Gas Chromatograph

**Move a lab analysis to a process analysis.** Wasson-ECE can take your lab analysis and move it to a process analyzer. We can either use your existing analysis method or we can create a custom method tailored specifically for the stream you need to analyze. Once your 7890A GC has been placed inside of our hazardous rated process enclosure the analysis of your process stream will run continuously. The data will stream back to your DCS or your lab as the analyses are performed. This helps you to make informed decisions about your process.



## Advantages to Using a Agilent GC On-Line:

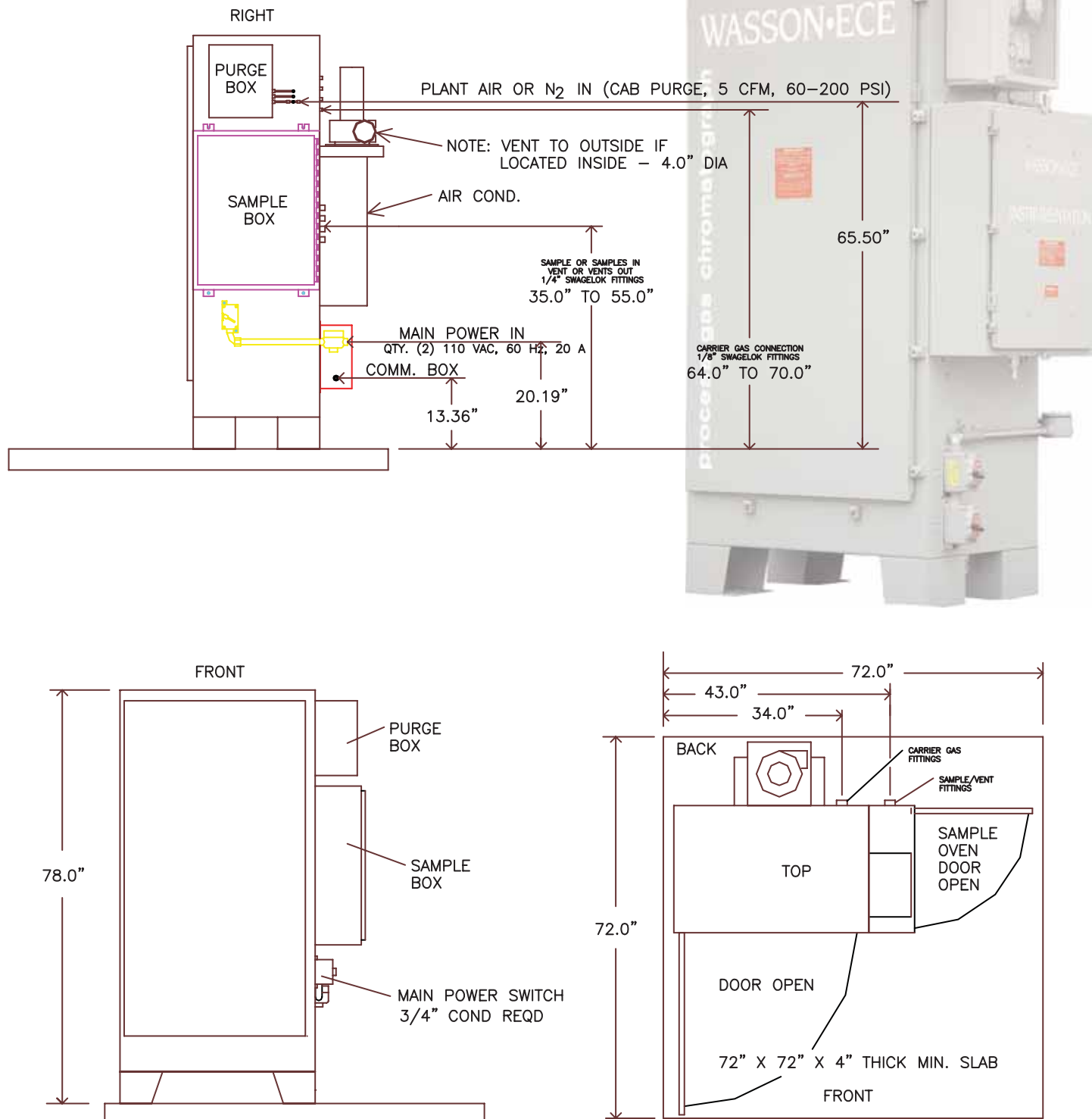
- Analytical capability equivalent to a lab instrument
- Process GC data is consistent with lab data
- Flexibility through a wide range of detectors, valves, and columns
- Built-in calibration system
- Remote supervision
- Custom analytical methods
- Custom sample systems
- Method compatibility between lab and process
- One year warranty and instrument support



Wasson-ECE 7890A Process Enclosure

# Hazardous Rated Cabinet Layout

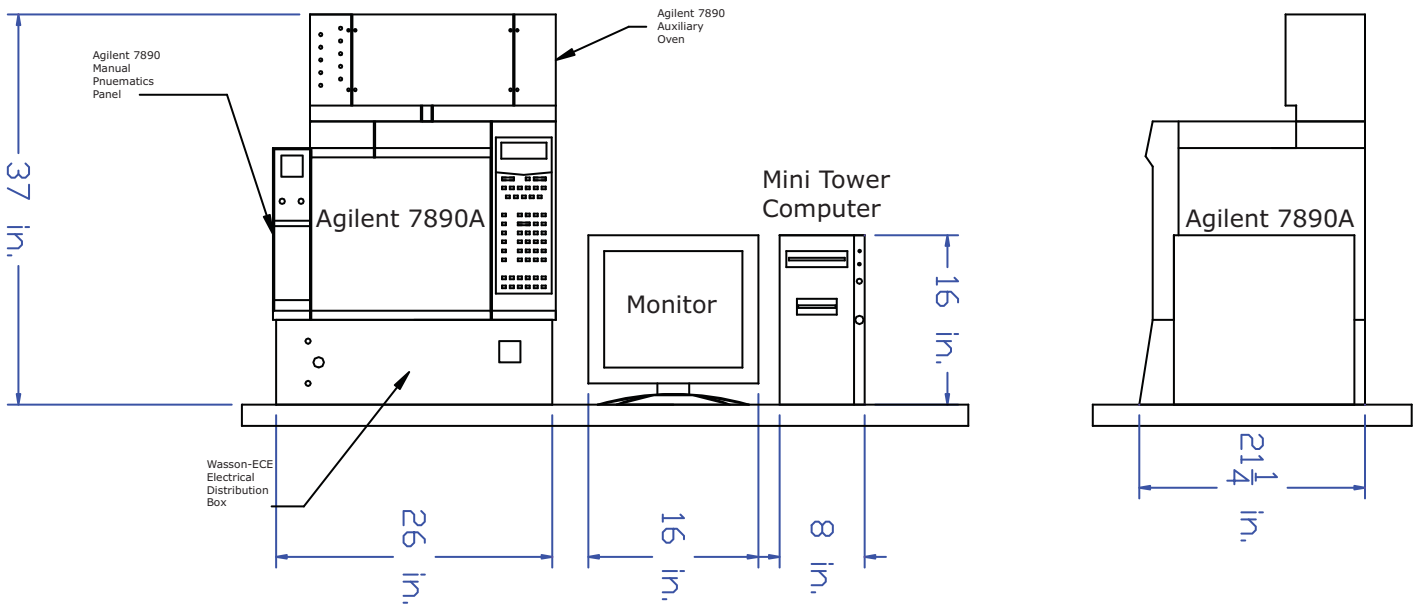
## Class I Division 2 Process Cabinet Layout



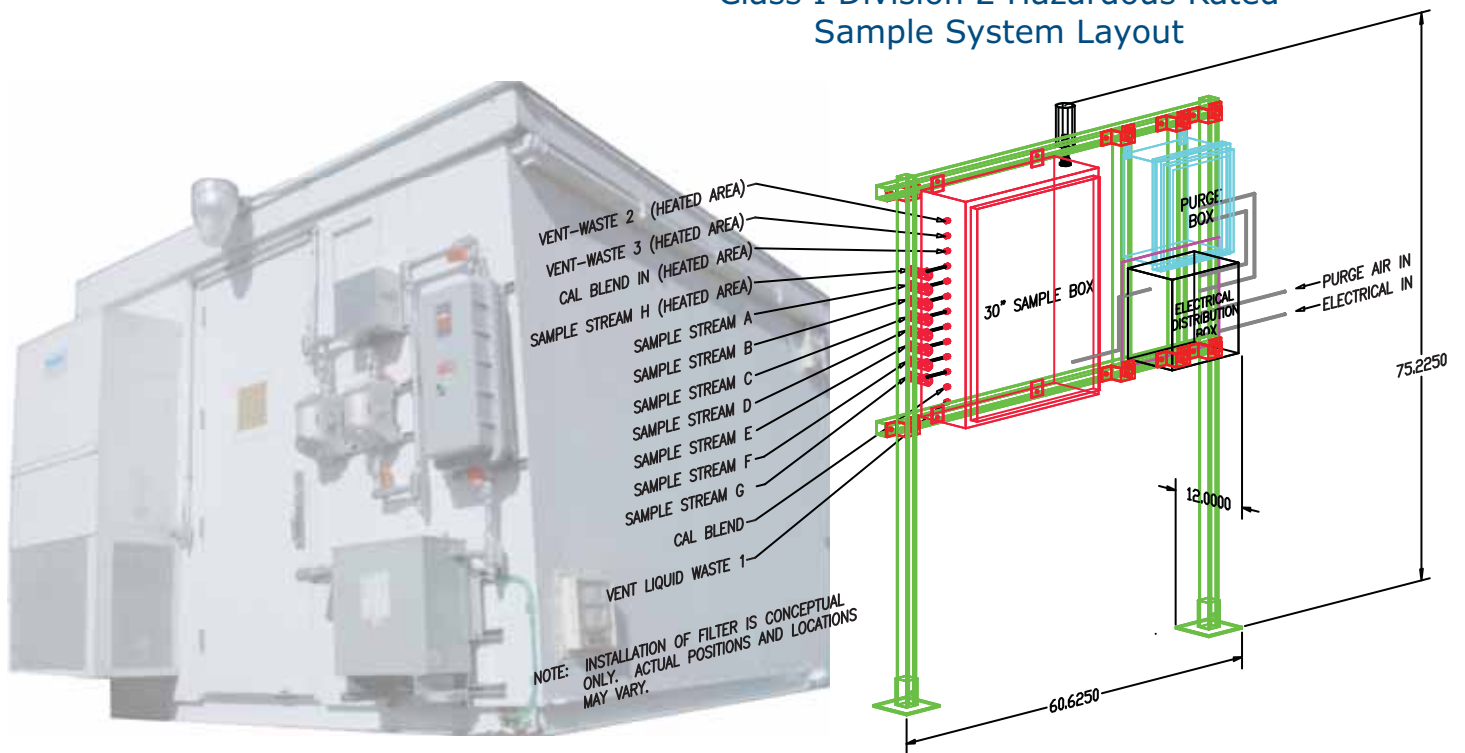


# On-line Lab Layout

## Typical On-line Lab Bench Layout



## Class I Division 2 Hazardous Rated Sample System Layout



# Process Questionnaire

Typical information needed to generate a quotation for a process instrument.

1. What is the area classification?
  - a) Class I, Division 2, Group C or D
  - b) Non-Hazardous
  - c) Other - Please Specify: \_\_\_\_\_
2. Will you need a building or a process cabinet?
3. Do you need cabinet temperature control and sunscreens?
4. What communication format will you need?
  - a) 4-20 mA Outputs
  - b) Modbus
  - c) LAN
  - d) Other
5. What are the local conditions like in your area?  
Ambient Temperature: Average \_\_\_\_\_ Min \_\_\_\_\_ Max \_\_\_\_\_
6. Do you need post run calculation software?
  - a) BTU, Specific Gravity, etc...
  - b) Database trending of results
7. How many sample streams will you analyze?
8. Will any of the following be present in your sample stream?
  - a) Corrosives
  - b) Moisture/Water
  - c) Particulates
  - d) Oils/Heavies
  - e) Precipitates
  - f) Oligomers, Polymers
9. Please list the components in your stream in the table below.

Component, M.W.	Typical Conc.	Min Conc.	Max Conc.	Conc. Units	Needs Quantified? Yes/No

Attach additional sheets as necessary.

# Conclusion

Thank you for your interest in Wasson-ECE Instrumentation

We strive to provide you with the best analytical solution. All of our applications are backed by a one year warranty on hardware and application. This guarantee helps you to purchase with confidence. Once you purchase, our service team is available to assist you should a problem arise.

Call now to discuss your chromatography requirements. We also configure refinery gas, simulated distillation, detailed hydrocarbon analysis, high purity chemicals, natural gas, and customer specific configurations to meet your needs.

We specialize in creating custom solutions, please contact us today to discuss your unique chromatography requirements.

Wasson-ECE Instrumentation  
101 Rome Ct  
Fort Collins, CO 80524

(970) 221-9179 tel  
(970) 221-9364 fax  
marketing@wasson-ece.com

## Why Wasson ECE Instrumentation?

A one year warranty on all Agilent and additional installed hardware.

One year guaranteed analytical system performance.

On-site installation and training.



Please contact us for more information



*Engineered Solutions, Guaranteed Results.*