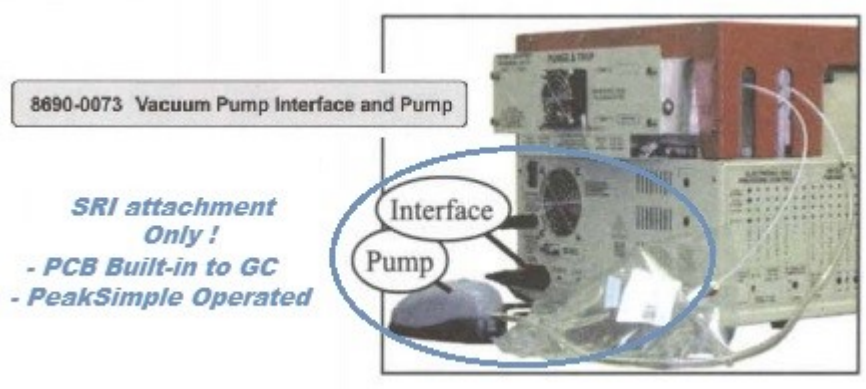
Air Sampling Accessories

Air Sampling Labs cover a diverse range of sampling requirements and accessories—more a matter of detailed mehodology

SRI GCs are more generally aimed at analytical laboratories rather than dedicated GC process control applications

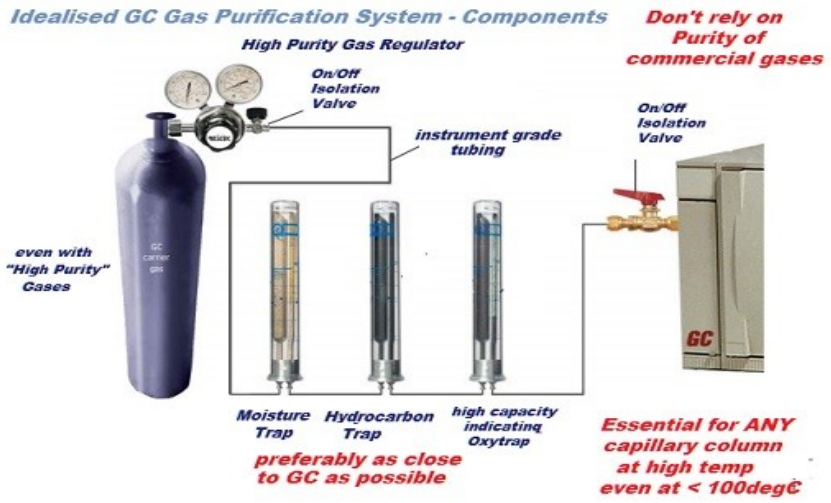
offer many as low cost easily installed integrated components based on the range of Multi-Gas Analysers

- ***Some built-in to the GC***— generally **<u>requires SRI factory installation</u>** 1 ***VacuumPump Interface*** (8690-0073);(SRI GC Cat200 p89) including external vacuum pump and gas sampling bag use (for accurate GC calibration)
  2 Non-standard Solenoid valves requires extra built-in circuit boards
  The SRI GC is relatively "user-friendly" in terms of internal accessibility
- ***Recommended*** ***but for proficient and suitably "trained "operators)***



- ***Add-on — DIY***

2 ***Gas Purifiers***, PDF High Purity Gases and gas regulators; particular for trace gas analysis < low ppM levels.
- > many options



OXYTraps are recommended for any GC for all GC type columns to minimise back-ground signals often attributed to bleed even where GC columns are to be operated at high temperatures (even capillary columns at <100degC)
- care required (monitor color ,*a fast change-over is mandatory !*)
- use isolation valves if /when GC is NOT being used > *best to leave carrier gas running 24/7 if need be !*

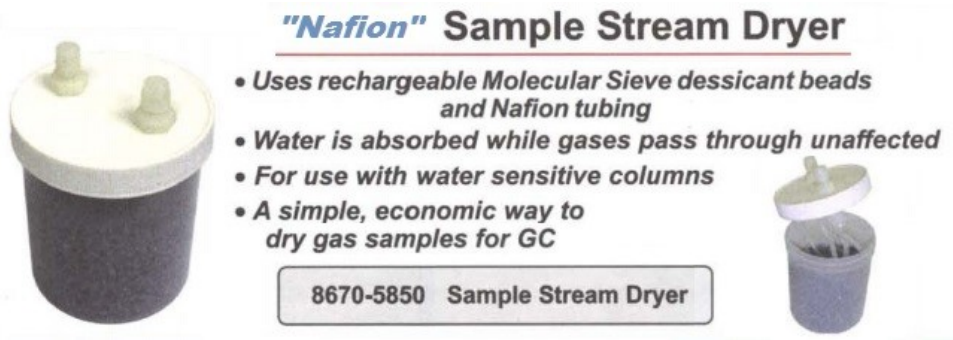
H2 generator (2014-HO20-2 new addition PDF) for FID H2 fuel gas and/or where H2 can be used as carrier gas for safety/ or mobile applications (100ml/min is adequate for a single GC)

- NOT necessarily recommended for spasmodic GC operation but long terms stability (>days) for system stability
  Lab applications > where possible Helium or H2 gas bottle supply ***might be*** preferred
- A Gas Purifier (OXYTrap many options see PDF) is also recommended installed as close to the GC as possible with a minimum of fittings

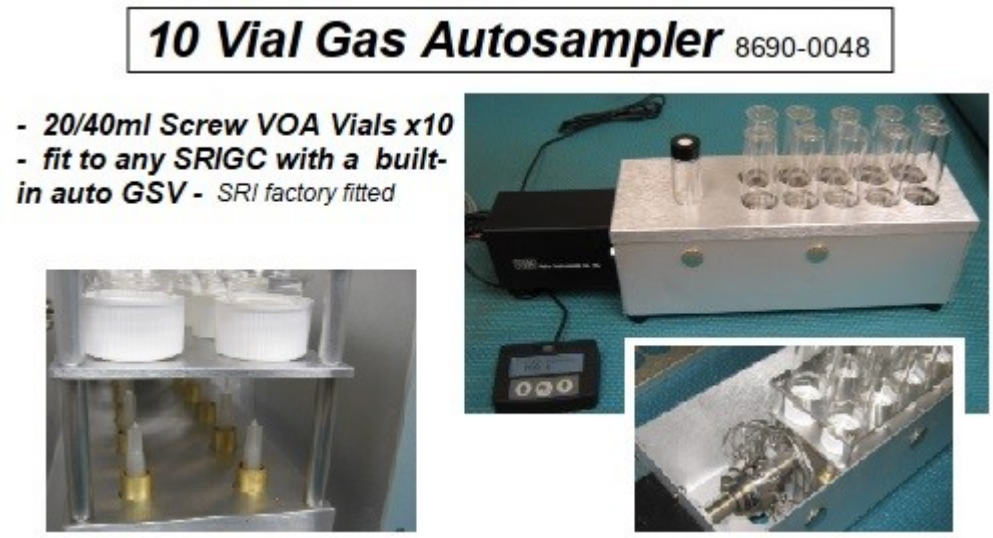
- All SRI ***FID GCs*** have a built-in ***mini Air Compressor as standard*** (8690-2270 (SRI Cat200 p89) enabling a gas bottle-less GC system for that extra portability as carrier gas; Change over of a few fittings may be re-quired.

- ***Sample stream in-line accessories***

4 **Sample Stream "Nafion" Drier (**8670-5870, SRI Cat200 p88) for "wet" humid samples (% water) tends to deactivate MolSieve and adsorbent type columns over-time requiring periodic high temperature re-activation. Similarly with many high concentration samples of CO2(%) will also deactivate MolSieve columns .



5 ***10 vial Gas Autosampler (*** 8690-0047 PDF) for external field collection of gas samples in VOA glass vials (requires Any pre-installed auto GSV GC system)



6 ***7ml custom vials - 500ea Bandalero Belt 7ml Gas Tube Sampler*** ***PDF*** - typically custom sample tubes
> field loaded (*onto an "ammunition-type-belt"*) for automated injection into a suitably modified SRI GC back in the lab - requires some expertise level for operation, setup and use **]**
> extra unique skill in getting "vacuum safe vial seal !

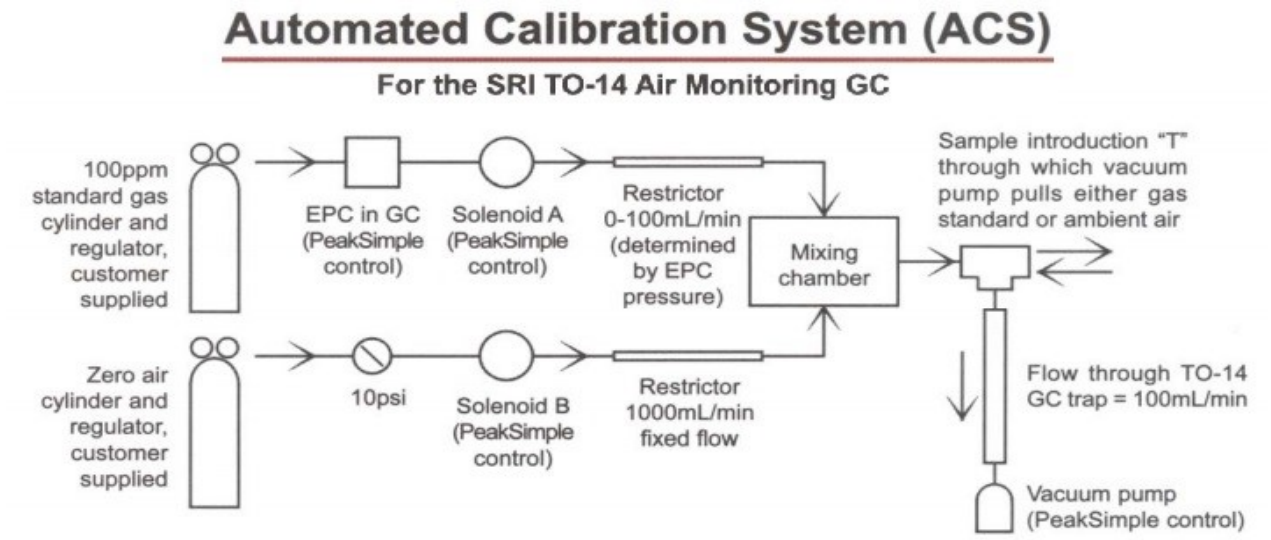
- & ***Tends to be a one shot analysis per vial !***(any duplicates of same sample can be problematic !
(2nd is under a reduced pressure)

GC run time per sample - can be 2-6mins up to 15mins if temperature programming is required for typical simple MG#5

- as a brief test sample you can use ambient air or as a dilute Natural Gas.

Automated Gas Calibration System ***(ACS*** 8640-0050 SRI 200Cat p73 ***)***

- strictly for experts process control Apps requiring high accuracy & regular calibration at low ppM>ppB levels *(~AUD6000)* ***eg for auto-generation of non-linear calibration curves***



Other Consumables

- ***Columns*** (generally packed columns for gases > also PLOT .

> long term life with care >> 12months)

- **Gas Syringes** - for simple gas apps plastic **Norm-Ject** type (PDF)are adequate 1ml manual injection larger syringes for ”spot” sample dilution. Via plastic fitting Connectors

- ***Carrier Gas Lines*** 1/8”OD High Purity pre-cleaned Copper is adequate except for ECD Detectors

◊ ***Sample transfer Lines***—simple applications 1/8”OD Teflon or SS is adequate

◊ For <ppm > ppB and for reactive compounds eg (S-Cpds) Silocosteel/Sulfinert is mandatory—also for faster response for moisture at <ppM levels compared to SS

◊ ***Calibration Gas Standards***

A multitude of possibilities (All generally customised but some standardised) and in different size cylinders — *depending on your anticipated use-age rate ?*

Specify ; matrix; components to be analysed, concentration (ppM v/v) of each component to be quantitated

for SRI **MG#5# & TO14 GC**

see Restek Gas Standards>

Natural Gas Standard ***34438*** x10 components,13litre cylinder (AUD1100)

Refinery Gas ***#1 34441(x28components)AUD1600) Restek*** PDF ***(p431)***

but we also get from Linde Gas, Air Liquide

. . . depending . . . !

- ***Some "unique" SRI GC Features***

SRI GCs have a built-in Operating System ***Peak Simple Data System (1-channel per Detector, 1or6 CH-system built-in)*** via a s'ware "timed events" Table

Manual GC Injection Port / gas sampling timing, column switching

on/off switching of external or built-in solenoid switches or valves

- also for control of conventional GC Autosamplers (*Liquid & Headspace*)

◊ Each MGA GC configuration is a completely function internally automated as required with all valves, solenoids, multiple columns if/as required and installed for the designed application

- ***New features MGA#5***

Methaniser - ***High Capacity*** Methaniser FID jet now standard to automate many aspects of the overall GC system

◊ Additional Gas sample injection by syringe via the septum injection port or by sample loop Gas Sampling Valve (GSV) automated injection normally 1ml max

Dual GSVs now standard

Detectors : ***TCD, FID-Methaniser***

TCD 200ppM-% Concentrations—all permanent gases (plus C1-C6 HCs); except H2 in simple MG#5 system (requires Argon carrier gas); % to low ppM

FID low ppM to mid % ***for HCs ONLY !***

FID/Methaniser low ppm CO and CO2

cont from p5

- ◊ Standard SRI GC MGA GCs use SS packed columns 1/8”OD
- ◊ 3 Columns Mol Sieve, HaySepD and a 3rd Haysep G for back-flushing requirement
- ◊ Optional 4th Column capability - MXT-1 capillary column for higher MW components and/or S-Compounds (requiring an extra optional ***Dual FID/FPD*** Detector
- ◊ Marked improvement can be achieved with high resolution capillary GC columns re Limits od detection and component resolution
  — BUT WITH THE ADDED NEED FOR DETAIL ATTENTION
  Limit of Detection — largely determined by baseline noise drift etc, a function of carrier gas purity

This PDF is but a brief summary of gas analysis as implemented by SRI-GC & some of our Other Suppliers

- *NOT exhaustive !*
- *VERY Generalised !*
- NOT ALL Options are necessarily still available — ASK!
- Please select options judiciously before placing you Order
  —be prepared to discuss full details of your APP
  Our DISCLAIMER APPLIES !
- ANY Prices quoted here are in AUD Ex-GST and INDICATIVE ONLY
- Some options are difficult to install in Australia / retrofit after “initial” delivery has been made
- internal GC components may be required
  Generally the GC needs to be Return to the SRI Factory in CA-USA— IN THE ORIGINAL PACKING CASE > ALL freight costs are customer responsibility

Come back later ! we add to this PDF from time – to - time !