AGC Solenoid Control Unit

Overview

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AGC INSTRUMENTS
Gas Chromatography since 1965

Sample Handling in AGC TrendVision

AGC TrendVision is supplied with a sophisticated, easy to use sample handling interface. This feature allows users to easily address their needs in a multi-sample environment.

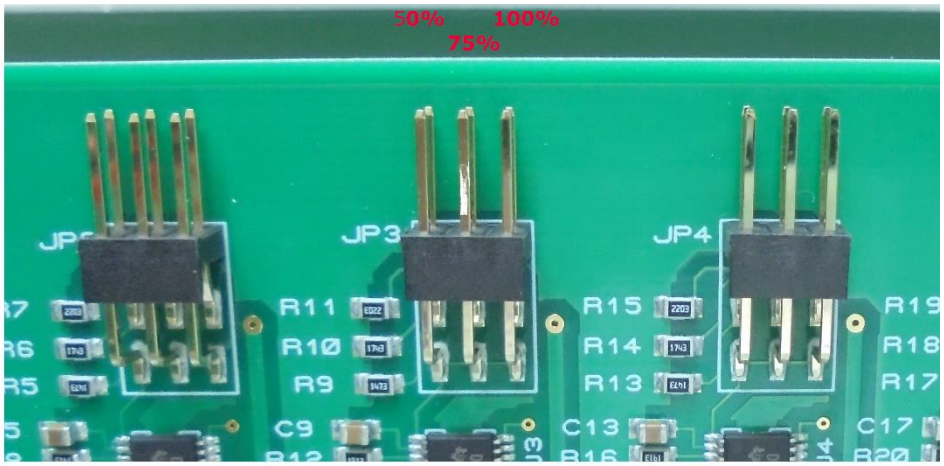
The software can handle up to four independent Sequence Methods. Sequence Methods can run in parallel, allowing users to handle multiple samples on one or more Gas Chromatographs.

AGC Instruments also provide a complete solution to your sampling needs. End users can configure TrendVision to operate with their in-house sampling infrastructure or AGC Instruments can address their needs by supplying custom sampling manifolds in various configurations.

Together with sophisticated software, AGC Instruments provide a convenient hardware interface to allow end-users to easily connect process sampling solenoids.

The 'Solenoid Control Unit' provides solenoid drive power (up to 24V DC) and isolates TrendVision hardware from the process infrastructure.

The Solenoid Control Units switching hardware practically eliminates heat buildup in the process solenoid infrastructure by driving each solenoid in Pulse Width Modulation (PWM) mode. After initial actuation the current flowing through the solenoid coil can be moderated to reduce heat and therefore prolong the life expectancy of each individual solenoid. This is selectable on each channel and can be set to 50%, 75% or 100% (with no modulation).



A link is fitted in one of the three positions as required.

The default is set to 75% for all channels.

The Solenoid Control Unit also provides a Flow Alarm override relay for each bank of seven channels (two relays in total).

Relay 1 will be activated if any channel (1 to 7) is active.

Relay 2 will be activated is any channel (8 to 14) is active.

The Flow Alarm override allows the user an opportunity to suppress a momentary GC Flow Alarm which may occur when a sample stream is switched.

Normally Open (NC), Normally Closed (NC) and Common (COM) contacts are provided for each relay. This allows the relays to be suitably wired to accommodate various situations.

Pin 1 – Relay 1 – Normally Closed
Pin 2 – Relay 1 – Common
Pin 3 – Relay 1 – Normally Open
Pin 4 – Relay 2 – Normally Closed
Pin 5 – Relay 2 – Common
Pin 6 – Relay 2 – Normally Open

Solenoids up to 10W can be easily accommodated and indicator LEDS on the front panel show which solenoid in the array is active.

Total maximum load for the Solenoid Control Unit should be limited to 100W.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INSTRUMENTS
SOLENOID CONTROL UNIT
1 2 3 4 5 6 7 8 9 10 11 12 13 14
POWER
POWER
24V/65W
FLOW ALARM
OVER-RIDE
RS485
PURGE
IN
OUT
OUT A
OUT B

Interaction with TrendVision Chromatography Software

AGC TrendVision allows control of the sampling infrastructure via an easy to use Sequence Editor. The Sequence editor controls all aspects of sample flow in a multi-sample environment.

Each sample source in the multi-sample environment can be labelled to suit customer requirements (generic sample names are not required).

The Sequence editor provides a variety of features:

- **Automatic calibration**
  Any solenoid can be configured to control the flow of a calibration sample. A simple checkbox allows the user to request an automatic calibration.

- **Pre-Purging of the sampling loop**
  A ***Sample Change Timer*** determines when the next sample will be selected. The change-over timer allows a new sample to be selected as a sample is being analysed by the Gas Chromatograph (i.e. the sample is on the chromatographic column). This allows for faster throughput as it is not necessary to provide time purge before injection.

- **Sample Priority**
  Each sample in the Sequence editor can be given a priority. Samples with a priority of 1 are sampled at every iteration of the loop. Sample with lower priorities (2, 3, 4, etc.) are sampled less frequently.

- **Sample Skip**
  Samples that are temporarily unavailable or disconnected for whatever reason can be skipped without altering the Sequence Method. A ***skip*** check box ensures that the sample will not be run.

- **Sample Repeat**
  Multiple repeat injections of a single sample are easily handled. In ***Repeat Mode*** the Sequence Method can configure each sample line for ***n*** injections (1 by default).

- **Sample Override**
  Sample Override handles the case where the user wishes to *lock* the sequencer on a given sample. If the Override checkbox is checked then the sequencer will continue to inject the selected sample until the check box is cleared.

The Sequence Editor can accommodate several Sequence Methods to address different sample requirements in the field. Any one of these Sequence Methods can be selected to run.

For maximum flexibility it is also possible to run different Analytical Methods in the Sequencer.

The Sequencer Software is configured to conveniently run Sequence Methods in parallel. It is possible to have two (or more) Gas Chromatographs running multiple samples at the same time.

Finally, once configured the Sequence Software is largely transparent in use and does not impose any major restrictions on the use of Analytical Methods, etc.

The screenshot below shows a typical Sequence Methods in the Sequence Editor.