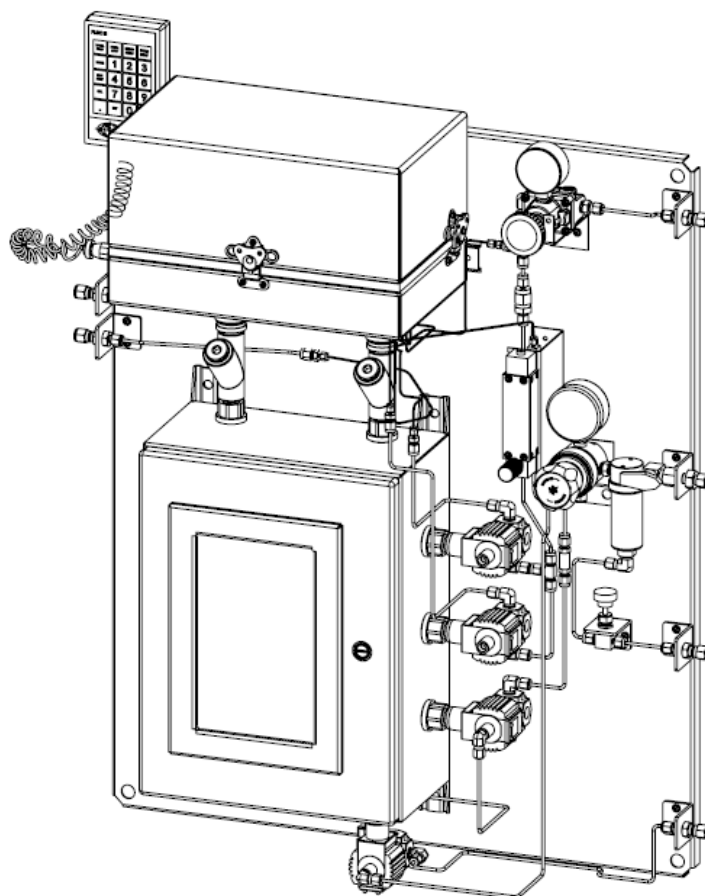


AccuChrome™

GAS CHROMATOGRAPH

Operation Manual Addendum 2 - ISO6976 Properties

Revision 0
June 2023



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NOTICES

All information in this manual is subject to change without notice and does not represent a commitment on the part of Galvanic Applied Sciences, Inc.

Note: Changes or modifications not expressly approved by Galvanic Applied Sciences, Inc. could void the user's authority to operate the equipment.

Purpose

This manual describes how to configure the AccuChrome™ GC4 gas chromatograph to display ISO6976 physical properties.

Important

Galvanic Applied Sciences is not responsible for any deviation from this manual.

Scope

If products and components from other manufacturers are used, these must be recommended or approved by Galvanic Applied Sciences (The 'Manufacturer'). Due to design changes and product improvements, information is subject to change without notice. The Manufacturer reserves the right to change hardware and software design at any time, which may subsequently affect the contents of this manual. The Manufacturer assumes no responsibility for any errors that may appear in this manual. The Manufacturer will make every reasonable effort to ensure that the manual is up to date and corresponds with your AccuChrome™.

Users

The procedure described in this manual is intended to be executed by trained personnel. Trained personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with the AccuChrome™. For start-up or technical assistance contact:

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Safety Symbols used in Manual



The Danger symbol indicates a hazardous situation that, if not avoided will result in death or serious injury.



The Warning symbol indicates a hazardous situation that, if not avoided could result in death or serious injury.



The Caution symbol with the safety alert symbol indicates a hazardous situation that, if not avoided could result in minor or moderate injury, and/or damage to the analyzer system



The Notice symbol is used to highlight information that will optimize the use and reliability of the system.

Important Safety Guidelines for the AccuChrome™

Please read the following warnings and cautions carefully before using the AccuLase-GPA™.



This equipment must be used as specified by the manufacturer or overall safety will be impaired.



Access to this equipment should be limited to authorized, trained personnel ONLY.



Due to the thermal mass of the hardware, cooling of the items takes substantial time.



Use of unauthorized parts may impair suitability of the equipment for Class I Div. 1 or Class I Div. 2 or Ex locations.



Observe all warning labels on the analyzer enclosures.

The analog outputs and alarm relay contacts may be powered by a source separate from the one (s) used to power the analyzer system. Disconnecting the AC Mains Source (s) may not remove power from the analog output signals or the alarm relay contacts.

Any safety recommendations or comments contained herein are suggested guidelines only. Galvanic Applied Sciences Inc. bears no responsibility and assumes no liability for the use and/or implementation of these suggested procedures.

This system, when operating in its normal mode, and/or when it is being serviced, maintained, installed and commissioned contains items which may be hazardous to humans if handled or operated incorrectly or negligently. These hazards include, but are not limited to:

- a) High Voltage Electrical Energy
- b) Toxic and Explosive Gases
- c) High Temperature Surfaces



Access to this equipment should be limited to only to authorized, trained personnel.

The AccuChrome GC can be configured to be safely operated in a Class I Div.1, Group B, C and D area, or a Class I Div 2, Groups B, C, D area or Ex protection: II 2G, EEx d [ia] ia em II2B T3 (T_{amb}=50°) area. The certified designation will be indicated on the nameplate.

Section 1 Installing the Latest PC Software

1.1 Overview

The PC-based application software is designed to generate a configuration (which describes the overall operation of the system), collect and process chromatographic data, generate reports and archive data. The configuration defined in the PC-based software is where the option for ISO6976 physical properties calculation is located.

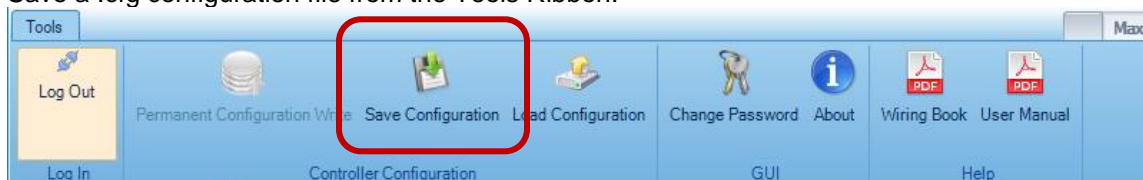
NOTICE

It is recommended to periodically download and install the latest PC software for the AccuChrome from the Galvanic website (www.galvanic.com).

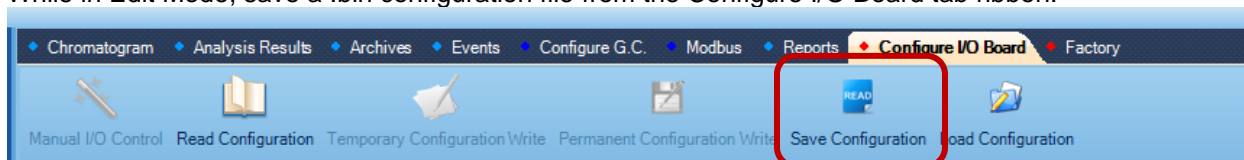
1.2 Back-up Your Configuration

Open the PC-based AccuChrome software and connect to your AccuChrome™ GC.

Save a .cfg configuration file from the Tools Ribbon.



While in Edit Mode, save a .bin configuration file from the Configure I/O Board tab ribbon.



Disconnect and close the PC-based AccuChrome software.

1.3 Remove existing AccuChrome software from your PC

Navigate to the *Control Panel* by opening the Windows® *Start Menu* and typing “Control Panel” and pressing “Enter” on the keyboard. From the *Control Panel*, open *Programs and Features* as shown in Figure 1-1.

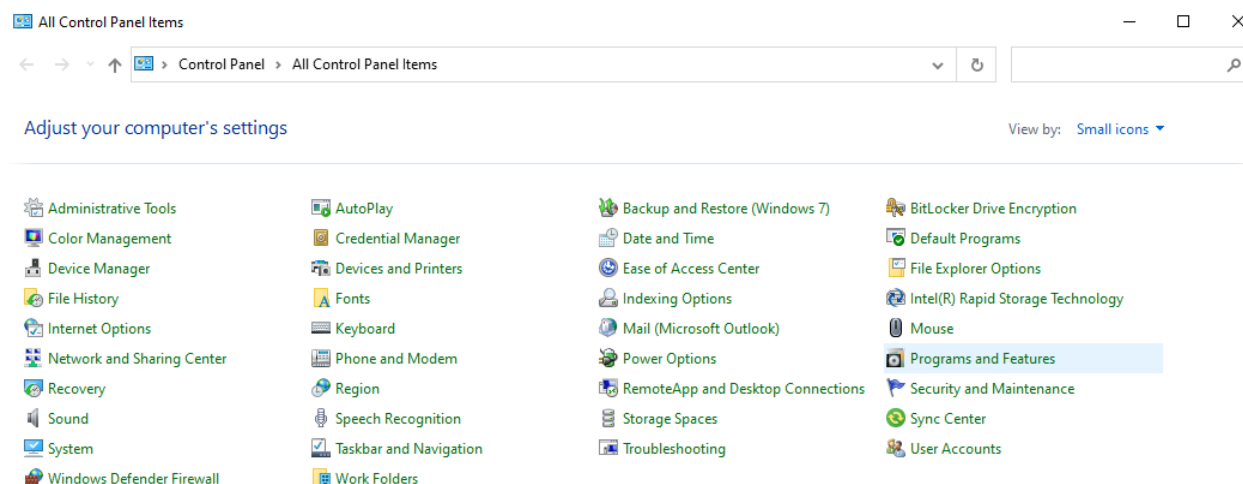


Figure 1-1: Control Panel with Programs and Features highlighted.

Locate and select “AccuChrome4”, then click *Uninstall*. A prompt will appear to confirm your selection as shown in Figure 1-2. Click Yes and uninstall the program.

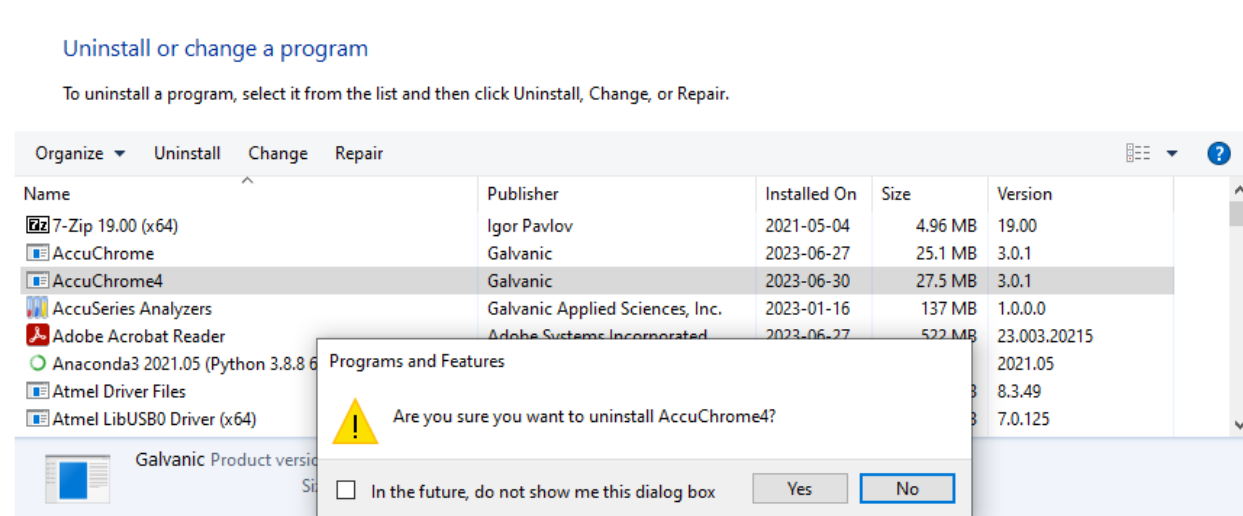


Figure 1-2: Programs and Features with AccuChrome4 highlighted. User prompt is shown asking for confirmation to uninstall the AccuChrome4 program after clicking on Uninstall.

1.4 Download Latest AccuChrome Software

Download the latest AccuChrome software installer from the Galvanic website product page or save the installer files provided by your Galvanic Customer Support representative. (<https://www.galvanic.com/products/accuchrome-btu-hydrocarbon-analyzer>).

NOTICE Extract and save the installer files to a convenient folder. Galvanic recommends either the Downloads folder or the Desktop.

1.5 Install Latest AccuChrome Software

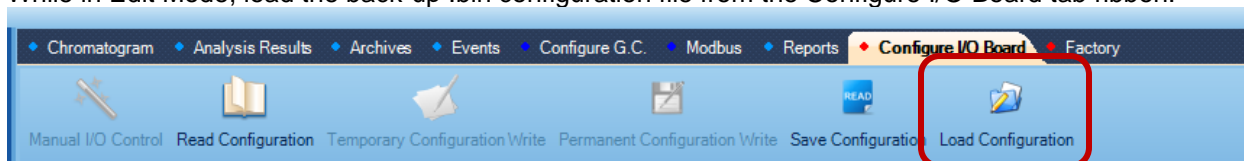
Double click on the Windows Installer Package included in the installer files. It will have a file name similar to "AccuChrome4Setup.V5.0.5.29June2023.msi". Do not use the setup.exe file if one is provided.

- Follow the prompts of the AccuChrome Setup Wizard by choosing 'Cancel', '< Back' or 'Next >'
- Choose an appropriate installation location when prompted. Use the default folder location unless directed otherwise.
- Allow the installer to run to completion.
- Confirm successful installation by locating the shortcut icon on the installation computer *Desktop*.

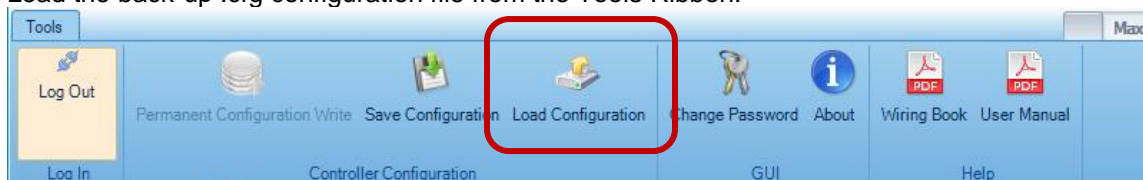
1.6 Re-Load Analyzer Configuration

Open the newly installed PC-based AccuChrome software and connect to your AccuChrome™ GC.

While in Edit Mode, load the back-up .bin configuration file from the Configure I/O Board tab ribbon.



Load the back-up .cfg configuration file from the Tools Ribbon.

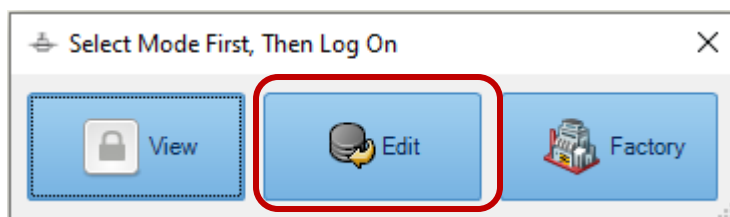


Disconnect and close the PC-based AccuChrome software.

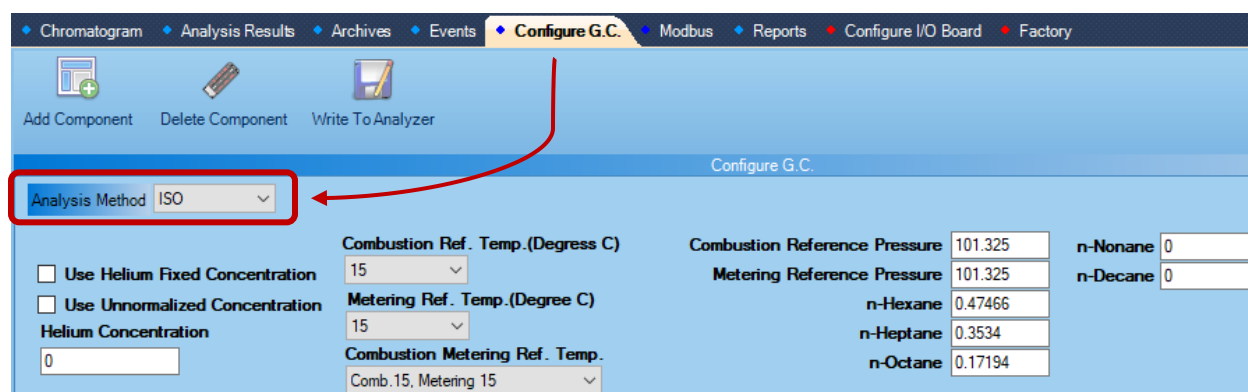
Section 2 Configure ISO6796 Physical Properties

2.1 Setting the Physical Properties Calculation Method

1. Open the PC-based AccuChrome software (v5.05 or newer) and connect to your AccuChrome™ GC.
2. Login to the AccuChrome software with Edit User Access Mode.



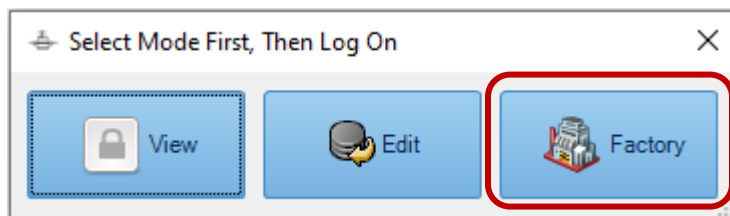
3. Navigate to the *Configure G.C.* tab and select ISO as the *Analysis Method*. Click on *Write to Analyzer* in the *Configure G.C.* ribbon and then click on *Permanent Configuration Write* in the *Tools Ribbon*.



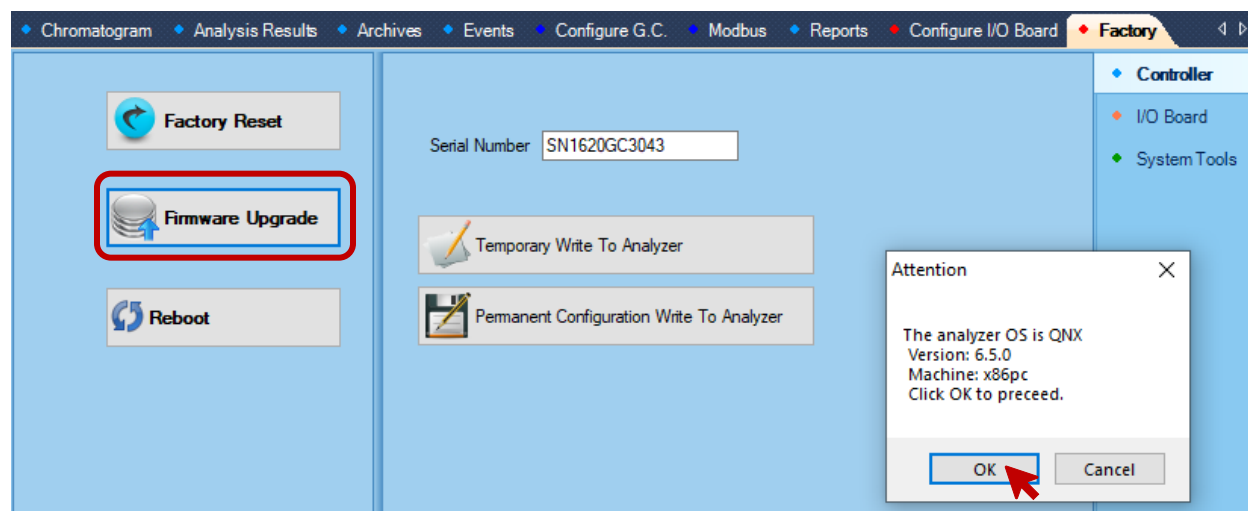
4. Power the AccuChrome™ GC off, wait for 30 seconds and then power the analyzer on.
5. Reconnect to your AccuChrome™ GC on the PC-based AccuChrome software (v5.05 or newer) and confirm the Analysis method is set to ISO.

2.2 Wipe the Database and Memory

1. Login to the AccuChrome software with Factory User Access Mode. (Password “fact2”)



2. Navigate to the *Factory* tab and select the *Controller* page from the right-hand navigation menu.
3. Click on *Firmware Upgrade*. A prompt will display current controller information and ask if you would like to proceed. Click *OK*.



4. In the file browser provided, navigate to the save location for “ISO_Update.tar” provided in the installer files and open it. An update progress bar will appear. Allow the installer to complete. On successful completion, a prompt will ask you to click OK to reboot the analyzer.
5. Once the analyzer has come back online, confirm again that the Analysis Method is set to ISO on the *Configure G.C.* tab.



If the AccuChrome™ GC has any property values calculated using the GPA method, the analyzer will not correctly display property values using the ISO6976 method and vice versa until the undesired values are wiped from the system.

6. Disconnect and close the PC-based AccuChrome software.

All analysis results, archive data and reporting from this point onward should be properly formatted and displayed with ISO6976 physical properties.

Section 3 Troubleshooting

3.1 Analysis Reports

Analysis reports will fail or appear empty until the following conditions are met:

- a) At least one (1) entry on the Analysis Results tab for Stream 1 with no errors.
- b) At least two (2) entries on the Analysis Results tab for Cal 1 with no errors.

3.2 Archive Data

Archive data will display both GPA physical properties and ISO physical properties if there are runs completed with both analysis methods. It is required to either: a) wipe the database or; b) wait until the archive entries are overwritten.

The archive will begin to overwrite entries once it has filled up. The archive may have more than 1000 entries. It is much faster to wipe the database, however it may be desirable to keep the archive record if the AccuChrome™ has been running for some time.

