

SHIMADZU GC-2030/GC-2050

ENG

Clarity Control Module

Code/Rev.: M240/100C Date: 2025-05-12

Phone: +420 251 013 400 clarity@dataapex.com www.dataapex.com DataApex Ltd. Petrzilkova 2583/13 158 00 Prague 5 Czech Republic

Clarity[®], DataApex[®] and $\blacktriangle^{\mathbb{R}}$ are trademarks of DataApex Ltd. Microsoft[®] and WindowsTM are trademarks of Microsoft Corporation.

DataApex reserves the right to make changes to manuals without prior notice. Updated manuals can be downloaded from www.dataapex.com.

Author: MT

Contents

1 Shimadzu GC-2030/GC-2050	1
2 Requirements	2
2.1 Software requirements	2
2.2 Hardware requirements	2
3 Installation procedure	
3.1 Installing Correct Version of ICF	3
3.2 Network connections	4
3.3 Installation Qualification of Shimadzu GC-2030/GC-2050	5
4 Clarity - Shimadzu Edition Configuration	8
5 Using the Shimadzu GC-2030/GC-2050	
5.1 Method Setup - GC	
5.2 Device Monitor	16
6 Troubleshooting	
6.1 Problems specific to the Shimadzu GC-2030/GC-2050	18

To facilitate the orientation in the **Shimadzu GC-2030/GC-2050** manual and **Clarity - Shimadzu Edition** chromatography station, different fonts are used throughout the manual. Meanings of these fonts are:

Open File (italics) describes the commands and names of fields in **Clarity - Shimadzu Edition**, parameters that can be entered into them or a window or dialog name.

WORK1 (capitals) indicates the name of the file and/or directory.

ACTIVE (capital italics) marks the state of the station or its part.

Chromatogram (blue underlined) marks clickable links referring to related chapters.

The bold text is sometimes also used for important parts of the text and the name of the **Clarity** - **Shimadzu Edition** station. Moreover, some sections are written in format other than normal text. These sections are formatted as follows:

Note:	Notifies the reader of relevant information.
Caution:	Warns the user of possibly dangerous or very important information.

Marks the problem statement or trouble question.

Description: Presents more detailed information on the problem, describes its causes, etc.

Solution: Marks the response to the question, presents a procedure how to remove it.

1 Shimadzu GC-2030/GC-2050

This manual describes the use of the Shimadzu GC-2030/GC-2050 with the Clarity - Shimadzu Edition software.



Fig. 1: Shimadzu Nexis GC-2030

Shimadzu GC-2030/GC-2050 are controlled using RC.NET driver developed by Shimadzu running under the Agilent ICF (Instrument Control Framework) library developed by Agilent, which can be run within the Clarity - Shimadzu Edition environment.

2 Requirements

2.1 Software requirements

Shimadzu GC-2030/GC-2050 RC.net driver is exclusively available in Clarity -Shimadzu Edition OEM version. This OEM version is only available in selected countries in Europe region and sold through approved distributors. In terms of Clarity - Shimadzu Edition product numbers, this includes:

- Clarity Shimadzu Edition (p/n C50-28)
- GC Control license (p/n A23)
- GC Shimadzu license (p/n A23-001)
- optionally AS Control License (p/n A26) when the system contains an autosampler

Caution: A separate GC Shimadzu Control license (p/n A23-001) must be purchased for

each controlled Shimadzu GC-2030/GC-2050 system. A similar license is required for **Shimadzu Nexera LC** systems.

Shimadzu GC-2030/GC-2050 requires **Microsoft .NET version 4.8** or higher for correct installation and operation. The version is already installed on majority of PCs. For complete list of .NET requirements, see the **.NET Framework System**

For complete list of .NET requirements, see the .NET Framework System Requirements on Microsoft web page.

Supported operating systems:

- Windows 10 (32/64 bit)
- Windows 11

Note: Before installing Clarity - Shimadzu Edition, ensure that your Windows OS is updated to the latest version for optimal compatibility.

2.2 Hardware requirements

- A PC with a LAN interface is required.
- To ensure maximum compatibility, the module should run the latest firmware version (minimum 1.09).

For complete list of supported Windows OS and instrument firmwares, see Shimadzu webpages.

3 Installation procedure

Shimadzu GC-2030/GC-2050 is part of the Clarity - Shimadzu Edition *Typical* installation. To install it, in the *Choose Components*select the *Typical* installation or check the Shimadzu GC-2030/GC-2050 in *Instrument Control Framework (ICF)* section during the installation of Clarity - Shimadzu Edition.

🔼 Clarity - Shimadzu 0.1.0.264	55-Alpha Setup	-		\times
Choose Components Choose which features of Clarit install.	y - Shimadzu Edition you want to			
Check the components you war install. Click Next to continue.	nt to install and uncheck the components	s you don'	t want to	
Select the type of install:	Typical			~
Or, select the optional components you wish to install:	Axcend Focus LC CTC PAL3 driver PerkinElmer Flexar Shimadzu GC-2030/GC-20 Shimadzu Nexera LC Mauer FPLC Description	50		
Space required: 1.2 GB	GC Control module Shimadzu GC-203	0/GC-2050)	
Shimadzu Installer				
	< Back Nex	t >	Cano	el

Fig. 2: Typical installation of Clarity - Shimadzu Edition

3.1 Installing Correct Version of ICF

Clarity - Shimadzu Edition expects a specific version of Agilent ICF. Because other programs may also be using Agilent ICF, it is possible they've installed a different version than is supported by Clarity - Shimadzu Edition. In that case in the installation you will be prompted to reinstall it in order to install correct version. Going forward with this step is crucial for correct functionality of **Clarity - Shimadzu Edition** and Shimadzu GC-2030/GC-2050.



Fig. 3: Installing correct version of Agilent ICF

Note: This reinstallation of Agilent ICF may cause that other programs using it, may not function properly.

3.2 Network connections

The instrument Shimadzu GC-2030/GC-2050 has to be connected to a site network by LAN. It is recommended to attach the hardware directly to the PC avoiding hubs, switches etc. Always contact your local LAN administrator who can make the appropriate settings.

Caution:

Cross LAN cable is primarily used for the direct connection of the instrument and the PC. This cable can also be used for the connection of the device to the switch or network socket, but with older switches, the straight LAN cable might be necessary.

LAN Settings

PC: LAN card, TCP/IP protocol.

Both PC and Shimadzu GC-2030/GC-2050 should be configured on the same IP range.

Firewall

Ensure that the firewall does not block communication from the Shimadzu GC-2030/GC-2050.

3.3 Installation Qualification of Shimadzu GC-2030/GC-2050

Shimadzu GC-2030/GC-2050is controlled via **Agilent ICF**, an external program developed by Agilent, and for that reason it must be validated using their utility. If you have installed Clarity - Shimadzu Edition with Agilent ICF, **the IQ is valid only if successful validation of ICF is attached**.

The validation of ICF can be performed directly from the IQ Report.

Caution: When Clarity - Shimadzu Edition expects *Agilent ICF* is installed then **IQ** expects the same. If (due to any reason) the *Agilent ICF* installation is not found within Clarity - Shimadzu Edition, the *Installation Qualification Test* status is set by default to *FAILED*. To resolve this, it is necessary to re-install **Agilent ICF** through Clarity - Shimadzu Edition reinstallation and then perform **IQ** again.

Date	22.03.2023, 13:28
Serial number of application	088-061271+38911/00
User Code	ZJGU8RX96YP7TFFU3
Version of application	ClarityShimadzu version 9.0.0.27
Build date of application	03.02.2023, 01:31
Instruments	All
Extensions	SST; GPC; PDA; EA; CE; MS; NGA; DHA; GCxGC; MS-TOF
Controls	GC; LC; AS
Certification file	D:\ClarityShimadzu\Bin\iq.chk
Checksum of cert. file	78D81FDEA4727934
Date of cert. file	06.02.2023, 01:42
User	maries
System	Microsoft Windows 11 Professional version 10.0 (Build 22621)
	Key Rockey 4ND 088-61271+00/000 id:28EA6A14
Acquisition and hardware devic	Nexis GC-2030 C12255500047
Core Files, Emb Files Show files list »	pedded Components: Passed
Core Files, Emb Files Show files list » 3 rd Party Packag	pedded Components: Passed
Acquisition and hardware device Core Files, Emb Files Show files list » 3 rd Party Packas Agilent ICF:	pedded Components: Passed

Fig. 4: IQ Report with ICF installation present

Click the link *"here"* ①, after that it is necessary to click *Run* in two pop-up windows. *Agilent Software Verification Tool* window will open. Select what report file type should be generated and define post-qualification actions. Click *Qualify* ② to run the IQ. The HTML reports are opened in the default browser if the *Open reports* option was enabled. Installed drivers and their versions are listed at the end of the report.

💥 Agilent Software Ve	rification Tool B.01.01.013		-		×
					Help
Reports to create	Report option	Post-qualification	action		
HTML Report	Show OK files in report	Open reports (HTML and	PDF only)	
PDF Report		🗌 Exit			
XML Report					
Reports folder					
C:\SVReports\				Open	
Agilent Rap	id Control .NET				
		Refresh Sele	t All	Quali	fy

Fig. 5: Agilent Software Verification Tool

Address field of the generated report displays the location of the actual report.

Software Verification Report						
Date:	středa 22. března 2023	Time:	13:34:45 [UTC +01:00:00]	Host Name:	PC-039	
Windows User Name :	maries	Base Revision Number:	3.2.64	Product Name :	Agilent ICI	
Install Type:	N/A	Additional Packages:	Details			
Base Reference File Na	me : IQTRefICF.xml					
Summary :						
Overall Evaluation of Ins	stallation Check : PASS	1				
File Report Summary						
No missing files or inva	lid files found					
No system file difference	e found					
GAC File Report Summ	nary					
No missing or invalid G	AC files found					
Files Registration Repo	ort Summary					
Not registered files: NO	NE					
No missing registered fi	iles found					
Registry Report Sum	mary					
No Invalid registry entri	es found					
Details						
	Descriptio	n				
45 Shimadzu GC D	river 2.11					
10005 A 1 A I	inver Package 2.02	TOD: DODONO				

Fig. 6: ICF Report - PASS

4 Clarity - Shimadzu Edition Configuration

Setup Control Models	em Configuration					
A A C C 2000(CC-2000 C C C C C C C 2000(CC-2000 C C C C C C C C C C C C C C C C C C C	Setup C	Control Modules		Number of Instruments:	1	
Acidade Control Modules Control M	ne	Used S/N	Instrument	1 O Instrument 2 O I	nstrument 3 💭 Instrum	ent 4
Addie Control Modules	AS LC		Name			
Classical Control Modules Installed Only Fite: Market Control Modules Installed Simadgu Concel Module Info Module Module Info Module Mod	 6C		Instrument 1		Inni	
A Detchor I reserve. instrument i A Detchor J reserve. instrument i A Detchor J reserve. instrument i A Detchor J reserve. instrument i Balance GC Traction Collector GC 2030(GC-2050) Capillary Electorphoresis GC 2030(GC-2050) Auxiliary GC 2030(GC-2050) Capillary Electorphoresis GC 2030(GC-2050) Auxiliary GC 2030(GC-2050) Copillary Electorphoresis GC 2030(GC-2050) Auxiliary GC 2030(GC-2050) GC Copillary Electorphoresis GC 2030(GC-2050) Auxiliary GC 2030(GC-2050) GC Good Help	GC-2030/GC-2050	C12255500047 Instrument 1	Instrument	Гуре	- Ultra	
Activable Control Modules Activable Activab	M Detector 1 reserve.	Instrument 1	GC			
Add Peterbor Freerver. Instrument 1 Defector Thermostat Valve Fraction Collector Capilary Hectrophonesis Auxiliary Remove About Setup Add Remove About Setup Remove About Setup Carde Help Nate Cancel Help Nate Cancel Modules Cancel Modules Cancel Modules Carde Stinus Cancel Modules Carde Stinus Cancel Modules Carde Stinus Carde Stinu	A Detector 2 reserve.	Instrument 1 Instrument 1	Name	F	rom	
Detector Belance Thermostat Valve Fraction Collector Capillary Electrophonesis Auxiliary Remove About Setup Auxiliary Capillary Electrophonesis Auxiliary Capillary Electrophonesis Capillary	M Detector 4 reserve.	Instrument 1	AS			
Auxiliary CC-2030/GC-203	Balance		() = <u>= cc</u>	C 2020	6	
Valve Fraction Collector Capitary Electrophonesis Auxodiary Capitary Electrophonesis Capitary Electrophonesis </td <td>Thermostat</td> <td> ·</td> <td>Dete</td> <td>ctor</td> <td>GC-2030/GC-2030</td> <td></td>	Thermostat	·	Dete	ctor	GC-2030/GC-2030	
Capitlary Electrophoresis Auxiliary Auxiliary			-M D	etector 1 reserved for	GC-2030/GC-2050	
Auxiliary	Capillary Electrophoresi	s	D	etector 3 reserved for	GC-2030/GC-2050 GC-2030/GC-2050	
Add Remove About Setup OK Cancel Help Cancel Stimadzu GC2010 (Including GC2010 Plus an Cancel Stimadzu GC2010 (Including GC2010 Plus an Cancel Stimadzu GC2010 (Including GC2010 Plus an Cancel Help Cancel Help	- Auxiliary		<<< h>M D	etector 4 reserved for	GC-2030/GC-2050	
Add Remove About Setup OK Cancel Help Add Remove About Setup OK Cancel Help Add Setup OK Cancel Help Installed Only Fiter: Al chimadau ge of Module Info Status Vendor Comment Module Info Status Ven			Valv	e		
Add Remove About Setup OK Cancel Help Add Setup OK Cancel Help Available Control Modules - × Installed Only Fiter: All			Data Inputs	& Outputs	Davisa	Number
Add Remove About Setup OK Cancel Help Add Remove About Setup OK Cancel Help Add Remove About Setup OK Cancel Help Installed Only Fiter: All comment Module Info Status Vendor Comment Module Info			Ext. Start Dir	Input: GC GC-20	30/GC-2050 GC-2030 V	1
Add Remove About Setup Add OK Cancel Help Add OK Cancel Help Add OK Cancel Help Add OK Cancel Help Installed Only Fiter: All Installed Shimadzu ge Installed Shimadzu Ge Systems supported b Developed by Shimadzu. GC:12/1/15C Installed Shimadzu Ge Simadzu Ge Systems supported b Developed by Shimadzu. GC:2012 Installed Shimadzu Ge Collo (Induding Ge 2010 Plus an) Balance Thermostat Thermostat Mailing Cancel Help Mailing Cancel Help			Ready Dig. O	utput:	~	-
Add Remove About Setup OK Cancel Help Add Remove About Setup OK Cancel Help Available Control Modules × I Installed Only Filter: All I Installed Shimadzu GC Systems supported b Developed by Shimadzu GC-2020/GC-2050 Installed Shimadzu GC Systems supported b Developed by Shimadzu GC Systems supported b Develope			Manula	C-14		
Add Remove About Setup OK Cancel Help Add Remove About Setup OK Cancel Help Available Control Modules Available Control Modules Avail			Miscellarieou	ate Setup	Method Ontion	
Add Remove About Setup OK Cancel Help Available Control Modules Available Control Modules					Mediod Opdor	13
Add Remove About Setup OK Cancel Help Add OK Cancel Help Add OK Cancel Help Addiable Control Modules Installed Only Fiter: All dimadzu go Control Module Info Add Status Vendor Comment Module Info Add Status Vendor Comment Module Info Add Status Vendor Add Status Vendor			Dual Chroma	togram Mode	Autor Circula	
Add Remove About Setup OK Cance Help Available Control Modules Available Control Modules Installed Only Fiter: All installed Only Fiter: All installed Shimadau GC-2030(SC-2050 installed Shimadau GC-2030(Including GC-2010 Plus an Developed by Shimadau GC-2010 (including GC-2010 Plus an Content Installed Shimadau GC-2010 (including GC-2010 Plus an Add Content Installed Shimadau GC-2010 (including GC-2010 Plus an Content Installed Shimadau GC-2010 (inc				-	Assign Signais	
Available Control Modules Available Control Modules Installed Only Filter: All Inst	Add Remove	About Setup		ОК	Cancel	Help
Available Control Modules						
Installed Only Fiter: Al imstalled Only Fiter: Al imstalled Only Fiter: Al imstalled Only Fiter: Al imstalled Only Status Vendor Order Status Order Status Order Status Order Status Order Status Order	Available Control Modules	5			— D	×
Name As Status Vendor Comment Module Info Simadau Simadau Simadau Simadau GC-012A/14C installed Simadau Simadau Simadau GC-02030/GC-0205 installed Simadau Simadau GC 2010 (including GC 2010 Plus an) GC-012A/14C installed Simadau GC 2010 (including GC 2010 Plus an) GC-012A/14C installed Simadau GC-012A/14C in		Installed Only Fi	ter: All	shimadzu gc 🝳		0
GC-217A/14C installed Shimadau GC-217A/14C installed Shimadau GC-2030/GC-2050 installed Shimadau GC-2010 (including GC-2010 Plus an GC-2010 (including GC-2010 Plus an Balance Thermostat Valve Fraction Collector GC-2010 (including GC-2010 Plus an Auxiliary GC-2010 (including GC-2010 Plus an Collector GC-2010 (including GC-2010 Plus an Collector GC-20	Name 🔺	Status Vendor	Comr	nent	Module Info	
Concel	AS					
Co:12/1/4C installed Shimadau Shimadau CC systems susported b Developed by Shimadau Co:2031/CC:2030 installed Shimadau Co:2031/CC:2030 installed Shimadau Co:2031/CC:2030 installed Shimadau Co:2031/CC:2030 (including GC:2010 Plus an Detector Balance Thermostat Yalve If Fraction Collector Ge Capillary Electrophoresis Auxiliary	🗉 💼 🧟					
Cocold Coco	GC-17A/14C	installed Shimadzu	Chiv	odau CC aveteme cueported	b Douglagod by Chima	dau
	✓ GC201x	installed Shimadzu	GC2	010 (including GC2010 Plus ar	1 Developed by Shima	uzu,
Volume	Detector					
Valve III Fraction Collector Capillary Electrophoresis Caucel Addim Cancel Heln Heln Heln	Thermostat					
Addin 3 Cancel	Valve					
Addiur 3 Cancel Help	Capillary Electro	phoresis				
Add	🔠 Auxiliary					
Add 3 Cancel						
	Add	ancel			Heln	

Fig. 7: System Configuration

- Start the Clarity Shimadzu Edition station by clicking on the A icon on the desktop.
- Open the System Configuration dialog accessible from the Clarity Shimadzu Edition window using the System - Configuration... command.

- Press the Add button ① (See 4 on pg. 8.) to invoke the Available Control Modules dialog.
- You can specify the searching filter 2 to simplify the finding of the driver.
- Select the Shimadzu GC-2030/GC-2050 item and press the Add ③ button. The GC-2030/GC-2050 Setup dialog will open.

GC-2030/GC-2050 Setup					\times
다. Shimadzu GC:2050 and HSS ta: Shimadzu GC:2020 and HSS @	> < Auto Configure	GC-2030 (C12255500047)			
Saguanga Moda		Up Down	Configure	Clei	ar
Turn OFF GC on closing instrument Turn OFF GC on Shutdown					
Custom name Use Demo Config		ОК	Cancel	Hel	P

Fig. 8: GC-2030/GC-2050 Setup

- *Caution:* The *Sequence Mode* enables autosampler to prepare next sample during previous run (sequence will lock one row ahead). For correct operation in the *Sequence Mode* there have to be set corresponding parameters (Enable Sample Overlap) in the *ICF GC Method Setup* dialog (GC tab, section ALS, item Tray/Other).
- Note: The Turn OFF GC on closing instrument and Turn OFF GC on Shutdown checkboxes govern the behavior of the GC while the Instrument window is closed and when Shutdown event is invoked (by user, by error or as a reaction from Event Table). When the function is not checked Clarity Shimadzu Edition will not be able to shut down the Shimadzu GC-2030/GC-2050.

Note: The Custom name... button can be used to alter the name of the module. This change propagates to the module name in the Setup Control Modules ④ and in the Data Inputs & Outputs ⑧ sections of the System Configuration dialog. Default name is used when the field is left empty.

• Select appropriate instrument type (a) and use Auto Configure (b) button to open *Automatic Configuration parameters* dialog.

Automatic configurat	tion parameters	×
AutoConfig		
Communication t IP address	type 192.168.111.236	
Use HS-20		
Serial number:	Shimadzu HS-20 USB Di should be installed.	iver
Use HS-10		
Serial number:	Shimadzu HS-10 USB Di should be installed.	iver
	OK Cance	

Fig. 9: Automatic configuration parameters dialog

- Insert the *IP address* of Shimadzu GC-2030/GC-2050 and confirm. The address can be found or set using instrument's touch panel.
- Then click *OK* button in the lower part of the *GC-2030/GC-2050 Setup* dialog and the instrument will then appear in *System Configuration*, including all modules of the instrument (detector, autosampler etc.).
- After previous steps drag and drop the device icon from the Setup Control Modules list ④ on the left side of the System Configuration dialog to the desired Instrument ⑤ tab on the right side ⑥ (or use the → button ⑦ to do so).
- *Ext. Start Dig. Input* setting ⁽⁸⁾ determines how Clarity handles external start signals from connected instruments:
 - "--" (dash) option Use this if your autosampler and detectors are interconnected by synchronization cables (or built-in together) so that the information about performed injection is passed on without direct input from Clarity Shimadzu Edition. Clarity Shimadzu Edition will initiate recording when it detects that the detector has begun acquiring data. This is the most common setup with Shimadzu GC-2030/GC-2050.
 - "1" option Use this setting if your autosampler and detectors are not directly interconnected by cables. Clarity - Shimadzu Edition will coordinate the measurement by receiving a signal when the autosampler finishes injection and then triggering the detectors to start measuring. This applies mainly if your GC has an autosampler detectors are not built-in, so it is not so common.
- More detailed configuration parameters can be opened by using *Configure* button in *GC-2030/GC-2050 Setup*. In *Configure GC-2030* window double click on specific module. More settings can be set in opened window, specific to the module.

Configure GC-2030	×
Available modules: ■ 3333 Autosampler ◆ AOC-20i+s ◆ AOC-20(H) ● AOC-20(H) ● AOC-20(H) ● AOC-20(H) ● FID1	Modules used for analysis: C→ Analytical Line 1 -Ĵ SPL1 → SPL1 → FD1 → Additional Heater -③: Additional Flow
Help	OK Cancel

Fig. 10: Configure GC-2030 dialog

GC-2030	×
General CRG / Relays Device information U	nit position Helium Purifiers Connection information
# of analytical lines: 1	System On parameters
Gas pressure unit: kPa 🗸	GC System On: Manual
Pressure digits: Default 🗸	Start time: 1,0 min
Save the status monitor	Detector
Sampling period: 1 🗸 s	Clean up
Atmosphere compensation	System Off parameters
LCD BackLight auto off: 300	s Stop time: 10,0 min
PrepRun wait time: 5,0	min Flow off time: 10,0 min
	Sleep
	GC restart: 0,1 min
	OK Cancel Help

Fig. 11: Module configuration dialog

- *Note:* Press the *F1* key to display the original **Shimadzu GC help** with detailed description of the dialog.
- *Note:* The configuration dialog of the Shimadzu GC-2030/GC-2050 subcomponents (detector/s, inlet...) can be displayed any time by double-clicking on its icon.

5 Using the Shimadzu GC-2030/GC-2050

This chapter goes through the setting of the parameters of the **Shimadzu GC-2030/GC-2050** in the **Clarity - Shimadzu Edition**.

Caution: Before opening the *Instrument* window with configured **Shimadzu GC-2030/GC-2050** device, ensure there is not any other PC connected to GC. Otherwise there will be communication error upon opening.

5.1 Method Setup - GC

Method Setup Default1 -	#1; 01.02.2023 10:57:50				– o ×
New Open Save	Save as Report	setup Audit trail	Send method by e-mail	(?) Help	
Select GC	GC-2030	Er	abled		
Line1 SPL1	-J SPL1	Line 1		Stop time:	60,00 min
Column					
FID1 Goven Gov	Temperature: Injection mode: Sampling time: Carrier gas (He) Flow control mode: Pressure: Total flow: Column flow: Linear velocity: Purge flow: Split ratio:	25.0 °C Split ✓ Linear velocity ✓ 63.2 k 50.0 n 2.56 n 40.0 c 3.0 n -1.0	n Pa 1Umin 1Umin m/s 1Umin	 Durge flow prog High pressure Carrier gas sav Splitter hold Splitt ratio progr 	program rnječkon er am
Event Table GC Me	asurement Integration Ca	lculation Advanced			
R OK Cancel				Load Method	Send Method

Fig. 12: Method Setup - GC

Note: Press the *F1* key to display the **Shimadzu GC-2030/GC-2050 help** with detailed description of the dialog.

From **GC tab** ① you can set all parameters for individual subcomponents (detector/s, oven, inlet...) of instrument configuration.

For advanced setting of all other parameters use all tabs ② on the left side of the window in GC tab.

If there is configured any autosampler of AOC-20 family its parameters are about to set on **GC tab** in its respective section.

Method Setup Default1 - #1; 01.02.2023 10:57:50 — 🗆 🗙				
New Open Save	Save as Report setup	Audit trail Send method by e-mail	? Help	
Select GC	GC-2030	Enabled		
Eline1	mm AOC-20i	Line 1	Stop time:	60,00 min
-j SPL1				
Column FID1 Oven General	Injection volume: # of Rinses with presolvent: # of Rinses with solvent (post): # of Rinses with sample: Plunger speed (suction): Viscosity comp. time: Plunger speed (injection): Syringe insertion speed: Injection mode: Normal	1.0 µL (10µL Syringe) 0 1 2 High ○ Middle ○ Low 0.2 s ● High ○ Middle ○ Low ● High ○ Low	Advanced Multi injection count: Pumping time: Injection port dwell time: Terminal air gap: Plunger washing speed: Vashing volume: Syringe suction position: Syringe injection position:	1 5 0.0 s)Yes № High ○ Middle ○ Low)6µL ○ 8µL 0 mm 0 mm
Event Table GC Mea	sourement Integration Calculation	Advanced	Use 3 solvent vials: Overlap settings On Off Type: Post Injection Time: Load Method	0.0 min

Fig. 13: Method Setup - GC - AOC autosampler

Note:Actual parameters read out from GC are used for new method or method
adaptation instead of default parameters.Note:For common analysis it is recommended to relate Oven temperature program via
item Link oven program and acquisition time otherwise duration of the acquisition
is governed by the item Stop time in the detector section.

If *Carrier Gas Saver* item is set *On* in the used method it is consequently required to trigger *Start Prep Run* manually by pushing *Prep Run* button above display of the GC or by some external contact. Any of these will transfer the GC to *Ready* state which is has to be reached prior actual analysis. If some external contact is about to be used the *Start Prep Run* has to be set as *External* in *General* section of the method. Besides that, it is necessary to have correctly set *Relays* in the *"Module configuration dialog"* on page 11 in the System Configuration. Refer to images below.

Method Setup Default1 - #1; 01.02.2023 10:57:50					
New Open Save	e Save as Report se	tup Audit trail Send method by e-mail	/ Pelp		
Select GC	GC-2030	Enabled			
- Line1	-Ĵ SPL1	Line 1	Stop time:	60,00 min	
-J SPL1					
 Column F101 ♥ Oven ♥ General 	Temperature: Injection mode: Sampling time: Carrier gas (He) Flow control mode: Pressure: Total flow: Column flow: Column flow: Linear velocity: Purge flow: Split ratio:	25.0 °C Split ✓ 1.00 min Linear velocity ✓ 63.2 kPa 50.0 mUmin 2.55 mUmin 40.0 cm/s 3.0 mUmin -1.0	 >> Linear velocity program >>> High pressure injection >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	5.0 1.00 min	
Event Table GC Me	asurement Integration Calcu	lation Advanced	Load Method	Send Method	



Method Setup Default1 - #1; 01.02.2023 10:57:50 — 🗆 🗙					
New Open S	Save Save as Report setup.	Audit trail Send method by e-mail	() Help		
Select GC	GC-2030	Enabled			
Line1 Line1 ACC-20i	General Ready check Heater unit Column oven SPL1 SPL1 ElD1	Injection flow SPL1 carrier SPL1 purge	Stop time: 60,00 min ≫ Prerun program ≫ Time program > Auto @ Auto-flame On @ Auto-flame Off		
E General	Detector APC flow	Baseline drift O	Reignite Auto-zero after ready Auto-zero after ready Auto-zero after ready PREP RUN		
	 FID1 makeup FID1 H2 FID1 Air External wait 	FID1	Start Prep Run: O Auto O External		
Event Table GC Measurement Integration Calculation Advanced					
R OK Cance	el		Load Method Send Method		

Fig. 15: Method Setup - GC - External Prep Run

	Service mornation	onic position	Ticilant ta	mora	Connection mormation	
CRG Column oven	Relays	Event	F	Polarity		
System check	Output 1:	Ready	- (Open	\sim	
Ene	Output 2:	Not use	 (Close	~	
OCI / PTV fan	Output 3:	Not use		NO	\checkmark	
	Output 4:	Not use		NO	~	
	Input 1:	Start		Close	\checkmark	
	Input 2:	Not use		Close	~	
	PRG A+	B (Relay 1-16)				
	PRG A+	C (Relay 1-8, 9	(3, 94)			

Fig. 16: Module configuration - CRG Relays

5.2 Device Monitor

The *Device Monitor* window can be opened by the *Device Monitor* command from the *Analysis* menu or using the **Device Monitor** @ icon in the *Instrument* window. You may use @ icon for accessing *Device Monitor* from all **Clarity - Shimadzu Edition** windows. In the Device Monitor window, it is possible to monitor the status of the connected instruments.

lnstrument 1 - Devic	ce Monitor			
File Control View W	Vindow Help	🛆 🌠 🕨 🕨 🗈 🕲 🗉 🧞	B II O	
O ICF				Not Ready (Method has not been sent) 🕓
Not Ready			⊙ ò & .? ∪	(GC0) GC-
SPL1 SPL1	Line 1	Column oven	Image: Weight of the second secon	Collect S
SPL1 Pressure 63,2 kPa SPL1 Total flow 50,0 mL/min	63,2 50,0	23,1 0 23,0	FID1 Temperature 27,8 c 25,0	pport Info
50,0 mL/min	50,0			

Fig. 17: Device Monitor

Press the F1 key to display the Shimadzu GC-2030/GC-2050 help with detailed Note: description of the dialog. Note: Tabs on right side of the Device Monitor allowing setting collection of diagnostic information are displayed only when Clarity - Shimadzu Edition is started under Administrator Windows account Note: The Shutdown command works as expected only if item Turn OFF GC on Shutdown in the "GC-2030/GC-2050 Setup" on page 9 dialog of the System Configuration is checked. If it is checked, and Shutdown is performed, the setting defined in section System Off parameters from the tab General of the "Module configuration dialog" on page 11 dialog will be applied. Some errors cannot be cleared using Device Monitor and have to be cleared via Note: manual commands using display of the GC.

6 Troubleshooting

When the solution for some problem cannot be discovered easily, the recording of communication between **Clarity - Shimadzu Edition** and Shimadzu GC-2030/GC-2050 control module can significantly help the **DataApex** support to discover the cause of the problem. The created *.TXT files will greatly help in diagnosis of unrecognized errors and problems.

The recording can be enabled by adding or amending the LOGGING.INI file in the **Clarity - Shimadzu Edition** installation directory (C:\CLARITYSHIMADZU\CFG by default). The file can be edited in any text editor (e.g. Notepad). Following section should be edited:

[Log] echo = ON filename = log_%D.txt reset = OFF ; Sections List: AuditTrail = ON BadTrace = ON CommandLine = ON Acquisit = ON Acquisit = ON SST = OFF Internet = OFF FractionCollector = OFF

Note: %*D* (or %*d*) in the filename parameter means that the log will be created separately for each day. The *reset* = *OFF* parameter disables deleting the content of the log each time the station is started during the same day.

In case you cannot establish communication with instruments connected through ICF, please review the following issues:

Check the network connection using the Ping command

The problem in communication between **Clarity - Shimadzu Edition** and Shimadzu GC- 2030/GC- 2050 may be caused by wrong network configuration, firewall preventing the connection, etc. Run the command line in Windows (for example by pressing the **Windows key** together with the **R** key, in the displayed *Run* window type *cmd* and press *Enter*).

In the command line type ping <ip-address-of-instrument> and press *Enter*. The *IP Address* is the same you entered during the configuration.

6.1 Problems specific to the Shimadzu GC-2030/GC-2050

Clarity - Shimadzu Edition can't be run and it displays "Agilent ICF is not installed correctly." message.

- Cause: The cause of the problem is that the Agilent ICF has a different version than expected by Clarity - Shimadzu Edition. It can typically happen when other software also using Agilent ICF decides to reinstall it. Thus next time Clarity -Shimadzu Edition expects different version than is installed.
- Solution: Solution is to reinstall Agilent ICF during Clarity Shimadzu Edition installation. Follow steps described in the chapter **"Installation procedure"** on pg. **3**.

Print of *Injection Control* is not functional.

- Cause: Agilent ICF is incompatible with some Clarity Shimadzu Edition printing procedures.
- Solution: Method parameters of autosampler control are printed together with another GC control method parameters using *Instrument Control* item within *Method* section in *Report Setup* dialog.

ICF problems during installation or operation.

Cause: The cause of the problem might be that *Microsoft .NET Framework* is not enabled. Agilent ICF requires *Microsoft .NET Framework* enabled for its function.

Solution: Check if Microsoft .NET Framework is enabled in Turn Windows features on or off dialog. Turn Windows features on or off dialog is accessible in Control Panel window under section Programs in its subsection Programs and Features. The Microsoft .NET Framework related items are disabled by default in some Windows versions.



Fig. 18: Location of Turn Windows features on or off in Windows 10



Fig. 19: Turn Windows features on or off - Windows 10