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DECADE Elite and ROXY driver for Chromeleon CDS

User Manual

176.0108, Edition 9, 2022



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In this guide

This installation guide is designed to help users install the Antec Scientific driver for the DECADE Elite, Lite and ROXY for use with Chromeleon CDS 7.2.x/7.3.x software.

For further information regarding the DECADE Elite, please refer to the User's Guide that was originally shipped with the unit or download the User's Guide using the following link:

https://antecscientific.com

Terms and Abbreviations

Terms and Abbreviations used in this document

Term	Description
ECD	Electrochemical Detection (Detector)
CDS	Chromatography Data System

1. Introduction

This user guide covers the installation and operation of the DECADE Elite control driver for Chromeleon CDS. The driver is developed and available at Antec Scientific.

Version history

Date	version	Chromeleon CDS	OS	description
10/10/2019	2.1.2072	7.2.9	Win 10 Pro	Initial release
08/08/2020	2.1.2074	7.2.10	Win 10 Pro	Update
03/12/2021	2.1.2075	7.3.1	Win 10 Pro	Fix for CM 7.3.1
				compatibility

Software platform prerequisites

Chromeleon CDS 7.2.5 or higher

Supported instruments

DECADE Elite/Lite or ROXY Exceed with FW 1.9.12 (or newer).

Supported OS

Windows 10 Professional 64/32 bits, language English only, regional settings: US English.

Driver licensing

For full functionality, the ECD should have a valid license installed in the device memory. For latest details on license and compatibility contact Antec Scientific or visit: <u>https://antecscientific.com</u>. Part number is 176.0105 - DECADE Elite driver for Thermo Chromeleon CDS. The driver also requires a Chromeleon 7.2 Instrument Controller Option – Instrument class 3.

PC Requirements

Advisable PC configuration has at least an Intel Core i5 processor, with 8 GB RAM and a 250 GB fast Solid State Drive. The PC should have at least 1 LAN port for connecting with the device, and 3 or more USB ports for other peripheral connections. A secondary LAN port is advisable for internet/network connection, this can be a manufacturer supplied USB/LAN adapter. The monitor should have at least 1920 x 1080 resolution and a 23" monitor size.

Unattended Installation Mode

If needed, the software can be installed in unattended mode for network installations. To (un)install the driver create a BAT file and run with administrator rights (right click, 'run as administrator').

In notepad open a new text file and copy the following syntax for unattended install and save as "install.bat". Change the "upath" parameter to the correct path of the setup package files location:

```
set "upath=C:\Users\[profile.name]\Downloads\SetupPackages.7.2.1.2072SR5-signed"
%upath%\setup.exe /s /inst /f1%upath%\setup.iss
pause
```

For unattended uninstall, create a text file and save as "uninstall.bat":

```
set "upath=C:\Users\[profile.name]\Downloads\SetupPackages.7.2.1.2072SR5-signed"
%upath%\setup.exe /s /removeonly /f1%upath%\setup_u.iss
pause
```

The instrument controller must be stopped before uninstalling the driver. If not, the PC would need a restart to remove all remaining locked files after uninstall.

Please note, if needed a PC restart will normally happen automatically without further warning!

<mark></mark> 🖓 📴 =	Manage	SetupPackages.7.2.1.2072SR5-signed – 🗆					\times
File Home Share View	Application Tools						~ ?
\leftarrow \rightarrow \checkmark \uparrow \bullet \checkmark Downloads \Rightarrow	SetupPackages.7.2.1.20	072SR5-signed 🗸 🗸	Ū	🔎 Search Setur	Packages.	7.2.1.207	2S
Name	Date modifie	d Type		Size			
💿 install.bat	4/30/2020 2:4	9 PM Windows Bate	h File	1 KB			
💿 uninstall.bat	4/30/2020 2:5	0 PM Windows Bate	h File	1 KB			
🗎 data1.cab	4/30/2020 9:5	i4 AM Cabinet File		303 KB			
data1.hdr	4/30/2020 9:5	i4 AM HDR File		18 KB			
🗄 data2.cab	4/30/2020 9:5	4 AM Cabinet File		7,001 KB			
🚆 engine32.cab 🖉 uninstall.bat	- Notepad				— C		×
layout.bin File Edit Form	nat View Help						
setup.boot set "upath=C	:\Users\nico.re	inhoud\Downloads\Se	tupPa	ackages.7.2.1.20	072SR5-9	signed	" ^ -
Setup.exe %upath%\setu	p.exe /s /remov	eonly /f1%upath%\se	tup_u	u.iss			
🔊 setup.ini 👘 pause							
setup.inx							
🔊 setup.iss							
🔊 setup_u.iss							
							~
<							>:
13 items 1 item selected 143 bytes						E	==

2. Installation

The DECADE Elite and ROXY device driver for Chromeleon can be downloaded from the internet: <u>https://antecscientific.com/driver-for-Chromeleon</u>. The credentials to login to this web page will be supplied with the license code.

- 1. Log on to the PC with a local Administrator account and privileges.
- 2. Chromeleon has to be fully installed. Close Chromeleon CDS if running.
- 3. De-install previous versions of the driver before attempting an installation.
- 4. Unzip the downloaded file and start the executable setup.exe.
- 5. Follow the installation instructions on the PC screen.

Chromeleon Decade/Roxy Driver - InstallShield Wizard X						
	Welcome to the InstallShield Wizard for Chromeleon Decade/Roxy Driver					
	The InstallShield® Wizard will install Chromeleon Decade/Roxy Driver on your computer. To continue, click Next.					
	< <u>B</u> ack <u>Next</u> > Cancel					

Installation Qualification

The installation can be verified by running the Installation Qualification Report tool **CmAnteclQ.exe** in directory: C:\Program Files (x86)\Thermo\Chromeleon\bin\DDK\V1\Drivers\Antec\ECD\. The resulting report is in [userprofile]\AppData\Local\Antec\Chromeleon\IQ.html and opens automatically in a browser window.

Connect the ECD to the PC

Follow the instructions from the ECD user manual to connect the instrument to the PC. The device can be connected through LAN and USB.

Demo mode

When no device is connected it is possible to install the driver in demo mode.

3. Device Configuration

The ECD configuration is accessed by the 'Instrument Configuration Manager'. This program is in 'Thermo Chromeleon' in Windows start menu. It is used to create and configure the ECD device configuration.

Add module

The Antec Scientific Electrochemical Detector and Reactor can be added to an Instrument in the Instrument Configuration Manager. Open the Instrument Configuration Manager located in "Thermo Chromeleon" in Windows start menu.

- 1. In the instrument tree in the left pane, select the instrument (or add one in case needed)
- 2. in the top menu select the "add module" button
- 3. in the add module window select "Antec Scientific" in the left Manufacturers pane
- 4. in the right pane, select "DECADE Elite ROXY" and click OK

🎭 Instrument Configuration - Chrome	leon Instrument Configuration Manager	
File Edit View Controller Help		
🛎 🖪 X 🖻 🖻 ? 🖴 😹 :	9 🌮 🏦 🗸 🕂 🗄	
□ ■ MD4	Add module to instrument	× C
🖻 😳 MD4_1	Instrument MD4_1	nr r.
	Manufacturers: Modules:	
	Thermo Scientific Decade Elite - ROXY	
	IC: Dionex ICS-5000 Systems	iti ai
	IC: Dionex ICS-6000 Systems IC: Dionex Integrated Systems	
	IC: Dionex Modules	r.
	HPLC: Dionex Unimate 3000 HPLC: Vanquish	41
	HPLC: Dionex Summit Systems	
	HPLC: Modules	ti
	ESA Modules	
	Process	28
	Extraction Modules Mass Spectrometry	
	Generic	r. (
	ABI	
	Agilent	
	Berthold	7

5. After adding the module, the configuration wizard window will appear.

Communication

After adding the ECD module to the Instrument the configuration wizard starts. In the first page the device type and communication parameters are set.

Demo mode

When no device is connected it is possible to install the driver in demo mode. Check the 'demo mode' box and enter a serial number '123456'. Click 'Next' and skip the communication settings in the following paragraph. Accept default settings in the following pages until the wizard is finished.

Communication settings

- 1. In the communication box select the 'interface' type LAN or USB.
- 2. LAN: click the "..." button which will search the network for available device
- 3. if found, select the device from available devices
- 4. USB: select the correct virtual COM port from the drop down
- 5. Fill in the serial number and device name
- 6. Select the correct "Instrument Type", when the wrong type is selected the device will disconnect!

Antec Decade Elite	Detector	_					
Device Name Serial No: Instrument Ty	: Decade	ΓE					
Communicati Interface:	Demo Mod	e ~					
IP Address: IP Port:	10001	Browse					×
<8	ack Next >	IP Address 192.168.0.113 192.168.0.218	Device DECADE DECADE	Serial No. 17610241 17530008	FW Version n/a n/a	Add. Info 00 80 A3 C9 00 80 A3 B5	Close Refresh
		< 7 device(s) found				>	Select

The ECD device communicates with a PC using USB or LAN. Switch on and connect the device to the PC, select the connection that is used, and set the port or IP address. For details see ECD device user manual (chapter "Installation").

USB: in case the device is connected via USB select the correct PC virtual serial port that is used. The device must be on and connected to the PC with the USB cable. The pull down menu shows the available COM ports. The virtual COM port of the device is usually visible in the list as soon as the device is on and connected. If not visible, a restart of the PC is required.

LAN : in case the device is connected via LAN enter the IP address of the device, or select the device from the 'browse' window. Default IP address is 192.168.5.1. LAN adapter of the PC must be in the

same IP range (i.e. 192.168.5.10). For direct connection a special cross-over UTP cable is needed, for connection via a switch a regular network cable.

LAN - Find device: Click '...' - button to find devices on the network. The MAC address, serial number and the IP address are listed (if available). Only devices connected to the same LAN network with the same IP range are found.

LAN - IP Port : port number for LAN communication, is normally set to 10001.

Click 'Next' to go to the next page in the configuration wizard.

Options

In Options, the analogue output, checksum or external valve is selected.

- 1. Set the analogue output to DAC. This option refers to the analogue output at the rear panel. Only in special cases the setting "I/E" is relevant (expert only).
- 2. Only if connected check 'Valve Connected'
- 3. Use checksum is normally unchecked, only in case really needed switch on this option.

Options		-		Х
Analogue Output:	DAC	~		
< Back	Next >	Cancel	Help	

Signals

The active channels are selected in Signals, also the signal name and units can be changed.

Signals		—		×
Name	Units	Factor		
Decade_Cell1	nA	1.000		
Decade_Cell2	nA	1.000		
Decade_ICell1	nA	1.000		
Decade_ICell2	nA	1.000		
Decade_Temperature	°C	1.000		
Deactivate check boxes to remove Hit F2 to edit selection.	unused ch	annels from	Online.	
< Back Next >		Cancel	Hel	p

Decade_Cell1 and 2 are the data acquisition channels. Always have the first channel selected, but only select the second channel when available on the ECD and when used. If a channel is selected that is not available in the ECD, an error will occur.

Decade_ICell1 and 2 are auxiliary channels, informative but <u>not</u> for data acquisition. The I-Cell is the uncompensated current, not affected by autozero or offset.

Decade_Temperature is an auxiliary channel for monitoring the temperature in the ECD during the run. Select only when needed.

Signal configuration

Double-click on the signal to change the **signal name** or **units**. The devide **factor** is applied to the signal which is in nA when collected from the ECD. When for example μ A is selected, a signal of 2500 nA is devided by factor 1000 and a signal of 2.5 μ A is displayed.

Invert the signal only in case of reductive measurements, where negative peak currents are expected.

Signals		_		×		
Name	Units	Factor				
Decade_Cell1	nA nA	1.000 1.000				
Decade_ICell1	Signal Con	figuration				×
Decade_Temperature	Signal Na U	me: Deca	de_Cell1		~	
Deactivate check boxes to remo Hit F2 to edit selection.	Fa Descriptio Assign a	n unique symb	polic nan	ne to the	Invert signal.	
		ОК		Can	cel	

Digital Outputs

The I/O ports on the rear panel of the ECD can be used for control of external devices. As such ports are not often used, they must be selected to make them available in the method. Double click on a port or press F2 to change the name.

Digital Outputs		-		\times
Decade_Aux_1 Decade_Aux_2 Decade_Aux_3 Decade_Aux_4 Decade_Relay_1 Decade_Relay_2				
Deactivate check boxes t Hit F2 to edit selection.	o remove unus Next >	ed outputs from	Online. Hel	p

The I/O ports are triggered during a chromatographic run from the time table in a method. Typically when activating a port, the **status must be reset** after 1 or 2 seconds to be able to activate it again in the next run. For example, use **Relay 1 or 2** to start a syringe pump or **AUX1..4** (TTL ports) to start collecting a mass spectrum or to trigger any other device.

	lnstrument Method Wizard - Decade: Cell 1 Settings								
С	Cell 1 Settings for Decade.								
М	ain	0	utput Time Ta	ble					
			Time [min]	Parameter		Value			
	1 0.5 Sensor output aux 1 • On •					•			
		2	0.6	Sensor output aux 1	•	Off	-		
	•*	3			•				

Pin connections from the ECD rear panel I/O connector:

- Relay 1: default 1_3..2; activated 1..3_2
- Relay 2: default 4_6..5; activated 4..6_5
- AUX1..4: pin 7..10

Digital Input

The **Input port** on the rear panel of the ECD can be used to start data acquisition in case no autosampler is being used. The Start Input - **pin 16** - of the Elite is used as start trigger. After start of a run this input port is being queried every 0.2 s until it is activated and acquisition starts.

Digital Inputs	-		×
Decade_Input_1			
Deactivate check boxes to remove unused in	nputs from O	nline.	_
Hit F2 to edit selection.	,		
C Back Finish	Cancel	Heln	
C Dack Philish	Cancel	neit	

The start of the chromatographic run must be linked to the input trigger to make this work. In the method the 'Inject Preparation' parameter 'Wait' must be set to 'Decade.Input=On'.

n .	. .		New Instrum	ent Method (Instrument	Method) - Chro	meleon Chromat	ography Studio		- 0
Н	ome								G
Paste Cut	MD4_1 Check Method Open Instrum	▼ J ent	Command Time	Normal Stage → Conditional → E Comment	∄ Delete	New Com Image: the second	mand Rows II Stages All Stages	A Previous 🛝 Next	UHPLC Speed-Up
Clipboard	Instrument		Ins	sert	Row	Vie	W	Find	Method Transfer
Instrument Me	ethod «	10	Time	Decaue.Decaue Co	Command	SCEUIGILY	FUSILIVE	Value	Comment
Instrument Method " Overview 19 Decade 21 System 23 Script Editor 24 * 25		10 19 20 21 22 * 23 24 * 25 26	▲ 0.000▲ 0.000	Decade.Decade_Ce Decade.Decade_Ce Decade.Decade_Ce Decade.Decade_Ce Click here to appen Inject Preparation Wait Click here to appen Start Run Decade Decade_Ce	III.Output_pd III.Output_pd III.Output_pd III.Output_DC III.Output_Co Id a new commi Id a new commi	Polarity Polarity SeRange Range mpensation and	Positive Positive 1.00000 [uA] 0.01000 [uA] On Decade.Input= Condition Run	-On Vervices	0 •]
		20 27 28 * 29 * * 30 31	 J.000 New Time Step J.000 	Decade_ICell1.Acq Decade_ICell1.Acq Decade_Temperatu Click here to appen Run Click here to appen Stop Run Decade_Decade_Ce	d a new comma d a new comma	and	Condition	Decade Decade_Celi Decade O Connected O Decade_Reli DriverID B DriverManufi B DriverVersia O Input	11 ay_1 acturer n
		32 33 * 34	End	Decade_ICell1.Acq Decade_Temperatu Click here to appen	Off ire.AcqOff id a new comma	and	The condition execution. Yo expressions li	h, W Instrumentlni ke W Oven M Ready	fo vel

4. Instrument Method Setup

The Method menu in the CDS is accessible from the Chromeleon Console menu 'Create/Instrument method'. The Instrument Method Wizard appears and relevant parameters can be set. The wizard has 3 pages for parameters.

📾 Instrument Method Wizard - System: General Settings	×
General Settings for System.	×
Bun Time Please specify the run time of the method: (20.000) (3) [0.100100000.000 min]	
Diagnostic Qhannels Select diagnostic channels to be used: No Channel 1 Decade_ICell1 2 Decade_ICell2 3 Decade_Temperature	
< <u>B</u> ack <u>N</u> ext >	Cancel Help

- General settings : run time, and channel selection for acquisition.
- Detector settings : temperature, tolerance and equilibration time. Upper and lower limits.
- **Cell settings** : with the cell specific parameters in the sections:
 - 1. Main: ECD parameters related to device status
 - 2. Output: ECD output parameters related to data acquisition
 - 3. Time Table: parameters that change during analysis time

Detector Settings

The temperature of the device oven, tolerance and equilibration time is set in temperature control.

lnstrument Method	Wizard - Decade: Detector Settings				×
Detector Settings for Deca	de.				
Channel <u>s</u> tart settings:					
No Channel 1 Decade_Cel 2 Decade_Cel	11				
Temperature Control	ontrol on 🚯	Temperature Sal	fety Limits		
Temperature:	Off () [Off60 °C]	Lower Limit:	15 (1361 °C)		
T <u>o</u> lerance:	1.0 ∨ 🖓 [None10.0 °C]	<u>U</u> pper Limit:	60 🔇 [1361 °C]		
Eguilibration Time:	0.0 🔅 [0.010.0 min]				
		< <u>B</u> ack	<u>N</u> ext >	Cancel Hel	p

- **Temperature**: set the temperature of the oven compartment (with flow cell).
- **Tolerance**: the acceptable temperature tolerance for the system to switch to 'ready' status.
- **Equilibration time**: set the time for the system to wait after reaching the set temperature before status changes to 'ready'.
- Temperature safety limits: set the min/max temperature safety limits.

Main

Cell on: switches on or off the flow cell. When unchecked (off), the ECD is 'not ready' for analysis.

Mode : set the ECD detection mode to

- <u>DC</u>: constant potential measurement
- <u>Pulse</u>: measurement with multiple potential steps
- <u>Pulse (type 2)</u>: measurement mode applies interpolated potential coordinates

Each mode has different 'Sensor' parameters.

Instrument Method Wizard - Decade: Cell 1 Settings
Cell 1 Settings for Decade.
Main Output Time Table
Cell On 🚯 Mode: DC 🗸
Sensor
Rate: 10 V [1100 Hz] E Cell: 0.10 [2.502.50 V]

DC

DC is a measurement mode with constant potential applied.

Rate: data acquisition rate in data points per second. Parameter is dependent on the filter setting, except when filter is set to 'raw'. In that case the data rate is selectable between 1 and 100 Hz.

E Cell: working potential for the ECD cell.

lnstrument Method Wizard - Decade: Cell 1 Settings	
Cell 1 Settings for Decade.	
Main Output Time Table	
Cell On 🚯 Mode: DC 🗸	
Sensor	
Rate: 10 V (1100 Hz] E Cell: 0.10 (2.	502.50 V]

Pulse

Pulse is a measurement mode with multiple potential steps applied.

Rate: data acquisition rate in points per second, equal to 1 / [total pulse duration]. In Pulse mode the filter setting has no effect on the rate.

- **E1 E5**: potential steps of the working electrode.
- t1 t5: duration of each potential step.

ts: duration of sampling time at the end of the first potential step.

📑 Instrum	ent Method Wiza	ard - Decade: Cell	2 Settings		×
Cell 2 Setting	gs for Decade.				
Main Outp	put Time Table				
Cell Or	n 🚯 Mode:	Pulse	~ 4	Extended Pulse Mode 🤹	
Sensor					
Rate:	1/pulse duration	· ~		11!400!100!20!-2000!10!600!70!-100!0!0!100!	
E1:	0.10	[-2.502.50 V]	t1:	0.40 [0.102.00 s]	
E2:	-2.00	[-2.502.50 V]	t2:	0.02 [0.002.00 s]	
E3:	0.60	[-2.502.50 V]	t3:	0.01 [0.002.00 s]	
E4:	-0.10	[-2.502.50 V]	t4:	[0.07 [0.002.00 s]	
E5:	0.00	[-2.502.50 V]	t5:	0.00 [0.002.00 s]	
			ts:	100 [20340 ms]	
				< Back Next > Cancel	Help

Note: The sampling time **ts** is entered in [ms] and that the maximum value is related to the t1 value. The maximum **ts = t1 - 60 [ms]**

Pulse type 2

Pulse type 2 (Extended Pulse Mode) is a measurement mode which applies a potential coordinates table. The applied potential fluently interpolates between coordinates.

📑 Instrume	nt Metho	od Wizard - Deo	ade: Cell 2 Setti	ngs							×
Cell 2 Settings	for Deca	de.									
Main Outpu	t Time	Table									
	• •	n i Dula		D.		istanded Dulae I	lada (i)				
Cell On	9 I	Node: Pulse	× ·	3		xtended Fuise i	node 🖓				
Sensor											
Rate:	1/pulse of	duration \checkmark		12!()#-200!	40#-200!50#0!2	210#0#S!22	0#220!460#	220!470#0	!560#0#E!!	570#-2000 🔇
				-							
	Time t[s]	Potential EIVI	Integration A Begin / End								A CONTRACTOR
▶ 1	0.00	-0.20			-					٦ 🗌	
2	0.04	-0.20			0-		- /			·	
3	0.05	0.00		Ιs	- 3						
4	0.21	0.00		hia	-						
5	0.22	0.22		Pote	-1-						
6	0.46	0.22									
7	0.47	0.00									
8	0.56	0.00									
9	0.57	-2.00			-2 -						-Щ.
10	0.58	-2.00			(0 0.1	0.2	0.3	0.4	0.5	0.6
11	0.59	0.60						l ime [s]			
Open Pr	ofile	Save Profile	New Profile								
				_							
						< Back	Next	>	Can	cel	Help

Rate: data acquisition rate in points per second, equal to 1 / [total duration]. In Pulse type 2 mode the filter setting has no effect on the rate.

t and **E**: enter the potential coordinates in s and V. Minimum step is 0.01 (s or V). Always start with time t = 0 [s]. Each time can only occur once. Maximum table length is 30 rows.

Integration: begin and end of interval of data sampling. Always include <u>two</u> checkboxes one to begin and one to end the integration interval.

Open, save, new profile: to read/write pulse tables from/to file, or start new.

Graph: next to the table a graph shows the wave form. In red the sampling interval is shown.

The data rate (defined by 1/pulse duration) and the pulse syntax are informative fields.

Output

In the output tab the compensation, range, offset, filter and polarity are set.

📳 Instr	ument Meth	nod Wizard - Decade: Cell 2 Se	ttings		
Cell 2 Set	ttings for Dec	ade.			
Main	Output Time	e Table			
□ C o	mpensation (Dn 🤄			
	Range:	1 [µA] ~ 🔾	[10 nA200 µA]	Polarity:	Positive V
	Offset:	Q ~ Q	[%]		
	Filter:	0.500 🗸 🏹	[Hz]		

Compensation On: enable or undo autozero compensation

Range: sensitivity setting of the measurement. Typically, the range is set to a value of 3 to 10 times the expected highest peak of relevance. This is particularly relevant for high sensitivity measurements. Range of 5 nA and below is for high sensitivity and small signals (available in DC mode only). Range of 10 nA and higher is for large peaks and high background signal.

Offset: applies an offset level to the measurement signal. For example, a full scale range setting of 20 nA and an offset of -10% sets the baseline after autozero to -2 nA instead of the usual 0 nA. Offset does <u>not</u> affect the uncompensated current, only the data for data acquisition.

Filter: applies an advanced digital filter to the acquisition data. The smaller the value, the stronger the filter setting. Only in DC mode, the filter also affects the data rate.

Polarity : reverses the data polarity, peaks that are negative become positive peaks (and visa versa). Polarity does <u>not</u> affect the uncompensated current, only the data for data acquisition.

Time Table

Programmable parameters in the Time Table are: range, filter, offset, Ecell (DC only), autozero, and the TTL outputs 1 - 4, and the relays 1 and 2. The TTL outputs and relay require the IO cable connections for proper function. To be effective in the next analysis the TTL and relay must be set back to default after being activated.

	0	utput	Time T	able			
		Time	[min]	Parameter		Value	
►	1	0.05		Sensor autozero	-	On	-
	2			Valve position Sensor range Sensor filter Sensor autozero Sensor E Cell Sensor output aux 1 Sensor output aux 2 Sensor output aux 3 Sensor output aux 4 Sensor output relay 1 Sensor output relay 2			

Time Table : holds the programmable parameters that are executed during run time of the analysis.

If a parameter is not available (exception), there will be an error message when trying to save the method, not during editing.

Exceptions

- 1. Sensor E-cell can only be used in DC mode.
- 2. Filter can only be used in Pulse mode (incl type 2).
- 3. Valve position can only be used if a valve is present.
- 4. Sensor outputs can only be used if part of the configuration

5. Instrument Status

The status menu in the CDS is accessible via the Chromeleon Console ePanels. An ePanel can be loaded, or created by the user. A default ePanel is available that holds the F8-table. This F8 table appears when clicking the F8 button and shows all devices and parameters in the configuration.

🕘 Chromeleon Console			
🕑 Back 🐑 Create File	Edit View Tools H	elp	
Instruments	« 🕴 🗘 Launch eWorkf	flow 👻 💮 👻 🚳 Release Control	🔊 👻 🚔 Consumables 👻 🔚 < Last Used>
Filter	ECD Def	Add ePanels	
Stop local Instrument Controller.	Sequence:	Remove ePanel Edit ePanel	Injection:
MD4_1	Decad	Detach ePanel Manage ePanels	Properties Commands Property
	⊡	Move Left Ctrl+Left Move Right Ctrl+Right	Connected Decade_Relay_1 Input
	Cus NextInj Cus NextInj Cus PrevInj Cus Cus	stomVariables ection stomVariables ection stomVariables	InstrumentInfo.BootVersion InstrumentInfo.CDSLicenseInfo InstrumentInfo.Checksum InstrumentInfo.ControlBoardSerialNumber InstrumentInfo.DetectorType InstrumentInfo.Detec

F8 table

A default ePanel is available that holds the F8-table. This F8 table appears when clicking the F8 button and shows all devices and parameters in the configuration.

	J 200	400 600 800	1000 120	U 14-
eWorkflows	-1000			min
Data	-750			
Data				
Instruments	-500			
	-250			
	0			
	1			
	250-			
	500-			
	750 nA			— Decade_ICell1
A	1000] nA			- Decade Cell1
	CustomVariables	InstrumentInfo.SerialNo	"17530004"	
	E E Sequence	InstrumentInfo.MACAddress	"18-60-24-DD-A2-C1" "16212"	
	CustomVariables	InstrumentInfo.IPAddress	"192.168.0.4"	
	Prev Standard	InstrumentInfo.FirmwareVersion	"1.09.12"	
	Previnjection CustomVariables	 Instrumentinfo.DetectorType 	"DECADE ELITE"	
	Custom Variables	InstrumentInto.Checksum	"14003"	
	NextInjection	InstrumentInfo.CDSLicenseInfo	"OpenLAB, Chromeleon"	
	Custom Variables	InstrumentInfo.BootVersion	" 0.08"	
	injection	Input	Off	
	System	Decade Relay 1	Off	•
	Decade_ICell1	Connected	Connected	
	Decade_Cell1	Property	Value	
	Decade	Properties Commands		
al Instrument Controller.	Sequence:	Injection:		Method
al Instrument Controller is running				
🔶 Filter Y	ECD Default Audit Queue			
iments «	C Launch eWorkflow -	e Control 🔄 👻 🔄 Consumables 👻 🛅 <last used=""></last>	- 🛶 tật 🕲 🖉 -	
	view loois neip			
Freste File Frit	L VIEW L LOOIS HEID			

ePanel

The ECD ePanel is supplied by Antec Scientific and holds the relevant ECD parameters, the chromatogram, and the audit trail.

Chromeleon Console						
🕲 Back 🕲 Create Eile Edit View Jools Help 😡						
Instruments «	🕴 🗘 Launch eWorkflow 👻 🧼 🍇 Release Co	ontrol 🔄 🕶 🚍 Consumables 👻 🛅 < Autogenerated> 👻 🗔	载 😳 🖉 -			
통 🥥 🚖 🛛 Filter 🌱	Home EC1 Audt Queue					
The local Instrument Controller is running idle.						
Stop local Instrument Controller.	Sequence:	Injection:	Method:			
MD4	EC1	Cell 1	Cell 2			
🔜 MD4_1 🖕	Connected	🔽 On Mode: DC 🗸	🔽 On Mode: DC 🗸			
	Temp.: 23.3 ['C] Set to: 23 ['C] ≑	I cell: 503 [nA] Azero comp: Off	I cell: 2.030 [nA] Azero comp: Off			
	Monitor baseline: Start Stop	E: 0.50 [V] S Offset: 0 [%] V R: 0.10000 [uA] V ADF: 0.500 [Hz] V Rate: 10 [H	E: 0.50 [V] Offset: 0 [%] V Hz] R: 0.05000 [uA] ADF: 0.500 [Hz] Rate: 10 [Hz]			
	10893 10000 nA		Decade_Cell1 Decade_Cell2			
	8750					
	7500-					
	6250					
	\$5000					
	3750					
	2500-					
	1250					
	0-		min			
	-571) 3.0 4.0 5.0	6.0 7.0 8.0 9.0 10.0			
	Copy Report V Filtering Normal	▼ All Find Next All Find Previous				
Instruments	Date Time +	Time Device EC1 EC1.0ven.Nominal = 23 °C	Message			
Data	2 1 4/15/2020 9:54:50 PM +02:00	EC1 Connection established successfully.				
	3 1 4/15/2020 9:54:47 PM +02:00	EC1 Trying to connect				
eworktiows	4 15/2020 9:54:47 PM +02:00 5 1 4/15/2020 9:54:47 PM +02:00	ECI I his driver does not have a valid final certifi Initializing driver DECADE Elite - ROXY.	ication.			
			nico.reinhou			

Status LED

The status LED at the bottom in the Home panel changes to yellow when connected. It changes to green when Temperature is within tolerance (if oven is on) and at least 1 cell is on. There are no other colors used, no error state indicator for example.

🗄 🕐 Launch eWorkflow 👻 💮 🖉 🧟 Release Control 🛽 💆	🗸 🔤 Co
Home EC1 Audit Queue	Home EC1 Audit Queue
MD4_1	ion: MD4_1 Injection:
antec\nico.reinhoud Sequ	ence: antec\nico.reinhoud Sequence:
Antec EC1 Cell 2 Off Cell 2 Off Image: Constant in the second	Antec EC1 Cell 1 On Cell 2 Off Ic: 502.800 [nA] Ic: 0.000 [nA] Data: 0.000000 [nA] Data: 0.000000 [nA] Data: 0.000000 [nA] Azero Azero I['C] Connected

6. Miscellaneous

Method compatibility

Only methods with identical configuration (same device type Elite/Lite, and same number of cells) are inter-exchangeable. Methods created on different configurations may lead to unexpected results, the advise is to create a new method.

Backward compatibility with version 2072

No issues are known. Data files, sequence and methods are backward compatible.

Online help

To access Online Help, press the F1 key while the user interface is open within the Chromeleon CDS.

Uninstall the driver

The Antec 'Chromeleon Decade/Roxy Driver' can be uninstalled from Microsoft control panel. You must be logged in with local administrator rights.

- 1 Open Microsoft Control Panel, and go to Programs and Features.
- 2 Select the 'Chromeleon Decade/Roxy Driver' from the list.
- 3 Select Uninstall and follow the wizard instructions.

Trouble shooting

In case the instrument cannot be configured or opened online, verify the following:

- 1 Double-check the communication settings as documented in this guide.
- 2 Double-check that all components are connected and turned on.
- 3 Check that the driver is correctly installed and reports the correct version.
- 4 Check the system configuration in terms of the maximum number of instruments allowed.
- 5 Run the Software Verification Tool.
- 6 Ensure that the firmware revision is correct for the specified instrument.

Known issues

The following issues are know and work arounds are advised.

	Description	Workaround			
1.	Unattended un-installation while instrument controller is running does not always fully remove all driver files, a few locked files may remain on the PC.	The Instrument Controller Service (in Chromeleon Services manager) must be stopped before uninstalling the driver in 'unattended' mode.			
2.	When creating a new method and setting the DC filter to RAW, the data rate automatically switched to 100 Hz. This data rate is on another tab and may stay unnoticed.	After setting the DC filter to RAW in 'Output' tab, always check the DC rate in the 'Main' tab			
3.	When creating a new method for pulse mode 2, the "New Profile" button does not clear the current Pulse2 waveform.	This is intended behavior, the pulse 2 settings are retrieved from the device. Delete or change the pulse table manually.			
4.	In configuration manager, the ROXY Exceed is shown as a DECADE in the LAN browse window, when connected through LAN.	The serial number is displayed as well, which allows for unambiguously selection of device.			
The next 2 issues refer to manually changing system parameters through the F8 table (click F8 or settings wheel in Chromeleon console toolbar).					
	Home ECD Audit Queue	Command (F8)			
Note: Never change parameters during an HPLC run or when running a sequence, only when Chromeleon is standby.					
5	In the F8 table, 'PAD1_Settings' and 'PAD2_Settings' parameters can be changed but changes are not applied.	In pulse mode 1 and 2, the potential/time settings are only editable by creating a method and starting a run.			

6.	In the F8 table 'DataRate_DC' changes are not accepted.	This is normal behavior as data rate DC is fixed to the filter setting ('Output_DCFilterCutoff'). Only after changing DC filter to RAW the data rate can be changed.

Support

Contact support@antecscientific.com for support on this device driver.