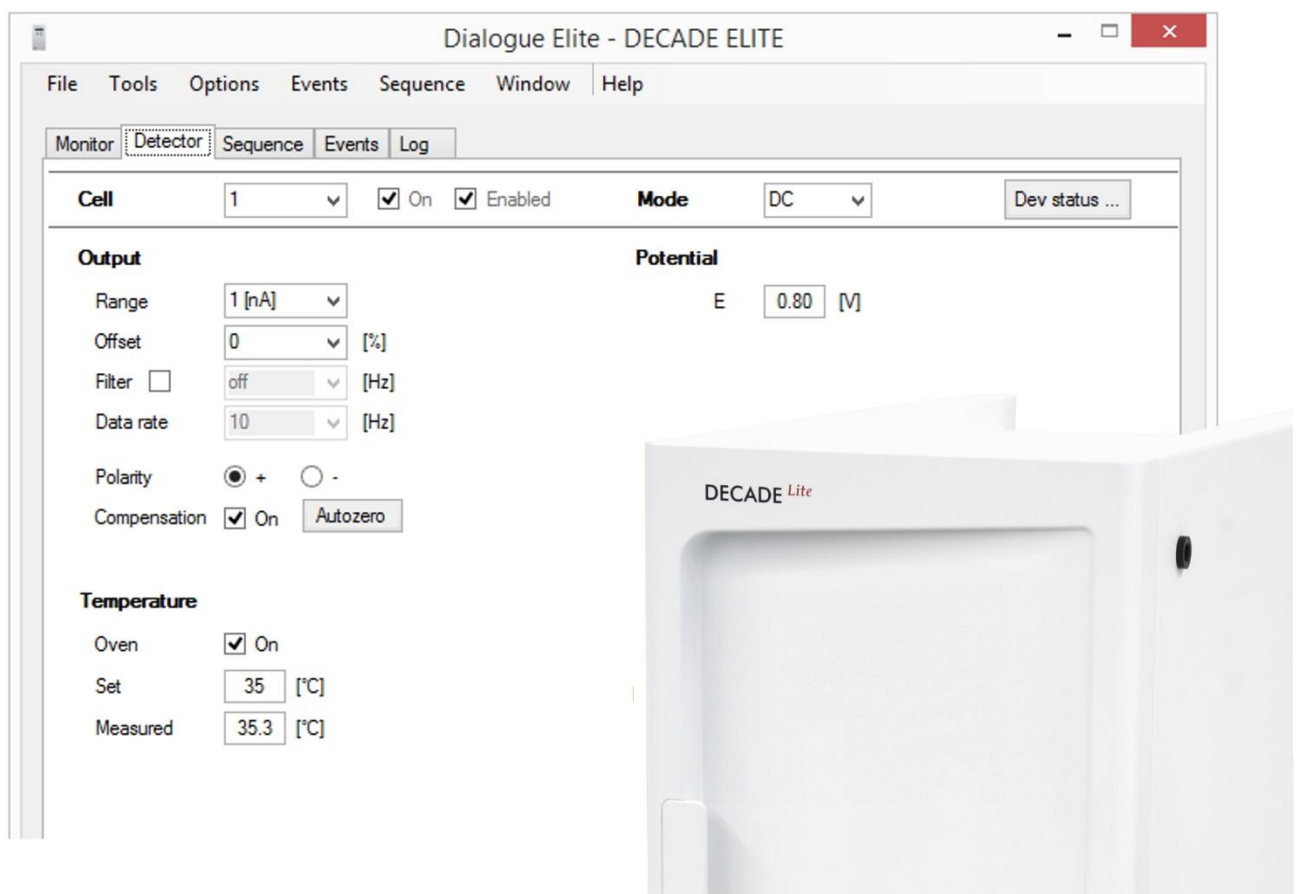


# Dialogue Elite

## User Manual

175.0015, Edition 5, 2022



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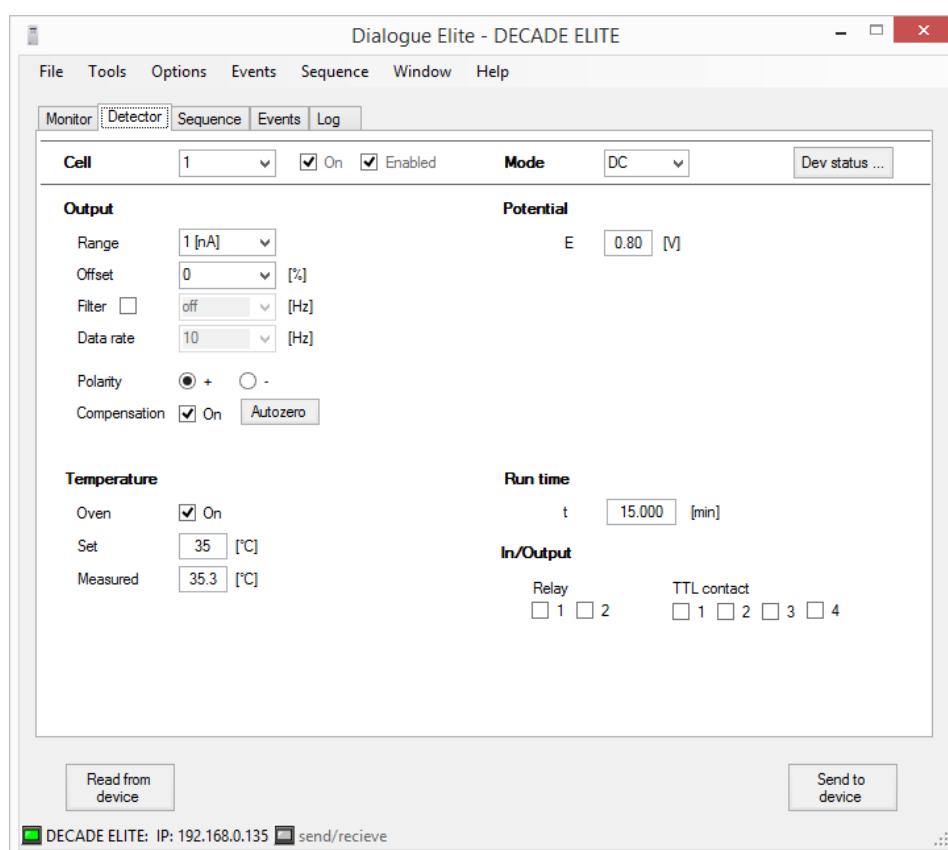


## CHAPTER 1

# Introduction

## Dialogue software

Dialogue Elite for Windows is a multi-functional program to control the DECADE Elite, DECADE II electrochemical detector and the ROXY potentiostat.



Dialogue Elite is a tool for:

- controlling all operational parameters incl. syringe pump
- programming timed events in one run or sequence
- scanning voltammetry
- firmware upgrades using the FW upgrade wizard
- OQ, PQ and dummy cell measurements
- device calibration

There are no tools for further data analysis, therefore Dialogue cannot be considered as fully featured chromatography software package. The free demo version of this program has already all functionality implemented, functionality is unlocked by a license dongle.

The **free version** is primarily used for controlling all operational parameters of the detector. The free version cannot be used for starting a run, running a calibration or OQ. The DECADE II SDC and DECADE Lite do not have a keyboard, and are fully controlled by the free Dialogue software.

## System requirements

### Requirements 'demo' mode

1. PC with Windows XP or higher (incl. Vista, 7, 8, 10)
2. English (US, UK) or European local language installed.\*

### Requirements in operational mode

1. Antec potentiostat and PC with Windows XP or higher
2. English (US, UK) or European local language installed\*
3. Factory supplied cables for COM, USB or LAN
4. Free ports for devices and dongle

\*Certain templates in Excel require a decimal point (not comma) in regional settings in Windows.

### PC communication and ports:

1. COM ports for ROXY, DECADE II, and syringe pump\*
2. LAN port for DECADE Elite (for regular use)
3. USB port for DECADE Elite (firmware upgrade only)
4. USB port for license dongle, and syringe pump\*

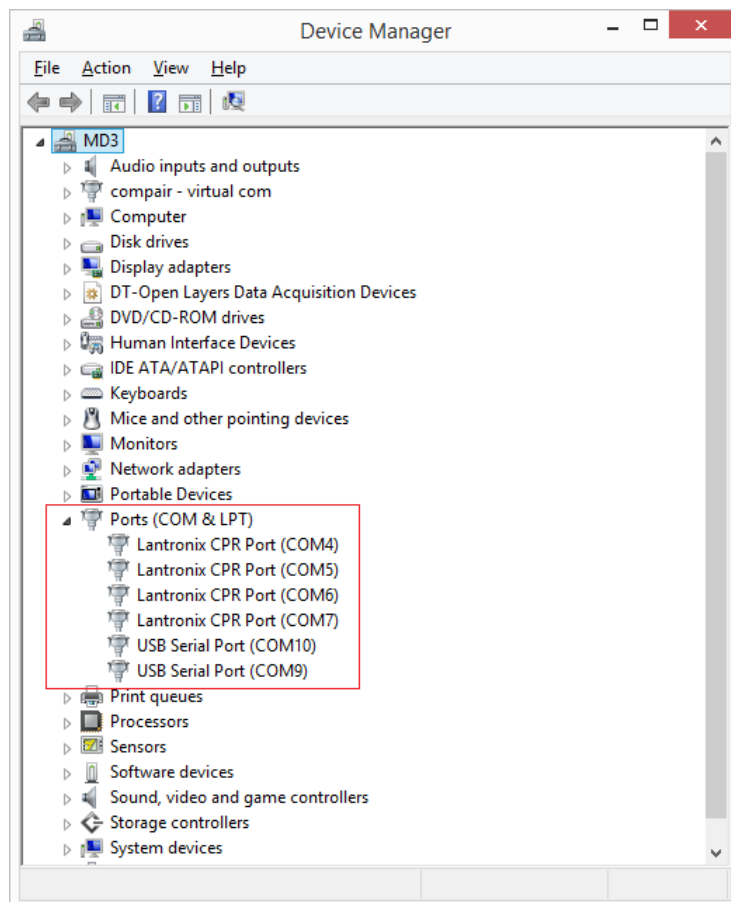
\*if applicable.



*A special "crossover" LAN cable is used only when connecting the DECADE Elite directly to a PC (left).*

## LC 110 and syringe pump

For control of the LC 110 or syringe pump a factory supplied serial cable is required. The LC 110 pump must be set to RS232 (service menu). Syringe pump does not need modification. The Genie Touch or Legato creates a virtual COM port when connected to the PC USB port. Select the correct com port in the configuration window when starting up. In case of doubt open the PC's 'device manager' and check what port is added after connecting the USB device.

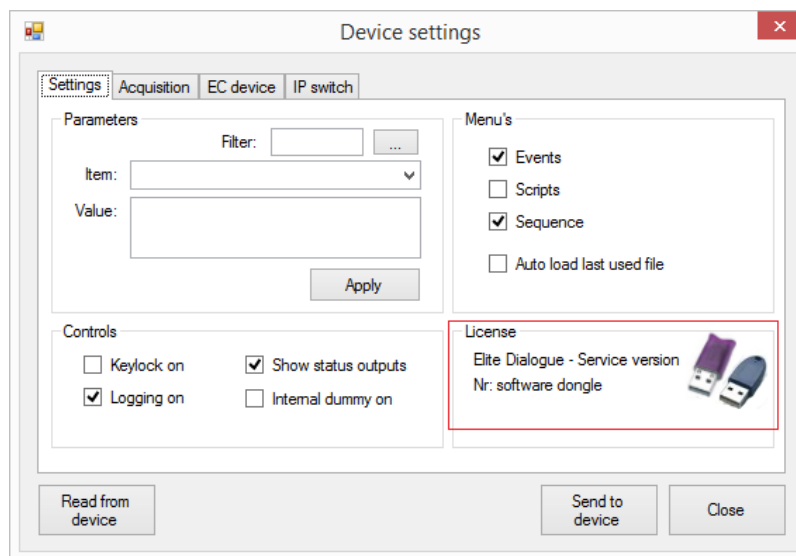




## License

### Description of licensing

Dialogue software comes as one software package containing functionality for all different versions. Depending on the license dongle PQ/OQ functionality will be unlocked. Without license key, a message appears and the program starts with limited functionality (demo mode).



Dialogue Elite has several licenses:

171.9012 Dialogue professional version (for distributors)

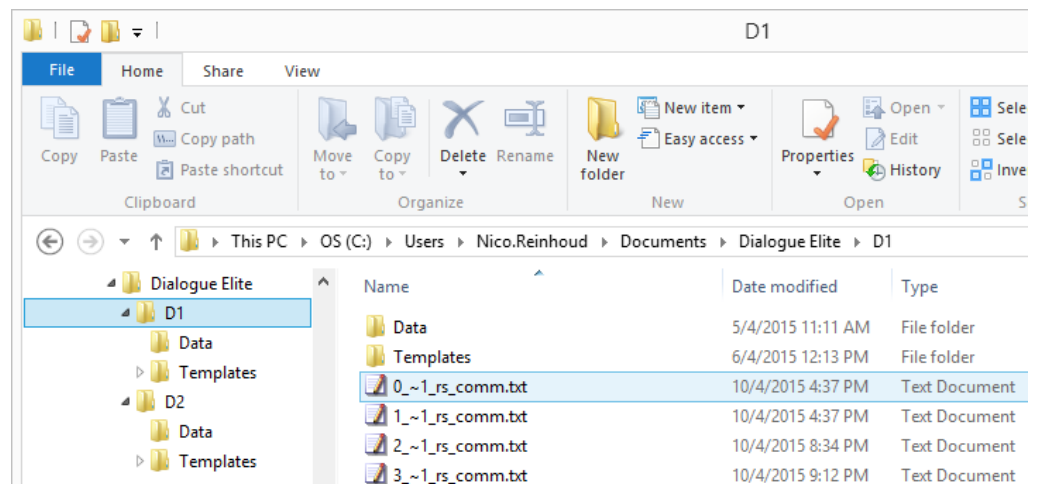
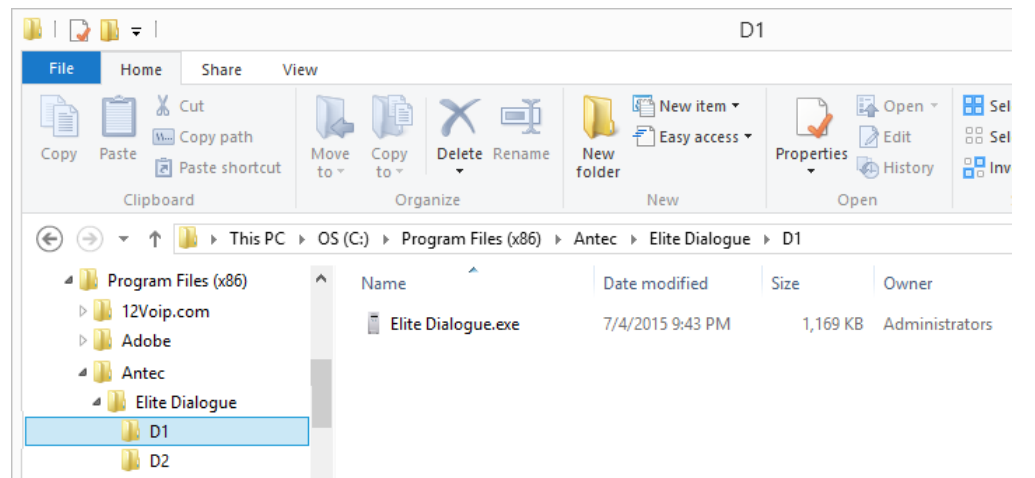
171.9015 Dialogue standard version

171.9017 Dialogue free version

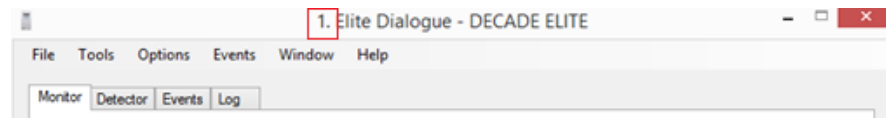
A license key is not device or serial number specific, it can be used on any DECADE, Elite or ROXY. A service engineer needs only one key to be able to service any DECADE device.

## Running multiple instances

It is possible to run multiple instances of the program simultaneously on one computer. Each instance of the program must start from a different directory. The contents of the Dialogue folder in "Documents" and "Program files" must be copied completely to a sub folder D1, D2 .....D9. Include hidden files!



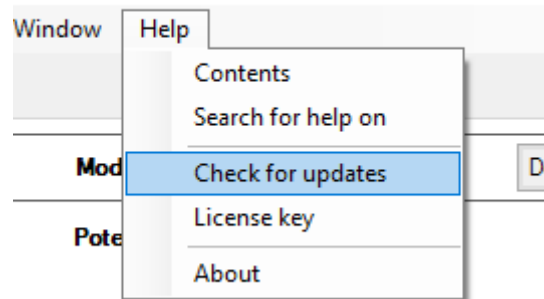
If such an instance is started, the number appears on the top left corner: "n. Dialogue Elite".



## Updates

It is recommended to check for new updates in 'Help/Check for updates'. Not only the program, but also the OQ, CAL and PQ scripts and templates are updated occasionally. New releases of Dialogue are available from Antec's website.

When connected to internet an "update available" message appears when starting Dialogue.





## CHAPTER 2

**Quick start**

## Quick start

Dialogue for Windows is a multi-functional program to control the DECADE Elite, DECADE II or ROXY electrochemical device. It runs simultaneously with Windows-compatible integration software or any other Windows program. There are no tools for data analysis, therefore Dialogue cannot be considered as fully featured chromatography software package.

**Installation**

Install the detector as described in the installation guide in the user manual.

Connect devices with a PC using the supplied cables.

Start Windows and install the Dialogue software.

For proper functioning the devices must be switched on.

**Running Dialogue**

Run the Dialogue software from Windows start menu under 'Antec software'. If a detector is connected it is automatically detected. Otherwise the DEMO mode is activated.

The program starts with the 'device selector', where active devices and ports are selected.

In case of a multi cell configuration, select the channel (cell) in the 'Cell' pull down.

The actual settings of the device are displayed.

Use the 'Send to device' button for changing the settings. 'Read from device' refreshes the window and shows the current settings.

**Data acquisition**

Set the desired device settings in the 'Detector' tab, and click 'Send to device'. In Options/Device settings a few global parameters can be set in the 'Acquisition' tab. This is also where additional channels (such as temperature) can be selected. Acquisition can be started by 'Options/Start analysis', or 'F5'. During data acquisition most other functions are disabled. No tools for data analysis are available.

**Timed Events**

Timed events are programmed from the 'Events' tab in the main window. This allows not only changing operational parameters of the potentiostat, but also automated control of syringe and LC pump, start/stop of a run, set the noise monitor, etc.

**Monitor**

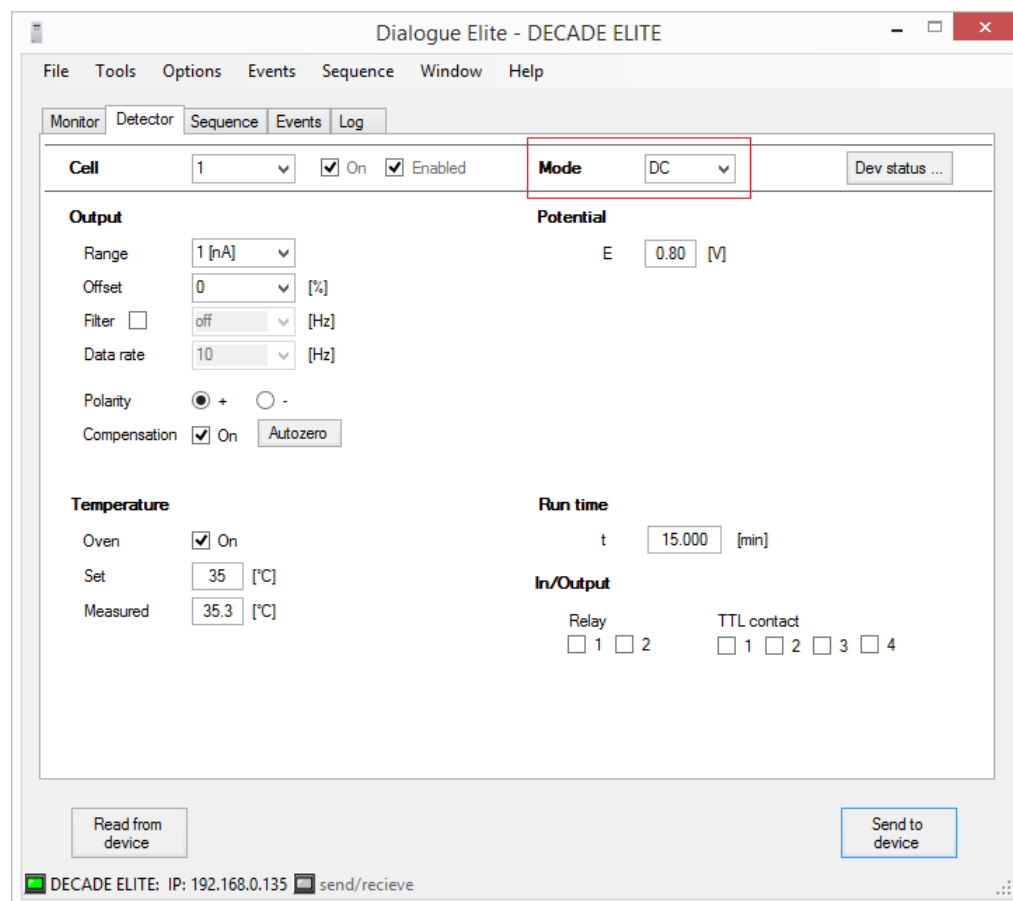
'Monitor' shows the actual status of devices, such as Icell, temperature, analog output value, run time.

## CHAPTER 3

# Detector

## DC mode

In the 'Detector' tab the operational parameters of the DC mode are visible and can be modified. Changing parameters will not have immediate effect, the 'Send to device' button is used to apply changes. 'Read from device' refreshes the window and shows the current device settings. When multiple cells are supported, the 'Cell' selector is used to switch between cells.



## Cell

In case of a multi-cell configuration, the channel (cell) is selected in the 'Cell' pull down. The 'Enabled' check box can be useful to remove a second (third) cell entirely from Dialogue. The system will behave as a single cell configuration. Only the highest channel can be disabled, it is not possible to disable cell 1 and work with cell 2. A cell can be switched off or on using the 'On' checkbox.

Any changes in settings have to be 'Send to device' prior to selecting another cell. Otherwise the changes will be lost.

## Mode

Three measurement modes are available: DC, Pulse and Scan. Except for the DECADE SDC, which is DC mode only.

## Output

- **Range:** is the sensitivity setting of the device. It is expressed as full scale unit. For example, 10 nA range setting means a sensitivity setting of 10 nA/**full scale** (is usually 10 nA/V).
- **Offset:** adds or subtracts a % of the full scale signal. A 10% offset at 10 nA/V will result in a shift of the baseline from 0 to 1 nA. The analog output of the baseline signal goes from 0 to 100 mV.
- **Filter:** results in suppression of noise. The smaller value, the stronger filter is applied. Special settings are raw (Elite only) and off which is a clean (unfiltered) signal with selectable data rate.
- **Data rate :** selectable as frequency of data acquisition (data points per second). In the Elite the data rate is fixed in most cases, except raw.
- **Polarity:** inverts the polarity of the data output. Can be used when reductive peaks are measured (negative peak current).
- **Compensation/Autozero:** compensation to restore the baseline level to zero (or offset level). To undo any compensation uncheck the compensation tick box.

## Temperature

Controls the working compartment temperature. Is operational from 5 degrees above resting temperature (off) up to the max selectable temperature.

1. Oven
2. Set
3. Measured



**Potential**

Controls the working potential E.

**Run time**

Sets the run time t of a chromatogram.

**In/output**

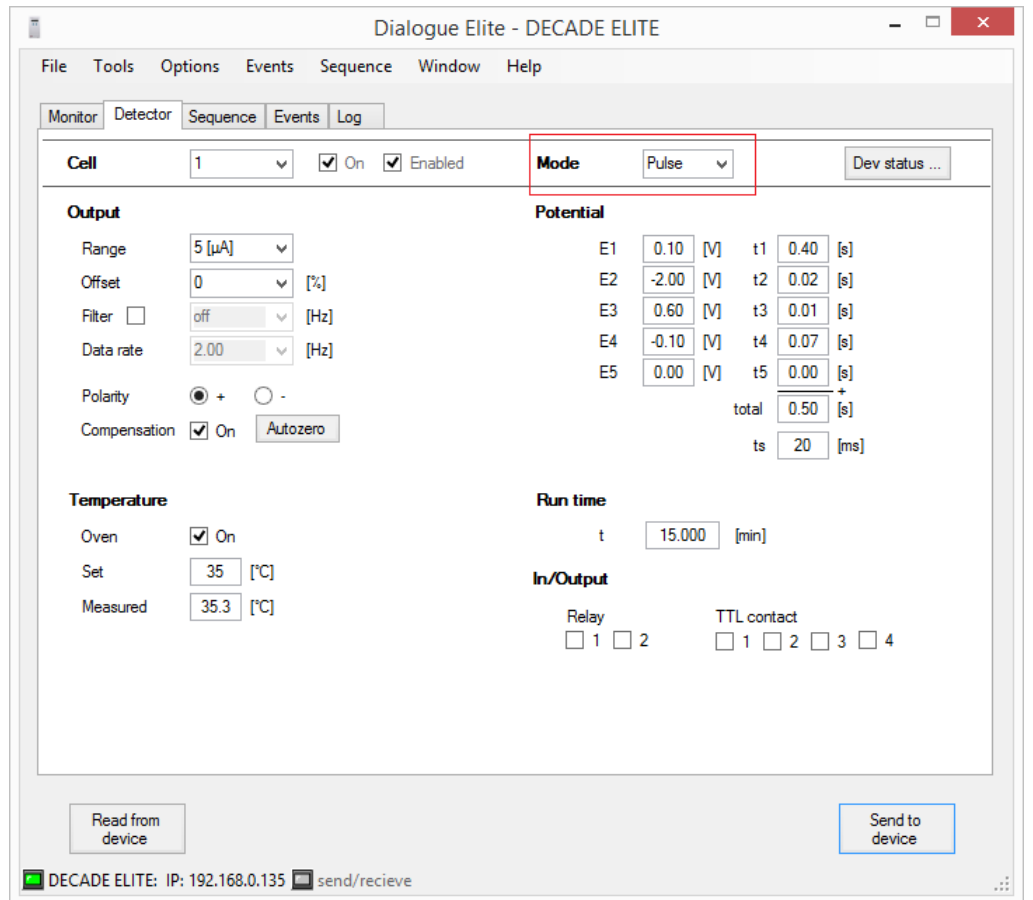
Controls the status of the output contacts, Relay and TTL contacts.

**Dev status ...**

This button opens the "global settings".

## Pulse mode

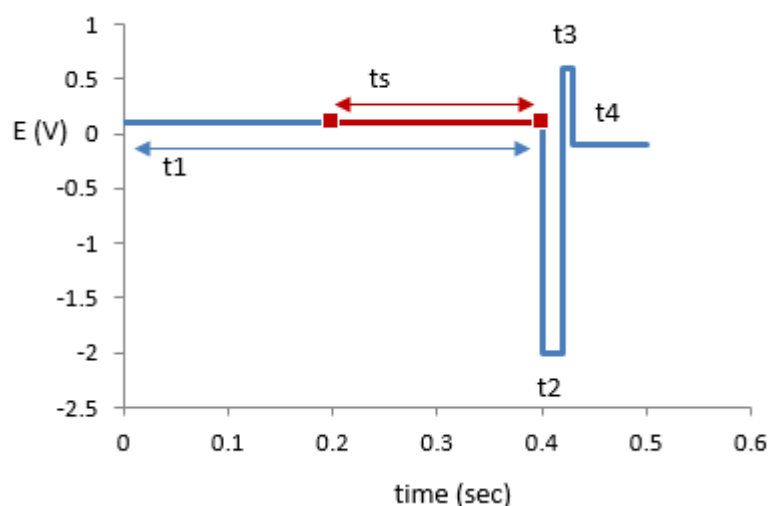
In the 'Detector' tab the operational parameters of the Pulse mode are visible and can be modified. Changing parameters will not have immediate effect, the 'Send to device' button is used to apply changes. 'Read from device' refreshes the window and shows the current device settings. When multiple cells are supported, the 'Cell' selector is used to switch between cells.



For explanation of the Cell, Output, Temperature, Run time and In/Output settings see 'DC mode'.

### Potential settings

In the pulse mode up to 5 potentials can be set.



*Example of potential settings in the pulse mode, using a 4 step pulse.*

Potential and time:

- E1: measuring potential
- E2 .. E5: activation potential steps
- ts: sampling time, multiples of 20 ms, t1 should always be at least 60 ms longer.
- t1: delay + sampling time
- t2 .. t5: time of activation potential step (0 - 2000 ms, 10 ms steps)

The potential and time have both maximum values depending on the device. If an invalid (out of range) value is 'Send to device', the field changes color and the value is corrected to its next by value. It indicates that the corrected value has been send.

#### Potential

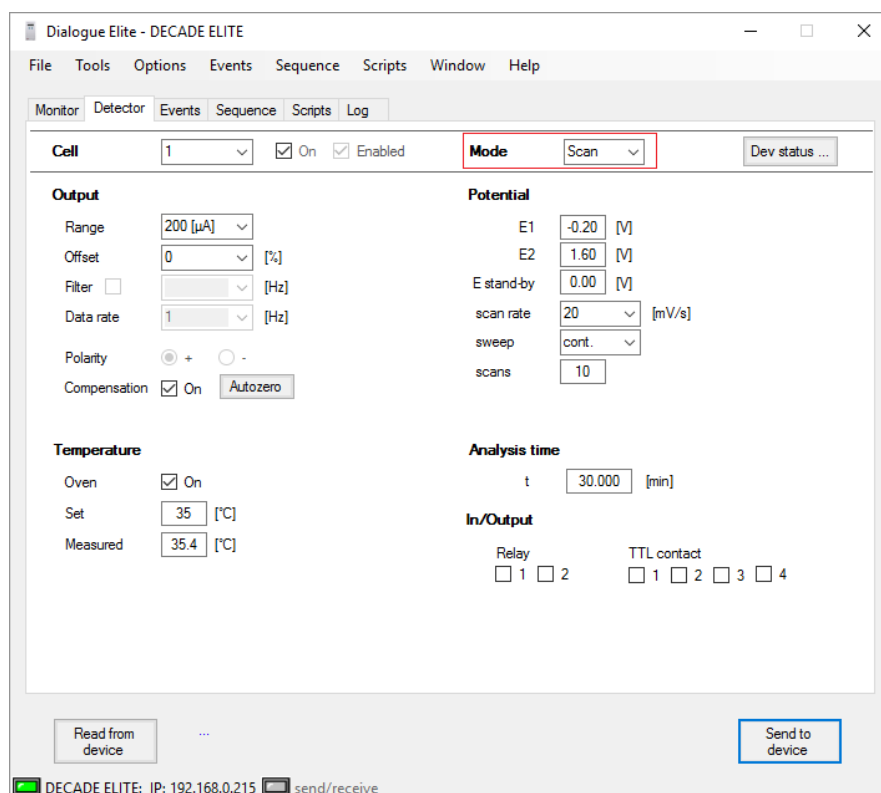
E1	<input type="text" value="2.50"/>	[V]	t1	<input type="text" value="0.40"/>	[s]
E2	<input type="text" value="-2.00"/>	[V]	t2	<input type="text" value="0.02"/>	[s]
E3	<input type="text" value="0.60"/>	[V]	t3	<input type="text" value="0.01"/>	[s]
E4	<input type="text" value="-0.10"/>	[V]	t4	<input type="text" value="0.07"/>	[s]
E5	<input type="text" value="0.00"/>	[V]	t5	<input type="text" value="0.00"/>	[s]
			total	<input type="text" value="0.50"/>	[s]
			ts	<input type="text" value="20"/>	[ms]

**Data rate**

The data rate in the pulse mode is read-only and defined by the total pulse duration. In the above example the pulse duration of 0.5 s results in a data rate of 2 Hz.

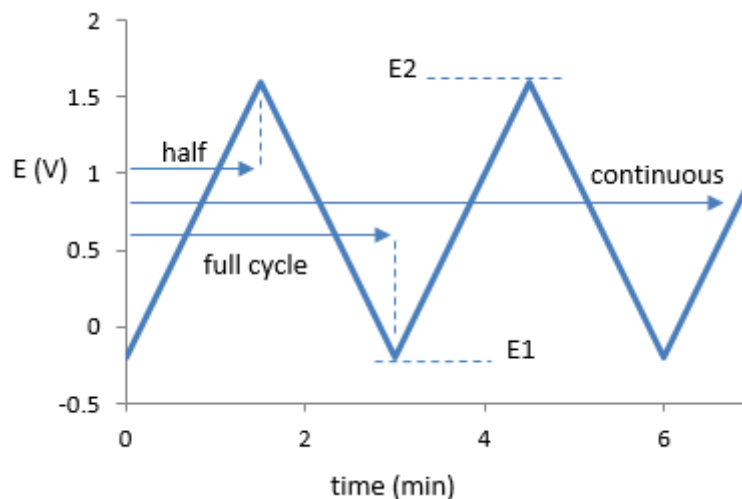
## Scan mode

In the 'Detector' tab the operational parameters of the Scan mode are visible and can be modified. Changing parameters will not have immediate effect, the 'Send to device' button is used to apply changes. 'Read from device' refreshes the window and shows the current device settings. When multiple cells are supported, the 'Cell' selector is used to switch between cells.



### Potential settings

In the scan mode 2 potentials, E-standby, scan rate, sweep and scans can be set. When data acquisition starts, the scan starts as well and the potential is ramped up and down between E1 and E2. When the scan is not started, or when a scan is finished, E1 is the active potential.



*Example of the scan parameters using the above scan settings.*

Parameters:

- E1: scan starting potential
- E2: scan maximum potential
- E-standby: standby potential, when not scanning
- Scan rate: or scan speed in mV/s
- Sweep: scan cycle half, full or continuously
- Scans: the number of scans that must be obtained

The duration of 1 scan is given by the interval E1-E2 and the scan rate. Scanning between -0.2 ... 1.6 V (= 1800 mV interval) at a rate of 20 mV/s results in a duration of  $1800 / 20 = 90$  s for half a scan. A full scan thus takes 3 min.

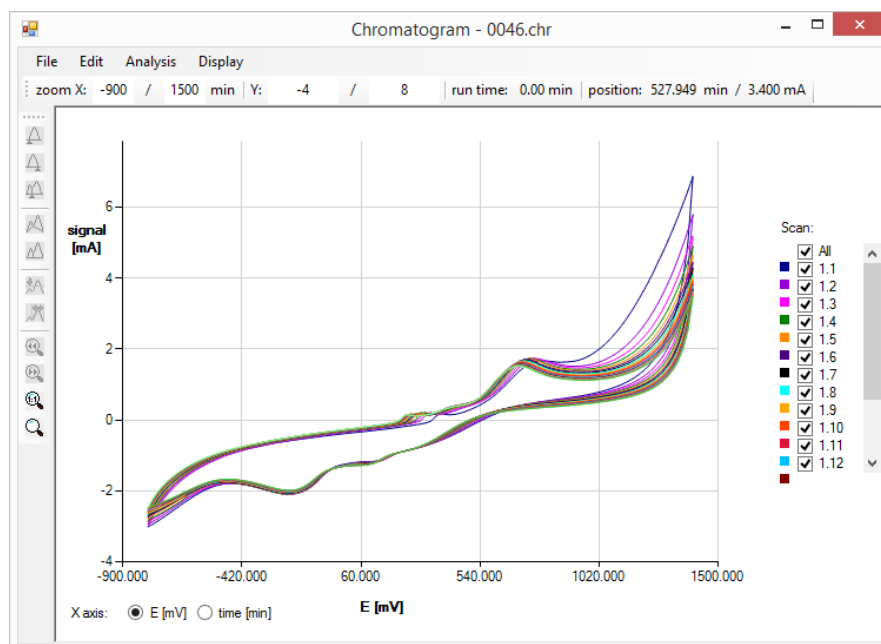
When the parameters are 'send to device' the 'Analysis time' is adjusted automatically. The scan will stop when the number of scans is acquired.

### Data rate and filter

The data rate in the scan mode is 1 Hz (read-only). It is not possible to apply a filter setting.

### Data acquisition

Scans are displayed as signal vs potential or as signal vs time (less useful). When plotted against the potential the graph is called a voltammogram. Each full scan cycle is plotted and is selectable individually.





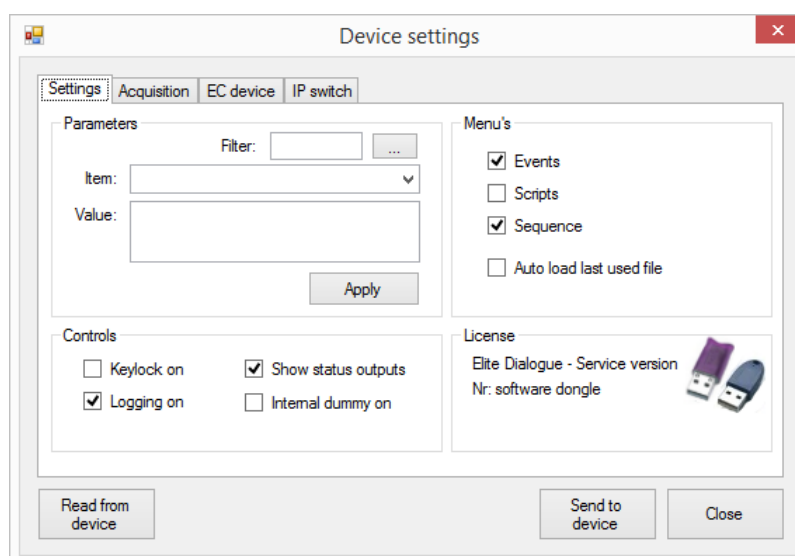


## CHAPTER 4

# Device settings

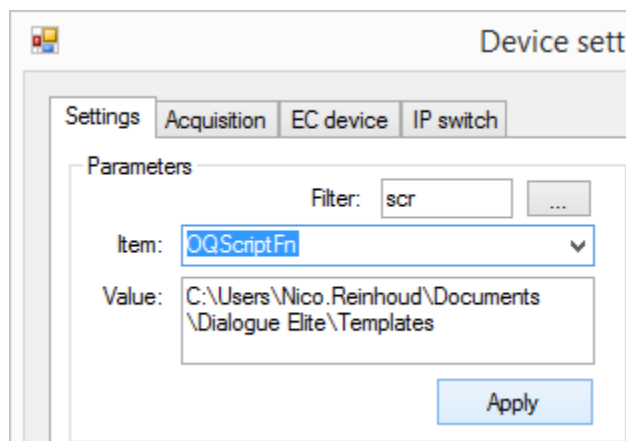
## Settings

The device settings are shown via 'Options/Device settings' or 'F12' or via the 'Detector' tab from the main window, clicking the 'Dev status...' button. It gives access to a number of global settings and information fields.



## Parameters

In 'Parameters' the registry parameters are accessible. Using filter, a selected number of parameters are shown (click '....'). The value can be changed and stored by clicking 'Apply'.



## Menu's

In menu's the appearance of the Event, Script and Sequence tab in the main window can be set. Also re-loading the last used event, script or sequence file can be controlled. Note that this lead to unwanted effects if a run is started with an unnoticed events file being loaded.

## Controls

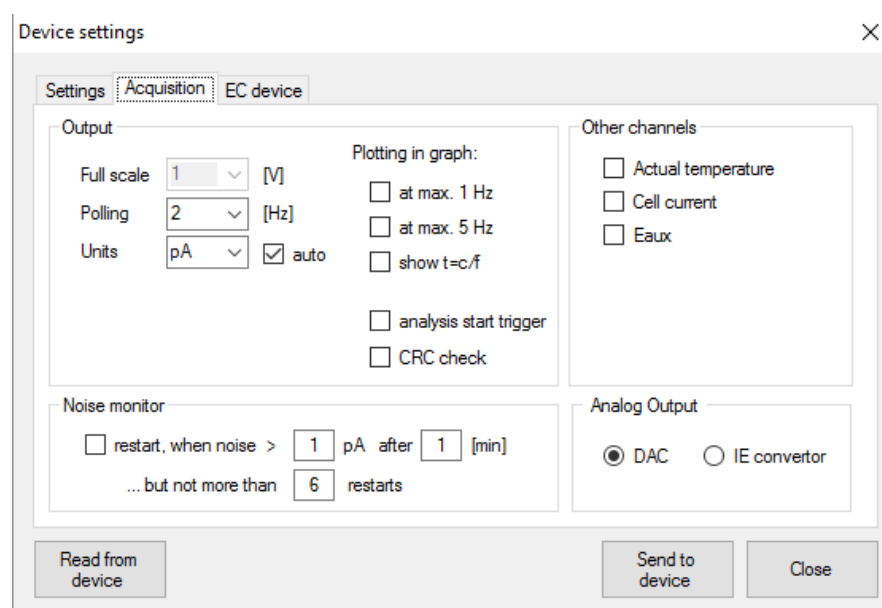
- Keylock: locks the keyboard of the device.
- Logging: logging of all communication, visible in the 'Log' tab and data file in the documents folder.
- Status outputs: visible in the main window ('Detector' tab).
- Internal dummy: activates the internal dummy for service purposes, the cell must be switched to 'off' to make this visible.

## License

Information field in case a license dongle is found.

## Acquisition

The device settings are shown via 'Options/Device settings' or 'F12' or via the 'Detector' tab from the main window, clicking the 'Dev status...' button. It gives access to a number of global settings and information fields.



### Output

- Full scale: is the max Output voltage (1 Volt for Elite, selectable 1 or 10 Volt for older units)
- Polling: speed of data communication for display of Icell, temperature, data acquisition and other real time parameters
- Units: data acquisition units selector, if 'auto' is set it will be in pA, nA, or mA related to the range setting.
- Plotting: defines the max number of data points per second displayed in the graph. Also the time or data point counter can be selected in the channel monitor in the graph.
- CRC check: secured transmission for data acquisition and multi-parameter 5E in the Elite.
- Ext. trigger: sets the software to 'slave' mode, waiting for external 'start' trigger to start acquisition

### Noise monitor

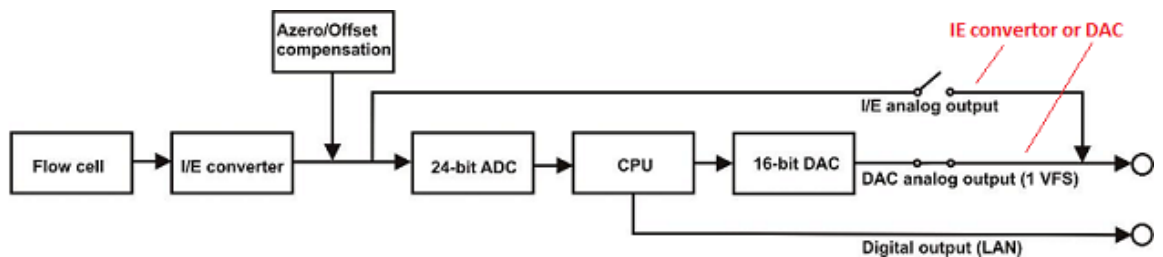
When switched on, the noise monitor will check the baseline noise every minute and restarts (after set delay) when out of spec. Works only with dummy cell or other noise measurements.

### Other channels

Selector for auxiliary channels in data acquisition. The Fluke or T-probe channels will only be displayed if the corresponding external devices have been connected and configured at start up.

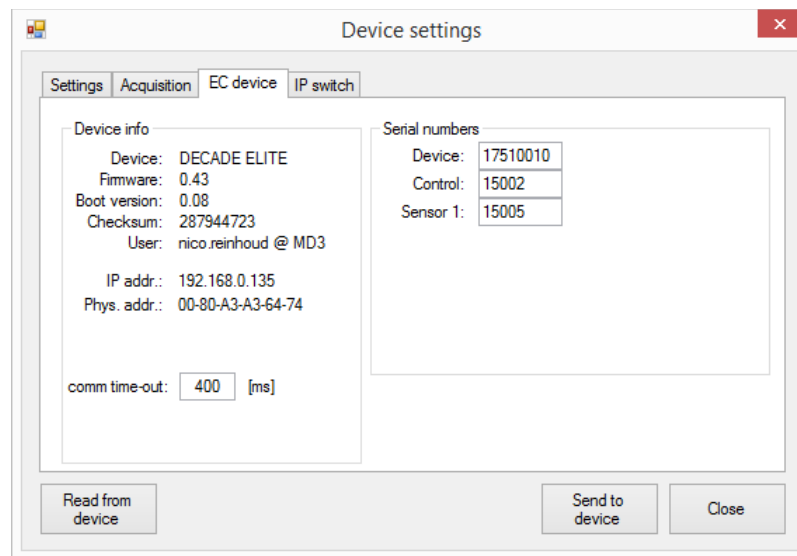
### Analog Output

This option affects the analog output only, it has no effect on the cell current or digital data in Clarity or Dialogue. Default the data at the analog output comes from the DAC after processing in the CPU. However, it is possible to select the I/E convertor, to get the pure analog signal that has not been processed by the CPU in the detector. This has consequences for the range setting which is a CPU parameter and thus not applied.



### EC device

The device settings are shown via 'Options/Device settings' or 'F12' or via the 'Detector' tab from the main window, clicking the 'Dev status...' button. It gives access to a number of global settings and information fields.

**Device info**

Contains several information fields.

**Serial numbers**

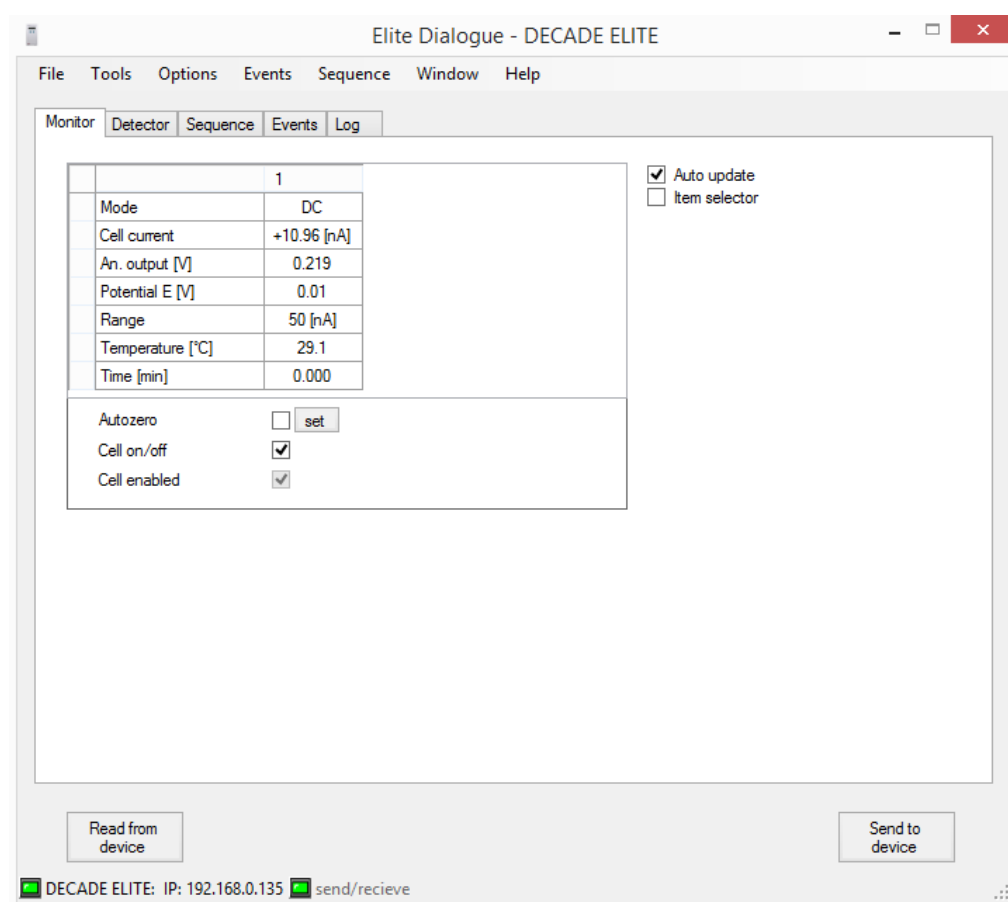
Shows the device and board serial numbers.



## CHAPTER 5

# Monitor

In the 'Monitor' tab a number of relevant parameters are displayed with their real time values. Autozero, and the Cell status (on/off/enabled) can be controlled. When a channel is disabled, it can only be 'enabled' from the Detector tab. Any changes are applied immediately (real time) as well.



### Auto update

Refreshing of real time parameter values, can be switched off. In the **Item selector** the parameters are selected. For reasons of communication efficiency, it is advised to select only the relevant parameters.

- Auto update
  - Item selector
- Mode
  - Cell current
  - An. Output [V]
  - Potential [V]
  - Auxiliary E [V]
  - Range
  - Filter [Hz]
  - Offset [%]
  - Temp [°C]
  - Syr flow rate [ $\mu$ L/min]
  - Syr volume [ $\mu$ L]
  - Pump 1 flow rate [mL/min]
  - Pump 1 pressure [bar]
  - Syr [%A]
  - AS tray temp. [°C]
  - AS sample vial
  - Run time [min]



## CHAPTER 6

## Events

The 'Events' contain a powerful set of tools for automated device control. Starting and stopping acquisition, saving or exporting data, setting operational parameters, the scaling and location of the chromatogram window and control of syringe and LC pump are just a few in a list of programmable parameters. An events table can be linked to the start of a run, but can also run completely independent from the chromatogram.

To create and run events:

1. Construct a new events table, or open one via Events/Open Events
2. Set the number of repeats, the start mode and the 'Run time check'
3. Click the start button or start a run (depending on selected 'start mode')

Events can also be linked to and started with a sequence.

The screenshot shows the 'Elite Dialogue - DECADE ELITE' software interface. The 'Events' tab is active, displaying a table of event parameters and settings. Below the table, there are control buttons for 'Edit', 'Repeats', 'Time', 'Stop', and 'Start'. A 'Run time check' checkbox is checked. The 'Events' field shows the path: C:\Users\Nico.Reinoud\Documents\Dialogue Elite\Templates\PQ\_noise\_1 evt.

t [min]	parameter	setting	cell	comment
0.00	Start mode	both	. 4 3 2 1	
0.00	Repeat events	1	. 4 3 2 1	
0.02	Run time	30.00	. 4 3 2 1	Run time in min
0.02	Data rate	5	. 4 3 2 1	
0.02	Data unit	pA	. 4 3 2 1	
0.02	Range	1 [nA]	. 4 3 2 1	
0.02	Detection mode	1 DC	. 4 3 2 1	Invokes cell = off!
0.02	Filter	Off	. 4 3 2 1	
0.02	Offset	0	. 4 3 2 1	
0.02	Ecell DC	0.80	. 4 3 2 1	
0.04	Cell on/off	On	. 4 3 2 1	
0.90	Autozero	On	. 4 3 2 1	
1.00	Acquisition on/off	On	. 4 3 2 1	
1.06	End events with ...		. 4 3 2 1	
1.10	Cell on/off	Off	. 4 3 2 1	

End events:  Run time check

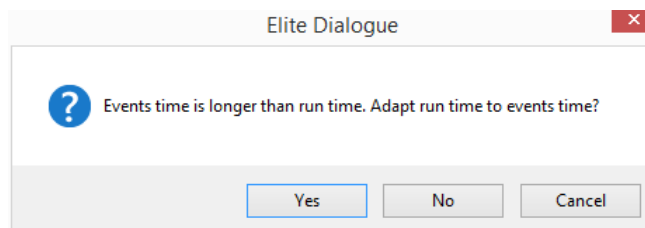
Repeats: 1 done: 0 Time: 32.00 [min] Stop Start

Events: C:\Users\Nico.Reinoud\Documents\Dialogue Elite\Templates\PQ\_noise\_1 evt

Read from device Send to device

DECADE ELITE: IP: 192.168.0.135 send/recieve

Click 'Edit' to open the event editor window.  
The 'Run time check' will alert when the chromatogram run time is smaller than the events duration. This option can be unchecked, for example when the run time is set within the events table or when running an automated sequence.

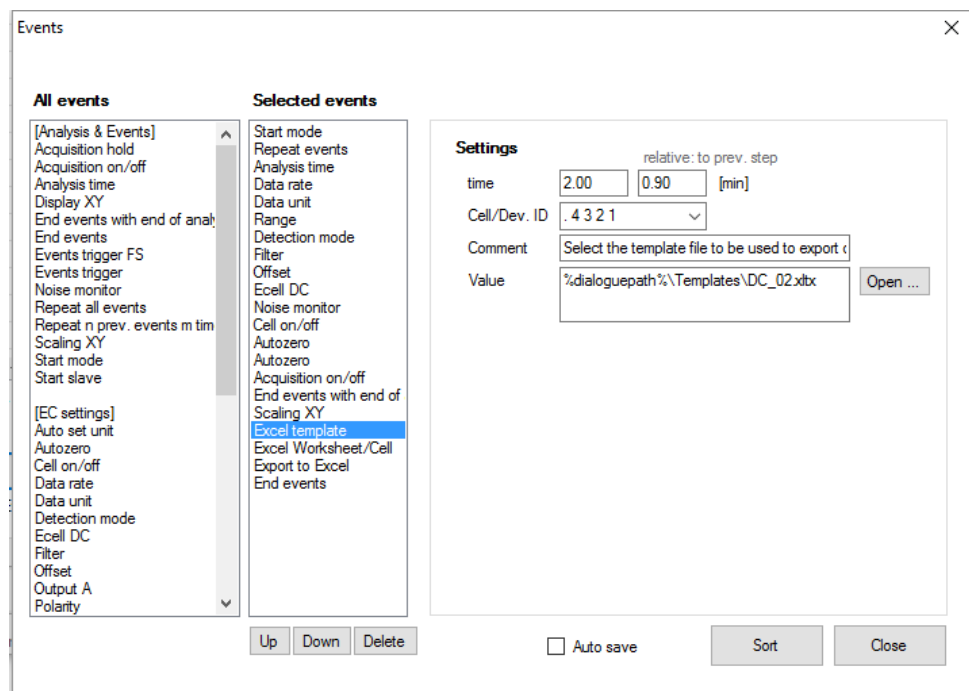


## Create and edit events

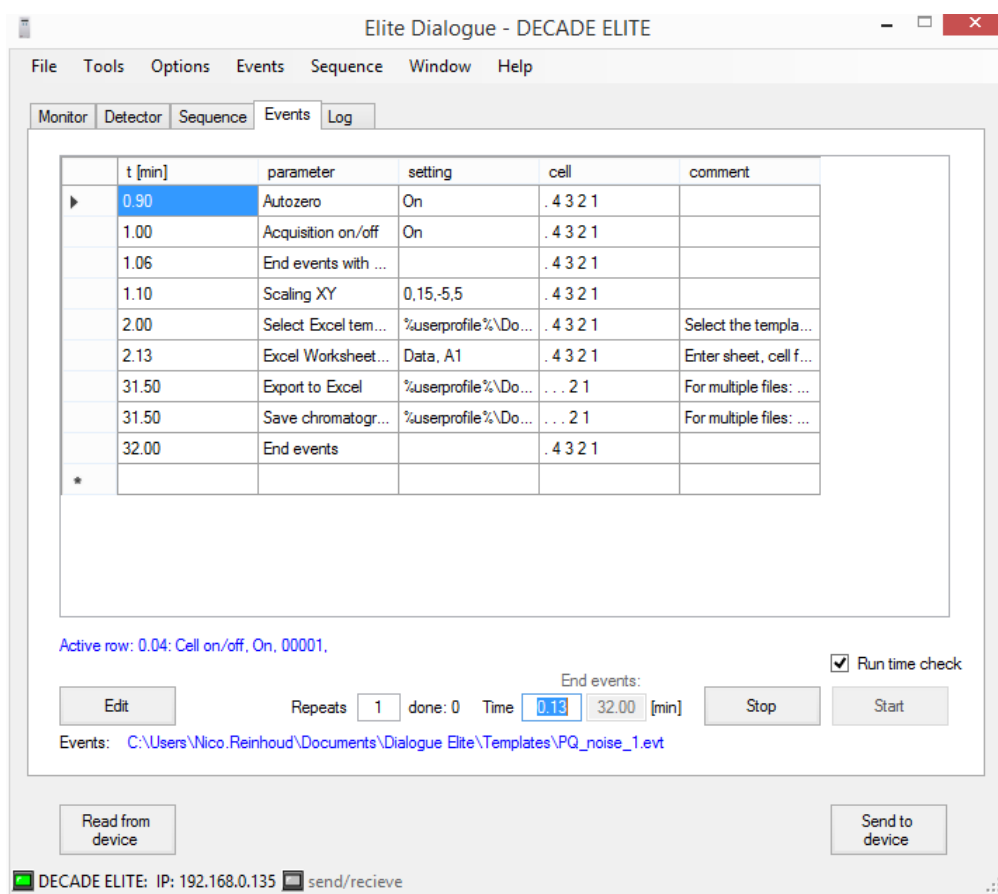
The 'Events' contain a powerful set of tools for automated device control. Editing or constructing new events is done by entering the time and selecting the parameters and device or cell ID in the events table. Cell ID must always contain a value, for single cell devices the ID is always '. . . 1', to address only cell 2 in a DCC device the ID is '. . . 2.'. The cell ID has no relevance for global parameters such as temperature, the command will be executed irrespective of the ID. Global commands are not sensor specific, such as device temperature, run time, export or saving to file.

It is advisable to have 'Auto save' always on, but keep in mind that every change to the file is saved. Keep a backup of event files that have been used already, prior to editing.

The event editor appears after clicking the 'Edit' button from the main window.



When the events are started the progress is shown (Active row, below the spreadsheet), the top row is the next one to be executed and the already executed event lines disappear.



## Path and file names

To make methods and events interchangeable between systems, Dialogue automatically converts the default path to a generic name. Therefore the default file location `C:\Users\user-name\Documents\Dialogue Elite` is replaced by `%dialoguepath%`.

To prevent overwriting files that already exist, the use of date and time stamps is advised.

- `ddd`: is replaced by the date
- `ttt`: is replaced by time
- `nnn`: is replaced by the next available number

For example, the filename:

`%dialoguepath%\Data\DC_ddd_nnn.xlsx`

will be saved on your PC as:

`C:\Users\your.name\Documents\Dialogue Elite\Data\DC_160731_0002.xlsx`

## Event parameters

The event table contains a number of parameters to facilitate automated operation such as start/stop of data analysis (acquisition), saving or exporting data to file, external start triggers (in/out) and control of external devices. Events are executed as programmed and it is advisable to check the events for desired results. Some parameters depend on others, for example setting the scan rate only makes sense if the potentiostat is actually in scan mode. Saving data only makes sense if data acquisition has taken place, etc. to make sure the commands are processed in the correct order it is advisable to program each event on a unique time.

### [Analysis & Events]

- **Acquisition hold**: pause the data acquisition. This command only works properly if acquisition is already started and still running (i.e. via Acquisition on/off). If acquisition is not running, nothing seems to happen. When 'hold' is programmed the acquisition stops until 'continue' is programmed. The Acquisition will pick-up where it was stopped, the delay is not visible in the chromatogram and data cannot be used for measuring retention times.

- **Acquisition on/off:** controls the start/stop of acquisition. One way to work with Dialogue events is to start an events file by clicking the start button. After setting all relevant parameters via event lines, the acquisition is started. In case the events table is started by 'start analysis' or F5 button, the data acquisition starts right away with the event table in that case the acquisition does not need the 'start' event. In all cases it is convenient to program the acquisition 'stop' event and programmatically save the data via the 'export to Excel' or 'Save data' parameter below.
- **Analysis time:** sets the analysis time for data acquisition. When the analysis duration passes the analysis time, the acquisition will stop. It is not the only parameter that can stop acquisition. If for example 'Acquisition off' has been programmed the acquisition stops with whatever comes first. To avoid confusion it is advisable to use 'EE' (End of Events) as analysis time and put that at the start of the events table. In that case the analysis time will sync with the end of the events table.
- **Display XY:** XY position of the chromatogram window in Windows.
- **End events with end of analysis:** stops the events file when the analysis stops. This command is only functional in certain QC or PQ methods and is especially useful in combination with 'noise monitor' on. It will not work for an 'ordinary' analysis.
- **End events:** the event file stops (or restarts) after this command is executed. When the 'Runs' > 1 the events table will start again until 'number of runs' = 'done'. 'Runs' is set with 'Repeat all events'. Note that the events can run multiple times within 1 analysis as long as the analysis time is larger than the events time.
- **Events trigger FS:** file system (FS) trigger to start the event table when a certain file activity takes place. It is particularly helpful when hardware triggering is not available. When programmed, the event table will go 'waiting for trigger ...' when start button is clicked. The file system trigger is watching a specified directory for changes. It has multiple parameters to specify what should fire a trigger. It has a file selection filter which can hold wildcards such as \*.\* (any file) or \*.doc (only look for .doc files). It has an activity filter, the trigger can be fired by file changes, deletions or creations. Only one type of trigger should be programmed or activated.
- **Events trigger:** hardware trigger to start an events table. When programmed, the event table will go 'waiting for trigger ...' when start button is clicked. Several I/O pins can be assigned to fire a trigger, including an auto zero input pin for double functionality.
- **Noise monitor:** on/off, level, repeats, wait (min) can be programmed in 1 parameter. Default the currently applied

condition is applied. The noise monitor is used in OQ/PQ analysis, it measures the noise 'level' every minute. When the noise is above this limit, the acquisition is restarted after a 'waiting' time until the number of 'repeats' is reached. Via 'Options/Device settings/Acquisition' the noise monitor can be controlled as well.

- **Repeat all events:** events table will restart when finished until 'number of runs' = 'done'. When the events table is started the full table is visible.
- **Repeat n prev. events m times:** allows to repeat certain functionality within an events table. For debugging select the top left cell and copy the table to clipboard via [CTR+V]. The full table can be copied/pasted to Excel or text editor.
- **Scaling XY:** sets the X and Y parameters in the display axis of the chromatogram. This command only makes sense if the chromatogram window is open. It is one of the commands that comes after 'Acquisition on', which opens a new chromatogram and applies a default XY scaling.
- **Start mode:** defines how the events table is started, synchronized with 'start analysis' (start acquisition) or by clicking the start button 'start events'. If an external start trigger is defined, the event table goes 'waiting for trigger...' in both modes. A special (hidden) mode is 'slave' for synchronizing 2 devices that should wait for each other.
- **Start slave:** writes a file (Dialogue Elite\~\~[n]commands.txt) to the file system, which is a file system trigger for a 'master'. This is useful in case 2 DECADE's are used that should wait one for the other before continuing a next step. Device number must be n for slave and n-1 for master. Slave device must have the events table started (waiting for trigger) with hidden parameter 'slave'.

### [EC settings]

- **Auto set unit:** automatically sets the units in the chromatogram Y-axis to the same unit as the range (pA, nA,  $\mu$ A, or mA). Should be programmed prior to start of an analysis, can be overruled when 'Data unit' is programmed as well.
- **Autozero:** activates the auto zero command when 'on'. Compensates the data (baseline) to the zero level, or offset level in case offset is applied. When 'off' is selected it deactivates the zero compensation.
- **Cell on/off:** switches the cell on or off. In case mode (DC, Pulse, Scan) is changed the cell automatically goes off. In that case the 'mode' event can be followed by 'cell on'.

- **Data rate:** sets the frequency of data acquisition if possible, in DC mode only. In the Elite (Lite) the data rate is often fixed and depending on the filter setting. Only when filter is 'raw' the data rate can be set. In Pulse mode the data rate is defined by  $1/[\text{pulse duration}]$ . In scan mode the frequency is 1 Hz.
- **Data unit:** sets the unit in data acquisition to (p, n,  $\mu$ , m) Volts or Amperes. Should be programmed prior to start of data acquisition.
- **Detection mode:** sets the mode of detection to DC, PULSE or SCAN. Cell is switched off automatically.
- **Ecell DC:** sets the DC cell potential. Detector should be in DC mode to make the potential effective.
- **Filter:** sets the ADF (Advanced Digital Filter), the smaller values are stronger filter settings. For DC and Pulse mode only.
- **Offset:** percentage offset on the baseline in % of the full scale. 10% offset results in an offset of 100 mV on the output signal.
- **Output A:** Sets the I/O status of AUX 1 or 2, or Relay 1 or 2 to active or inactive.
- **Polarity:** reverse the sign of the output signal. In case of reductive measurement data has a negative sign and peaks go downward. By reversing the polarity a peak appears in the normal (upwards) direction.
- **Pulse E1..5, t1..5, ts:** this one event parameter that includes all pulse settings. When first selected the currently applied values are visible. Potentiostat must be in Pulse mode to make it effective. See pulse mode (in Detector page) for explanation of parameters.
- **Range:** sets the range for data acquisition.
- **Scan E1..2, rate, type:** this one event parameter that includes all scan settings. When first selected the currently applied values are visible. Potentiostat must be in Scan mode to make it effective. See Scan mode (in Detector page) for explanation of settings.
- **Scan on/off:** starts the scan. Potentiostat must be set to scan mode first (cell on!), and acquisition must be started as well. When the parameters are programmed the start/stop of acquisition is included automatically.
- **Temperature:** sets the temperature value.
- **Valve Position:** switches the valve between load/inject.

### [File actions]

- **Excel template:** select the Excel template for export of data.
- **Excel Worksheet/Cell:** select the Excel worksheet and cell as destination for export of data.
- **Export to Excel:** exports data to Excel. Usually this event is preceded by the template and worksheet selection. If



not, data is stored starting with the first cell of the first worksheet.

- **Load method:** loads a method file. Use this with care, this event overwrites all device parameters! In many cases it is better to program a handful of parameters one by one.
- **Save chromatogram:** saves the data to Dialogue file format. Can be used in combination with Export to Excell, to have both formats.

### [External dev]

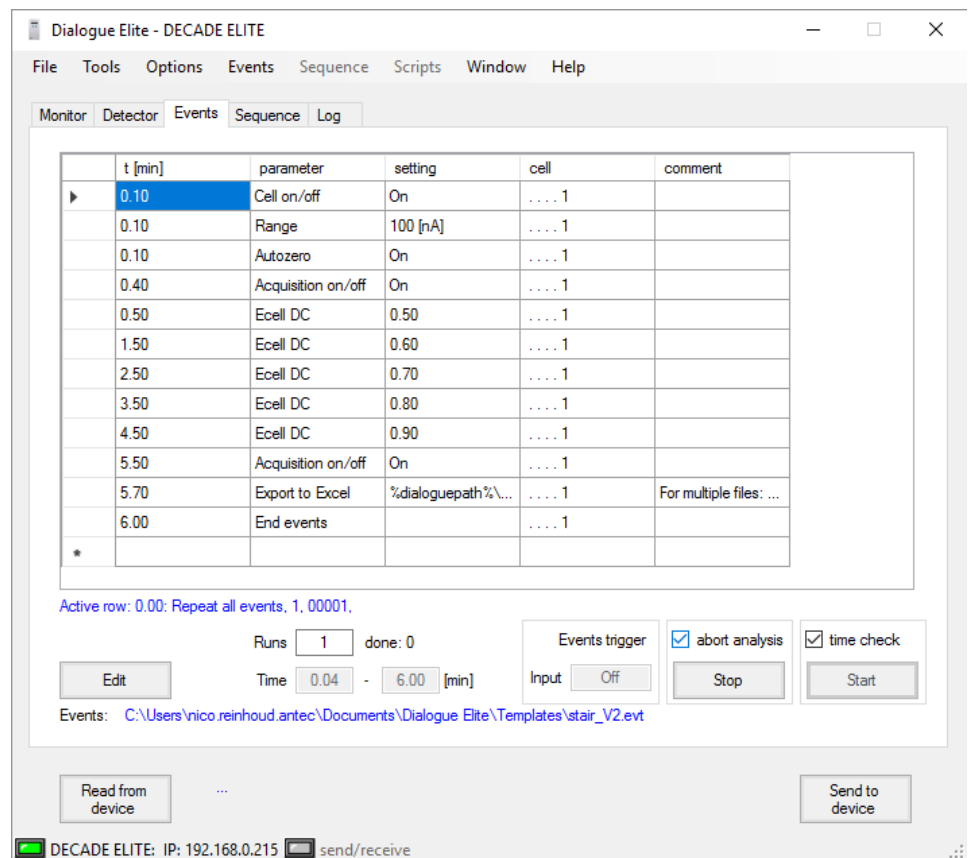
- **LC Flow Rate:** sets the flow rate of a connected LC100/LC110 pump.
- **LC Pump:** switches the pump flow rate on/off.
- **Syr Diameter:** set the syringe diameter. when sending this event, the parameters of the syringe pump are most likely reset. It is therefore not recommended to use this parameter often. If used, send the following events to re-initialize.
- **Syr Flow Rate:** sets the flow rate of the syringe pump.
- **Syr Mode:** change the mode between volume/flow rate.
- **Syr Pump:** starts/stops the syringe pump. In case supported by the pump, the direction can be controlled as well (start withdraw/infuse).
- **Syr Volume:** sets the dispense volume (volume mode only). The pump will continue at the preset flow rate until the volume is dispensed, and stop. The value is zero when mode is 'flow rate'.

## Start events

The 'Events' contain a powerful set of tools for automated device control. To create and start events:

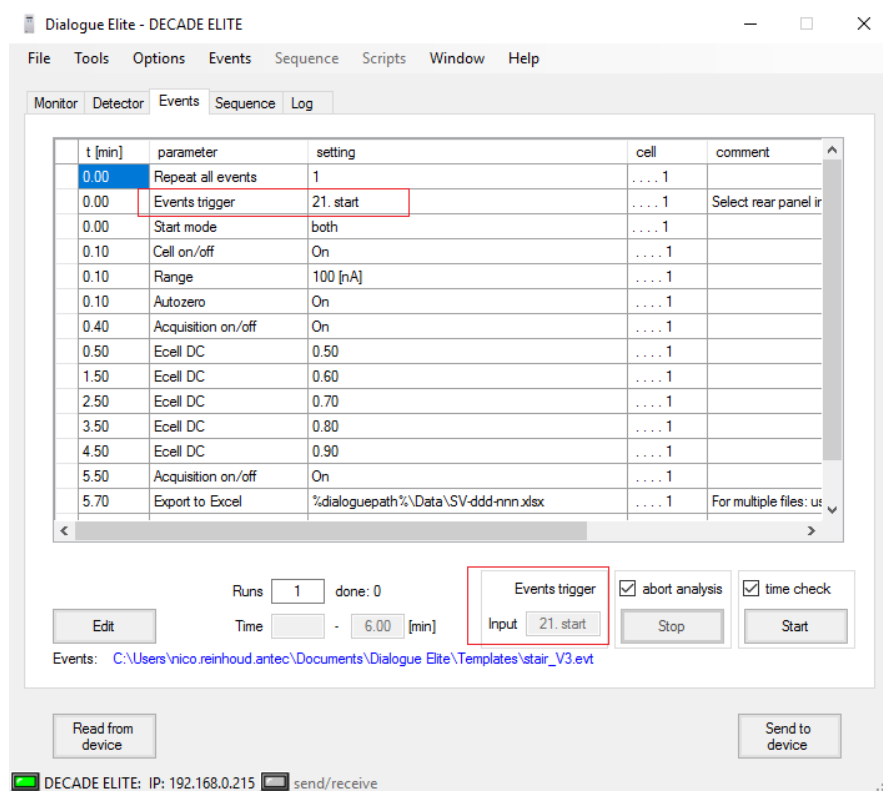
1. Construct a new events table, or open an Events from file (Events/Open Events)
2. Set the number of repeats, the start mode and the 'Run time check'
3. Click the start button or start a run or sequence (depending on selected 'start mode')

When the events are started the progress is shown, and executed event lines disappear.

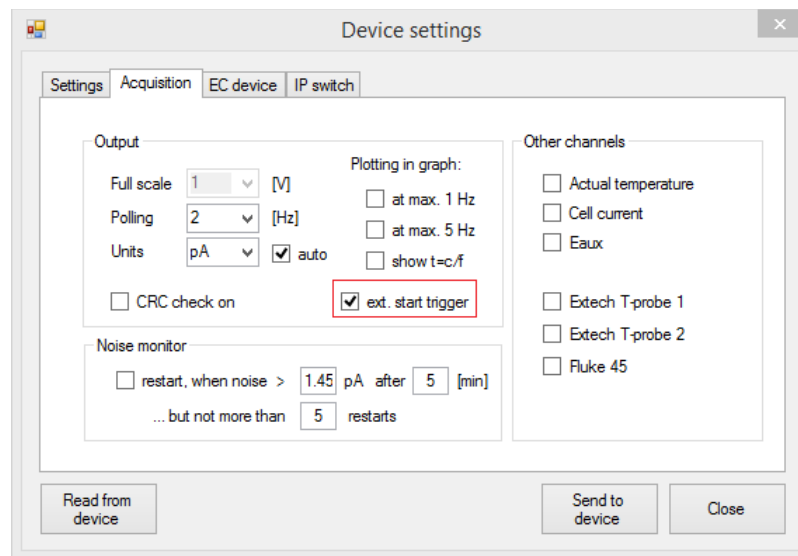


## External start trigger

When the external start trigger is included in the events the events will wait for the trigger to start the run after the start button is clicked. This is particularly useful if an external device or acquisition software is configured as 'master'.



The external can also be set in 'Device settings/Acquisition' in case the start of an analysis needs to wait for a trigger. This option should be used only when no event file is programmed.



It is advisable not to use both start triggers at the same time.

There are a few differences in start trigger. The trigger in "device settings" works all the time, irrespective of whether an events file is used. This trigger is intended for cases where no event file is used and is connected to the external 'start' pin.

The trigger at the bottom of the events tab is for cases where event files are used. It offers more triggering possibilities, the status of the selected parameter is continuously polled.

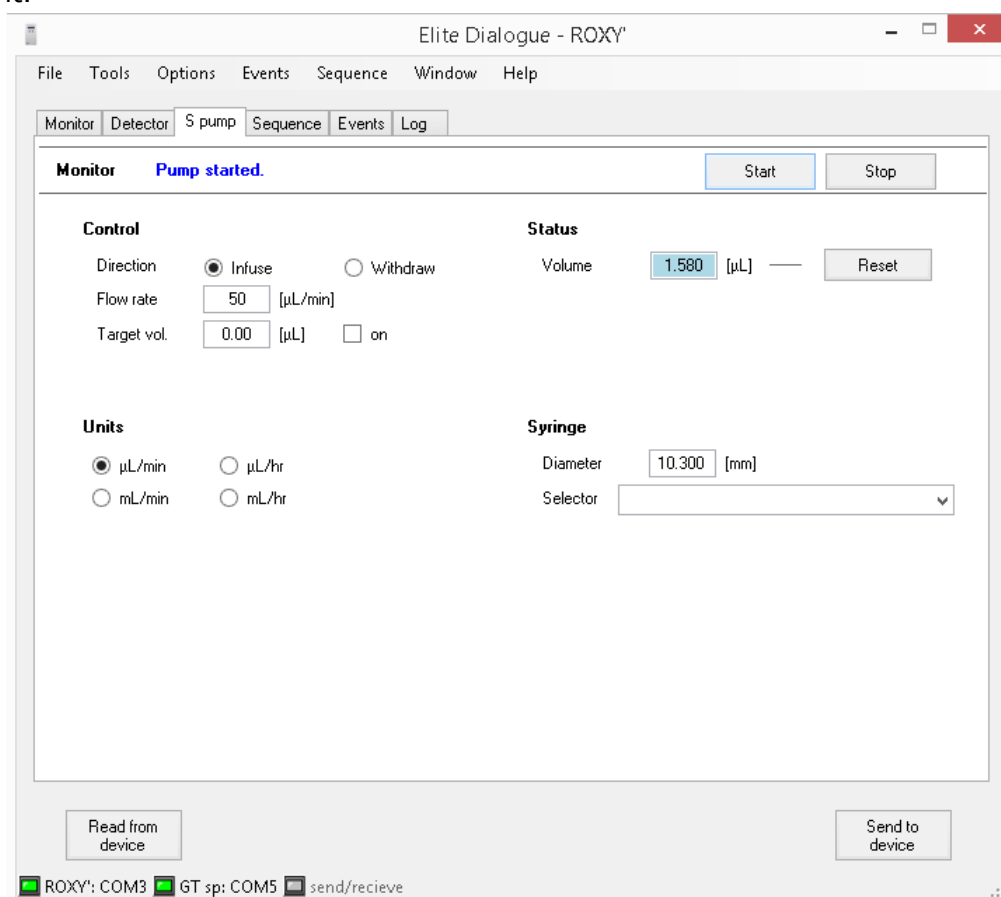
### Trigger and sequence

In case a sequence is running, the behavior is not any different. When a run is finished, the sequence will initiate the next run when programmed. This next run will go to 'waiting for trigger' status.

## CHAPTER 7

## Syringe pump

The syringe pump is controlled from the 'S pump' tab. The Monitor header displays the actual status (Pump started, stopped etc), the dispensed volume is also a parameter that can be added to the 'Monitor' tab. A number of events are available for automated control of the syringe pump (start, stop, flow rate). The syringe diameter (and volume in case of the Genie Touch) must be set prior to operation, the correct flow rate depends on it.



### Start/ Stop

Buttons for direct (immediate) control of the syringe pump. All other parameters are applied by 'Send to device'.

**Control**

- Direction withdraw or infuse: defines the direction of spindle (syringe) movement.
- Flow rate must be set prior to operation.
- Target volume: when checked, the pump stops when volume has been dispensed.

**Units**

Selection of flow rate in  $\mu\text{L/hr}$  up to  $\text{mL/min}$ . The flow rate should be adapted accordingly prior to 'send to device'. Note that the flow rate is limited by the specifications of the pump. When out of range an 'OOR' message is displayed.

**Status**

Shows the actual dispensed volume. Value can be reset, which is useful when the 'Target volume' is used.

**Syringe**

Select the correct diameter (and volume in case of GenieTouch).

C H A P T E R 8

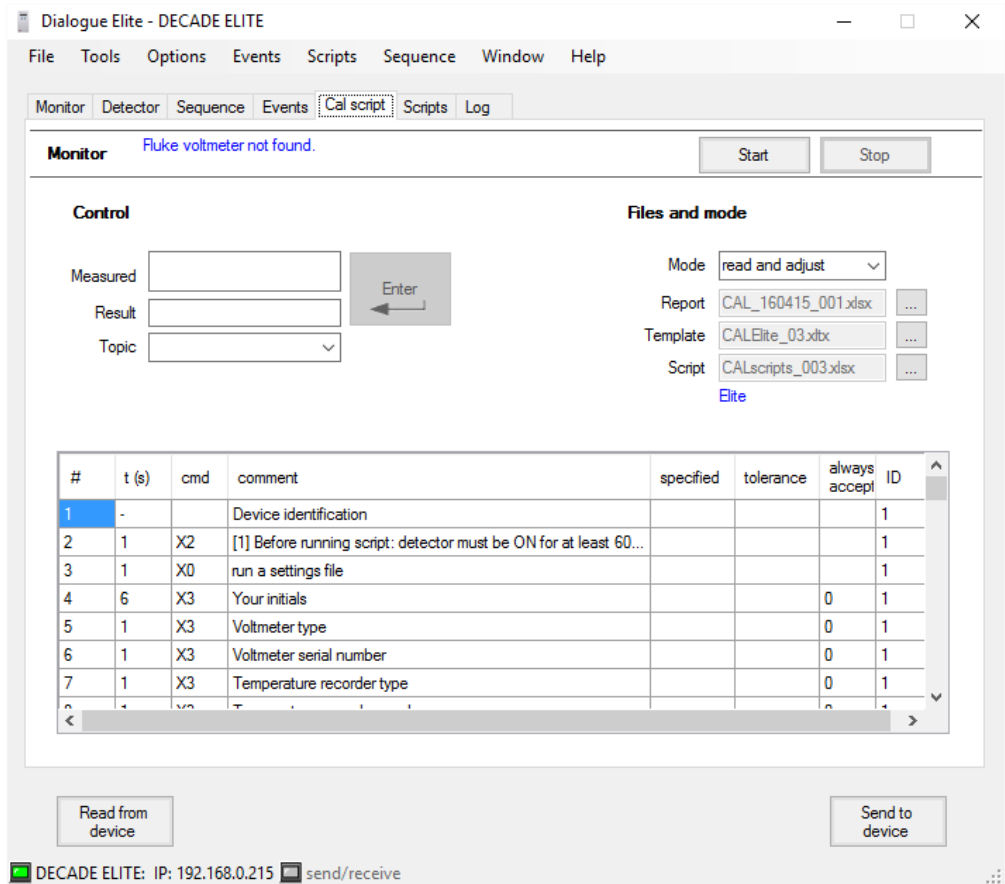
# Calibration script

## CAL script

The device can be calibrated by running a script. It checks all calibration parameters, and corrects those in case needed. A calibration is started by clicking 'Options/Calibration script'. The script tab opens and in 'Files and mode' the script, template and data file are selected. To run a script:

1. Select the correct script, template and data file
2. Click start

For details on a device calibration and required tools, see the documentation on our [website](#).



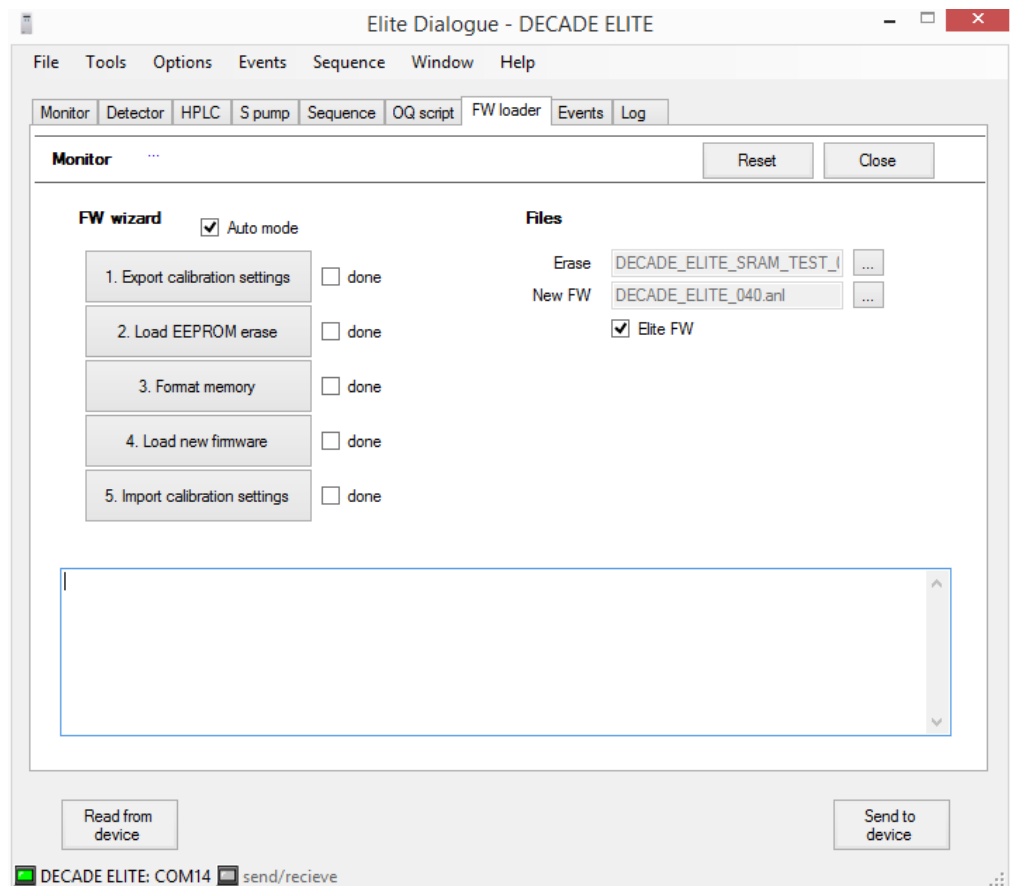




## CHAPTER 9

## FW loader

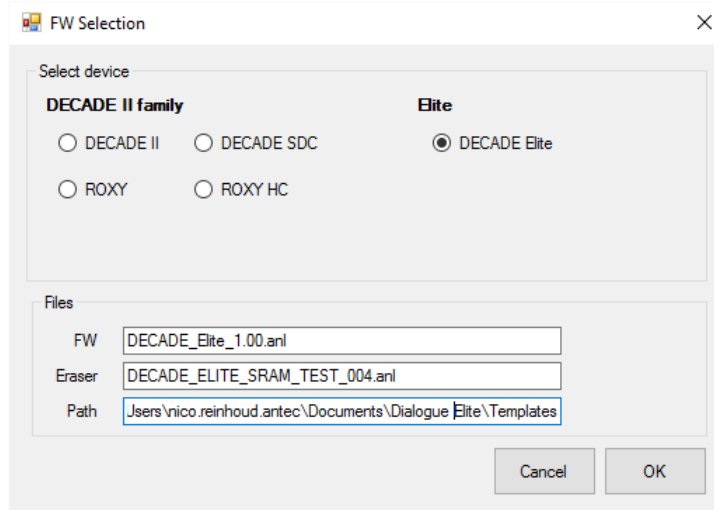
The device firmware can be upgraded with the firmware (FW) loader. The FW loader is started from 'Tools/Firmware upload'. Two files are needed, the erase file and the new firmware. 'Erase' is a small program to format and test the device memory prior to the upgrade. During the upgrade, the device must be switched off and on a few times.



Steps to upgrade the firmware:

1. Select 'Firmware upload' from the menu and select the correct files/path
2. Click start and follow the procedure
3. Notice the Monitor header, it contains messages and calls for actions to take

Firmware selection menu, select the device and enter the correct location and file names.

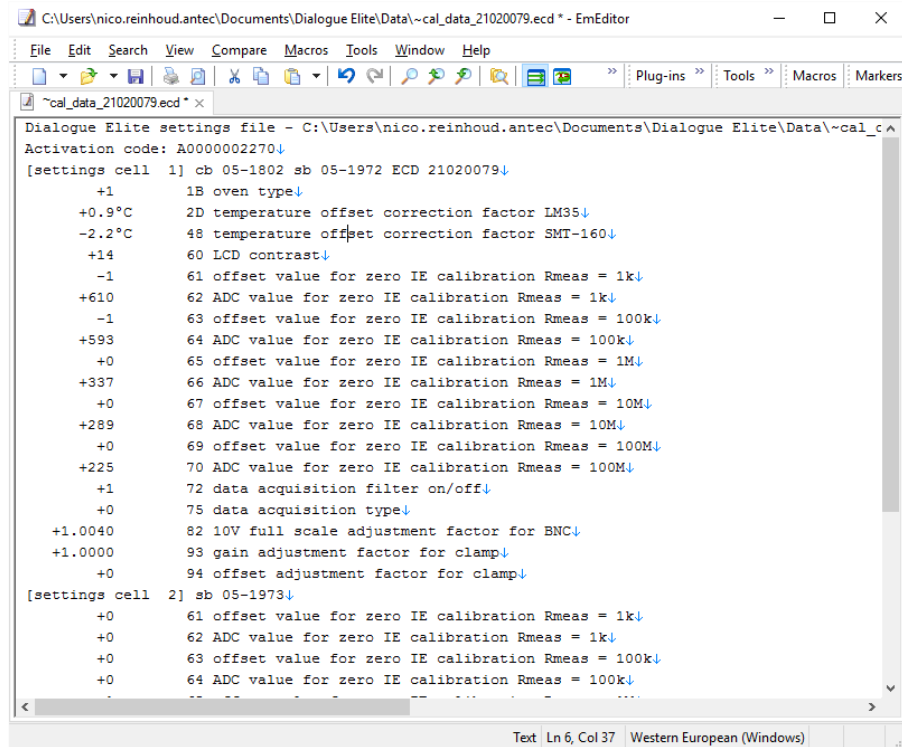


### Calibration settings

Prior to starting the procedure, the device calibration settings are stored on the PC. They are put back at the end of the procedure. If needed the settings file can be imported manually as well. A calibration file has the name '~cal\_data\_nnnn.ecd' (nnnn is the serial number).

In case the procedure is interrupted halfway, and restarted, the wizard might ask for exporting the calibration settings again. Do not overwrite the settings file, because the settings might be erased already. Copy and keep the first settings file in a safe location. Use it for manual import in case of problems.

The settings file is text based and readable in any text editor. In case of doubt, check the content for realistic numbers. When damaged all calibration settings are zero's and serial numbers are missing.



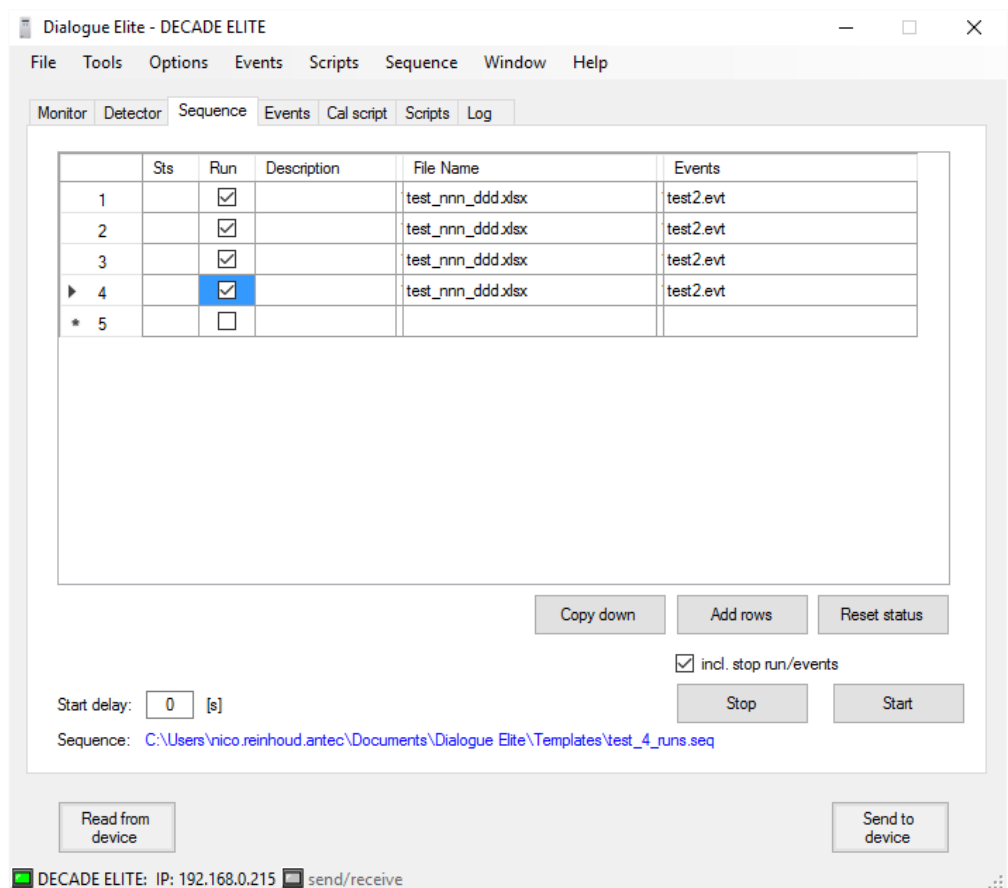
```
C:\Users\nico.reinhou.d.ante.c\Documents\Dialogue Elite\Data\~cal_data_21020079.ecd * - EmEditor
File Edit Search View Compare Macros Tools Window Help
~cal_data_21020079.ecd * x
Dialogue Elite settings file - C:\Users\nico.reinhou.d.ante.c\Documents\Dialogue Elite\Data\~cal_c
Activation code: A000002270↓
[settings cell 1] cb 05-1802 sb 05-1972 ECD 21020079↓
+1 1B oven type↓
+0.9°C 2D temperature offset correction factor LM35↓
-2.2°C 48 temperature offset correction factor SMT-160↓
+14 60 LCD contrast↓
-1 61 offset value for zero IE calibration Rmeas = 1k↓
+610 62 ADC value for zero IE calibration Rmeas = 1k↓
-1 63 offset value for zero IE calibration Rmeas = 100k↓
+593 64 ADC value for zero IE calibration Rmeas = 100k↓
+0 65 offset value for zero IE calibration Rmeas = 1M↓
+337 66 ADC value for zero IE calibration Rmeas = 1M↓
+0 67 offset value for zero IE calibration Rmeas = 10M↓
+289 68 ADC value for zero IE calibration Rmeas = 10M↓
+0 69 offset value for zero IE calibration Rmeas = 100M↓
+225 70 ADC value for zero IE calibration Rmeas = 100M↓
+1 72 data acquisition filter on/off↓
+0 75 data acquisition type↓
+1.0040 82 10V full scale adjustment factor for BNC↓
+1.0000 93 gain adjustment factor for clamp↓
+0 94 offset adjustment factor for clamp↓
[settings cell 2] sb 05-1973↓
+0 61 offset value for zero IE calibration Rmeas = 1k↓
+0 62 ADC value for zero IE calibration Rmeas = 1k↓
+0 63 offset value for zero IE calibration Rmeas = 100k↓
+0 64 ADC value for zero IE calibration Rmeas = 100k↓
Text Ln 6, Col 37 Western European (Windows)
```



## CHAPTER 10

# Sequence

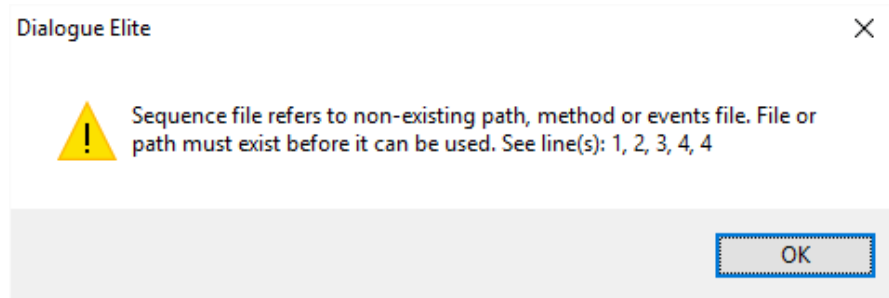
A sequence is a sample queue, it contains the definition for a number of runs that are executed when the 'Start' button is clicked. A sequence is the highest level of automation, a sequence can load a method, start a run and start an event table. When a file name is entered the data is saved at the end of the run.



To create and run a sequence:

1. Construct a new sequence table, or open one via Sequence/Open Sequence.
2. Check the runs that must be executed with the tick boxes, and set the 'Start delay'.
3. 'Reset status' in case needed (only runs with empty 'Status' field will be executed).
4. Save the table and click the start button.

When a sequence file is loaded, the validity of file names and paths are checked. If an event file or destination path is not found a warning appears.



Default the path is hidden, it can be made visible by widening the column.

	Sts	Run	Description	Path	File Name	Events
1		<input checked="" type="checkbox"/>		%dialoguepath%\Data	test_nnn_ddd.xlsx	test2.evt
2		<input checked="" type="checkbox"/>		%dialoguepath%\Data	test_nnn_ddd.xlsx	test2.evt
3		<input checked="" type="checkbox"/>		%dialoguepath%\Data	test_nnn_ddd.xlsx	test2.evt
▶ 4		<input checked="" type="checkbox"/>		%dialoguepath%\Data	test_nnn_ddd.xlsx	test2.evt
* 5		<input type="checkbox"/>				

Copy down    Add rows    Reset status

incl. stop run/events

Start delay:  [s]    Stop    Start

Sequence: C:\Users\nico.reinoud.anteq\Documents\Dialogue Elite\Templates\test\_4\_runs.seq

Read from device    Send to device

DECADE ELITE: IP: 192.168.0.215 send/receive

## CHAPTER 11

## Log

All data communication is logged and stored, which is helpful for diagnostic purposes. In case of trouble shooting the support team may ask for the log files. The files are stored as text in C:\Users\[user name]\Documents\Dialogue Elite\0\_~0\_rs\_comm.txt. When the program restarts a new log is created, up to 8 in total. When the max 8 logs are created, oldest files are overwritten. In the 'Log' tab the most recent communication is seen, for diagnostics the data can be exported and filtered using include/exclude filters.

