

ECD Dialogue

for Windows 95, 98, 2000 and NT 4

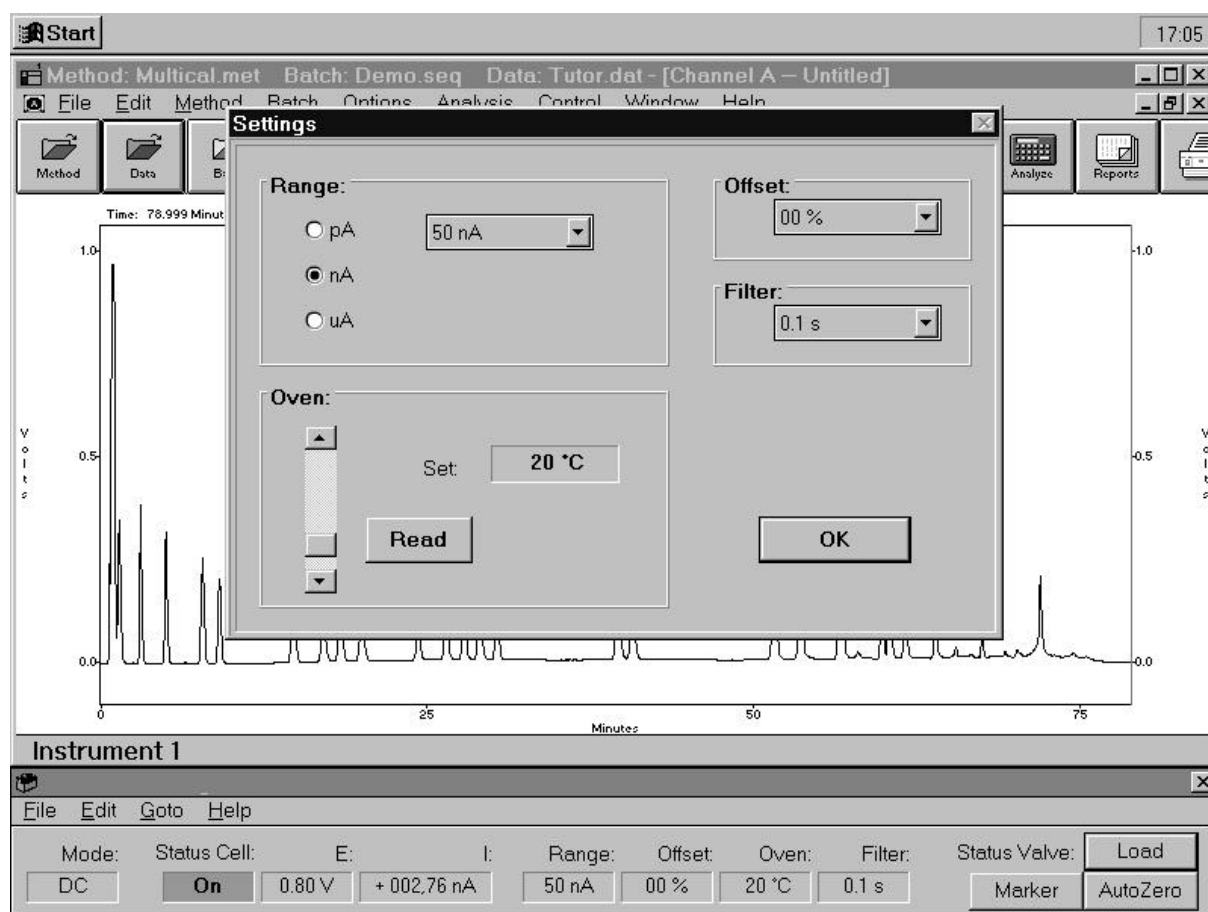


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1. Introduction

EC Dialogue for Windows is a multi-functional status and control bar for the electrochemical detector. The program runs simultaneously with Windows-compatible integration software or any other Windows program. The TimeFile editor provides a well-organised spreadsheet for convenient writing of TimeFiles. Each TimeFile provides a stepwise, time based, full parametric control with a time resolution of 1 second. Programmable parameters comprise cell potential, range, autozero, offset, rise time, electrical injector and control of detector output contacts for control of external equipment.

In this manual all features of EC Dialogue are discussed. For quick starters 'Chapter 2. Installation and quick start' provides the minimum of information needed to run the program.

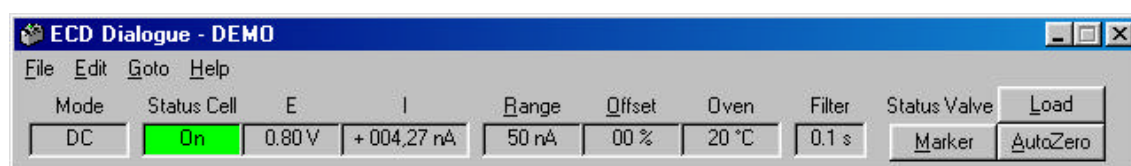


Fig. 1. EC Dialogue status and control bar

2. Installation and quick start

The EC Dialogue for Windows is a multi-functional control bar which handles all important settings of the detector via the RS232C port.

Installation

1. Connect the detector with the PC using the supplied RS232C cable (regular cables don't work).
2. Start Windows and run the Dialogue set-up program for installation on the hard disk.
3. Switch on the detector, the main screen will appear.
4. Choose 'RS232' (F5) from the detector main screen.

Running EC Dialogue

1. Run the Dialogue software, if a detector (in RS232 mode!) is connected it is automatically detected. Otherwise the DEMO mode is activated.
2. Select DC, Pulse or Scan mode.
3. EC Dialogue appears and the actual settings of the detector are displayed.

Commands

Every text box, except I-cell, can be activated by a mouse double-click. A dialogue appears that allows you to change a particular setting. Double-clicking 'Off' in the cell status text box will immediately turn On the cell potential (and visa versa).

Most changes in the dialogues will be effective immediately!

Short keys

Several settings can be changed using short keys. The range can be ALTERed by typing ALT-r (the left 'ALT' key). The text box is now highlighted and the range can be varied by pressing '+' or '=' (increase) or '-' (decrease). The Offset can be changed in a similar way by pressing ALT-o. Autozero or Marker is given by ALT-a or ALT-m respectively.

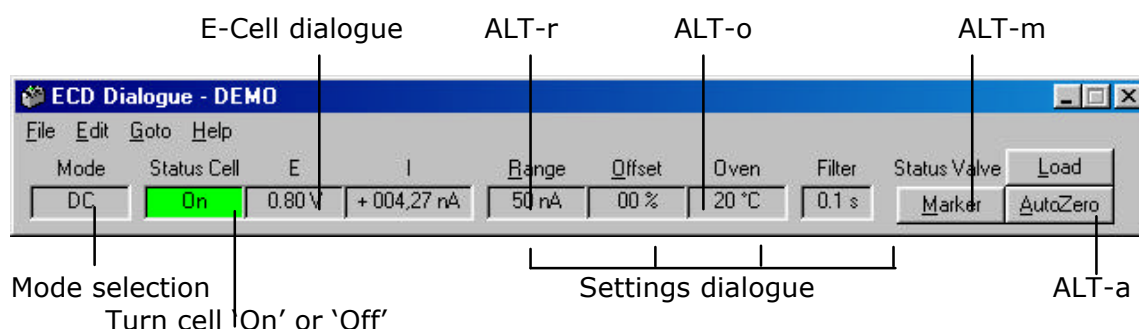
Auto mode and TimeFile editor

The TimeFile editor provides a well-organised spreadsheet for convenient writing of TimeFiles. These TimeFiles are executed in the Auto mode. Programmable parameters comprise cell potential, range, autozero, offset, rise time, electrical injector and control of output contacts.

3. Parameters in EC Dialogue

The settings can be altered by mouse double-clicking on the Dialogue status and control bar. Most functions are also accessible by choosing a menu item or by using short keys. By clicking on the Dialogue text boxes, a settings dialogue window appears. Characteristic for the dialogues is that the settings are effectuated immediately. Unlike most Windows applications EC Dialogue does not use 'Cancel' buttons. The reason is simple: it is more convenient. A minimum of mouse clicks results in a maximum effect. The settings of the detector can be changed real-time without 'OK' confirmation and closing the dialogues.

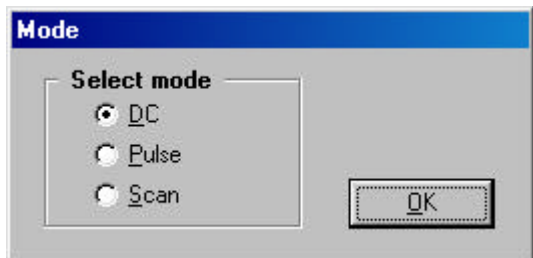
Fig. 2. Mouse double clicks and short keys in EC Dialogue



The dialogues are in fact a temporary extension of the Dialogue. Using these dialogues is the only way to keep the window size of EC Dialogue as small as it is. More than 80% of your monitor screen will be available for display of a chromatogram. The text boxes that respond on mouse double-clicking are outlined in Fig. 2.

Mode

The mode (DC, Pulse or Scan) can be selected by double-clicking on the mode text box or by selecting 'Mode' under the menu option 'Edit'. A dialogue window appears which enables mode selection. The mode is set after confirmation with the 'OK' button. The 'Mode' window also appears after a reset of the detector.



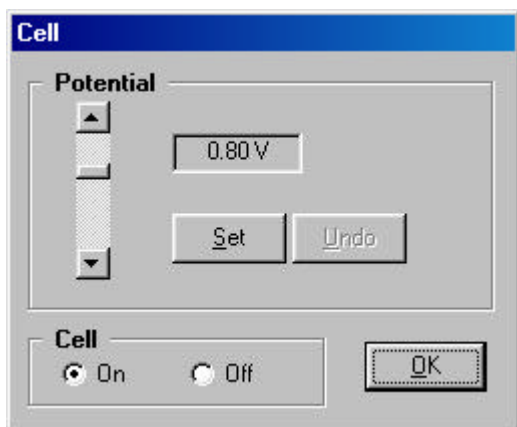
Status Cell

The cell can be turned on or off by double-clicking on the 'Status Cell' text box.

E (DC mode)

A dialogue appears after double-clicking on the 'E' text box which enables setting of the cell potential. Changing the cell potential is effectuated only after pressing 'Set'. If 'OK' is pressed without 'Set' the potential will not be changed. The cell potential in the DC mode is the only parameter that requires a confirmation from the user before changing.

The 'Undo' button resets the E-cell text box to the actual cell potential. The cell status can be changed in the 'Cell' dialogue, switching the cell On or Off is effectuated immediately. The Cell dialogue can also be accessed by choosing 'E-Cell' under menu item 'Edit'.

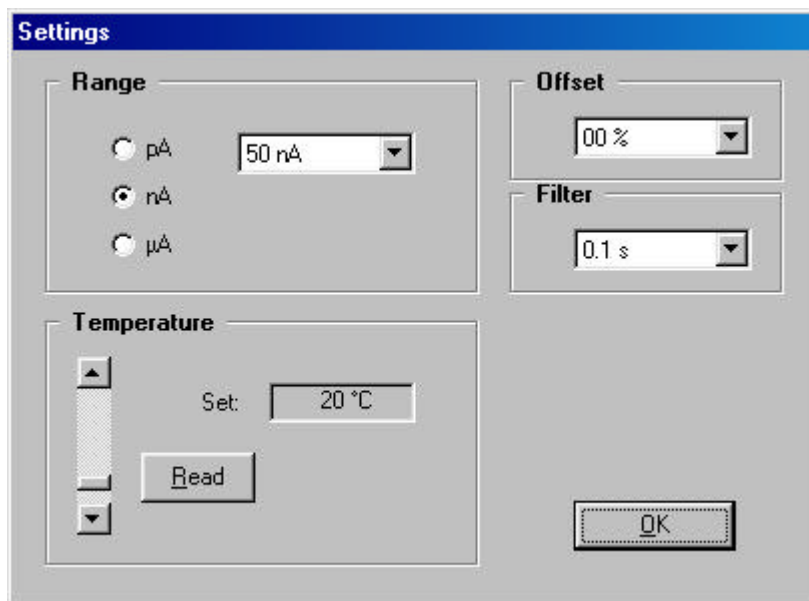


I

The display of the cell current is refreshed every second. The cell current is not affected by the offset and gives important information on the status of the analytical system. When the current exceeds a certain value an 'Overload' message appears.

Range, Offset, Oven and Filter

The 'Settings' dialogue appears after double-clicking on one of the text boxes Range, Offset, Oven or Filter. Pressing 'Read' under dialogue item 'Oven' displays the actual oven temperature. The 'Settings' dialogue can also be accessed by choosing 'Settings' under menu item 'Edit'.

**Range and Offset short keys**

The Range and the Offset can be ALTERed by typing ALT-r or ALT-o respectively. The corresponding text box is now highlighted and the Range or Offset can be varied by typing '+' (increase) or '-' (decrease). The Dialogue only responds on these short keys when it is the top window. Switching between Windows applications is done by ALT-TAB or by a mouse-click on the window of interest.

Marker and Autozero short keys

A Marker or Autozero can be given by pushing the corresponding button or by pressing ALT-m or ALT-a respectively.

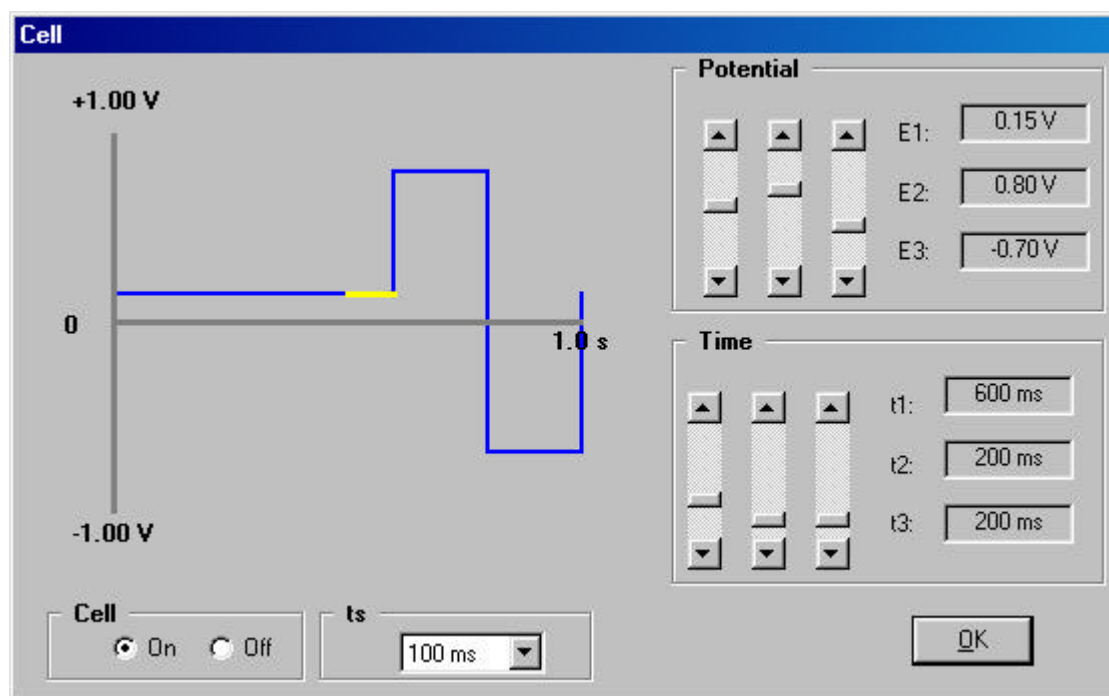
Exit EC Dialogue

EC Dialogue is programmed in a way that the detector is not affected by possible computer problems. Resetting the PC, switching off the PC or terminating EC Dialogue, does not affect the status or functioning of the detector. Each time the program is restarted all settings of the detector are loaded in Dialogue.

On the other hand, if the detector is switched off or if the RS232 mode is left, the EC Dialogue is immediately ended. A message (Dialogue message 6) 'Not in the RS232 mode, no connection' appears. Activating the key lock (under menu item 'Edit') prevents accidental termination of the EC Dialogue this way.

DC, Pulse and Scan mode

The Pulse mode differs from the DC mode in that the cell potential consists of more parameters and that the noise filter is not needed. The shape of the pulse is graphically displayed and the parameters can be set using convenient scroll bars. Similar differences are seen in the Scan mode.

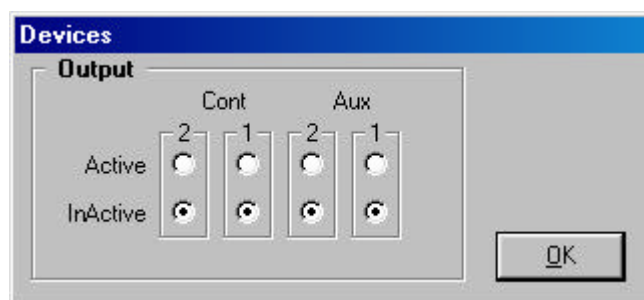


Key lock

When the detector is operated in the RS232 mode the keyboard of the detector can be locked by choosing 'Key lock' under menu item 'Edit'. The key lock is turned off by choosing 'Key lock' again, or by closing EC Dialogue. When the key lock is active and the program is not normally terminated or the PC is turned off, the keyboard of the detector remains locked. Running EC Dialogue again enables unlocking of the keyboard by choosing 'Key lock'. Switching off and on the detector also unlocks the keyboard.

Devices

The status of the I/O ports can be changed by selecting 'Devices' under menu item 'Edit'. The I/O ports Aux 1 and 2 and Cont 1 and 2 are found at the back panel of the detector. Each time the program is started the status of the I/O ports is loaded into the Dialogue. Terminating the program does not change the status of the I/O ports.



4. Auto mode

Auto mode

In the Auto mode a TimeFile can be executed. If the detector is master, it can be executed several times. The number of cycles can be set in the TimeFile editor and the number of executed cycles is given in 'Elapsed'. In the slave mode, a TimeFile is executed each time an external trigger is given.

	time min:sec	integrator range	recorder range	filter	valve position	autozero	offset	output	E cell
1	000:00	pA	20 pA	0.5 s	Inject	Not	-20 %	0101	0.80 V
2	000:01	pA	20 pA	0.5 s	Load	Set	-20 %	0000	0.80 V
3	000:12	nA	50 nA	0.5 s	Load	Not	00 %	1111	0.85 V
4	000:15	End Cycle							
5									
6									
7									

Before running, a TimeFile is created (or loaded) in the TimeFile editor. If the cell potential in the TimeFile differs from the actual cell setting a message appears: 'Parameter conflict' (see page 14). It is necessary to stabilise the cell at the working potential before starting a TimeFile. It is not allowed to start a TimeFile (or to enter the Auto mode when detector = slave) with the cell off.

The TimeFile editor can be used during execution of a TimeFile, however, to avoid conflicts not all parameters are accessible.

5. The TimeFile editor

The TimeFile editor is started by choosing 'TimeFile' under menu item 'Goto'. To make a TimeFile 'New' is selected under menu item 'File'. The time is set at 00:00 and the actual detector settings appear in the first line. These values can be changed by clicking on the corresponding settings in the upper part of the TimeFile editor.

	time min:sec	integrator range	recorder range	filter	valve position	autozero	offset	output	E cell
1	000:00	pA	20 pA	0.5 s	Inject	Not	-20 %	0101	0.80 V
2	000:01	pA	20 pA	0.5 s	Load	Set	-20 %	0000	0.80 V
3	008:00	nA	50 nA	0.5 s	Load	Not	00 %	1111	0.80 V
4	009:00	End Cycle							
5									
6									
7									
8									
9									
10									

Entering a new line

A new line is entered by clicking on an empty time field and typing the new time. The settings of the previous line are copied in the new line. These values can be changed by clicking on the corresponding settings in the upper part of the TimeFile editor.

Inserting a new line

New data lines are automatically sorted by time. Inserting a data line between two existing data lines is done by entering the new time on an empty time field. The new time is automatically placed in the TimeFile. The settings of the previous line are copied in the new line.

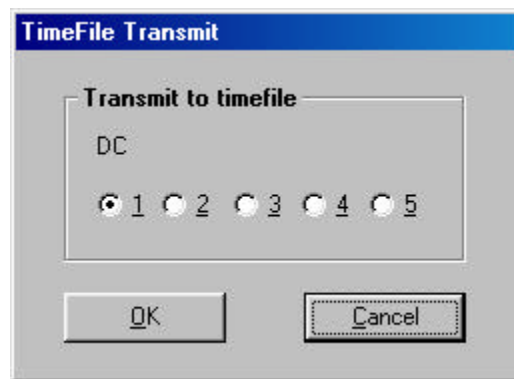
The last time: End Cycle

A TimeFile is ended by entering the 'End Cycle' command in a TimeFile. This is done by clicking on the time field and entering the time that a run should end. The detector settings appear in the data line. The 'End Cycle' command is entered by the 'End Cycle' button. The 'End Cycle' command appears in the data line.

Transmit

A TimeFile can be uploaded to the detector RAM by choosing 'Transmit' under menu option 'File'. A total of 5 TimeFiles can be stored when the detector is in the DC. These TimeFiles can be executed in the Auto mode of the detector independ-

ently from the PC. This option is particularly useful for users of integration software running under DOS.



6. Dialogue messages

Table I. Dialogue messages.

Nr.	Message	Description
1	COM1 not available. Use COM2 ?	COM1 is in use (e.g. by a mouse). Setup automatically looks for COM2.
2	COM1 and COM2 not available. Execution aborted	Both comports are in use. The program needs COM1 or COM2. Try COM3 or COM4 for other hardware.
3	The cell is off!	Scan mode: trying to start a scan with the cell off. Auto mode: trying to start a run with the cell off. In both cases the cell must be on before starting.
6	Not in RS232 mode, no connection	Detector is not in the RS232 mode (return to detector main screen), or an user interruption of the RS232 mode in the detector occurred, or the RS232 cable is of poor quality, or the detector is not equipped with R-version software.
7	Incorrect entry. Time window is between 00:01 and 999:59.	TimeFile editor message.
8	No response, wrong Device ID.	Device ID not correct, execution aborted. Delete DIALOG.INI (in Windows directory) and try again. Often used device settings: ID1=31, ID2=30. Alternatively, the ID's in the detector can be changed in the service mode.
9	Invalid file!	Not the correct file format.
10	Impossible to delete this time!	Time 0:00 can't be deleted.
11	End Cycle time already exists!	Only one End Cycle time is allowed.
12	End Cycle time not valid!	End Cycle time 0:00 is not allowed.
13	'End Cycle' must be the last dataline in TimeFile!	A time larger than End Cycle time exists.
14	Data line entered without time!	A time is always required.
15	TEST.DEC has no End Cycle time!	An End Cycle time is always required.
16	TEST.DEC has been changed, save current changes?	
17	TimeFile contains more than xx data lines!	A TimeFile may contain a maximum of 50 data lines. If a file is transmitted to the detector a maximum of 20 data lines is allowed.
18	A new time must be entered as digits, i.e. 6 minutes and 12 seconds is entered as: 0612 or 6:12 or 6.2	
19	Time already exists!	
20	New time exceeds End Cycle time!	
21	Illegal filename, file xx is in use.	During execution of TimeFile xx it is not possible to overwrite this file.

Nr.	Message	Description
22	The cell is off! Switch on flow cell before entering Automode when detector is 'slave'.	A timefile is immediately executed when entering the slave mode. Therefore the cell must be on. Go to 'Dialogue' to switch on the cell.
23	EC Dialogue set to DEMO mode! No connection. detector not in RS232 mode. Check COM port and settings in Dialog.ini. Check connection. Use only factory supplied RS232 cable.	No connection or connection interrupted. Check all connections. If problem continues, delete Dialog.ini from Windows system directory.
24	No connection, please check cable connection. Reconnect to continue!	Connection interrupted. Check connections. If Timefile is running, restart of Dialogue and Timefile is required.
25	EC Dialogue set to DEMO mode! COM port error	Com port error. If problem continues delete Dialog.ini, or set com port number manually in 'Dialog.ini' in Windows system directory.

Table II. Windows messages.

Message	Description
Device unavailable	COM port is in use. Occurs when EC Dialogue is started while another version of this program is already running.

Parameter conflict

A parameter conflict occurs when the first data line of the TimeFile contains settings that are in conflict with the actual detector settings. For example, such a conflict occurs if in the first line a cell potential is programmed, different from the actual potential. Executing the TimeFile under these conditions, will result in unstable detection conditions. Accepting the suggested changes is advised.

Parameter Conflict

Settings in first line of Timefile conflict with current settings of detector (highlighted red). Choose 'OK' to accept the suggested changes (advised). Stabilisation of the detector is required.

	Ecell	T	Valve	Cont 2	Aux 1
Line 1 in Timefile	+0.80 V	19 °C	Inject	☐	☒
actual status	+0.70 V	19 °C	Load	☐	☐
change to	+0.80 V	19 °C	Load	☐	☐

Cancel OK

A similar conflict occurs if in the first line AUX2 is activated, while the status of this output is already active. In that case this command will have no effect. The parameter conflict dialogue can be used to change the actual status of the detector. When 'OK' is given, the parameters in the lower line are accepted: i.e. the potential is set to 800 mV, the temperature is switched off, and the output AUX2 and contac2 are deactivated.

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