

## ALLTECH 3300 ELSD

Clarity Control Module

ENG

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To facilitate the orientation in the **Alltech 3300 ELSD** manual and **Clarity** chromatography station, different fonts are used throughout the manual. Meanings of these fonts are:

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

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

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

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

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

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**Note:** Notifies the reader of relevant information.

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**Caution:** Warns the user of possibly dangerous or very important information.

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**Marks the problem statement or trouble question.**

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

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

# 1 Alltech 3300 ELSD Control Module

This manual describes the setting of the **Alltech 3300 ELSD** detector. The control module enables direct control of the instrument over Ethernet (LAN) connection.



*Fig. 1: Alltech 3300 ELSD detector*

Direct control means that the detector can be completely controlled from the **Clarity** environment, including the digital data acquisition. That way, no A/D converter is needed. Instrument method controlling the analysis conditions will be saved in the measured chromatograms.

## 2 Requirements

- **Clarity** installation with LC Control module (p/n A24).

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**Caution:** Minimal firmware version required for **3300 ELSD** is **1.0.32**.

- Crossed LAN cable (p/n SK08).
- Both PC and detector connected to the same Ethernet network.

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**Note:** Cables are not part of **Clarity** Control Module. It is strongly recommended to order required cables together with the Control Module.

# 3 Installation Procedure

## 3.1 Hardware - Wiring

The **Alltech 3300 ELSD** detector is controlled by LAN (Ethernet) communication. It uses standard cross LAN cable for direct connection with PC and uncrossed LAN cable when connected to a network hub/switch (however the most of modern switches are able to automatically adapt to both types of cable).

For connecting the detector with other devices using synchronization inputs and outputs there is 14-Pin connector available on the backside of the detector. Pins 1-2 are Start input, used for starting the detector by external device, pins 9-10 accommodate External Output, suitable for controlling some other device. For detailed description of this connector, please check the original manual supplied by manufacturer of the detector.

### 3.2 Clarity Configuration

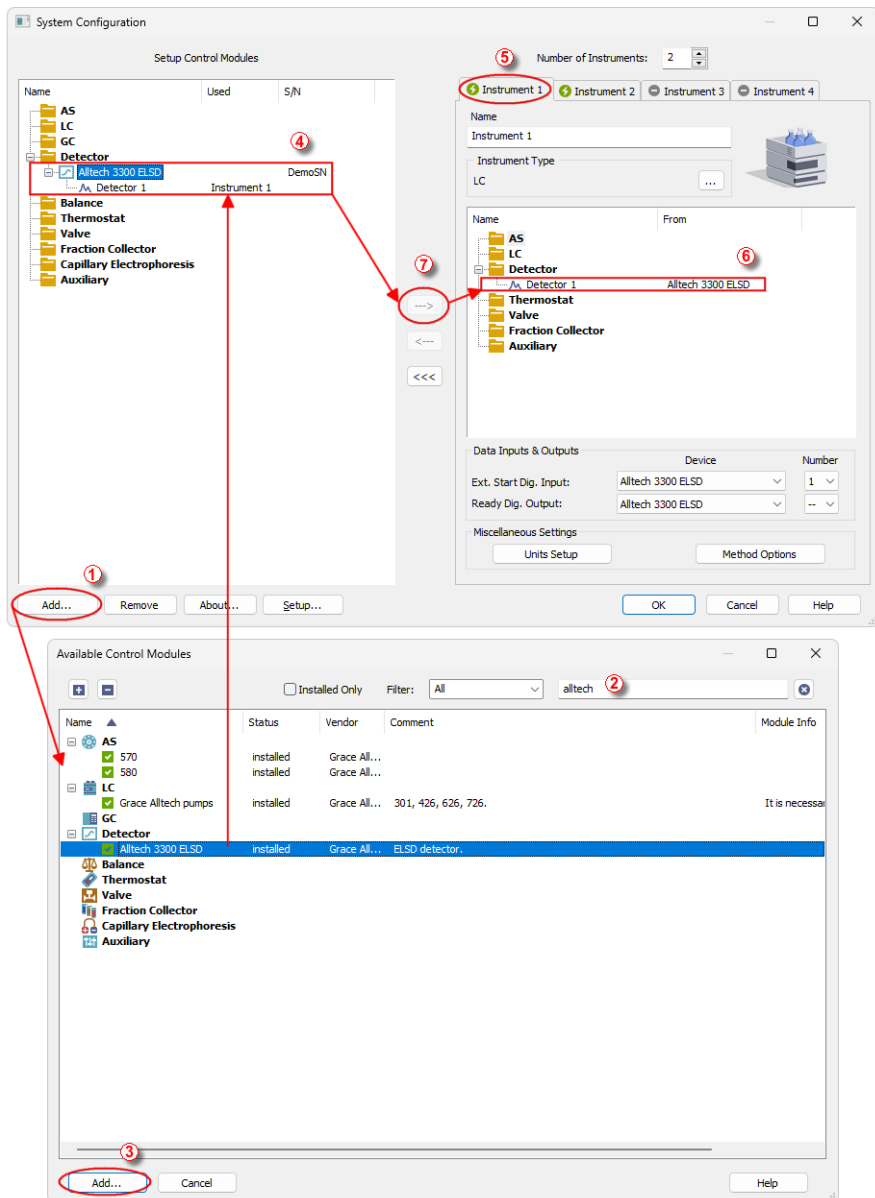



Fig. 2: How to add Alltech 3300



- Start the **Clarity** station by clicking on the  icon on the desktop.
- Invoke the *System Configuration* dialog accessible from the *Clarity* window using the *System - Configuration...* command.
- Press the *Add* button ① (see 3.2 on pg. 4.) to invoke the *Available Control Modules* dialog.
- You can specify the searching filter ② to simplify the finding of the driver.
- Select the **Alltech 3300 ELSD** and press the *Add* ③ button.

The [Alltech 3300 ELSD Setup](#) dialog will appear.

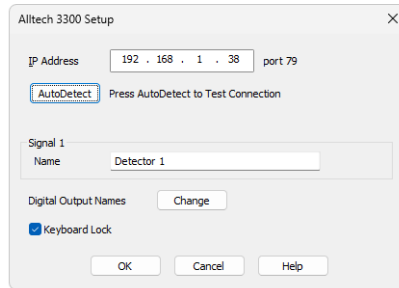



Fig. 3: Alltech 3300 Setup

- Select the correct *IP Address* and press the *AutoDetect* button. If the detector is connected correctly, detector name and serial number will be displayed.
- Fill in the signal name.
- Press the *OK* button.

The **Alltech 3300 ELSD** will appear in the *Setup Control Modules* list ④ of the *System Configuration* dialog.

- Drag and drop the **Alltech 3300 ELSD** icon from the *Setup Control Modules* list ④ on the left side of the *System Configuration* dialog to the desired *Instrument* ⑤ tab on the right side ⑥ (or use the  button ⑦ to do so).

*Note:* The configuration dialog of the **Alltech 3300 ELSD** detector can be displayed any time by double-clicking on its icon or using the *Setup* button.

## 4 Using the control module

New [Acquisition](#) tab is created in the *Method Setup* dialog. If there are any other detectors configured on the instrument, then the **Alltech 3300 ELSD** detector can be accessed by switching to the desired signal in the *Select Detector* section on the top of the dialog.

### 4.1 Alltech 3300 ELSD Setup

The *Alltech 3300 Setup* dialog serves for the correct setting of the communication between **Clarity** and the detector.

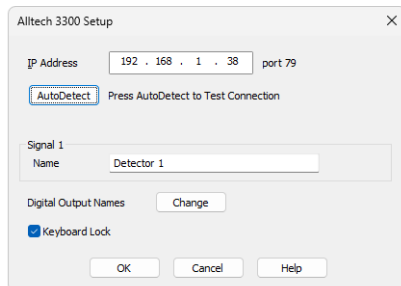


Fig. 4: Alltech 3300 Setup

#### IP Address

IP address of the detector in your local network.

#### AutoDetect

This button is used to test the connection to the **Alltech 3300 ELSD** detector using the previously set *IP Address*. Obtained data about the detector are then displayed in the dialog.

#### Signal 1 - Name

Enables to set the relevant detector name.

#### Digital Output Names

Displays the *Digital Output Names* dialog which enables to set the custom labels of **Alltech 3300 ELSD** digital outputs. The custom names are displayed in the *Device Monitor* window described in the chapter "**Device Monitor**" on pg. 12.

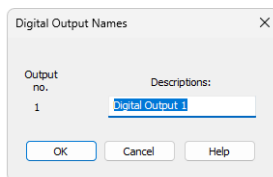


Fig. 5: Digital Output Names

## Keyboard Lock

When checked, locks the keyboard of the detector and prevents other users on the same network to connect the machine.

## 4.2 Digital Outputs of Alltech 3300 ELSD

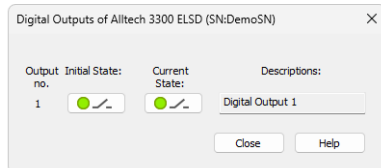


Fig. 6: Digital Outputs of Alltech 3300 ELSD

Serves for setting the initial and actual state of the **Alltech 3300 ELSD** detector's auxiliary output.

## 4.3 Method Setup - Acquisition

This tab serves for the setting of the template method that is used by the **Alltech 3300 ELSD** detector for the acquisition. All parameters set on this tab are automatically sent to the **Alltech 3300 ELSD** detector prior to each injection in the *ACTIVE* sequence and may be sent there manually by using the *Send Method* button in the lower part of this tab or in the *Single Analysis* dialog.

Some analysis parameters cannot be modified neither from **Clarity** nor directly on the **Alltech 3300 ELSD** detector. These parameters are not changed when sending the method to the detector.

Setting of the acquisition parameters is spited into the Settings and [Time Table](#) tabs.

### 4.3.1 Method Setup - Acquisition - Settings

Settings tab for adjusting the parameters of the detector.

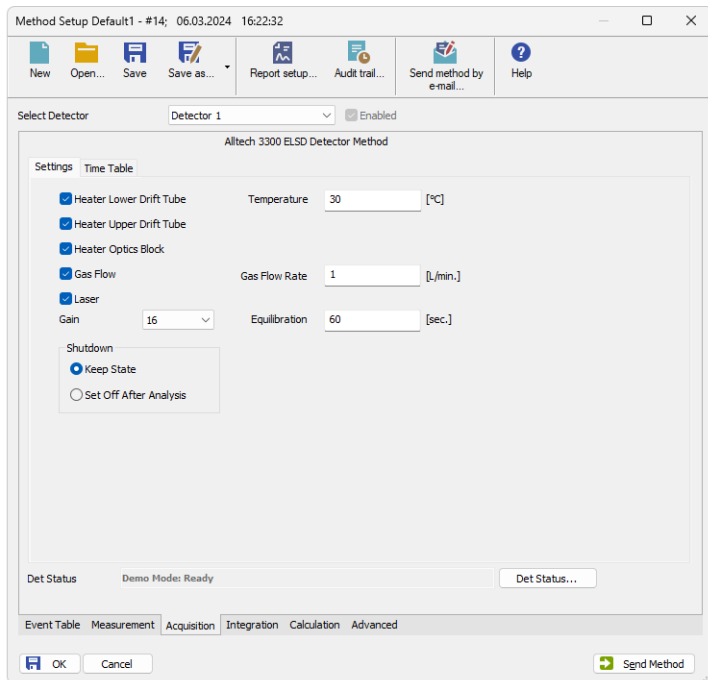


Fig. 7: Method Setup - Acquisition

### Heater Lower Drift Tube

Turn on the heater of the lower part of drift tube.

### Heater Upper Drift Tube

Turn on the heater of the upper part of drift tube.

### Heater Optics Block

Turn on the heater of the optics block.

### Gas Flow

Turn on the flow of carrier gas.

### Laser

Turns on the laser.

### Gain

Sets the gain of the detector.

### Shutdown

Sets the behavior of the detector after the analysis is completed.

#### Keep State

Detector keeps the *ON* state.

#### Set Off after analysis

Set the detector *OFF* after an analysis is performed.

**Temperature**

Sets the temperature of the drift tube.

**Gas Flow Rate**

Sets the flow rate of the carrier gas.

**Equilbry Time**

Set the time required for equilibration of gas flow and temperatures. The detector will become ready if the actual temperature stays within  $\pm 1.5$  °C of the temperature set in the *Temperature* field and the flow stays within *0.3 ml/min* of the value set in the *Gas Flow Rate* field. When any of the two parameters exceeds the limits, the timer set in the *Equilbry Time* field resets.

**Lower section of the Method Setup - Acquisition dialog**

In the right section on all *Method Setup - Acquisition* sub-tabs for **Alltech 3300 ELSD** detector new button emerges:

**Det Status...**

After pressing the *Det Status...* button the *Hardware Configuration* dialog opens. It displays the detector type, LAN address through which it is connected and the port used.

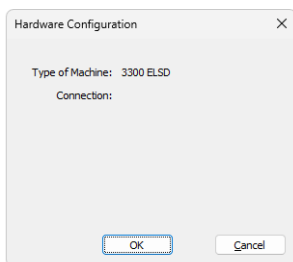


Fig. 8: Hardware Configuration

**4.3.2 Method Setup - Acquisition - Time Table**

This sub-tab serves for time program to change operating parameters during run.

Available *Event Types* are : *Autozero*, setting the zero for detector output, and *Gain*, setting the gain of the detector.

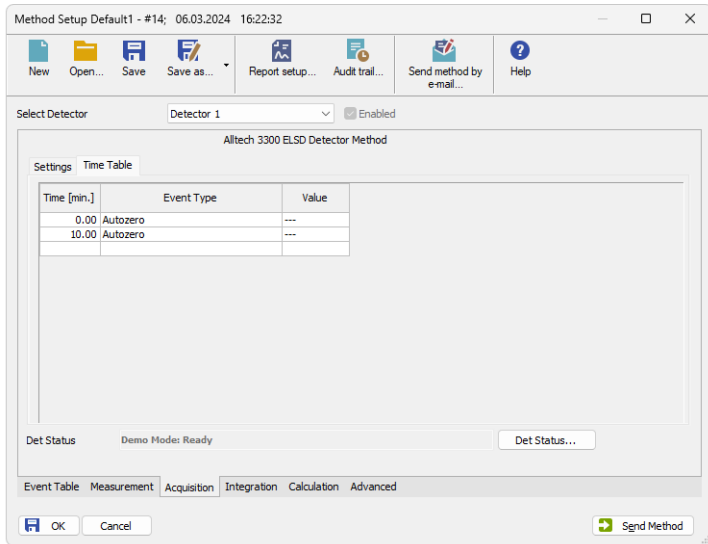


Fig. 9: Method Setup - Time Table

## 4.4 Method Setup - Advanced

Sets other parameters of the method, most notably the *Subtraction* and Auxiliary Signals. When invoked by the menu command, the *Method Setup - Advanced* dialog will open. The tab is common to all signals while performing multidetector measurement.

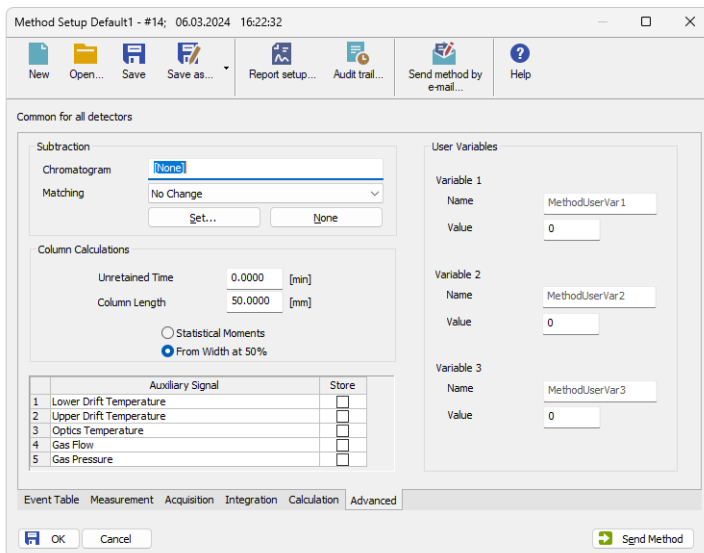


Fig. 10: Method Setup - Acquisition - Advanced

### Subtraction

Set the chromatogram for subtraction from the measured signal.

### Column Calculations

Set the parameters of the column.


### Auxiliary Signal table

Set which auxiliary signals will be stored in the chromatogram file.

### User Variables

Allows user to set and store variables

## 4.5 Device Monitor

The window with the detector status can be invoked by the *Monitor - Device Monitor* command from the *Instrument* window or using the  *LC Monitor* icon. It displays the actual detector temperatures and their settings in the [Method Setup - Acquisition](#) window, as well as other parameters set there.

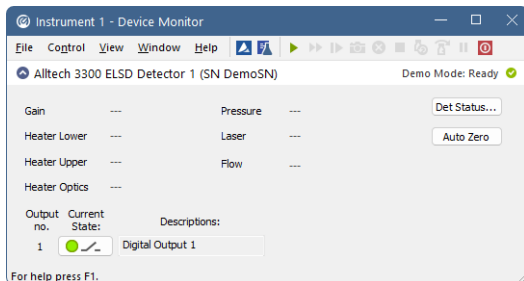


Fig. 11: Device Monitor

The detector can be monitored and partially controlled from the *Device Monitor* window. There is a control command allowing the AutoZero function, all other fields are informative and described in the [Method Setup - Acquisition](#) dialog.

### Auto Zero

This button performs the autozero operation.

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**Note:** Values which exceeds expected limits are displayed in red color.



## 5 Report Setup

All of the detector settings accessible on the [Method Setup - Acquisition](#) tab for the given signal are reported. To do so, the *Instrument Control* parameter on the *Method* tab of the *Report Setup* dialog must be checked.

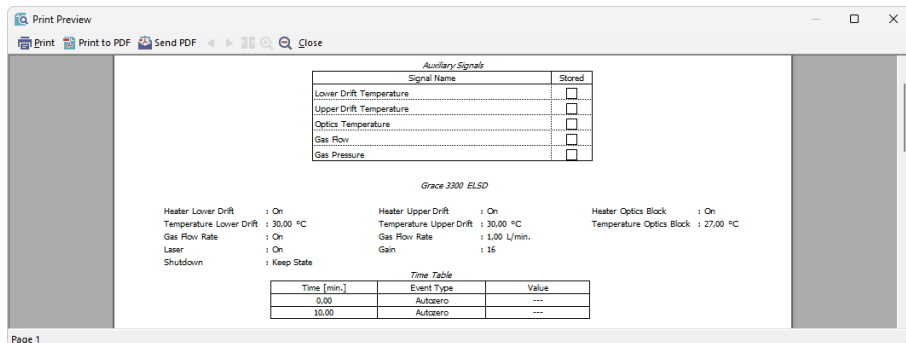


Fig. 12: Print Preview of the Report Setup

## 6 Troubleshooting

When the remedy for some problem cannot be discovered easily, the recording of communication between **Clarity** and the detector can significantly help the **DataApex** support to discover the cause of the problem.

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

```
[TCP_IP 192.168.0.100:79]
echo=on
textmode=on
filename=Alltech3300ELSD_%D.txt
reset=off
```

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**Note:** Instead of 192.168.0.100:79 type correct IP address and port used for communication with the **Alltech 3300 ELSD** detector. This port number is displayed when the *Det Status* button in the [Method Setup - Acquisition](#) dialog is invoked.

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

The created \*.TXT files will greatly help in diagnosis of unrecognized errors and problems in communication.