GANN Mess- u. Regeltechnik GmbH

USER GUIDE

GANN Dialog Pro User Guide

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Document Revisions

Date	Version Number	Document Changes
22/05/2019	1.1	GANN Dialog Pro 1.0.0
15/04/2021	1.2	GANN Dialog Pro 2.x.x

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Abbreviations

The following abbreviations are used in GANN Dialog Pro:

Abbreviated Term	Description
YL1	First Left Vertical Y-Axis
YL2	Second Left Vertical Y-Axis
YL3	Third Left Vertical Y-Axis
YR1	First Right Vertical Y-Axis
YR2	Second Right Vertical Y-Axis
(L), (1)	First Sensor or Sensor on the first measurement channel
(R), (2)	Second Sensor or Sensor on the second measurement channel
Id	Unique Identifier
Mat. Id.	Id of the material
sensorIDL	Identifier or Id. of the first sensor
sensorIDR	Identifier of Id. of the second sensor
Config.	Configuration settings
LOG	Logger measurement data
CONF	Configuration metadata
GRID	Grid measurement data
LIST	List measurement data
Sensor (1)	First Sensor
Sensor (2)	Second Sensor

Table 1: Abbreviations used in GANN Dialog Pro

1 Introduction

GANN Dialog Pro is used to import measurement data from the Hydromette CH 17, to analyze that data, or to export a pre-configuration for measurement data to a Hydromette CH 17.

Measuring data imported from the Hydromette CH 17 are hierarchically organized as follows:

- **project folder** (collection of measuring projects)
- **project** (collection of batches)
- **batch** (set of measured values)

The program includes the following functions:

- Adding of metadata (images, text, comments, etc.) to measurement data
- Importing the measured data to your PC
- Creating or exporting a pre-configuration for a project folder to your Hydromette CH 17
- Tabular and graphic display of imported measured values
- Exporting data as Microsoft Excel or image files
- Hydromette CH 17 firmware update and upgrade
- Statistical interpretation of measured data

1.1 Hardware Requirements

These are the minimum recommended hardware systems requirements:

- 2 GB RAM (system memory)
- 5 GB of hard-drive space
- USB interface

1.2 Software Requirements

GANN Dialog Pro can be run with the following operating systems:

Windows 7, Windows 8.x and Windows 10

1.3 Installing/Uninstalling the Software

The ".exe" file of GANN Dialog Pro can be downloaded at https://download-ota.gann.de/dlg/. Then it can be installed on a local computer.

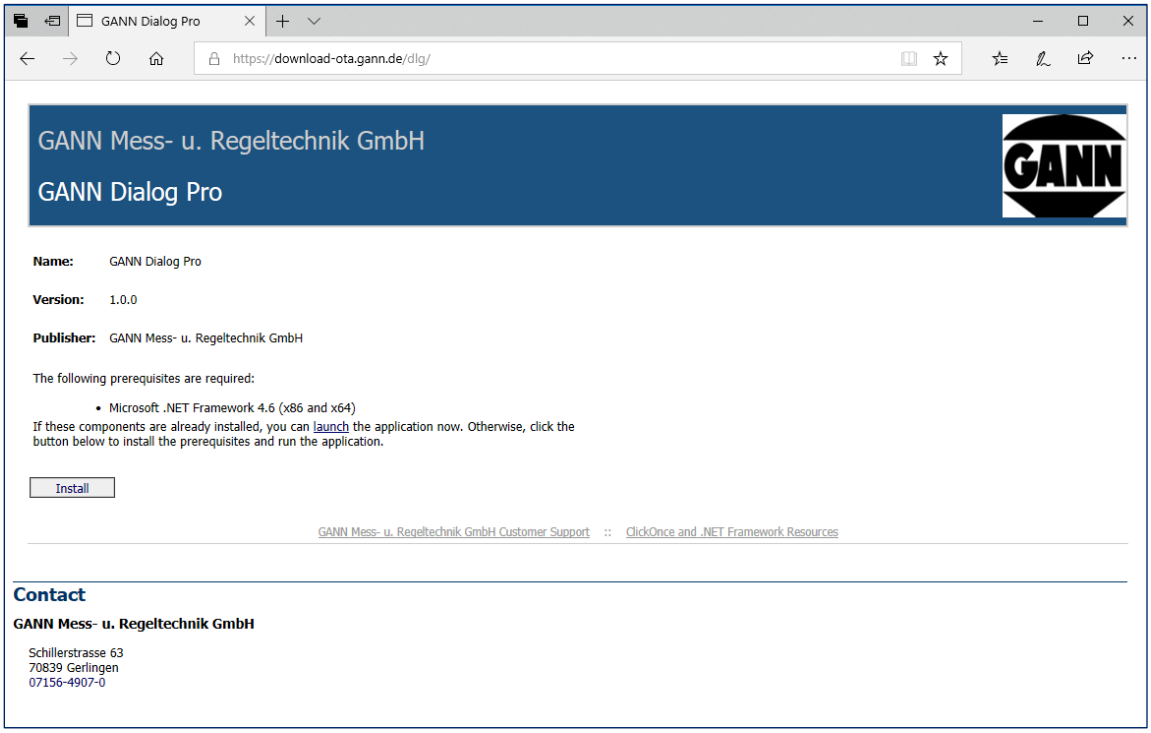

Figure 1-1: GANN Dialog Pro download website

Figure 1-1 shows a screenshot of the installation user interface (UI). To install GANN Dialog Pro, proceed as follows (please make sure your firewall does not block the installation process):

- Click on the "Install" button (a)
- The "setup.exe" file will be downloaded to your computer (generally to your "Downloads" folder)
- Open your "Downloads" folder and double-click on the file "setup.exe".
- Click on the "Install" button as shown in Figure 1-2.
- The software will start automatically.

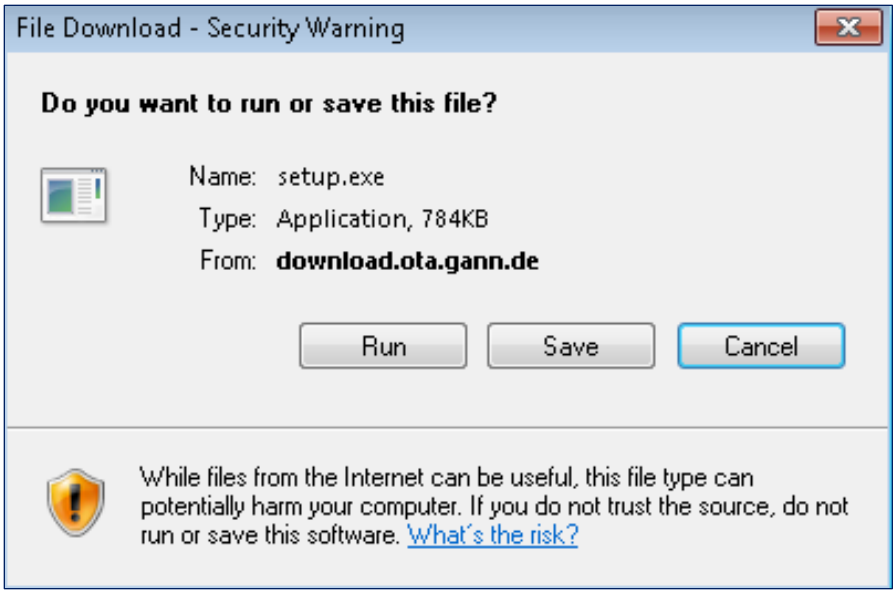

Figure 1-2: Software installation screenshot

The application user interface will then appear as shown in Figure 1-3. An icon should be created on your desktop and in the program list (Windows Start Menu).

GANN Dialog Pro is always installed for a single Windows user account. **To uninstall the program** go to Windows' "Control Panel", click on the program and select "Uninstall".

1.4 Starting the Software

To start the software, select GANN Dialog Pro on your program list, or double click on the icon on your desktop. The main user interface looks like this:

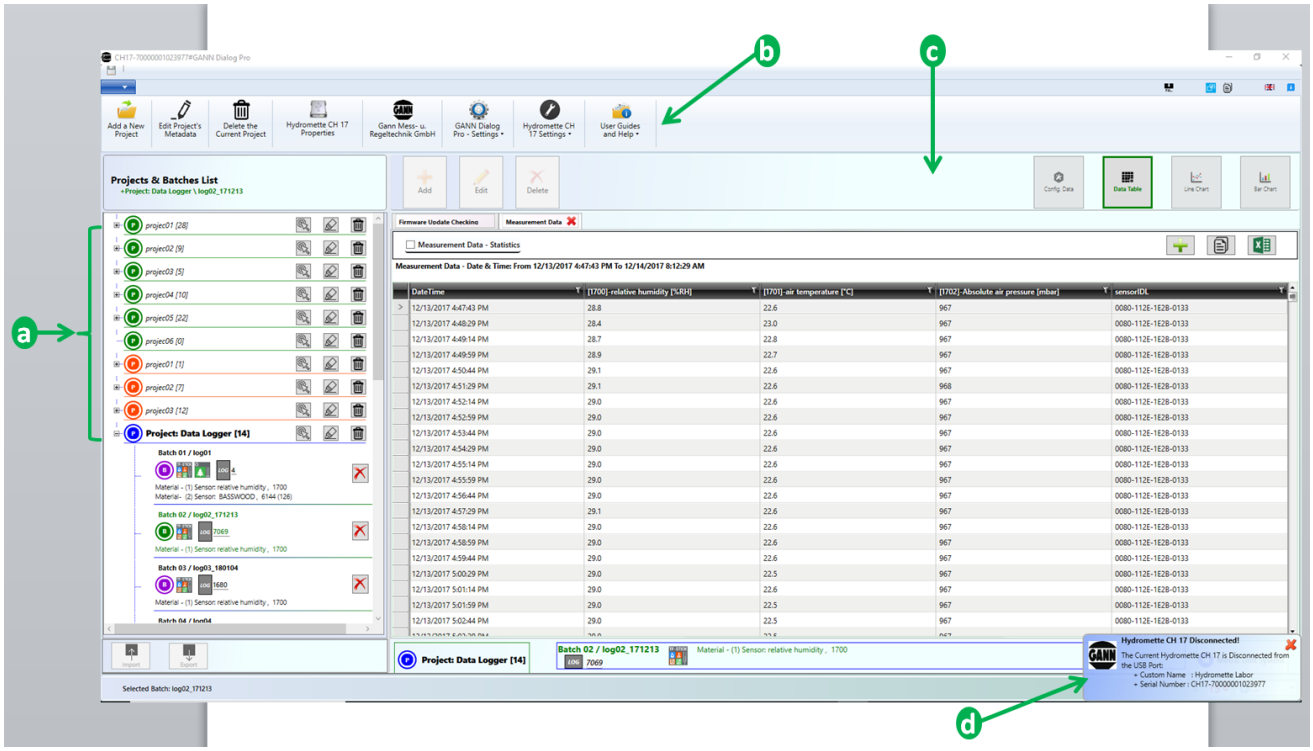

Figure 1-3: main user interface

- The left area [a] contains all the projects and batches of the current project folder. When a batch is selected in the left panel, the details of the selected item are shown in the right panel [c].
- The buttons on the right enable different kinds of representation for measurement data (table or graphics). The toolbar [b] contains several buttons.
- One or more notifications ([d]) may appear in the lower-right corner of your screen. when GANN Dialog Pro wants you to pay attention to an event or important message.

1.5 Installing drivers for the Hydromette CH 17

After GANN Dialog pro has been installed, a dialog box will pop up prompting you to install the drivers for the Hydromette CH 17 (see Figure 1-4). Click on the "OK" button.

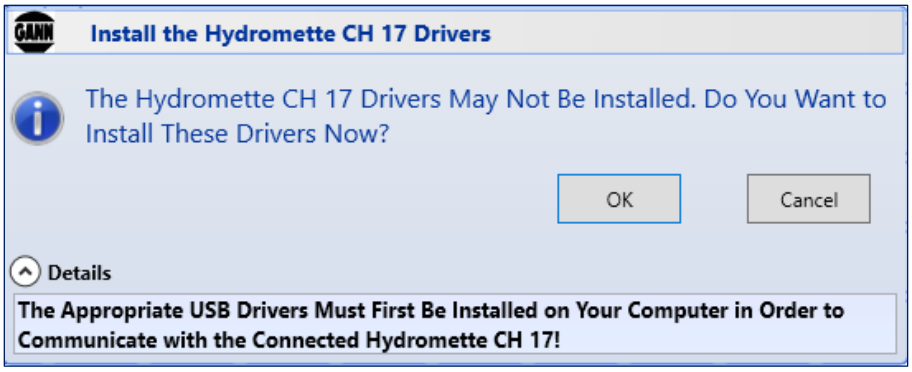

Figure 1-4: driver installation pop-up menu

If you prefer to install the drivers later, pull down the menu “Hydromette CH 17 Settings” on the main toolbar, then select “Install the Hydromette CH 17 Drivers” (a in Figure 1-5).

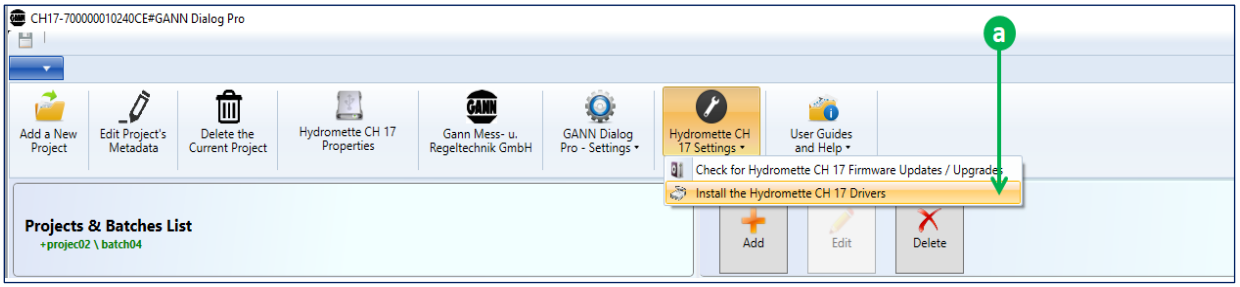

Figure 1-5: manual installation of the Hydromette CH 17 drivers

1.6 GANN Dialog Pro Software Update

If a new version of GANN Dialog Pro is released, it will not be necessary to uninstall the existing version first.

- **Automatic Check for Software Update**

The program checks automatically whether a new release of the software is available. If that is the case, a dialog box will appear and enable the user to download the new software release by clicking on the "OK" button.

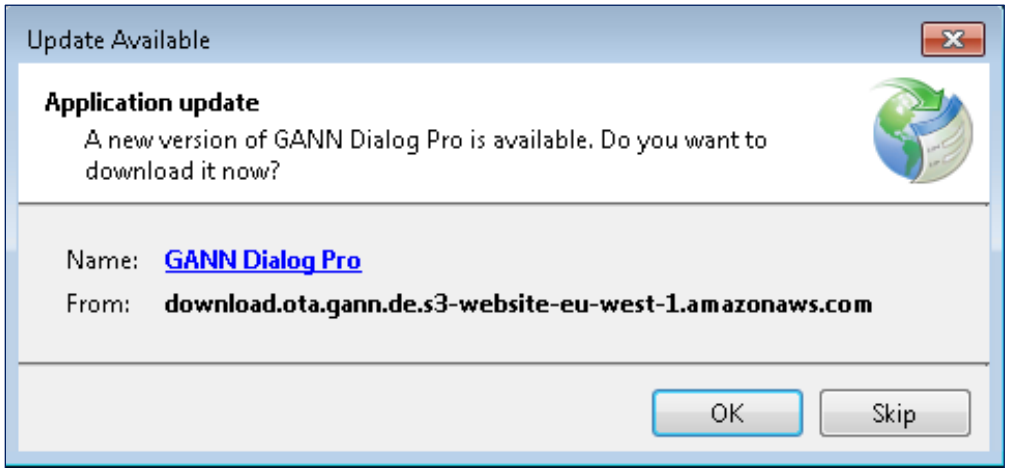

Figure 1-6 : dialog box – automatic software update

- **Manual Check for Software Update**

You can also check manually if a new software version is available. Select "GANN Dialog Pro" and then click on [a] "Check if a New Software-Update…" (Figure 1-7).

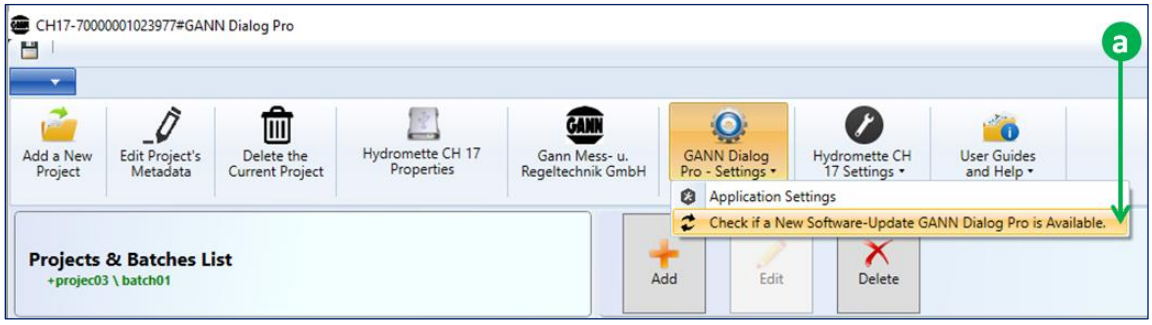

Figure 1-7 : manual software update

1.7 User Handbooks

The user guides for GANN Dialog Pro and for the Hydromette CH 17 can be downloaded by clicking on [a] in figure 1-8.

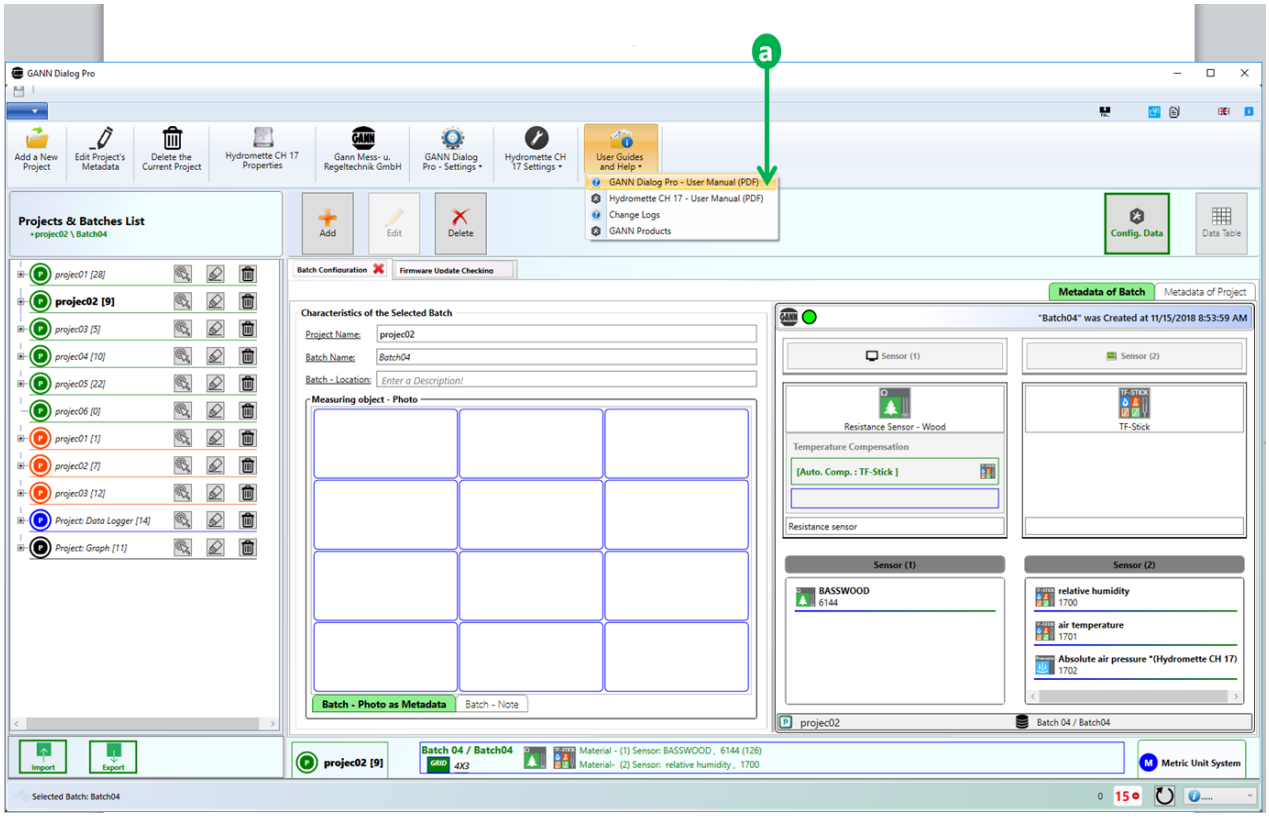

Figure 1-8: download of user guides for GANN Dialog Pro and Hydromette CH 17

2 Software Overview

2.1 Presentation

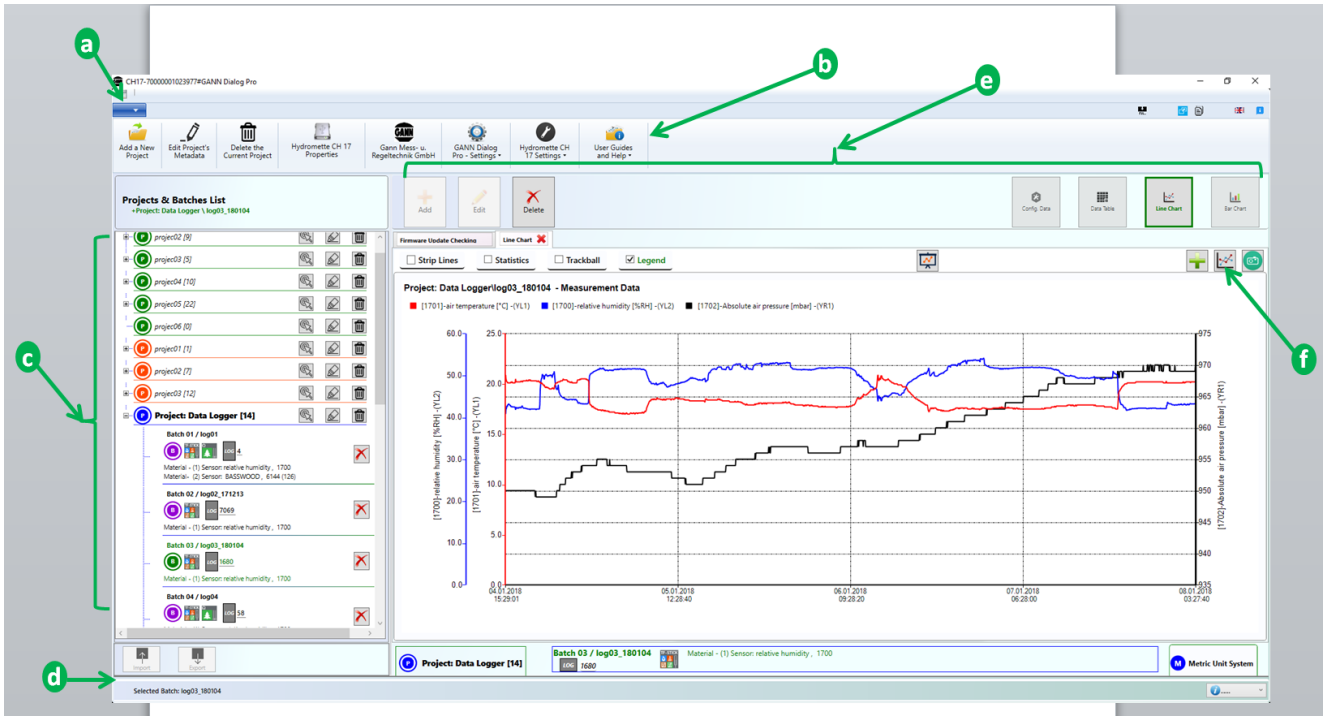

Figure 2-1: main application menus

Figure 2-1 shows an example of the user interface (UI):

- The drop-down menu [a] contains additional menus, e.g. to add a new project, or to import a project from an SD card.
- The toolbar [b] offers a variety of options.
- The panel [c] shows the list of projects and batches. A project is a collection of batches, which, in turn, consist of several individual measurements. You can select a project from the project list, and a batch from the batch list. Selected elements appear in bold (fig. 2-1: "**project03**" and "**batch01**"). In addition, a selected batch will be in green font. The details of the selected batch will be displayed on the right panel [e].
- The status bar [d] informs you about the selected element.
- The right part of the screen shows the selected batch in detail. The buttons marked with [e] can be used to delete and edit the current batch, or to add a batch to the batch list. Furthermore, the current measurement data can be displayed in tabular or graphic forms. The buttons marked with [f] offer other options for the selected batch (i.e. exporting it as an image file, etc.) .

2.2 Measurement Data Structure

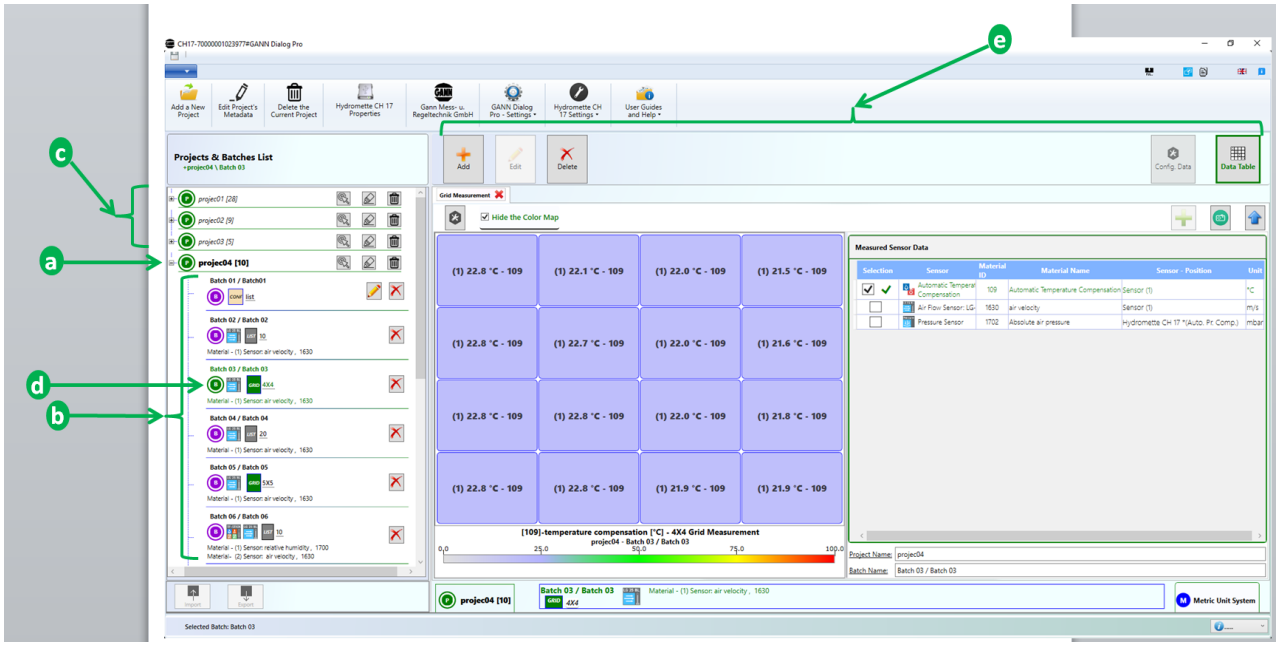

Figure 2-2: projects and batches

A standard **project folder** as shown in Figure 2-2 is structured as follows:

The list of **projects** [c] is displayed on the left panel. A project consists of batches; a batch consists of individual measurements. The **batches** are listed below each project item. The measurement data of a Hydromette CH 17 can be stored in two ways (see chapter 2.4 for more details):

- On the device's EEPROM[1]; then the project will be referred to as an **EEPROM project** (orange icon)
- On the SD card; a project containing simple list measurements is an **SDcard project** (green icon); long-term measurements will be saved as **log projects** (blue icon)

To navigate through different projects (see items in Figure 2-2 shown by the menu [c]), just click on one project in the list. The arrow [a] in Figure 2-2 shows the currently selected working project in the project folder. A **selected project** is always marked in **bold**.

To navigate through different batches in the current project, click on the respective icon. The arrow [b] in Figure 2-2 shows the list of batches from the selected project on [a]. The currently **selected batch** [d] is always displayed in **bold and green**. The details of each

[1] electrically erasable programmable read-only memory

selected batch are displayed on the right panel of the main application user interface (e in Figure 2-2). More information can be found in chapter 9.5.

2.3 Tooltips

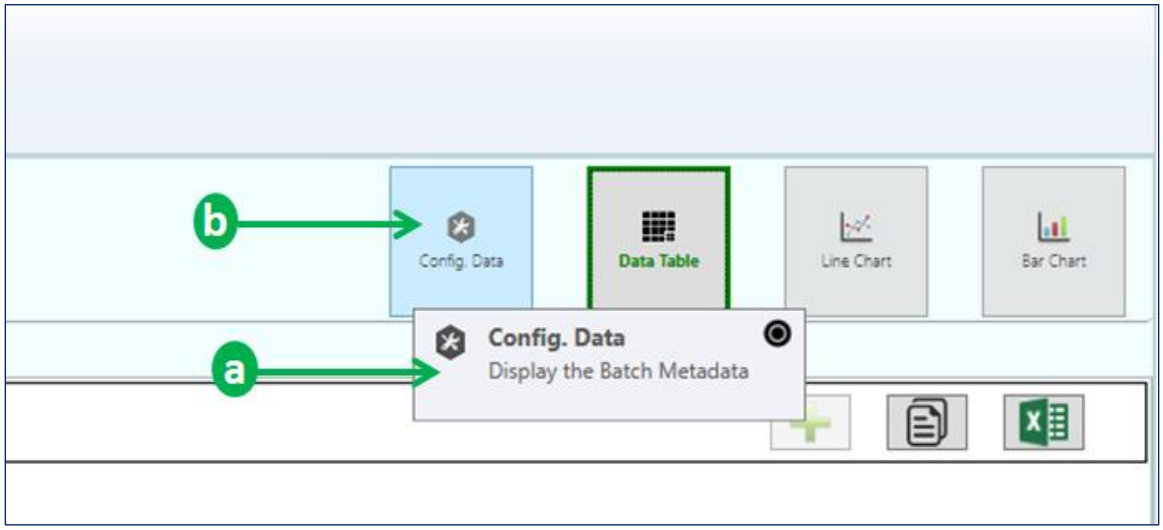

Figure 2-3: tooltip indicating possible action

Tooltips offer quick help for several particular buttons. They will appear if the cursor hovers over such a button.

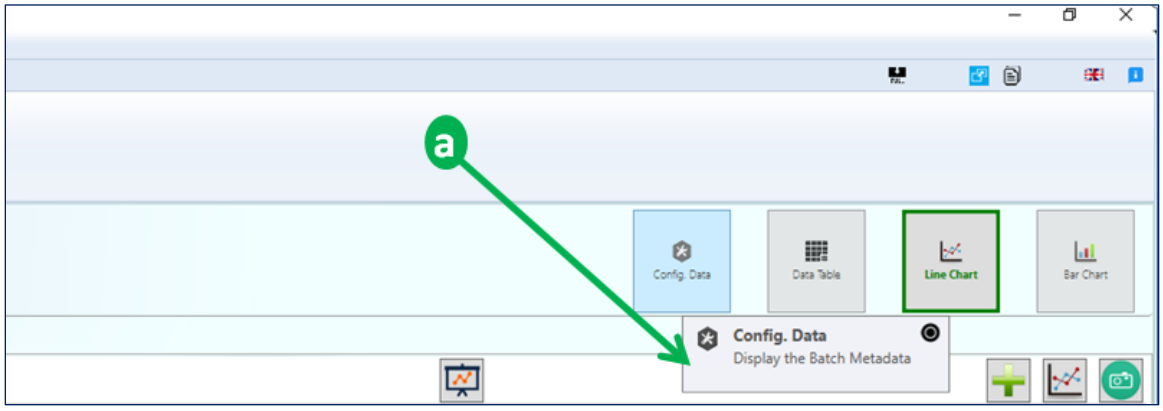

Figure 2-4: tooltip (purely informative)

There are two types of tooltips:

- **Tooltip indicating possible action**
  Figure 2-3 shows a tooltip a when the cursor hovers over the "**Config Data**" button b. The pointer icon "◉" indicates that, upon clicking, an action will be executed.
- **purely informative Tooltip**
  Figure 2-4 shows an example for a tooltip a for a passive user control: Such controls are generally not associated with an action. No pointer icon appears.

2.4 Types of Projects

A batch contains a set of measured values is represented by this icon:

Projects stored in the Hydromette CH 17 are categorized as

- **EEPROM Projects** (saved on the internal EEPROM)
- **SD-Card Projects** (saved on the SD memory card in the device)
- **Log Projects** (set of long term measurement data, also saved on the SD memory card)
- **Graph Projects** (set of measurement data that are graphically displayed on the Hydromette CH 17).

An **EEPROM Project** is represented by an orange icon:

Figure 2-5: representation of an **EEPROM Project** (the number in square brackets always refers to the number of batches in the project)

Standard projects containing list or grid measurement data saved on the SD Card, are called **SD-Card Projects** and represented by a green icon:

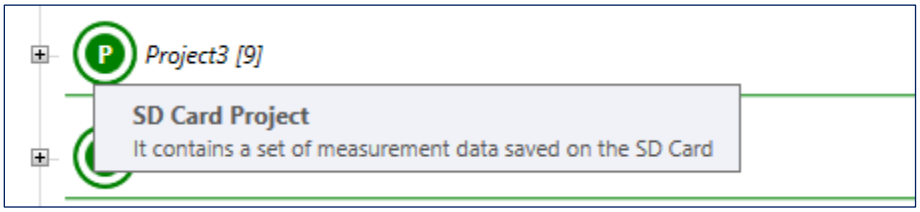

Figure 2-6: representation of an **SD Card Project** (containing nine batches) with tooltip

Long term measurements are combined in so-called **Log Projects** and are always represented by a blue icon:

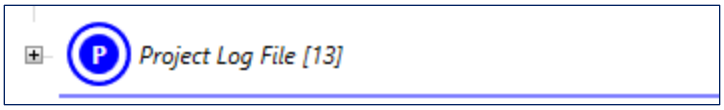

Figure 2-7: representation of a **Log Project** (containing thirteen batches)

Graphical measurements that are displayed on the Hydromette CH 17 are also logged on the SD memory Card. The corresponding project will be a **Graph Project** represented by a black-Icon:

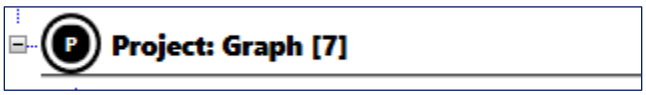

Figure 2-8: representation of a **Graph Project** (containing seven batches)

A project folder, which contains a collection of projects, is represented by this icon:

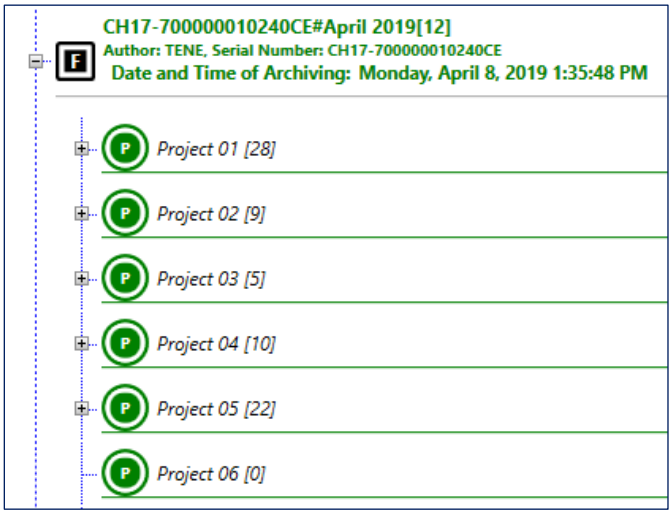

Figure 2-5: A **project folder** (with 12 projects, see the number put in squared brackets)

3 Importing a Project Folder into your Workspace

The measurement data stored in the Hydromette CH 17 can be imported into GANN Dialog Pro either via the USB interface or directly from the SD memory card.

3.1 Transferring a Project Folder via USB

First, connect your Hydromette CH 17 to your PC. The PC software will automatically detect the connected device. As shown in Figure 3-1, the "Import" and "Export" buttons (*a* and *b* in Figure 3-1) will become active. Then a notification (*c* in Figure 3-1) will pop up. The notification icon indicates that the connected device will be associated to the current project folder on your PC.

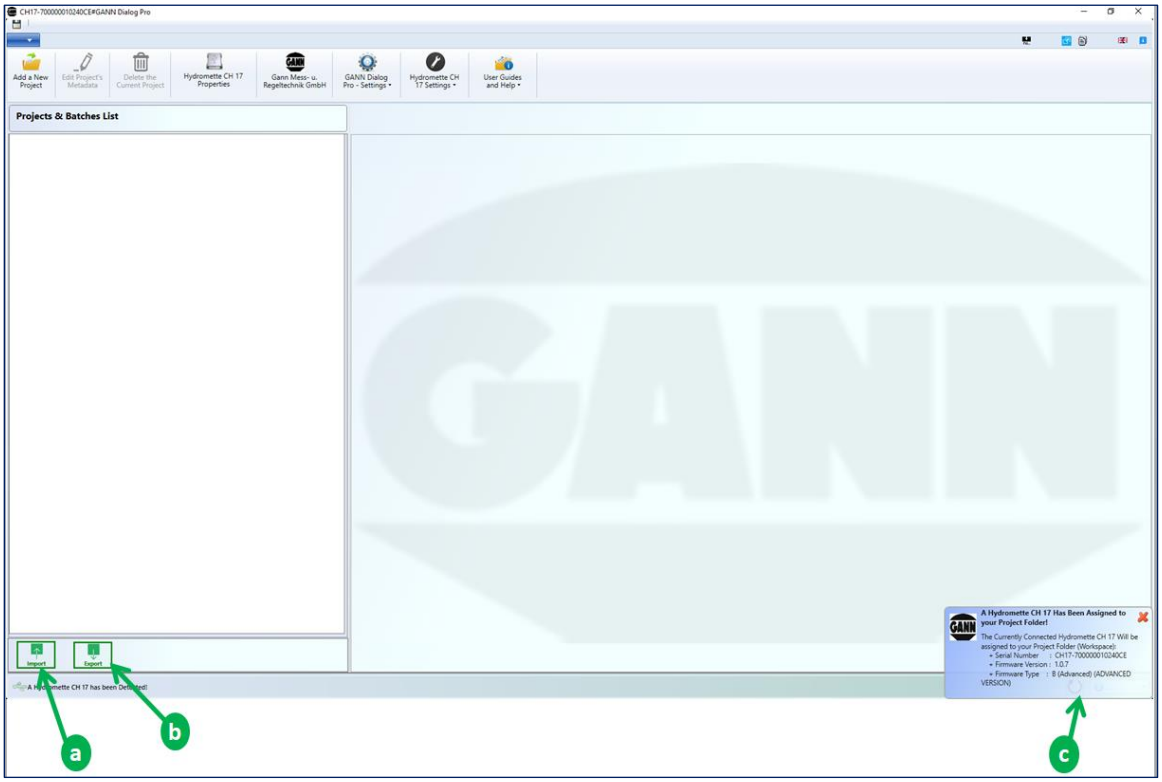

Figure 3-1: importing a project folder from a Hydromette CH 17

Then click on the button "Import" to transfer the data to your PC software. The project folder panel will be approximately the same as shown in Figure 2-2.

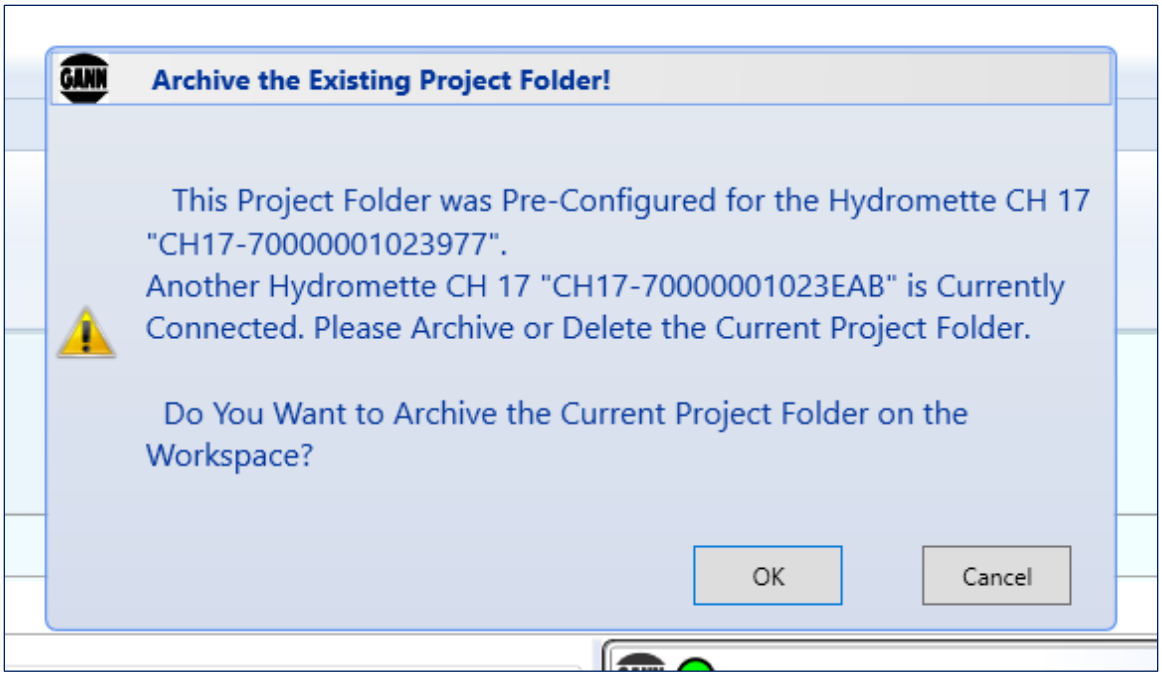

Figure 3-2: archive the existing project folder

If your project folder is not empty and you are trying to transfer a project folder from a device with a serial number that is different from the one that the current project folder was created with, the warning in figure 3-2 will appear.

3.2 Importing a Project Folder from an SD Memory Card or a Local Directory

Project folders can be imported both from an SD memory card and from other storage locations (e.g. a directory on your computer).

Open the drop-down menu [a] in Figure 3-3, then select the menu “Import a Project Folder” [b] .

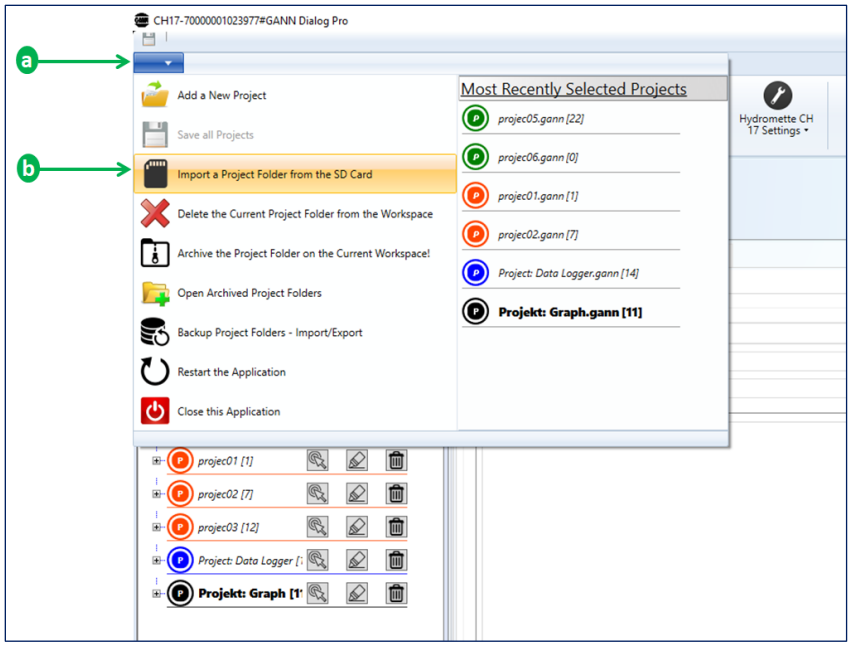

Figure 3-3: drop-down menu ("from the SD card" rausnehmen, dann wird's verständlicher)

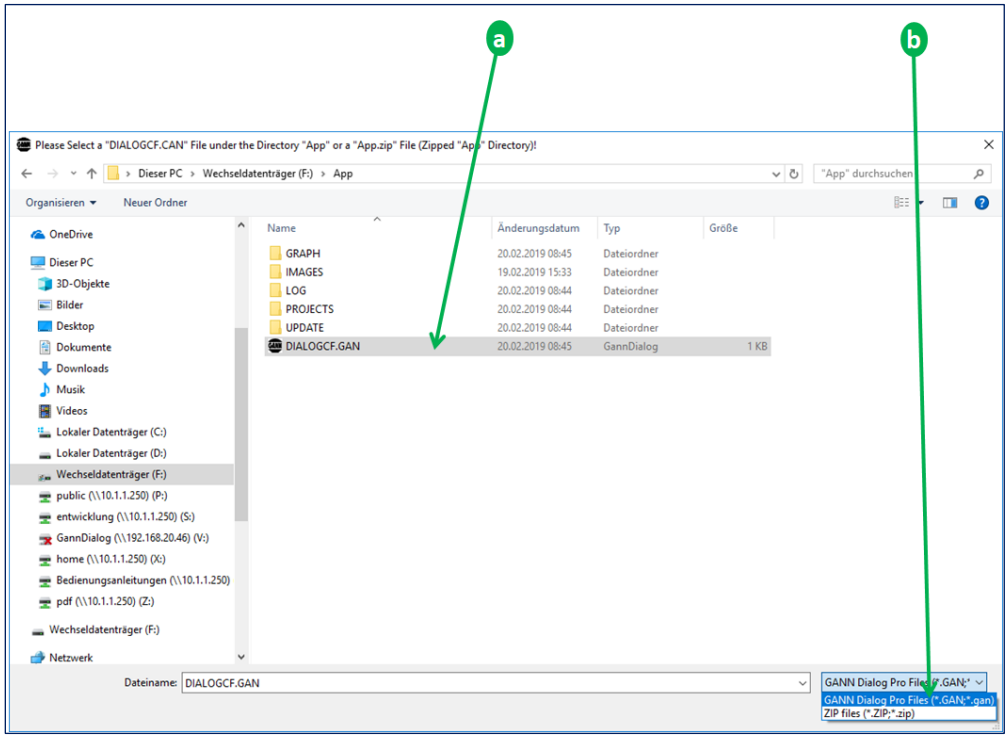

Figure 3-4: selection of the file "DIALOGGF.GAN"

Select the file "**DIALOGCF.GAN**" (*a* as shown in Figure 3-4). The entire project folder will be transferred to GANN Dialog Pro.

Importing a compressed ("zipped") project folder is possible, too. Instead of selecting ".gan" (see [a] in Figure 3-4), select **"Zip files (*.zip)"** ([b] in Figure 3-5), and then doubleclick the zipped file "App.zip" ([a]).

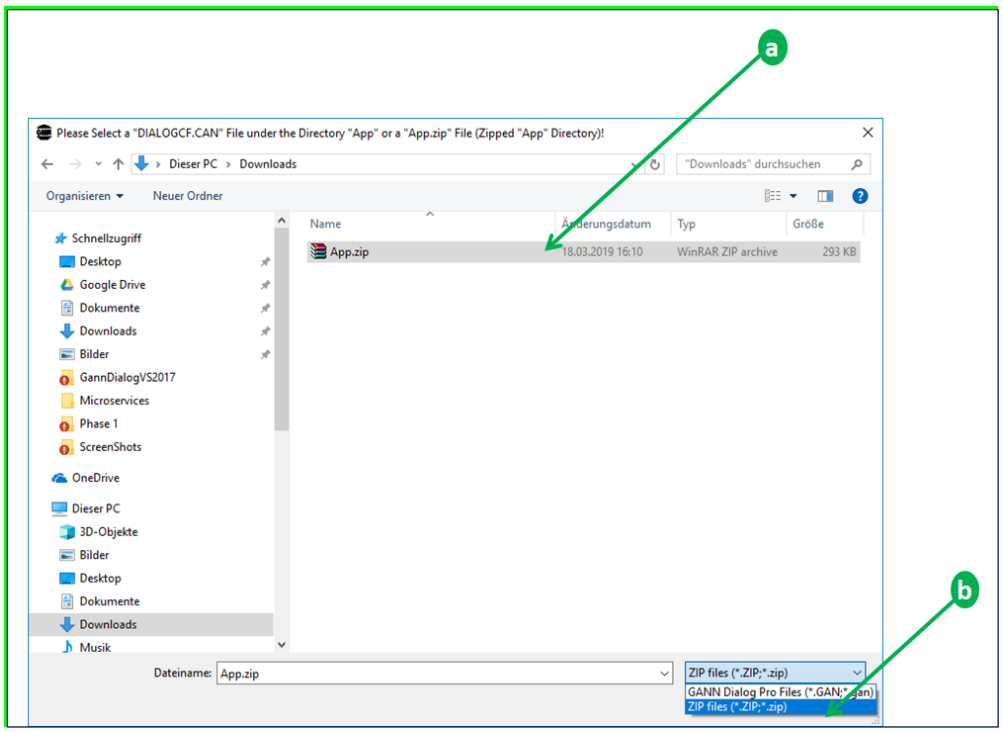

Figure 3-5: Importing a compressed project folder "App.zip"

3.3 Compressing the Current Project Folder as a ".zip" File

The content of the current project folder (see the "App" folder in Figure 3-4) can be compressed ("zipped"). Such a zipped project folder can then be re-imported using GANN Dialog Pro.

To create such a zipped file, select the menu item [a] "**Compress the Current Project Folder as a ".zip" File!"** in Figure 3-6.

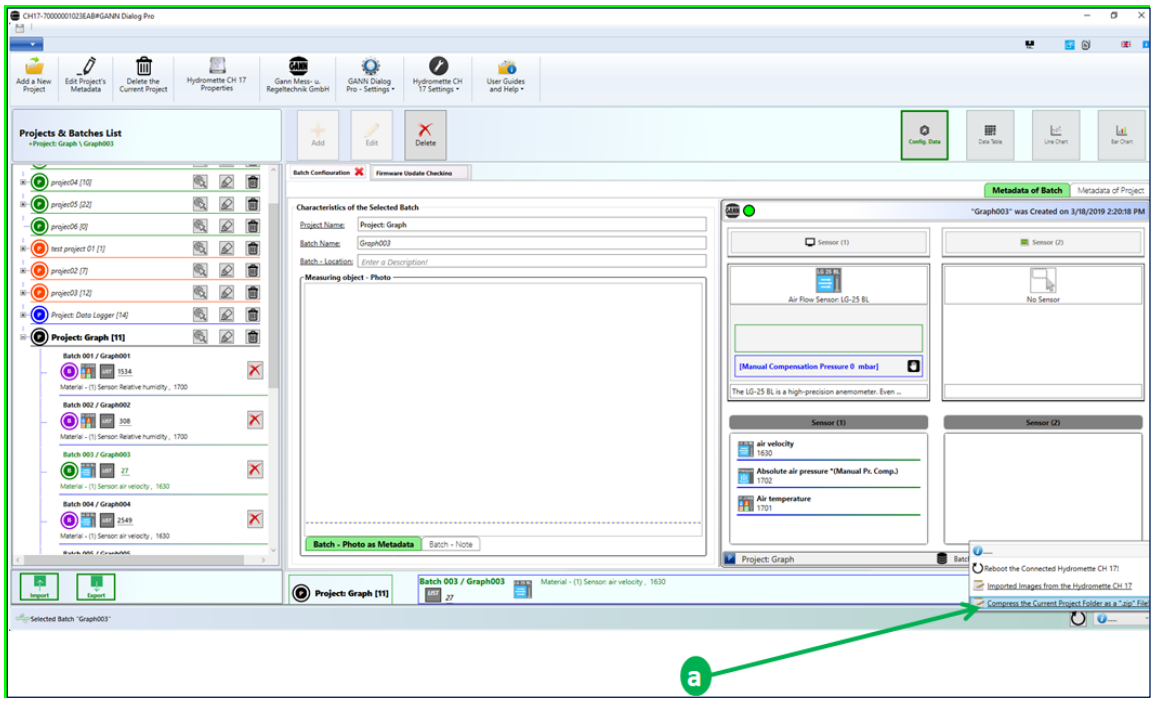

Figure 3-6: Zip the current project folder

The compressed project folder will then be moved to the standard Windows download folder as indicated by the notication [a] in Figure 3-7.

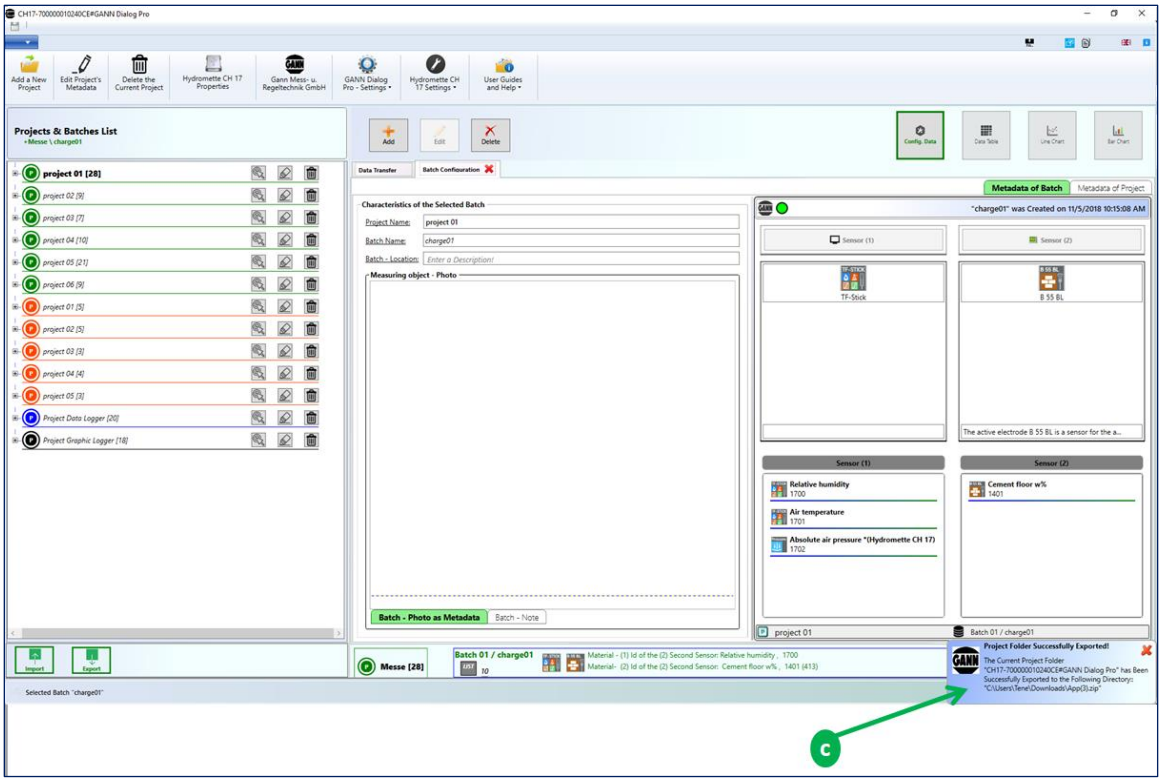

Figure 3-7: Notification: compressed Project Folder “App.zip”

GANN Dialog Pro will open the standard window explorer and show the compressed project folder “**App.zip**”.

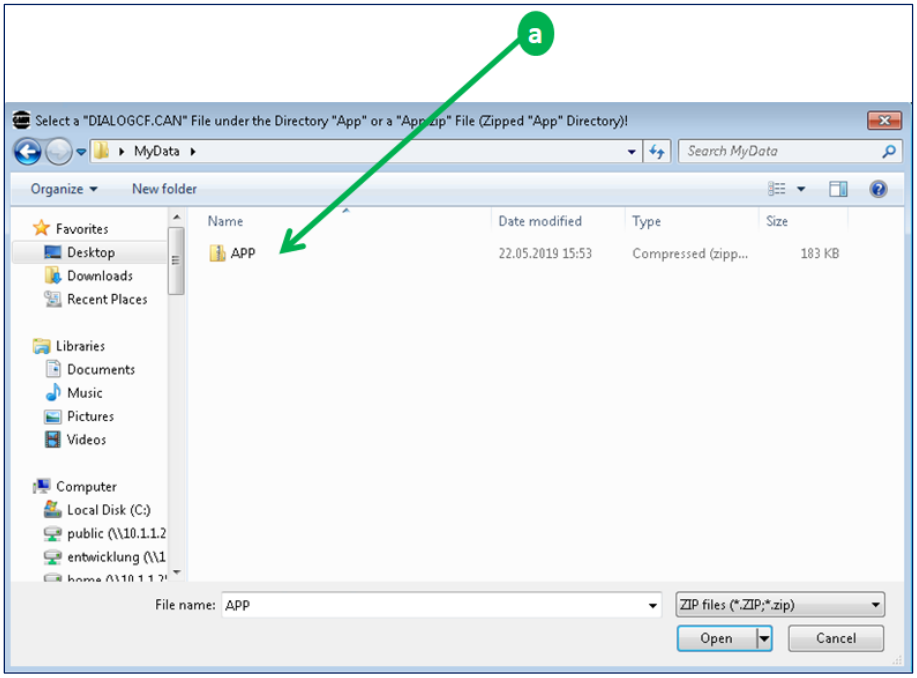

Figure 3-8: Zipped Project Folder “**App.zip**”

3.4 Importing a Project Folder from the Local Archive Directory

An existing project folder can be archived in the archive directory (see chapter 7).

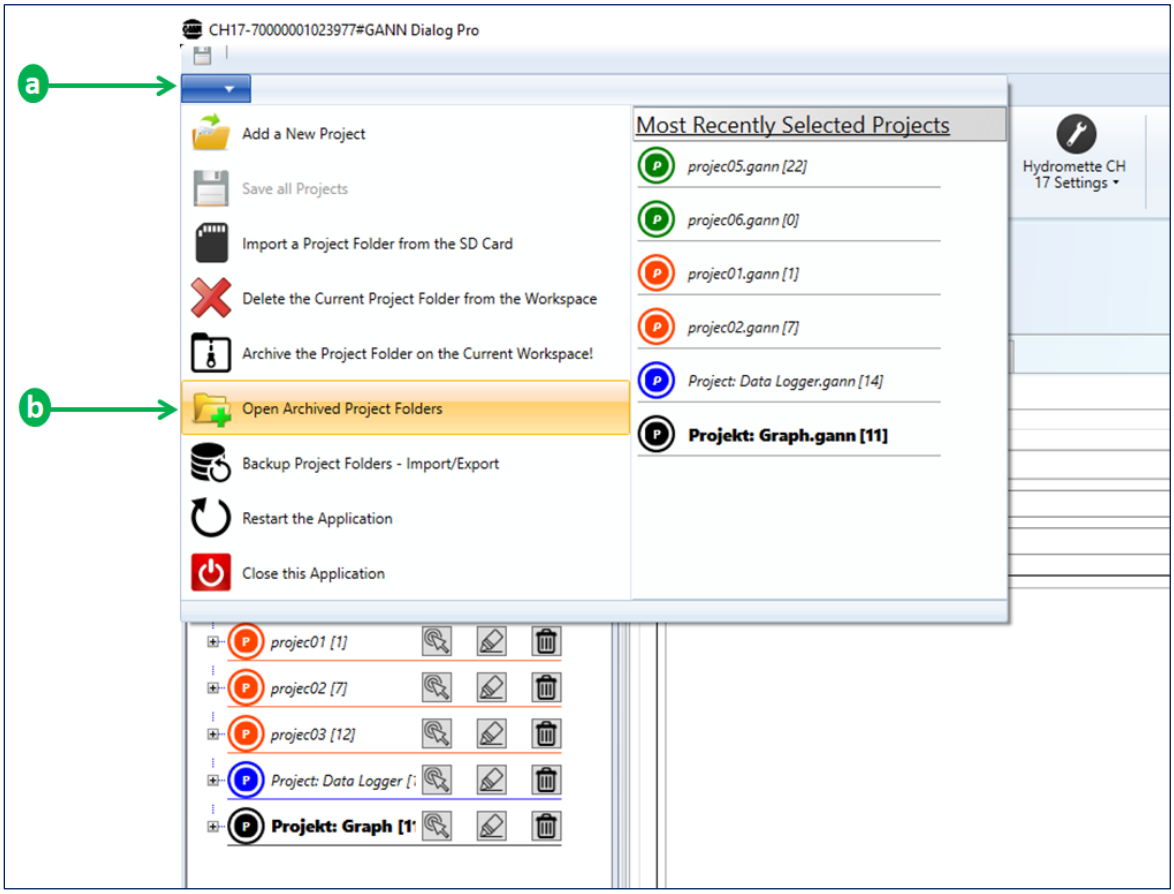

Figure 3-9: importing a project folder

To import a project folder from this directory, click on the left upper drop-down menu (*a* in Figure 3-9), then click on the button *b*). A dialog box will then display the list of archived project folders (see Figure 3-10).

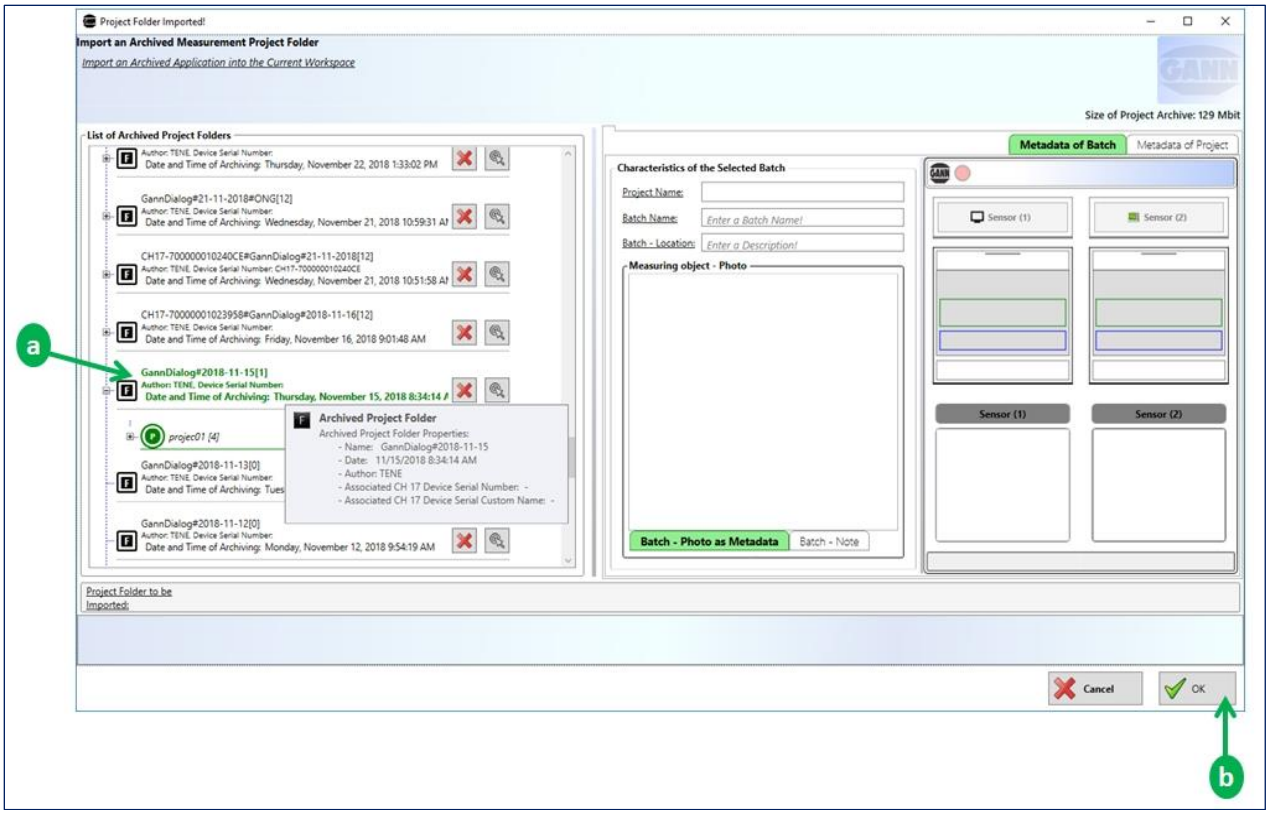

Figure 3-10: list of archived project folders

To import a project folder, select one of the archived project folders (*a*) from the list and click on the "OK" button (*b*). The selected project folder will then be imported to the main workspace.

4 Exporting a Project Folder to a Hydromette CH 17

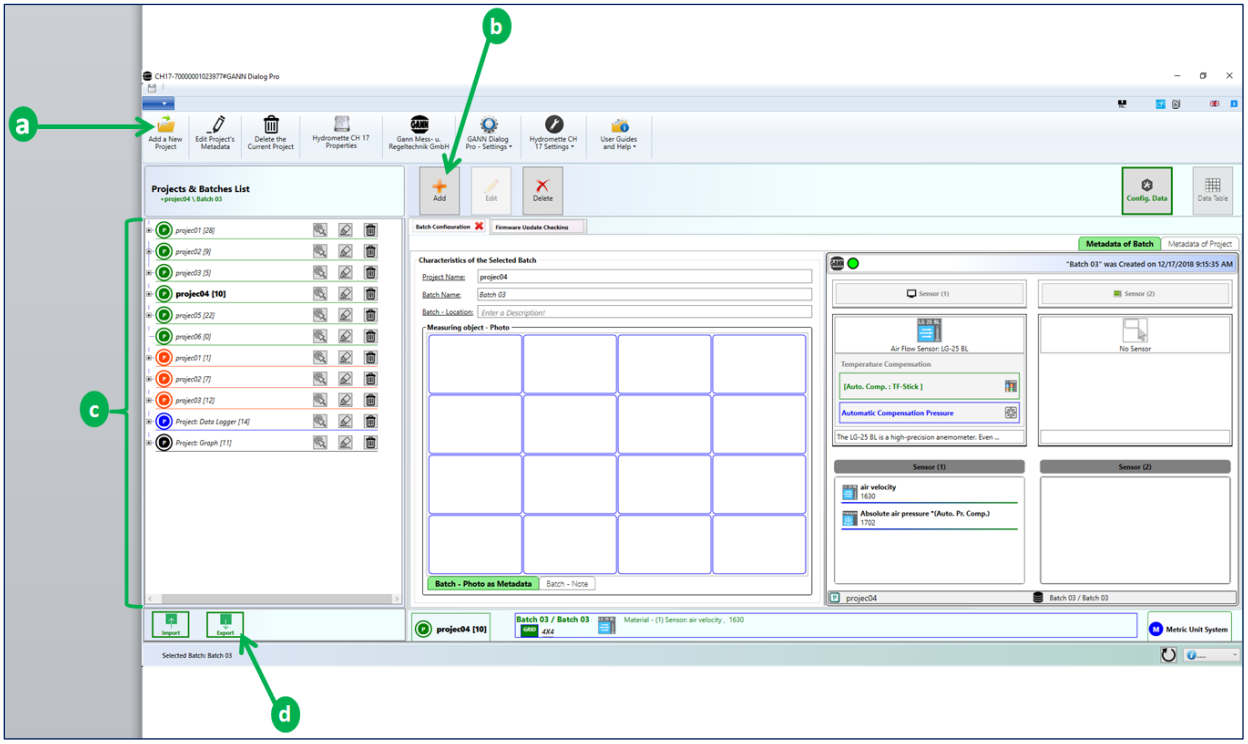

Figure 4-1: configuring a project folder

GANN Dialog Pro can be used to pre-set a Hydromette CH 17 (i.e. create projects and batches, determine sensor types, etc.). These settings can be **exported to your Hydromette CH 17**.

To pre-configure your project folder, proceed as follows:

1. Add a project (*a* in Figure 4-1)
2. After creating a project, add a new batch to your project (*b* in Figure 4-1)

Repeat steps 1 and 2 until the desired number of projects and batches is reached. On the right-hand side of the screen shown in fig. 4-1 you can change settings for these batches. For more details on navigating through different projects, see chapter 9.5. More information on metadata can be found in chapter 6.

Then continue as follows:

- Connect your Hydromette CH 17 to your PC (the "export" button *d* in Figure 4-1 will be enabled).
- Click on the "export" button (*d*) to transfer your settings to the connected Hydromette CH 17
- The message "Operation successfully completed" will be shown in a dialogue box.

5 Firmware Updates and Upgrades for Hydromette CH 17

The CH 17's firmware is available in two different versions: "Basic" and "Advanced" (with extended functions)

When new firmware features are available, you can **update** your device's firmware. You can also **upgrade** your device (i.e. from "standard" to "advanced") when a higher firmware version is available. To purchase additional individual firmware features, please contact your GANN vendor. GANN Dialog Pro automatically detects newly available firmware updates or upgrades.

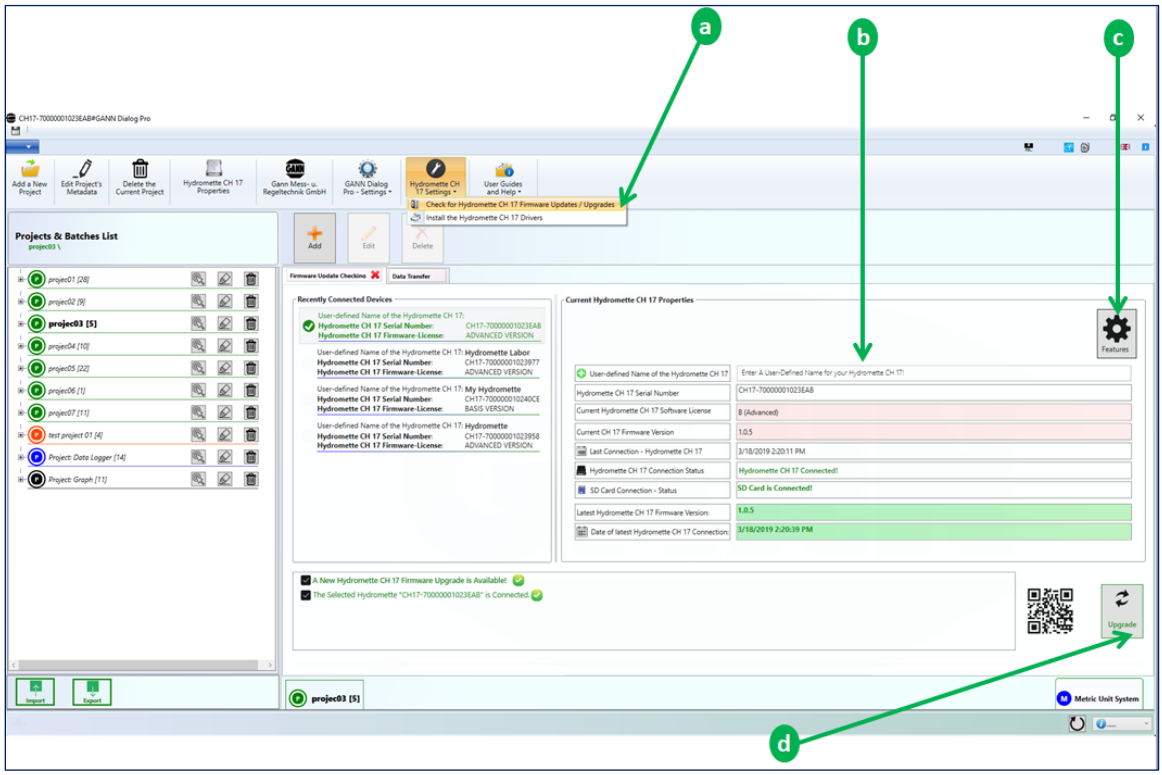

Figure 5-1: firmware update/upgrade

To update or upgrade your Hydromette CH 17 firmware, click on the button [d] in Figure 5-1. To display the list of installed features, click on the corresponding button [c] .

5.1 Automatic Check for Firmware Updates/Upgrades

GANN Dialog Pro periodically checks if new firmware updates or upgrades are available. If a new firmware version is available, a message will automatically appear after starting GANN Dialog Pro.

5.2 Manual Check for Firmware Updates/Upgrades

You can also manually check for firmware updates or upgrades by clicking on the corresponding button [a] in Figure 5-1).

Firmware Update / Upgrade

The panel in Figure 5-1 shows a list of recently connected devices. You can select a device from this list and have details about that device, e.g. the current firmware version and possible updates ([b]), indicated.

If a firmware update / upgrade is available, the **"Update" / "Upgrade"** button [d] will be enabled

To update / upgrade your device, proceed as follows:

- Connect your Hydromette CH 17 to your PC using the USB cable.
- Click on the **"Update" / "Upgrade"** button ([d])

A dialog box will appear requesting you to confirm the update/upgrade.

6 Adding Project or Batch Related Metadata

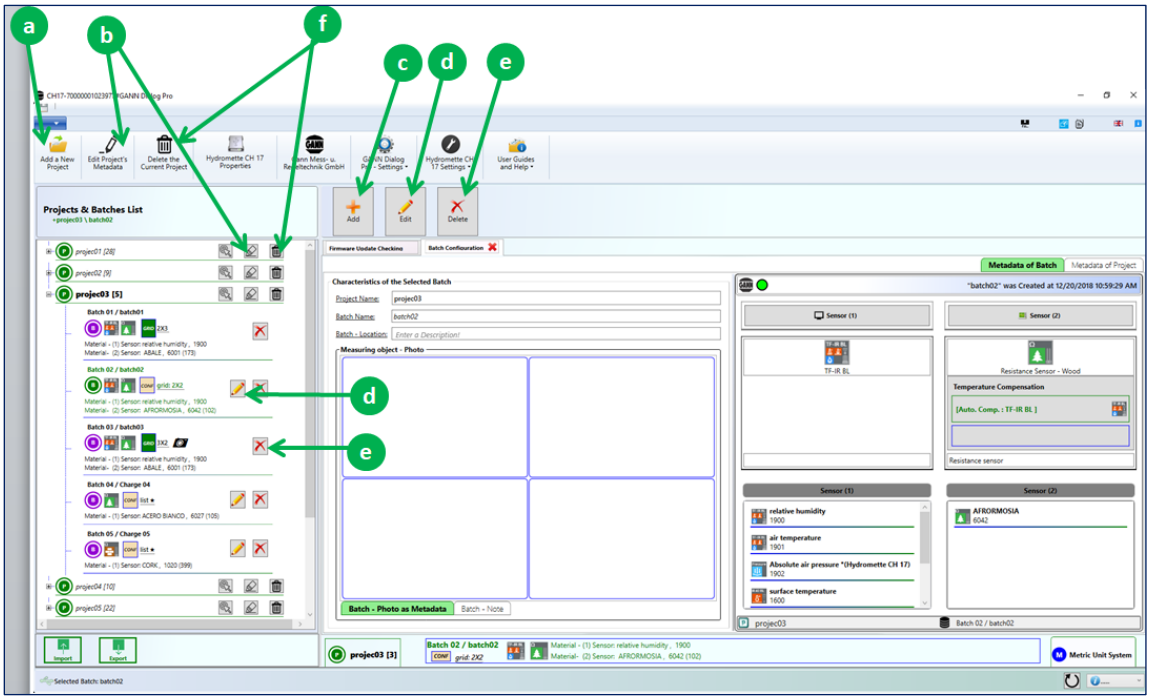

Figure 6-1: adding project and batch metadata

Figure 6-1 shows different actions that can be performed to add project or batch metadata:

- Click on [a] to add a new project to the current project folder.
- Click on [b] to edit the metadata of the selected project.
- Click on [c] to add a new batch to the selected project (after executing this action, the dialog box on Figure 6-3 will appear, then select a material and click on the button "Next" below).
- Click on [d] to edit the metadata of the selected batch.
- Use [e] to delete the selected batch.
- Click on [f] to delete the selected project.

If you want to **add metadata** to an already created project follows these steps:

- Click on the button "Edit" (see the arrow [b] in Figure 6-1)
- or use the context menu on the selected project item

The following metadata can be added to a project (see the list box item in Figure 6-2):

- Customer metadata (name, address, etc.)
- Billing information (name, address, etc.)
- Project site metadata (site name)
- Other metadata like images, comments related to the project.

Or if you want to add the metadata to an existing batch, proceed as follows:

- Click on the "Edit" button (*d* in Figure 6-1)
- or use the context menu on the selected batch item

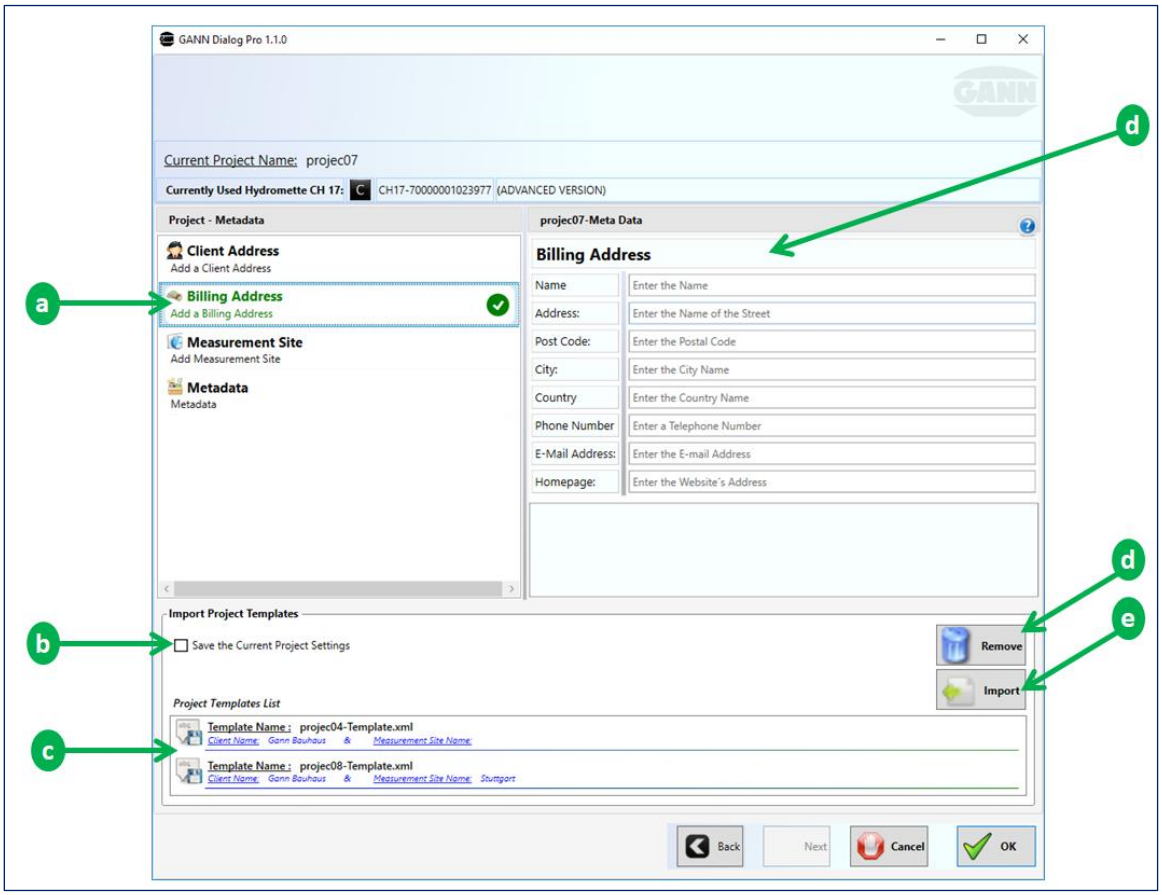

Figure 6-2: adding project metadata

Figure 6-2 also displays the following elements:

- Project metadata template list (*c*)
- "Remove" button (*d*): removes a project template from the list
- "Import" button (*e*): imports a selected project template from the list.
- "Save" function (*b*): project metadata can be saved as a template for reuse.

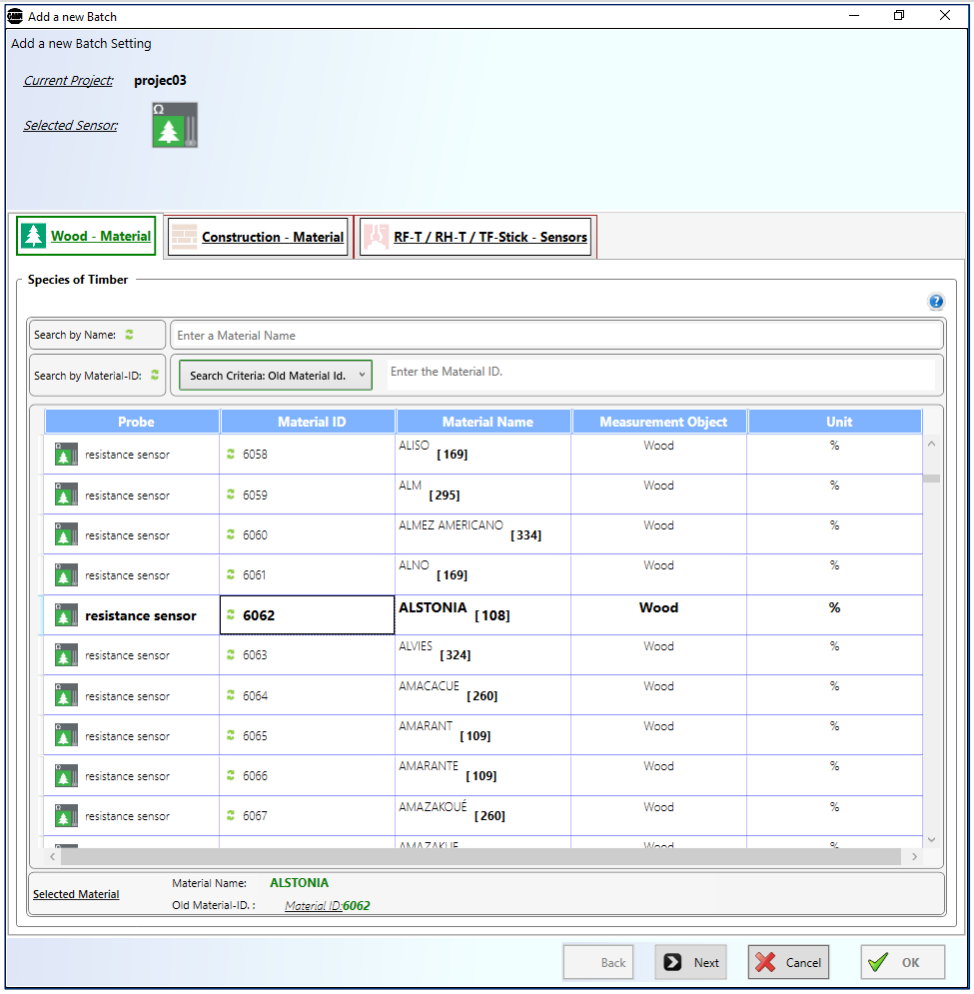

Figure 6-3: adding batch metadata

6.1 Adding Project Metadata

To add metadata to an existing project, click on the “Edit” button (*b* in Figure 6-1). Then the window shown in Figure 6-2 will appear. You can now select each metadata group on the left panel (*a* in Figure 6-2) and fill in the corresponding details (*f* in Figure 6-2).

6.2 Saving a Template for Project Metadata

The filled project metadata form in Figure 6-2 can be saved as a template and reused later on: click on the “Save” checkbox (*b* in Figure 6-2) and confirm with “OK”.

6.3 Importing a Template for Project Metadata

To import a saved project metadata template from the list (*c*), select the template and click on the "import" button (*e*). The project metadata panel (*f* in Figure 6-2) will be filled with the loaded project metadata.

6.4 Adding Batch Metadata

In order to add metadata to existing batches click on the "Edit" button (*b* in Figure 6-1), or use the context menu on the selected batch item.

The dialog box shown in Figure 6-2 will appear. Then change the material by clicking on the list of materials.

7 Archiving a Project folder

The project folder on the current main workspace can be archived in the local directory.

7.1 Archiving a Project Folder on your Local Drive System

To archive the project folder in the current workspace, open the drop-down menu [a] in Figure 7-1 and click on [b].

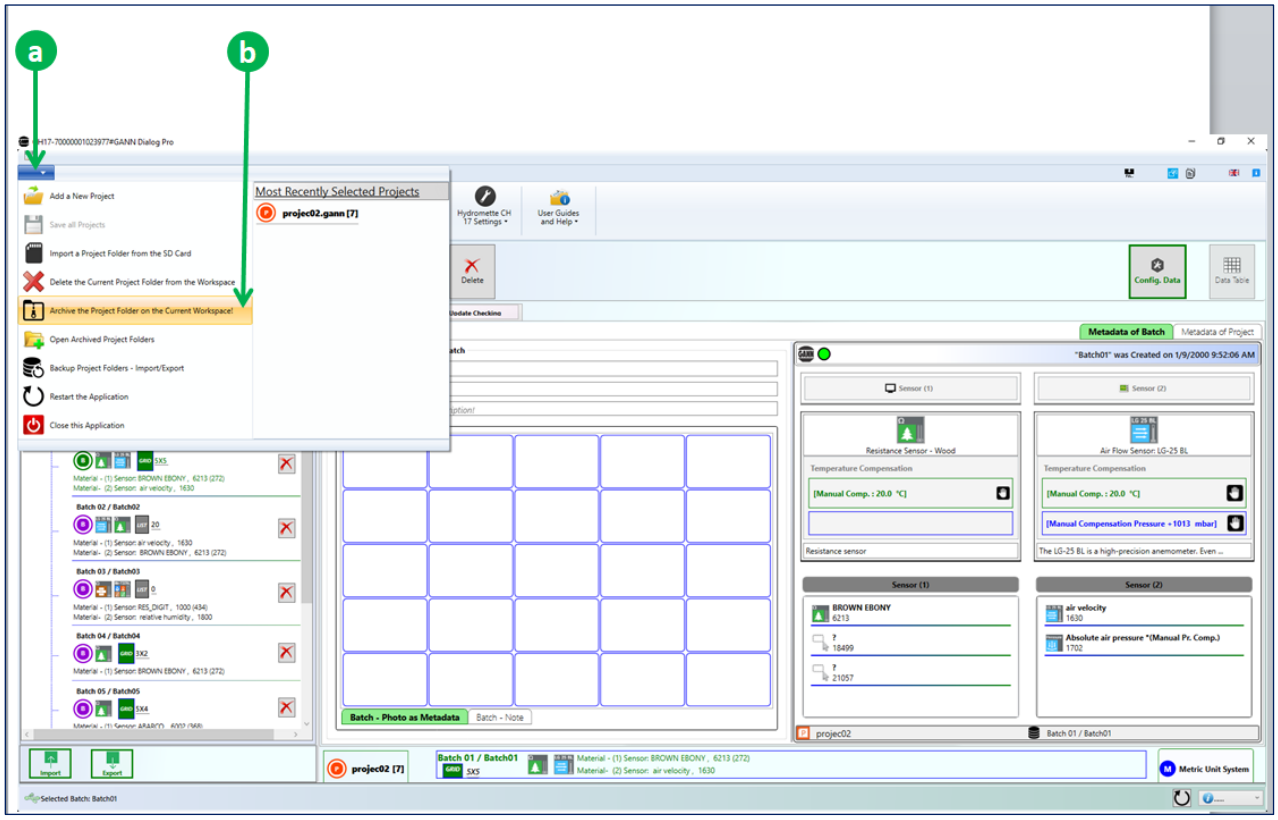

Figure 7-1: archiving a project folder

The dialog box (see Figure 7-2) below will appear:

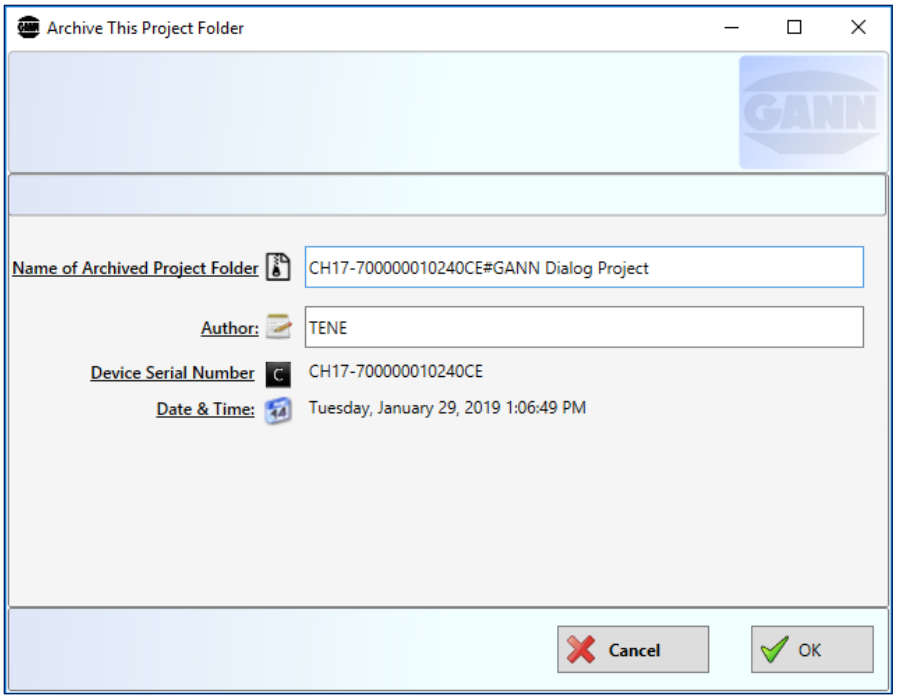

Figure 7-2: archiving a project folder

You can now enter a name for the project folder and the author's name as well, then click on the "OK" button to archive the project folder.

7.2 Loading a Locally Archived Project Folder to the Workspace

Click on the menu "**Open Archived Project Folders**" (*c* in Figure 7-1), and a list, as shown in fig. 7-3, will appear. Each archived project folder is represented by an icon *a* . To expand or **select the archived project folder** and display its contents (projects and batches), click on *b*.

To import the selected archived project folder, click on the "OK" button *c* to confirm. Then the selected project folder will be imported into the main workspace.

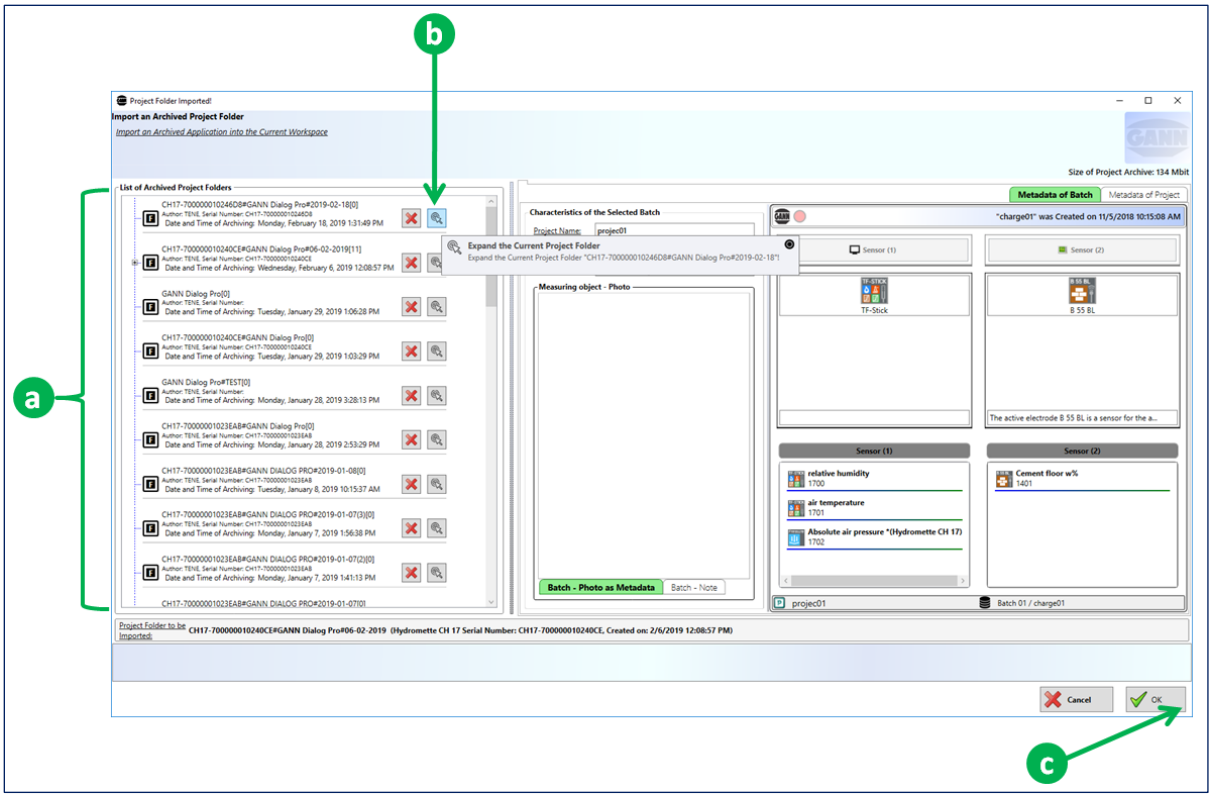

Figure 7-3: list of archived project folders

8 Backup for Import or Export Project Folders

During import and export operations, the images of the existing project folder are automatically saved in a queue on the local directory. These backups are used to avoid the loss of data during import and export operations. Each connected Hydromette CH 17 can contain a maximum of ten backups of import and export tasks.

8.1 Opening the Backup History

To open the archive of backup project folders, select “Backup Project folder Import/Export” [a] in Figure 8-1.

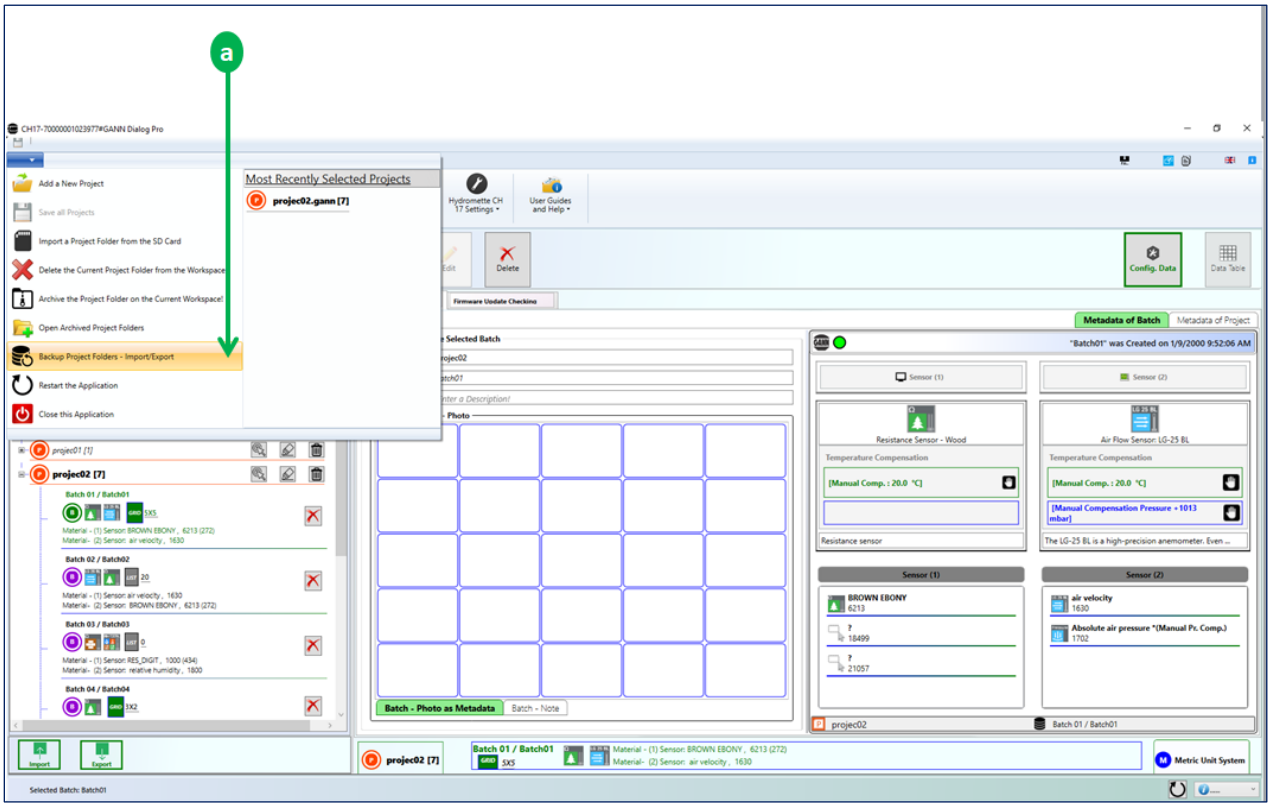

Figure 8-1: opening a backup archive

A dialog box showing the list of backup project folders (from different Hydromette CH 17) will be displayed (see Figure 8-2). Then you can select a device from the list.

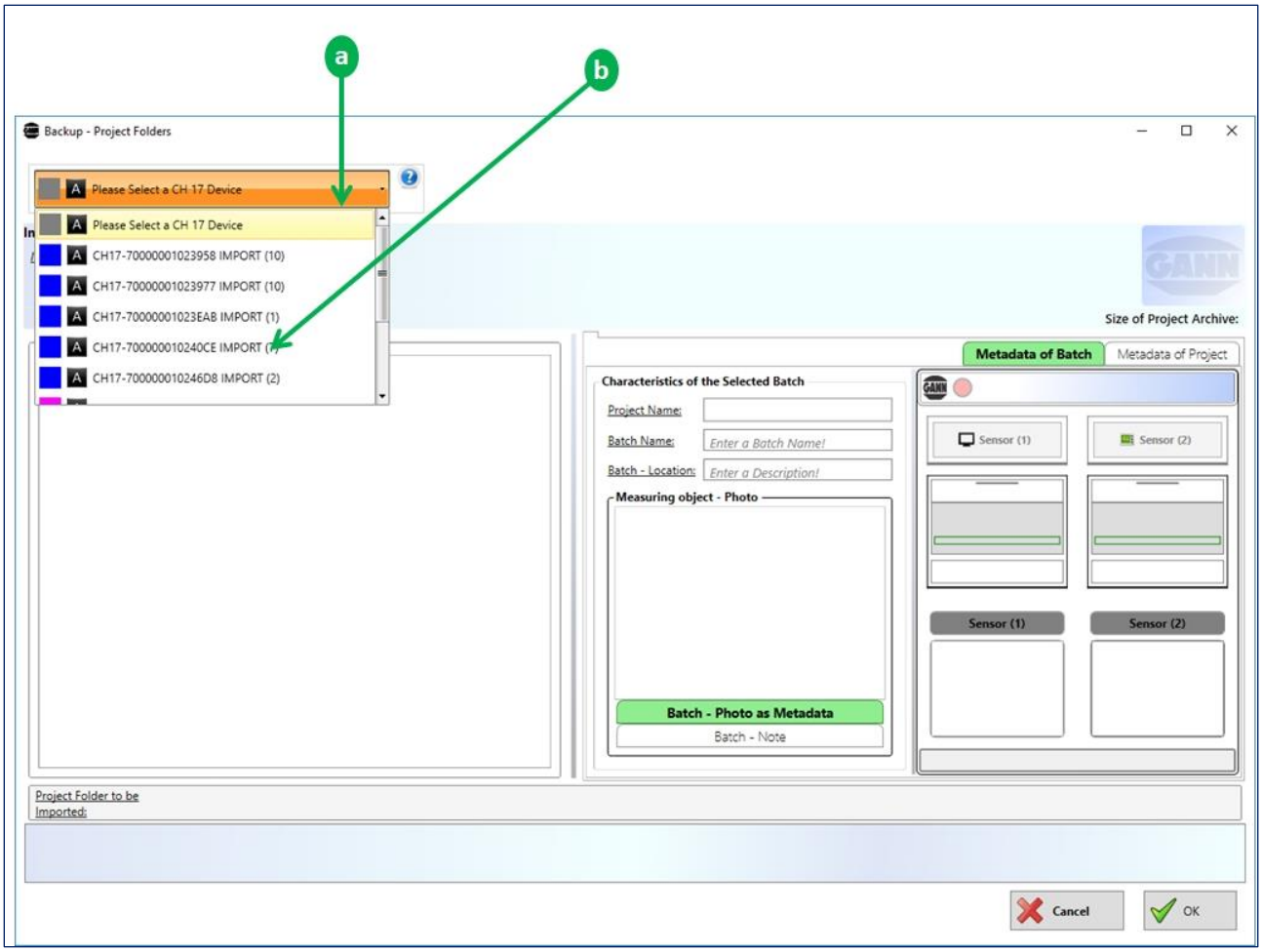

Figure 8-2: list of backup project folders

8.2 Importing a Project Folder from the Backup History

From the list [a] in Figure 8-3 you can load the contained projects and batches by clicking on [a]. On the backup history panel, you can perform the following actions:

- To delete an existing project folder, click on the button [b]
- To Load measurement data, click on the button [c]
- To import an archived project folder from the backup directory, click on the button [d], after this action the selected project folder will be imported in the main workspace.

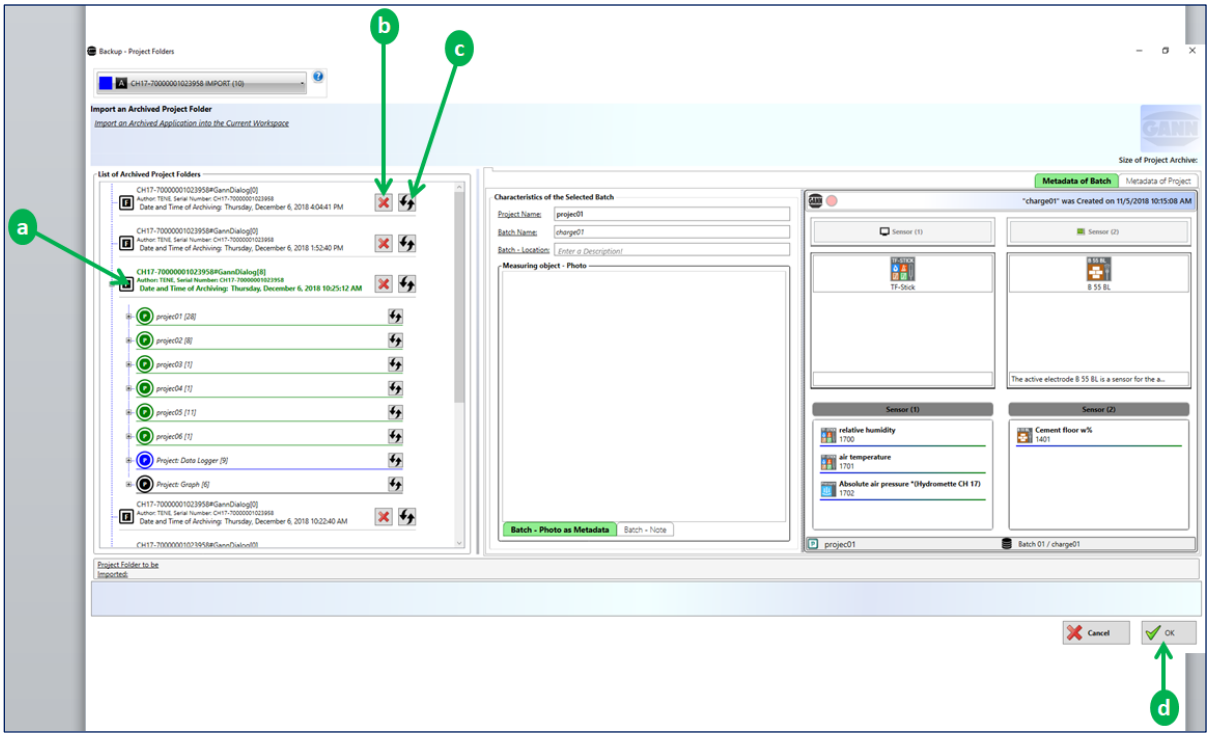

Figure 8-3: list of archived project folders from the import/export backup

9 Quick Menus Reference

This chapter aims to give you a quick and descriptive overview of the main menus. Many of the application menus have tooltips that offer additional help.

9.1 Measurement Data Management

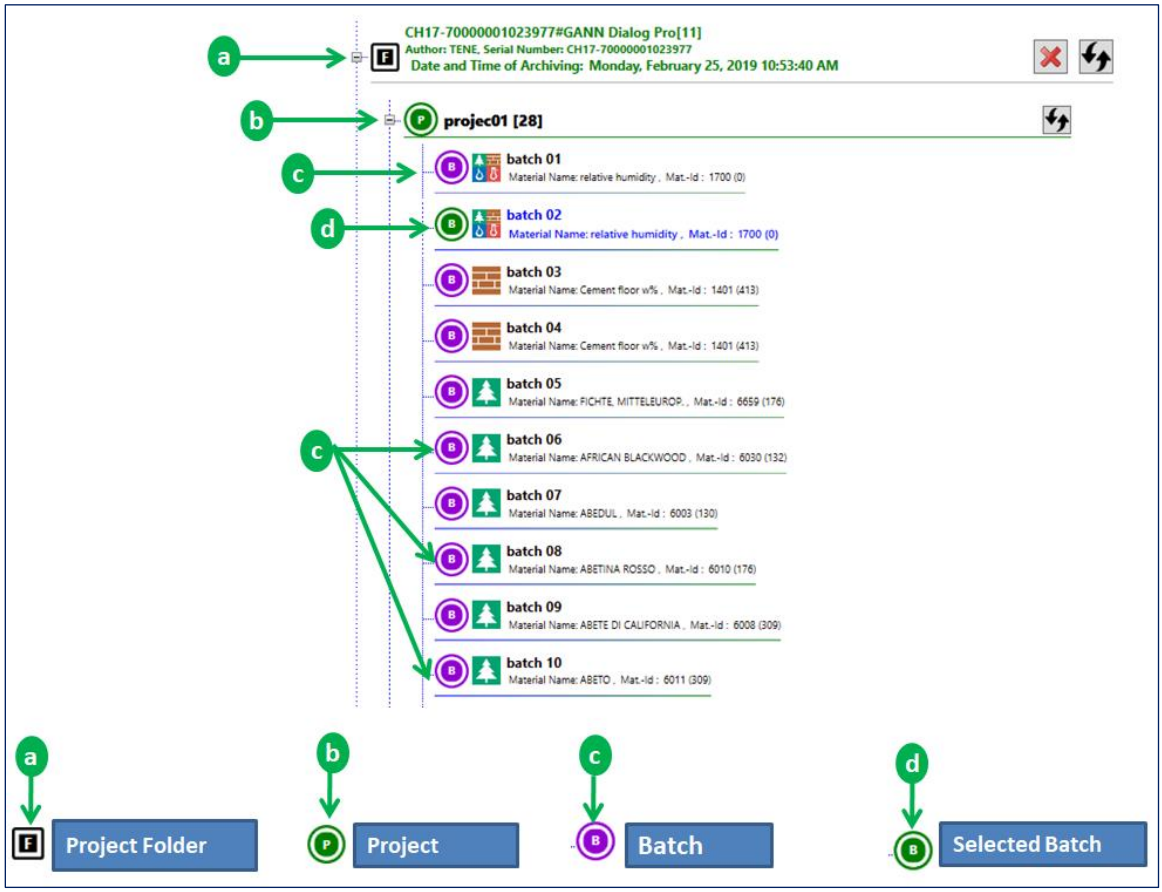

Figure 9-1: measurement management structure

The structure of the elements is as follows:

- **Project folder**
  At the top of the organization structure is the project folder (collection of projects).
- **Project**
  A "project" is on the level below the project folder: it can contain several batches.
- **Batch**
  Single measurements can be grouped in a batch. The symbol's colour is usually purple. Is it orange, then the respective batch has been selected from a list.

9.2 Main Toolbar Actions

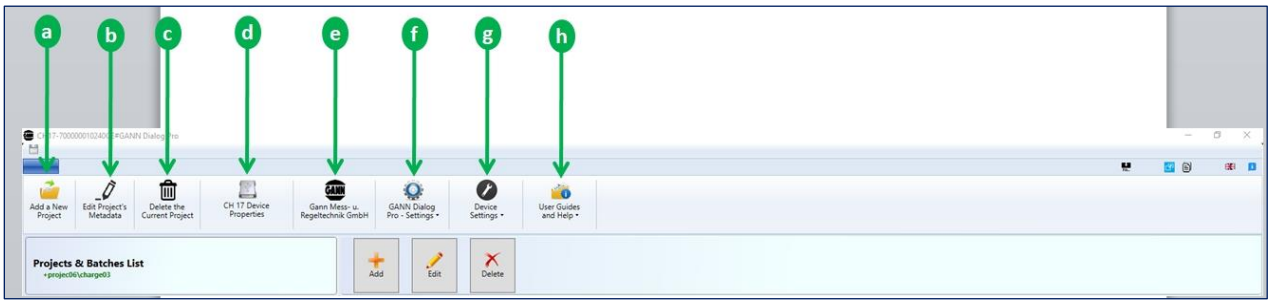

Figure 9-2: main toolbar

The following menus are available:

- **Add a New Project (*a*)** :This menu can be used to preconfigure a project folder (see chapter 4 for more details).
- **Edit Project´s Metadata (*b*):**
- **Delete the Current Project (*c*):** deletes the currently selected project from the project folder on the workspace
- **Hydromette CH 17 Properties (*d*):** This menu gives you some information on the device that is associated with the current set of data.
- **Manufacturer website (*e*):** leads you to www.gann.de
- **GANN Dialog Pro Settings (*f*):**
- **Device Settings (*g*):** use this menu to look for firmware updates / upgrades or to install drivers for the Hydromette CH 17.
- **GANN Dialog Pro and CH17- User Guides (*h*):** click on this button to open the user guides for GANN Dialog Pro and Hydromette CH 17).

9.3 Toolbar Drop-down Menus

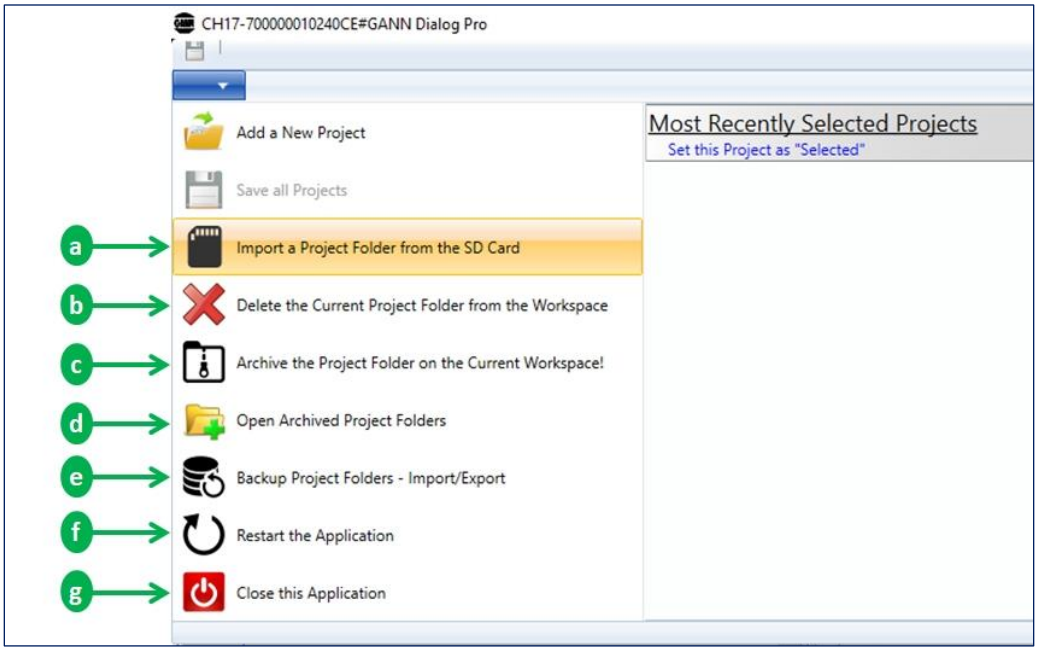

Figure 9-3: toolbar drop-down menus

The following menus are available:

- **Import a Project folder from the SD Card (*a*)**
  Click on *a*, then go the directory named "App" in which the complete project folder data are saved. Select the file "DIALOGCF.GAN" and click on the "OK" button (see also chapter 3.2: Importing a Project Folder from an SD Memory Card).
- **Delete the Current Project Folder from the Workspace (*b*)**
  All the existing projects and batches on the workspace will be deleted.
- **Open Archived Project Folders (*d*)**
  Click on *c*, then select one of the archived project folders and click on the "OK" button (see also chapter 0).
- **Archive the Current Project Folder on the Current Workspace (*c*)**
  To archive the existing project folder on the main panel, click on *d* (see Chapter 7).
- **Open the Import/Export Backup Project Folders (*e*)**
  To open the Import/Export backup project folders, click on *e* (see Chapter 7).
- **Restart the Application (*f*)**
- **Close the Application (*g*)**

9.4 Exporting/Importing a Project Folder

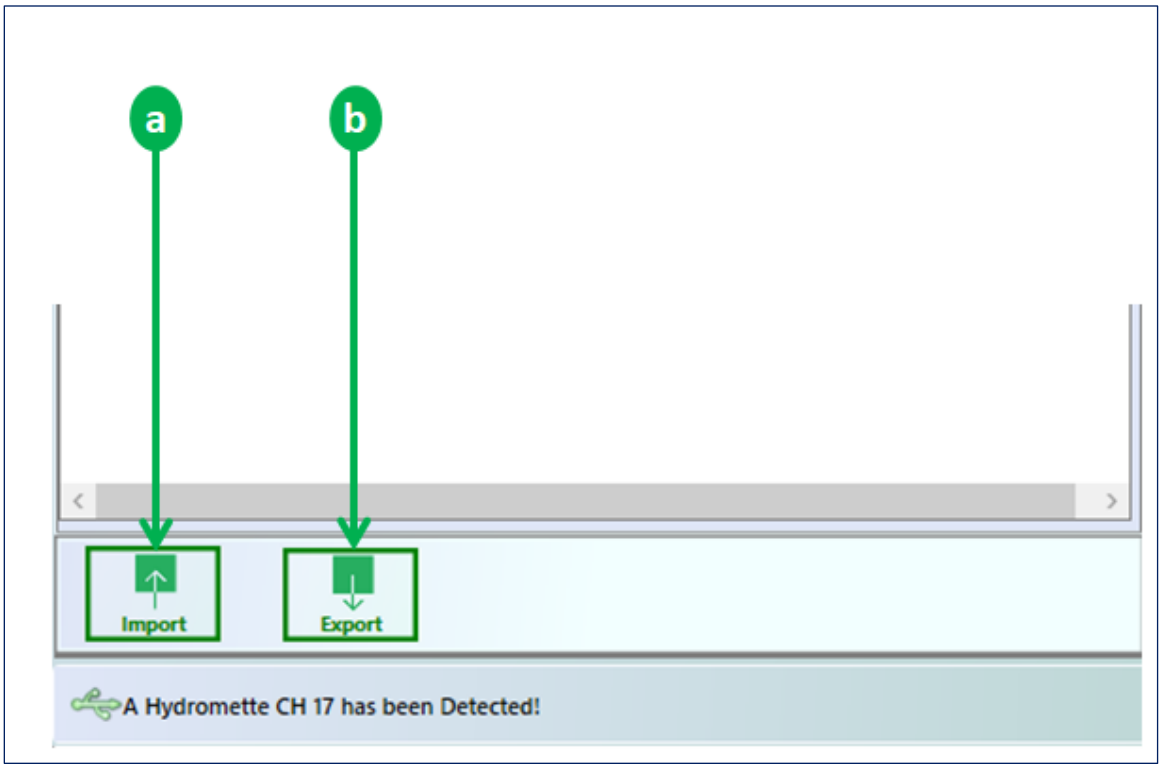

Figure 9-4: importing/exporting a project folder

These buttons can be used to import and export data, respectively. A Hydromette CH 17 must be connected to your PC.

- The action *a* is used to import the data of your project folder to your PC application.
- The action *b* can be used to export pre-configured metadata from GANN Dialog Pro to a Hydromette CH 17 (for more details, see Chapter 4).

9.5 Navigating Between Different Projects

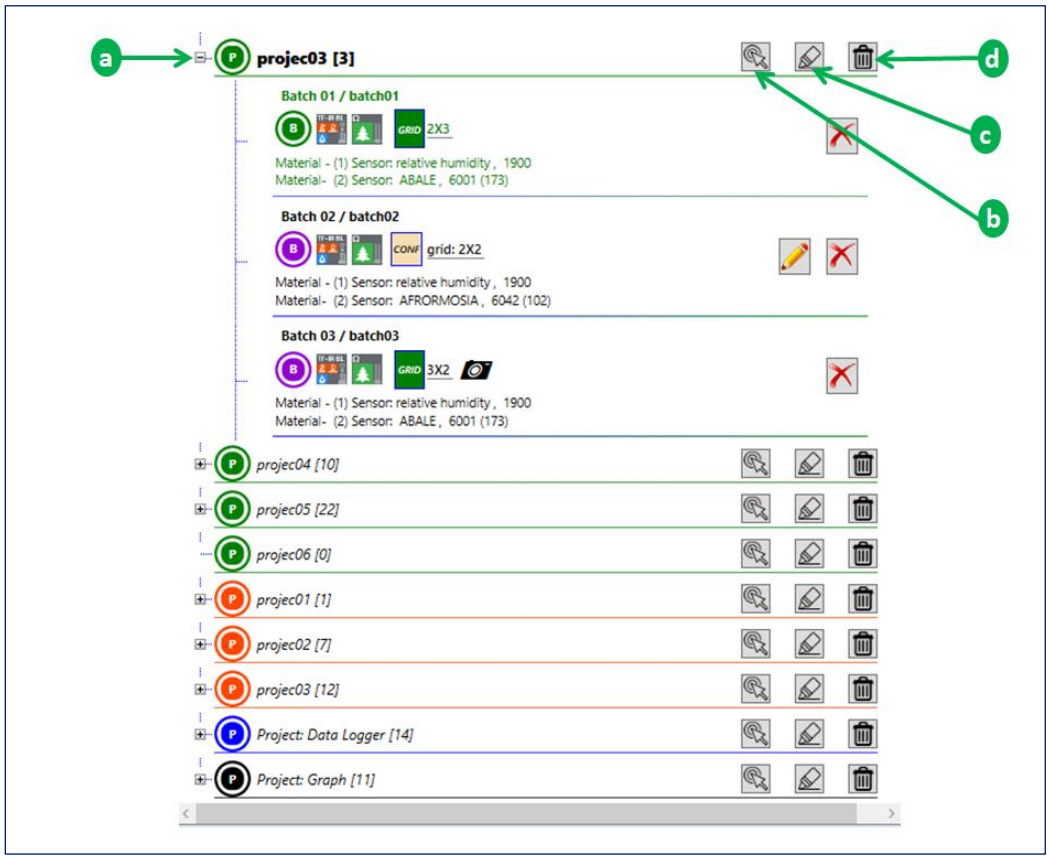

Figure 9-5: project navigation panel

Figure 9-5 shows the main view of an existing project folder. As stated previously, the measurement data are organized in a hierarchical structure (see chapters 2.2 and 9.1 for more details).

Following actions can be performed on a project item listed in Figure 9-4. You can also use a context menu by right-clicking on a project item.

- **Navigating to a Project**

To navigate to a project item on the list, you have three options: (1) click on the node of the tree view (*a* in Figure 9-4), (2) double click on one of the project items, or (3) click on the button *b* in Figure 9-4. The elements (batches) of the selected project will be expanded: the expanded batches can be identified by this icon:

To delete a project, click on the button *d* in Figure 9-45.

- **Editing the Metadata of the Project**

To add metadata to a project, click on the button *c* in Figure 9-45.

10 Analysis of the Measured Data

Figure 10-1 shows an example for data analysis. The items on the left panel (*a* and *b*) are used to navigate between different sets of measurement data, while the items on the right panel (*d*, *e*, *f*, *g*) are used to display the details of the selected measurement data.

The selected project *a* and the selected set of measurement data *b* are marked in bold. The following options are available:

- To display the **configuration data** of the selected measurement data, click on 1.
- To display the measurement data as a **table**, click on 2.
- To display the measurement data as a **lines chart**, click on 3.
- To display the measurement data as a **bar chart**, click on 4.

The label c indicates the metadata of the selected project and the corresponding measurement data. To change the current system of units, double-click on *i*.

Figure 10-1: analysis of measurement data – overview

10.1 Measurement Data – Configuration Settings

To display the configuration of the selected measurement data [a], click on the menu [1].

The configuration metadata will then be displayed on the panel [b] (example: type and settings of sensors used).

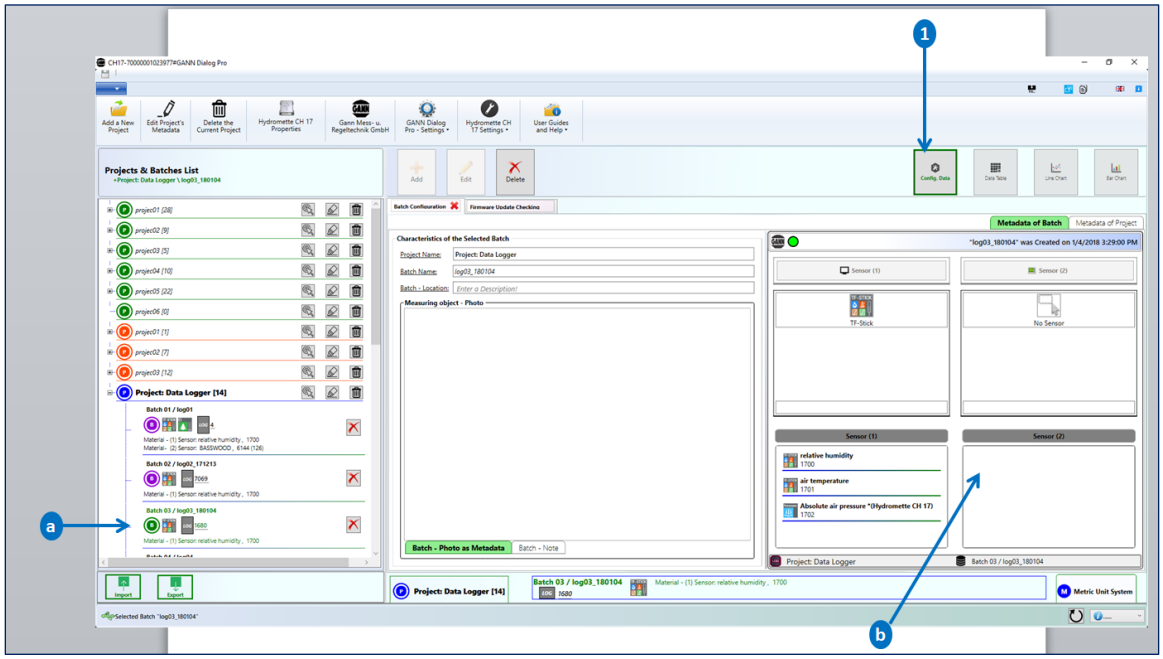

Figure 10-2: configuration metadata

10.2 Measurement Data - Table

Measurement data [a] will be displayed in a data table [b], if you click on the menu [1]. In addition, you have the following options:

- adding additional sensor values [2]:**Additional sensor values** are values that are calculated from the actually measured values.
- exporting the data table to a "csv" file [3]
- exporting the data table to a Microsoft Excel ("xls") file [4]

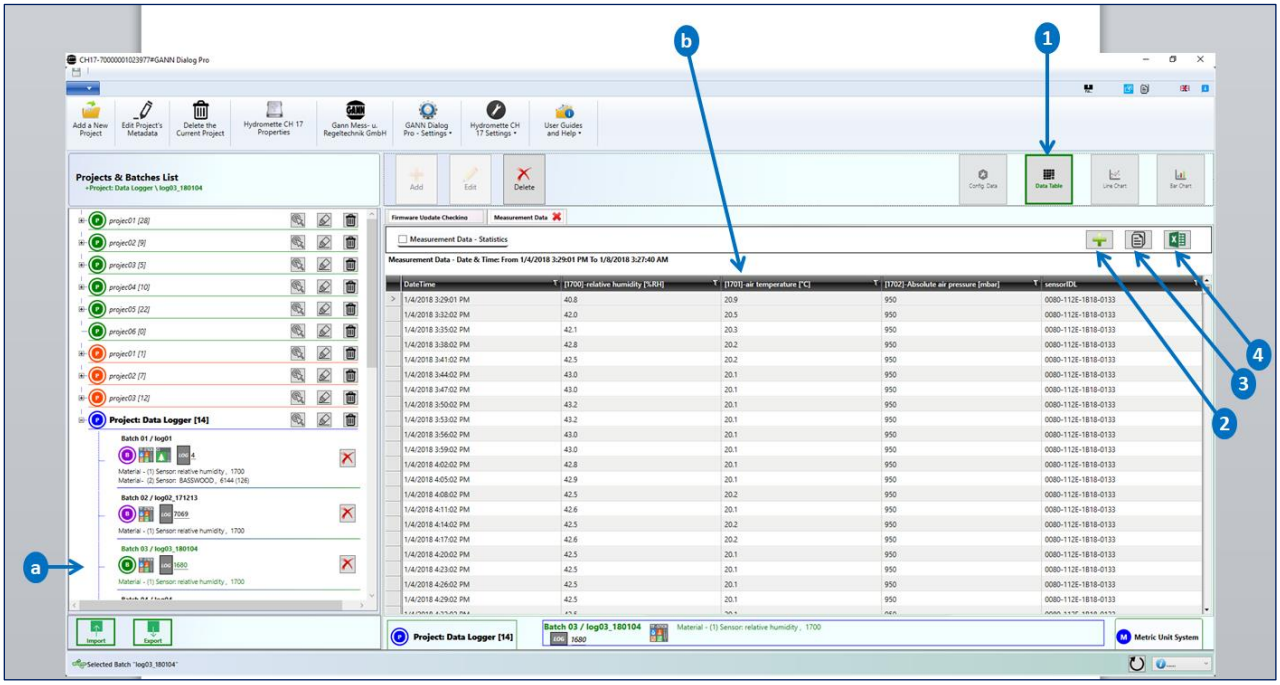

Figure 10-3: measurement data – table

10.3 Lines Chart

To display the selected measurement data [a] as a chart, click on the button [2] in Figure 10-4. A lines chart of the measured data will be displayed on the panel [1]. Furthermore, the following actions can be performed:

- Adding calculated sensor values [b].
- Saving the currently displayed chart [c].
- Copying the displayed chart [d].

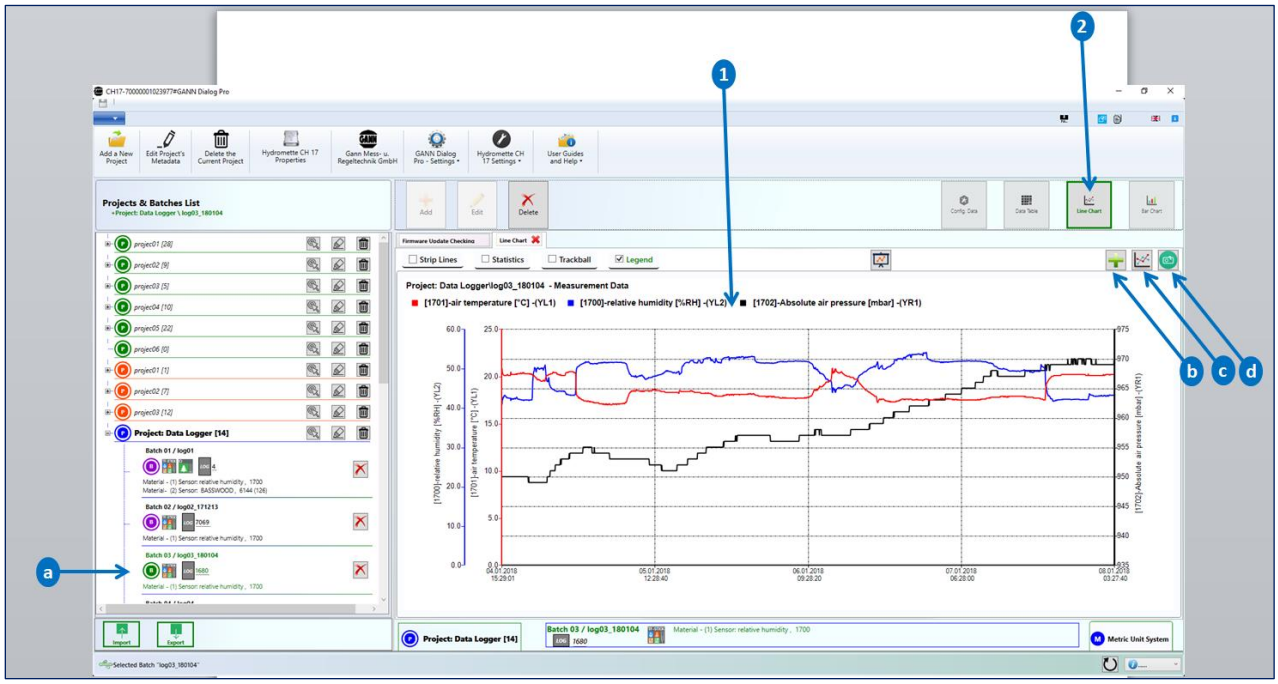

Figure 10-4: measurement data – lines chart

To edit the currently displayed chart, use the context menu (see b in Figure 10-5) by right-clicking on the chart.

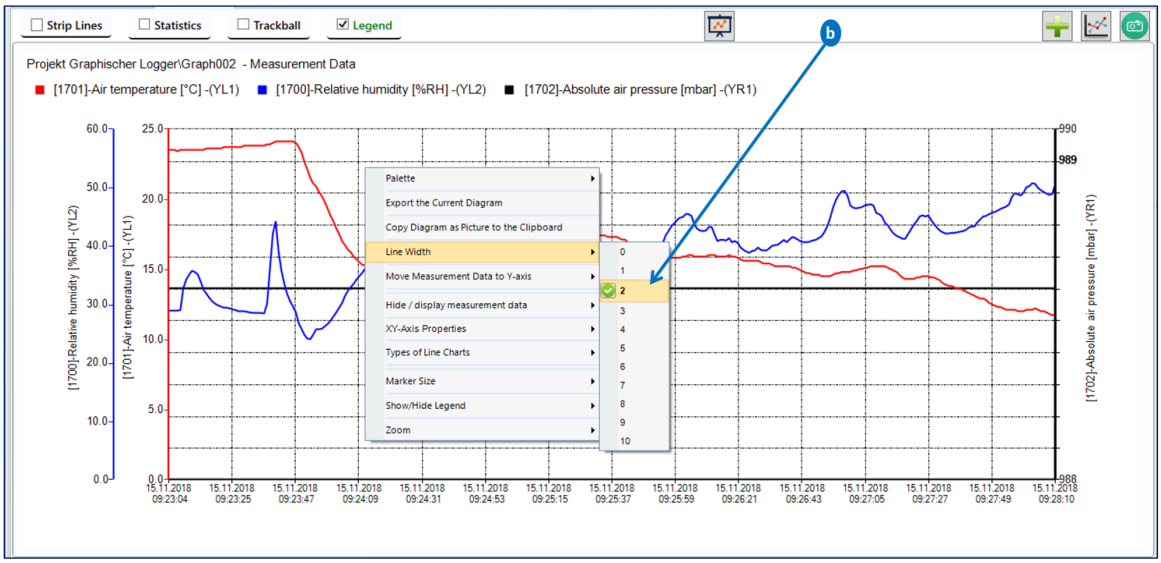

Figure 10-5: context menu - lines chart

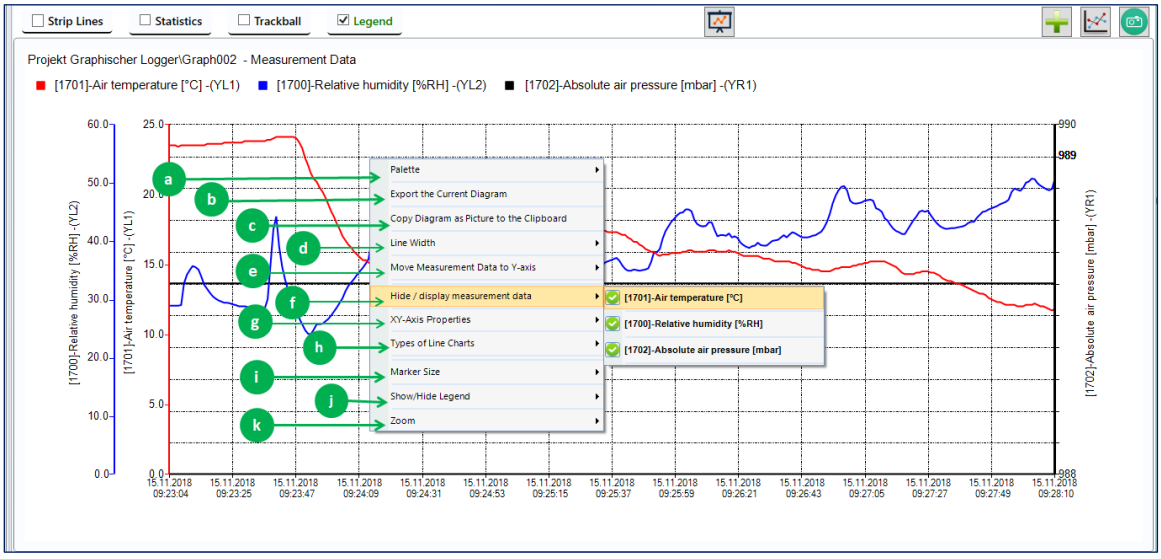

Figure 10-6: context menu items

The following context item menus are available:

"Palette" a: offers the possibility to change the color scheme of the plotted measurement data,
"Export the current diagram" b**:** exports the displayed chart as an image file.
"Copy diagram as picture to the clipboard": copies the displayed diagram to the clipboard
"Line Width" d: offers the possibility to change the width of lines.

"Move Measurement Data to Y-axis":

There are a total of five vertical axes as displayed in [a] in Figure 10-7. That means if there are five measured values, each measured value can be plotted on its own axis. On the left ,a maximum of three vertical axes can be displayed, while a maximum of two axes can be displayed on the right.

To move measurement data to a given axis, select the corresponding context menu item and select the desired measurement (on the third context menu group) data on the given vertical axis (second context menu group).

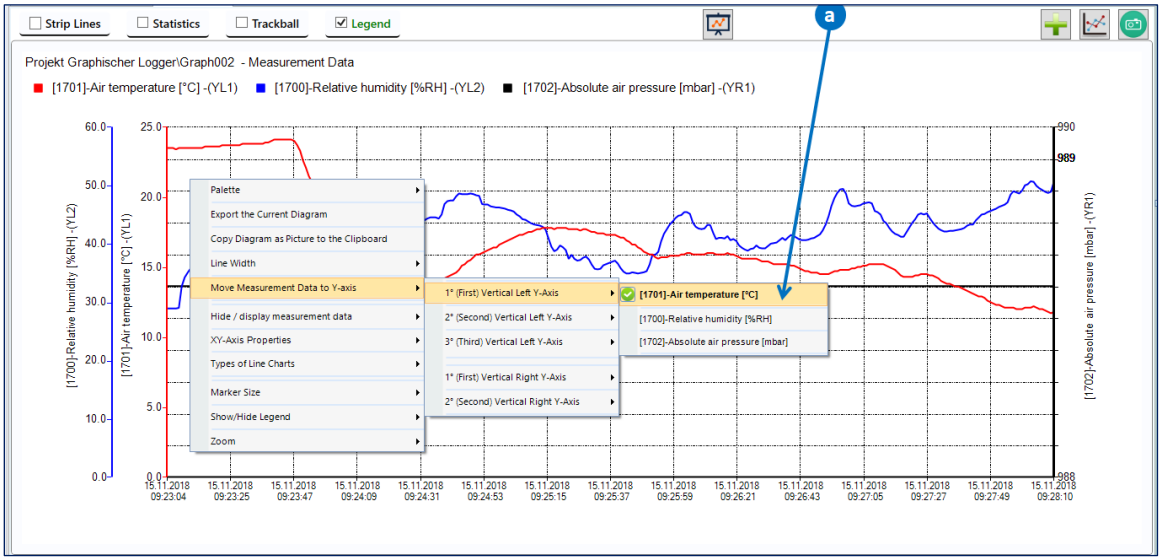

Figure 10-7: context menu item "Move Measurement to Y-Axis"

The vertical axis location of the plotted measurement data is indicated by the additional label "(YLi)" or "YRi" in Figure 10-7, where i represents the index of the vertical axis. The Y-Vertical axes are labelled as follows:

- **(YL1):** First left vertical axis
- **(YL2):** Second left vertical axis
- **(YL3):** Third left vertical axis
- **(YR0):** First right vertical axis
- **(YR2):** Second right vertical axis

"Hide/Display Measurement Data": select this context menu item to hide or display curves. Ticked curves will be visible (*a*), unticked ones will not.

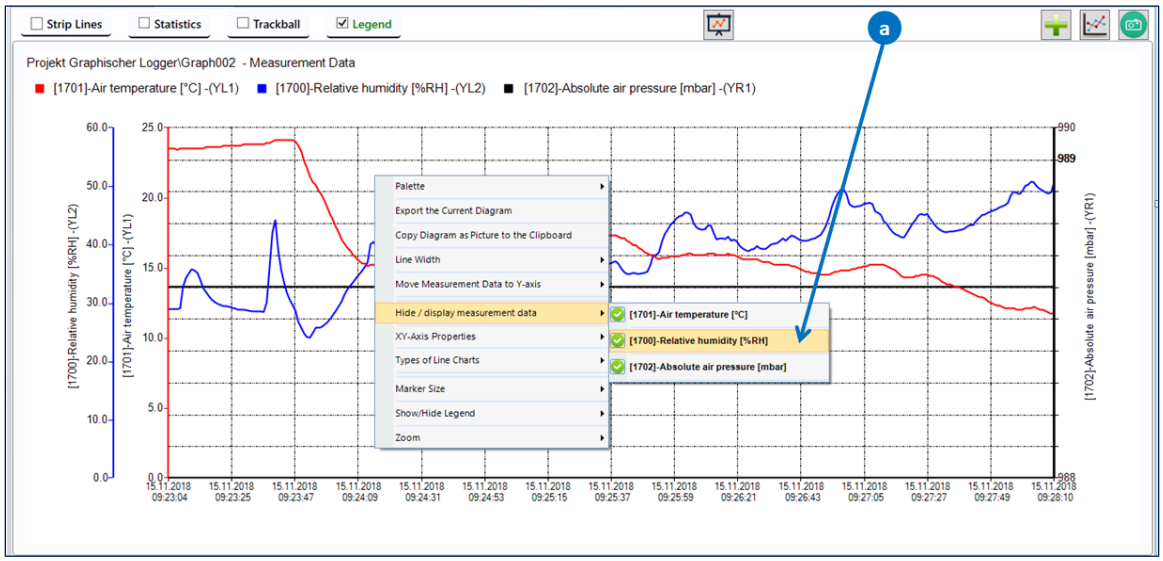

Figure 10-8: context menu item "Hide/Display Measurement Data"

"X-Y Axis Properties": click on this item, and the dialog box shown below will appear (fig. 10-9).

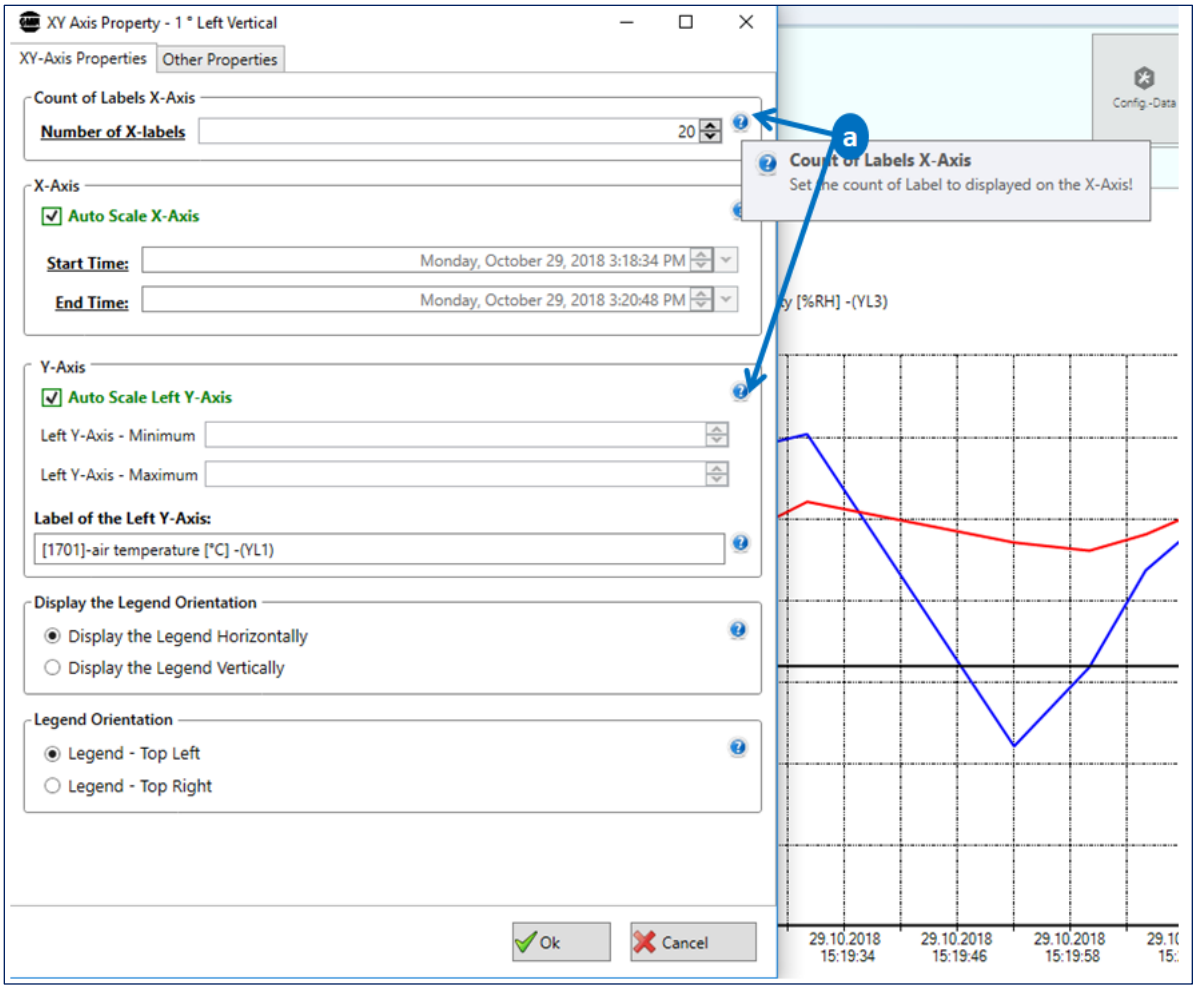

Figure 10-9: editing the properties of the first vertical axis (YL1)

Move the cursor over the help icons ("?") to see the respective tooltips [a].

"Line types": To change the type of the currently plotted lines, select an item under that context menu in Figure 10-10.

- "**Line Series**" plots charts with standard lines (Data Points are connected with straight lines).
- "**Fast Line Series**[2]" is recommended with very high numbers of data points.
- "**Step Line Series**" plots the measured values stepwise: Data points are connected with two straight lines - a horizontal and vertical one.
- **Marker Size:** changes the size of markers on data points.

[2] The Fast Line is a variation of the Line that significantly reduces the drawing time of a series that contains a very large number of data points.

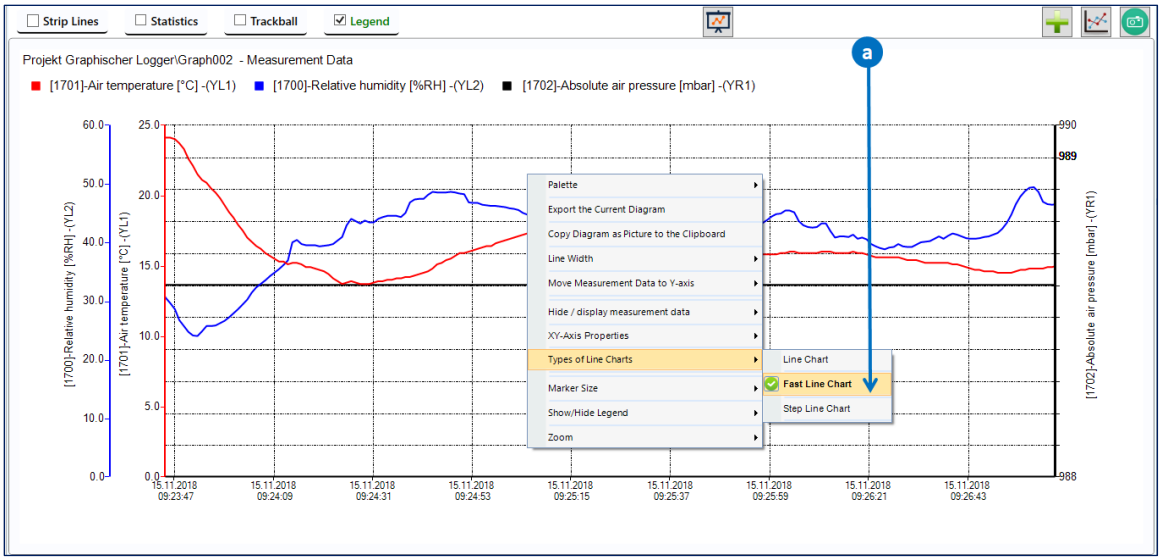

Figure 10-10: context menu “Line Types”

“Show/Hide Legend”: hides or displays the legend of the chart

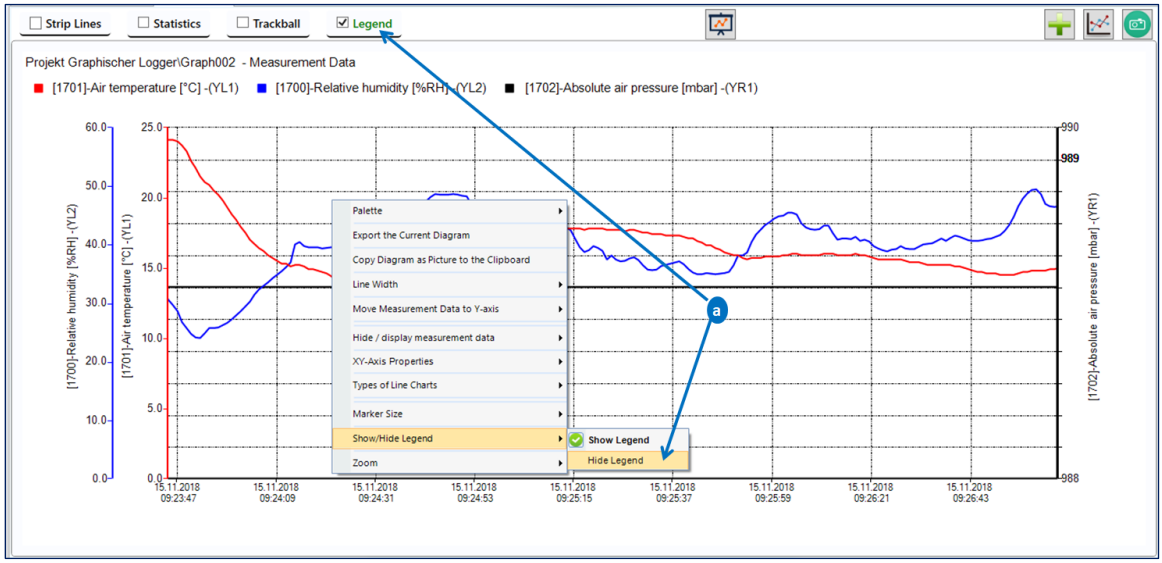

Figure 10-11: context menu “Show/Hide Legend”

To show / hide the strip lines of the displayed line series, enable or disable the corresponding checkbox .

Figure 10-12: Menu “Strip lines”

To **show / hide statistics** for the plotted series, click on the corresponding checkbox .

Figure 10-13: Menu “Statistics”

To **show / hide the trackball** on the plotted lines, click on the corresponding checkbox.

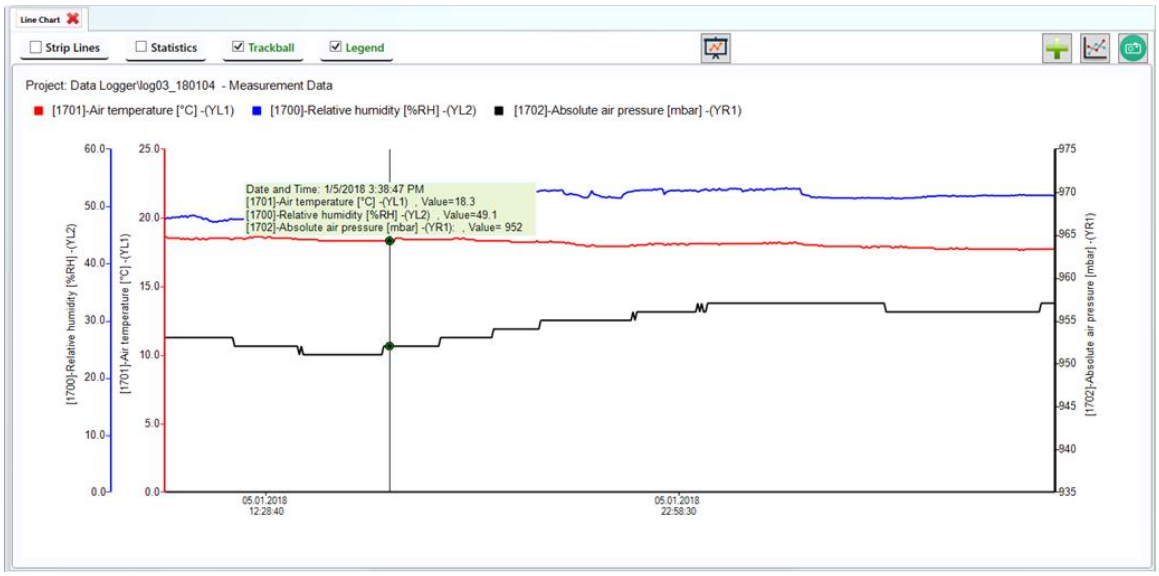

Figure 10-14: Menu “Trackball”

"Zoom": can be used to zoom in or out, vertically or horizontally (a).

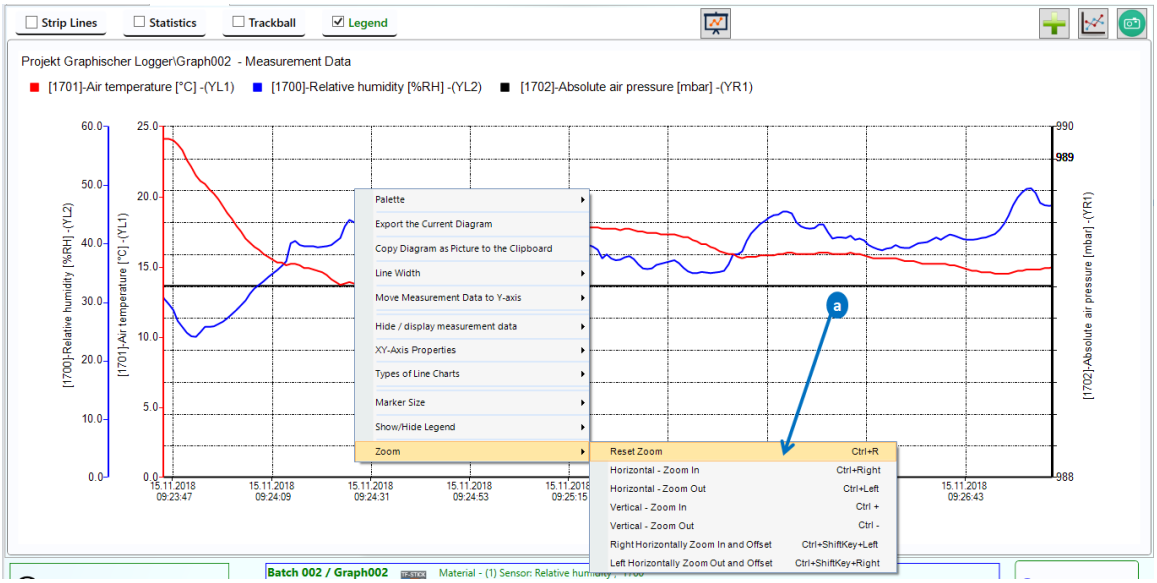

Figure 10-15: context menu "Zoom"

Alternatives:

Zooming with mouse wheel: Just click on the displayed chart and scroll up to zoom in or scroll down to zoom out.

Zooming with Keyboard Shortcuts:

As shown in figure 10-12 in a, keyboard shortcuts can be used to zoom in or out:

- "Ctrl+Right": zooms in horizontally.
- "Ctrl+Left": zooms out horizontally.
- "Ctrl+OemPlus": zooms in vertically.
- "Ctrl+OemMinus": zooms out vertically.

"Ctrl+R" resets the zoom or the chart to its original position.

10.4 Measurement Data – Bar Chart

To show the histogram or bar chart of the selected measurement data a, click on the button b in Figure 10-16.

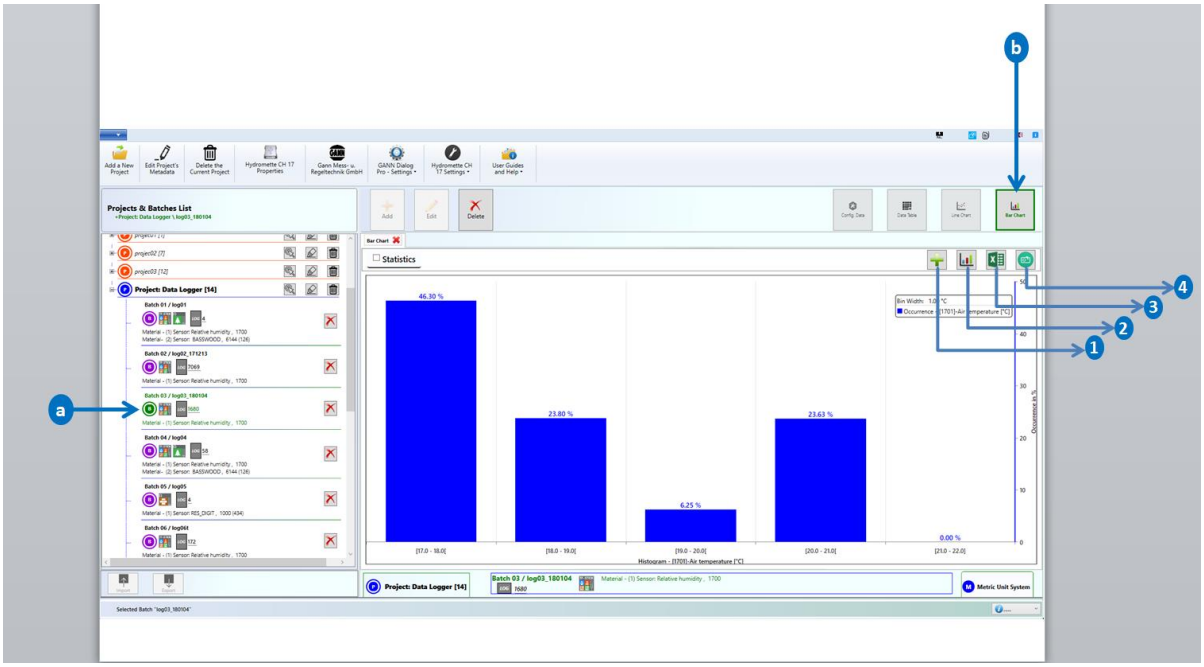

Figure 10-16: measurement data – bar chart

The chart in Figure 10-16 shows the histogram of the measured value “relative humidity”. The data are grouped in so-called bins (represented on the X-axis). The occurrence of the measured data is displayed on the Y-axis.

The start and end values of each bin are represented through an interval: For example, the first bin “[40.8 – 41.9[” has a start value of “40.8” and an end value of “41.9”.

Brackets can be inclusive (“[“ – left and “]” – right), meaning that the respective value is included in the bin. Exclusive brackets (“]“ – left and “[” – right), on the other hand, that the respective value is not included in the bin. In the example above, 40.8 belongs to that bin, whereas 41.9 does not.

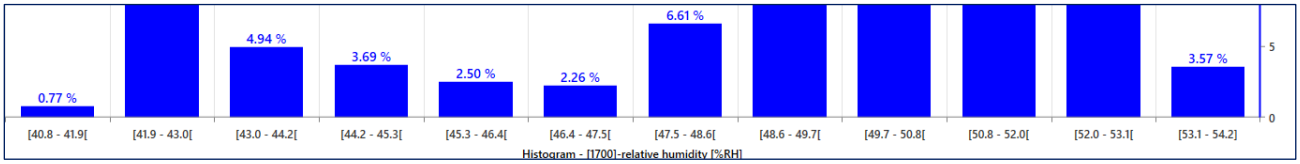

Figure 10-17: Highlighted Bin Width Interval

Figure 10-17 highlights the bin intervals (with the inclusive and exclusive bracket in each) of the previously plotted histogram of the measured values in Figure 10-16.

10.4.1 Bar Chart Main Menus

- **Export the chart as an image**
  Click on the button 2 in Figure 10-16 to export the chart as an image file.
- **Add Additional Sensor Values**
  Click on the button 1 to add additional or calculated sensor values. A dialog box with the list of calculated sensor values will be displayed. Select the desired sensor values and click on "OK".
- **Export the chart to an Excel-File**
  Click on the button 3 to export the chart as an Excel file,
- **Copy the image to clipboard**
  Click on the button 4 in Figure 10-16 to copy the currently displayed chart to the clipboard.

10.4.2 Bar Chart Context Menus

To use the context menu related to the plotted bar chart, click on the right mouse button on a chart area.

Context Menu "Legend Position"

You can change the current position of the chart legend ([a] Figure 10-18) using the corresponding context menu.

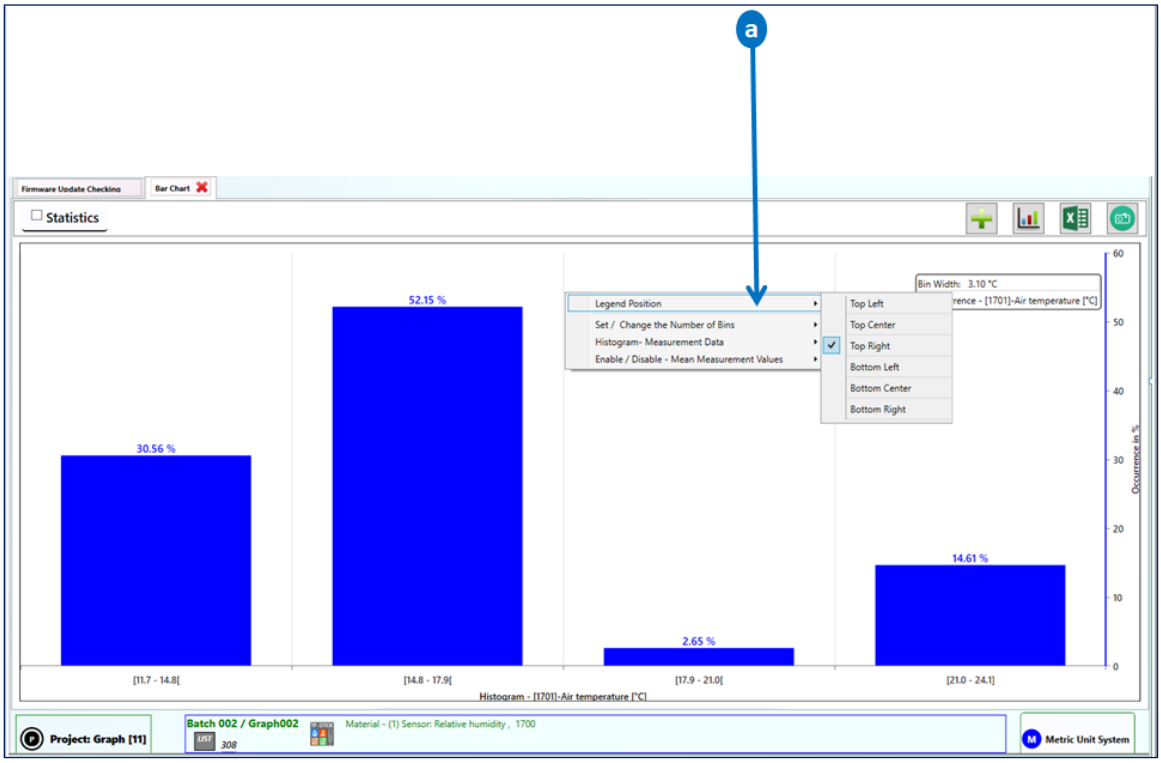

Figure 10-18: context menu "Legend Position"

Context Menu "Set / Change the Number of Bins"

You can change the number of the bins using the corresponding context menu [b]. The smaller the number, the wider is the individual bin - and vice versa.

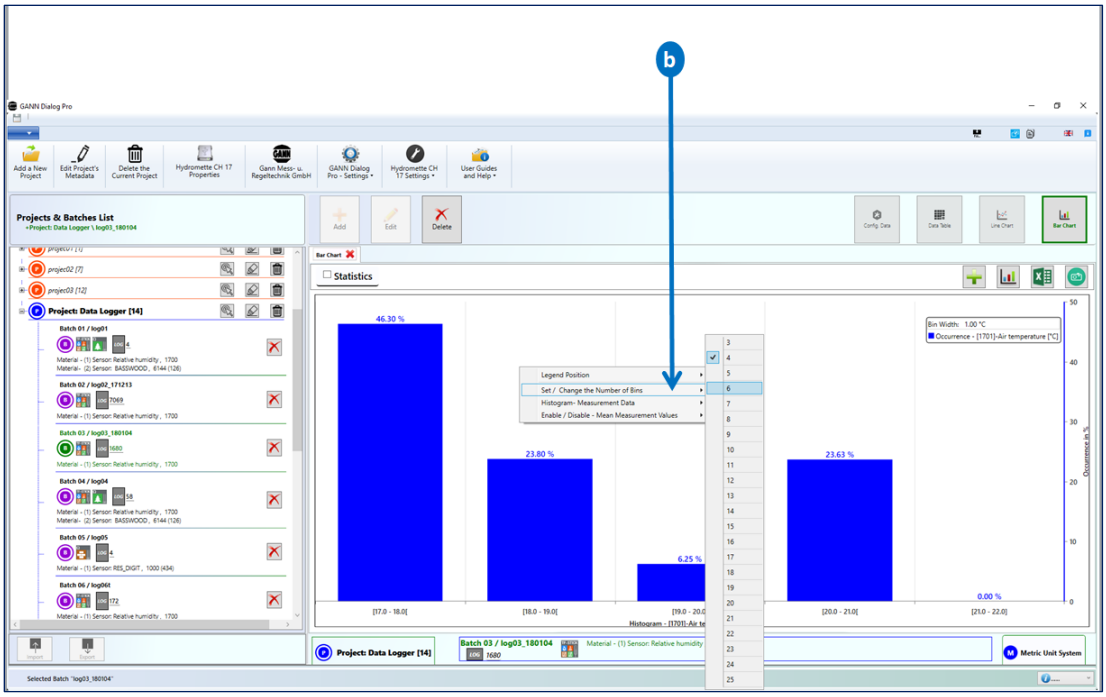

Figure 10-19: context menu “Set / Change the Number of Bins”

Context Menu "Histogram – Measurement Data"

This context menu allows you to select a different measurement for bar chart representation (a in Figure 10-20).

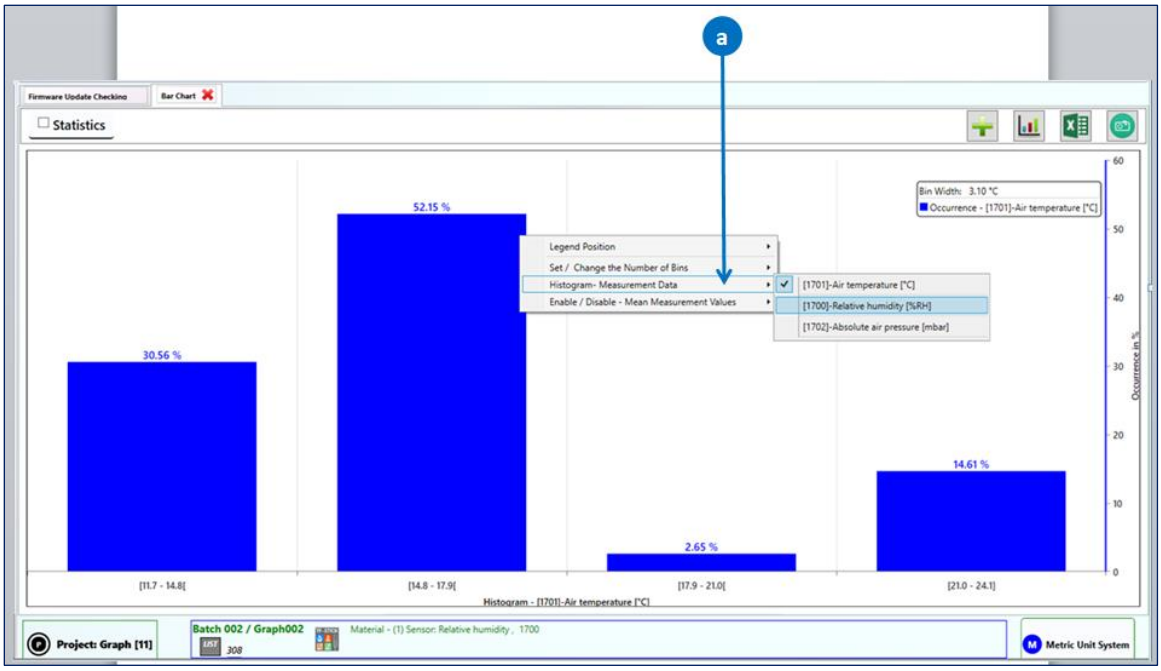

Figure 10-20: context menu "Histogram – Measurement Data"

Context Menu “Enable / Disable – Mean Measurement Values”

This context menu item offers the possibility to display the calculated mean values of other measured values for each bin (example in figure 10-19: mean values for “relative humidity”).

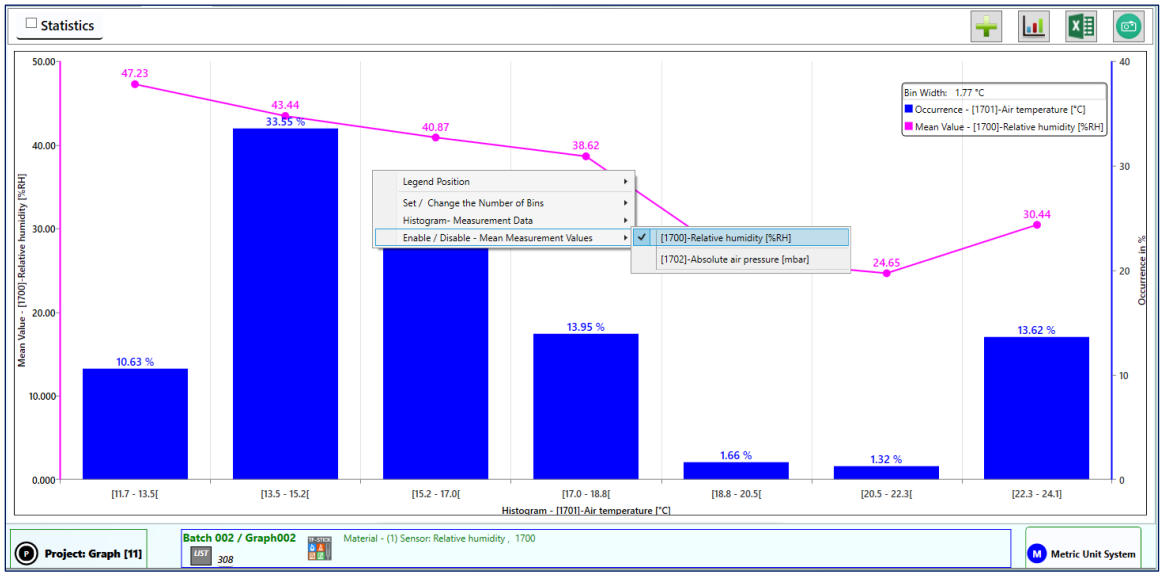

Figure 10-21: context menu “Enable / Disable – Mean Measurement Values”