

Type 8922

Batch Controller

ME43, ME63

Software for dosing liquids



Operating instructions - Software

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Technische Änderungen vorbehalten.
Sous réserve de modifications techniques.

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1 ABOUT THESE INSTRUCTIONS

The instructions describe the basic operation of the batch controller. Store the instructions and keep them available for consultation, and forward them on to the next user.

Safety information.

You can find safety information and information about the use of communication devices or products in the relevant operating instructions.

Failure to observe these instructions may result in hazardous situations.

► The operating instructions must be read and understood.

1.1 Validity of the instructions

These instructions are valid for the batch controller.

1.2 Manufacturer

Germany

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1.3 Symbols



DANGER!

Warns about a danger that will result in death or serious injuries.



WARNING!

Warns about a danger that may result in death or serious injuries.



CAUTION!

Warns about a danger that may result in mild or minor injuries.

NOTE!

Warns about material damage that may damage the product or system.



Indicates important additional information, tips and recommendations.



Refers to information in these operating instructions or in other documentation.



Designates instructions to avoid a danger.



Designates a procedure which you must carry out.



Designates a result.



Symbol for software interface texts.

1.4 Definition of terms

The term “device” or “product” refers to the batch controller in these instructions.

2 INTENDED USE

The software has been designed for controlling and regulating liquid media, in combination with Bürkert devices. Improper use of the batch controller may be hazardous to people, nearby equipment and the environment.

- ▶ When using the device, observe the authorised data, operating conditions and usage conditions for the relevant devices or products specified in the contract documents and in the operating instructions.
- ▶ Only use the software in connection with third-party devices and components that have been recommended and approved by Bürkert beforehand.
- ▶ Correct installation, and careful operation and maintenance, are essential to ensure safe and trouble-free operation.
- ▶ Only use software as intended.

3 GENERAL NOTES

3.1 Contact address

Germany

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Email: info@burkert.com

International

The contact addresses are available at: country.burkert.com in the menu „Contact“.

3.2 Information on the Internet

Further information concerning the product at country.burkert.com.

4 PRODUCT DESCRIPTION

4.1 General description

The batch controller is exclusively configured using the Bürkert Communicator.

The batch controller is used to detect and calculate flow signals as well as other input and output signals.

For example, the input signal for starting, pausing and cancelling the process, and the quantity selection, can be coupled via IO module, an EDIP display or a PLC.

4.2 Intended area of application

The “Batch Controller” software extension was specially developed for dosing liquids and is compatible with the ME43 and ME63 gateways.

It is important to ensure that the ME43 or ME63 gateway has the required technical prerequisites and the corresponding version of firmware so that the batch controller software extension can be used successfully, see chapter “[6 Batch software activation \(ME43, ME63\)](#)”



ME63

Only devices that have the following laser marking can use the specific software extension.



Fig. 1: Laser marking ME63

4.3 Functions

ME4x output modules or valves with büS connection are required to control valves for exact dosing of the predetermined quantities.

The calculation is based on a precise recording of the current flow and the totalling or recording of the quantity using büS-compatible sensors (FLOWave) or via IO module (Impulse). For example, dosing can be performed in grams or kilograms if the FLOWave is used with active mass flow measurement.

It is possible to save max. 30 logs thanks to an update to the batch controller (see “[11 Batch Controller update](#)”). Using a memory card makes it possible to increase the number of logs (see “[13 Batch logs](#)”).

5 BÜRKERT COMMUNICATOR PRINCIPLES

5.1 General

The Bürkert Communicator software allows the comfortable configuration and monitoring of application-specific parameters.

When a device is connected to the Bürkert Communicator, it is displayed in the navigation area of the Communicator. Every device has a device menu, via which the device is configured.




The Bürkert Communicator can be downloaded free of charge from the Bürkert home page. In addition to the Bürkert Communicator, the “[USB bÜS interface set](#)”, which is available as an accessory, is also required.



The operating instructions for the basic functions of the software can be found on the Bürkert home page: country.burkert.com → Type 8920

5.2 Connecting the device to the Bürkert Communicator

- Install Bürkert Communicator on the PC.
 - Set the terminating resistor (on the bÜS stick, device or external terminating resistor).
 - Use the USB-bÜS-interface set to establish the connection between the device and the PC.
 - Start Bürkert Communicator.
 - In the menu bar, click the icon  for **Add interface**.
 - Select the **bÜS stick**.
 - **Finish**
- ✓ The connection between the device and Bürkert Communicator is established, the device is displayed in the navigation area.

6 BATCH SOFTWARE ACTIVATION (ME43, ME63)

The batch software is an integral part of the ME43 gateway software (from version A.9.2 onwards) and ME63 gateway software (from version A.2.1 onwards). The software can be enabled via Bürkert Communicator (from version 6.2.3 onwards) at any time, even for test purposes.

The function on the device can only be used for one hour without a valid licence key. After this period, the function is disabled. The device must be restarted.

When a valid licence key is obtained, the function can be enabled via the Communicator for the device (see chapter “18 Licence activation”).



Before you start setting up and configuring the batch controller, it is important that you connect all the required devices to the bÜS, pre-configured and supplied with power.

6.1 Input devices

- ME61 Process Control Display (from version A.4.0)
- PLC
- Configured DI module with connected keys for starting, stopping and pausing the process.

For example, the Communicator itself can also be used as an input device for start-up.



Important

Only 1 input device can be used at any time.

6.2 Flow sensors

- bÜS-capable flowmeter
- Configured DI module to which a Bürkert paddle wheel sensor is connected, for example.

6.3 Output signals

- Pre-configured valves that can be controlled via bÜS.
- Configured DO modules to which valves are connected.



If all prerequisites have been fulfilled, all required devices are displayed in the Communicator (see “Fig. 2: Illustration of the connected devices”).

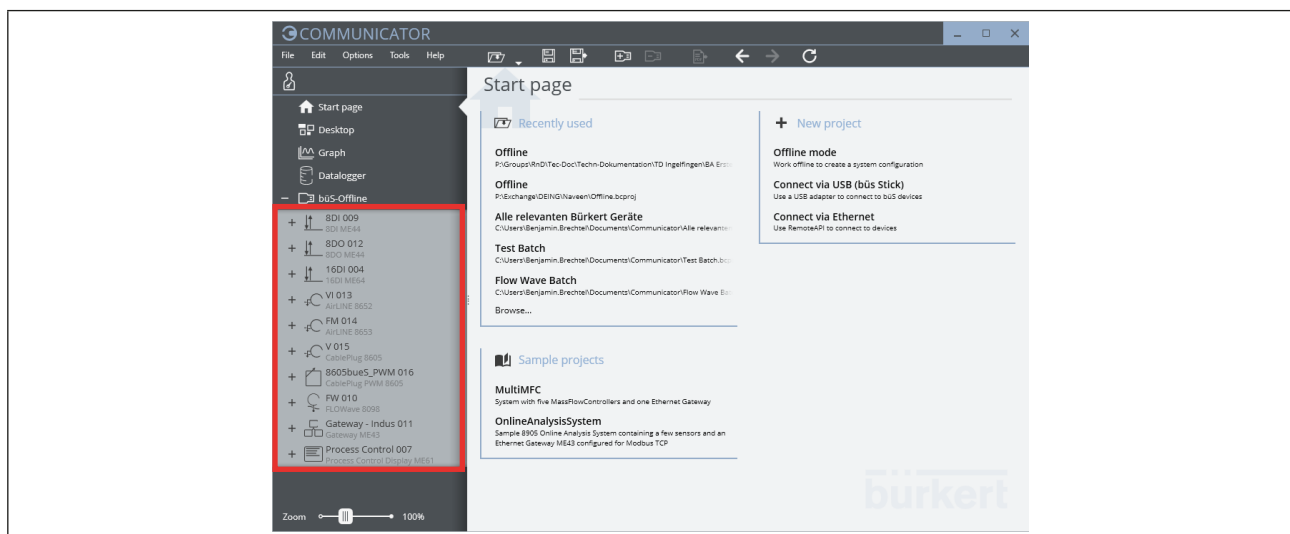


Fig. 2: Illustration of the connected devices

6.4 Enable the batch function

The batch function is part of the firmware on the ME43 and ME63 gateways. The batch function is enabled and configured in Communicator via the device menu on the gateway.

- Select gateway and click on “*f(x) configuration*”.
- If *f(x)* function is still not displayed, select “*New function f(x)*” and then “*Batch*”. (see “[Fig. 3: f\(x\) configuration](#)”)

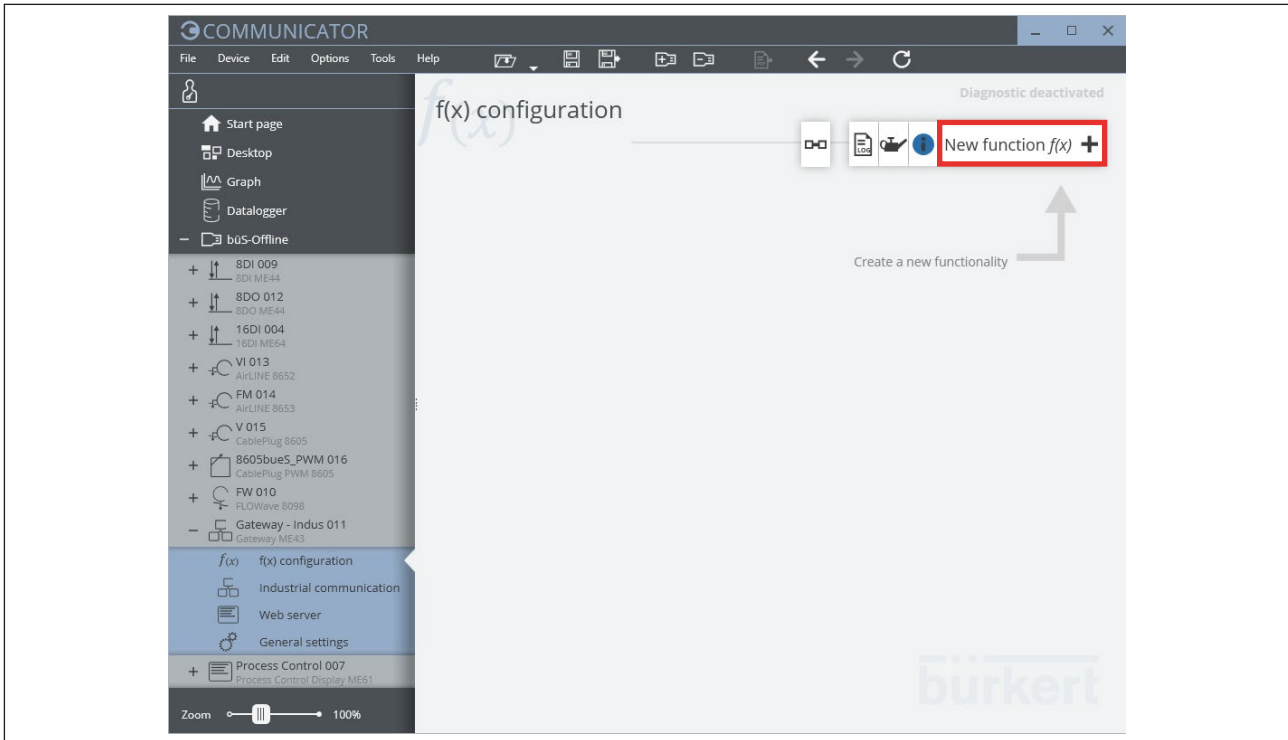


Fig. 3: *f(x) configuration*

- The name of the *f(x)* function is preassigned with the designation “*Batch*”.



Assignment of a specific name allows for precise allocation and management of data, particularly if several batches are present in the system.

- **Continue**
- **Device restart**
- **Finish**
- ✓ **Batch function enabled**

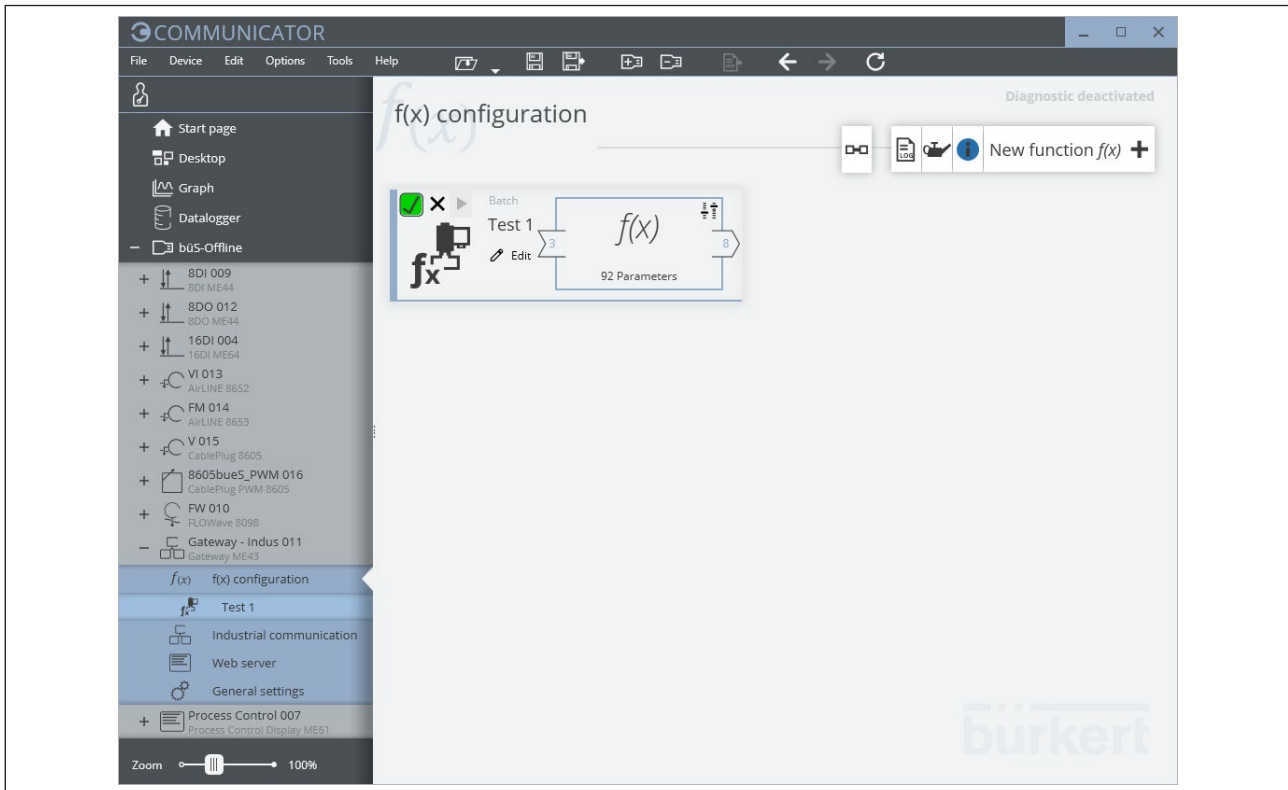


Fig. 4: Batch function enabled

7 OBJECT OVERVIEW

7.1 Use the controller commands

The batch controller can save up to 7 recipes. If the target volume is larger than 0, it will be shown on the ME61 Display.

Controller commands:

Function	Batch control hex	Batch control decimal	Bit0 0x01 Start	Bit1 0x02 Pause	Bit2 0x04 Stop	Bit3 0x08 (Recipe bit 0)	Bit4 0x10 (Recipe bit 1)	Bit5 0x20 (Recipe bit 2)	Bit6 0x40 (not used)	Bit7 0x80 (not used)
Start/Resume selected recipe	0x01	1	1	0	0	0	0	0	x	x
Pause batch	0x02	2	x	1	0	x	x	x	x	x
Stop batch	0x04	4	x	x	1	x	x	x	x	x
Start recipe 1	0x09	9	1	0	0	1	0	0	x	x
Start recipe 2	0x11	17	1	0	0	0	1	0	x	x
Start recipe 3	0x19	25	1	0	0	1	1	0	x	x
Start recipe 4	0x21	33	1	0	0	0	0	1	x	x
Start recipe 5	0x29	41	1	0	0	1	0	1	x	x
Start recipe 6	0x31	49	1	0	0	0	1	1	x	x
Start recipe 7	0x39	57	1	0	0	1	1	1	x	x
x=reserved (=0)										

7.2 Process control of the batch

Description of process automation/process control and the transitions

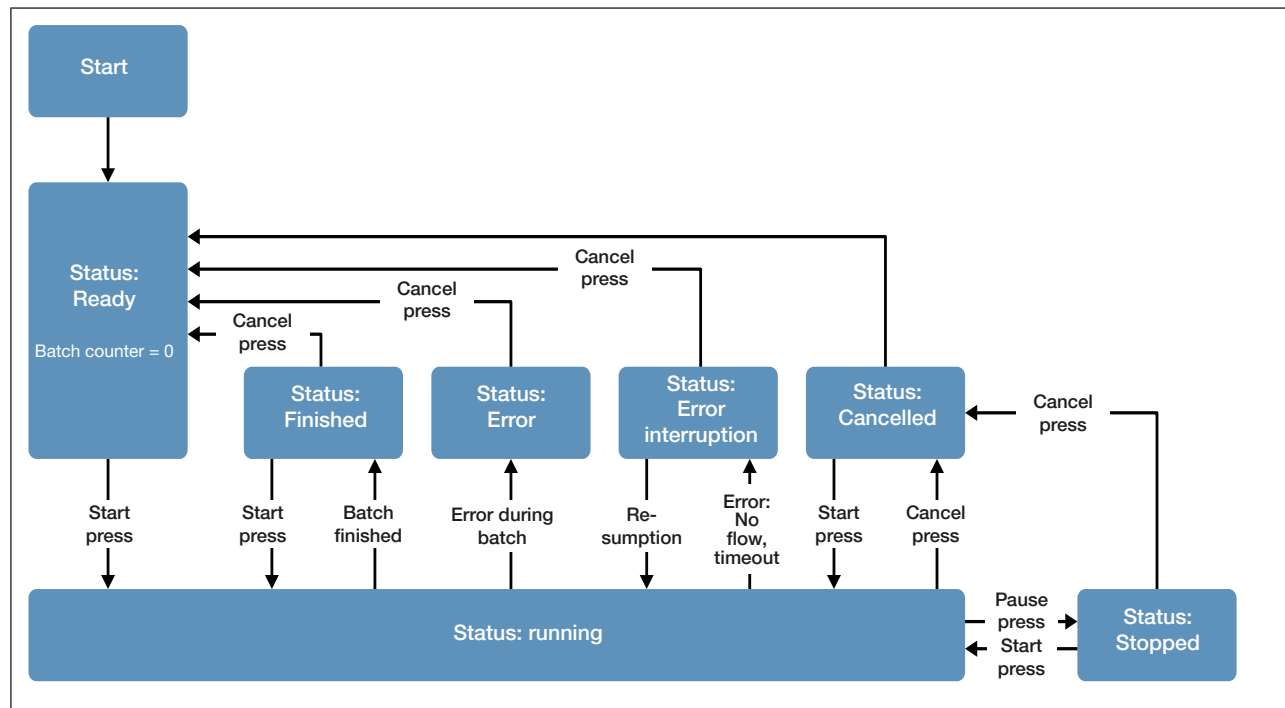


Fig. 5: Description of process automation/process control and the transitions

Status	Description
Initialisation	Initial state of process automation/process control and the transition to standby as soon as all producers have been found and f(x) is running.
Ready	Batch controller normal state Indication that no errors have occurred. Dosing can be initiated.
Running	Dosing process active
Stopped	Dosing process paused by user. Dosing process can be resumed.
Error	Serious error during the dosing process. Dosing process cannot be continued. (f(x) General Error, Invalid Parameter, Backflow, Unexpected Flow)
Interrupted	Dosing process interrupted by error. (Producer not found, no flow, timeout during dosing) Remedy error. Dosing process can be resumed with the start command.
Cancelled	Dosing process cancelled by user. Dosing process can be resumed.
Finished	Dosing process completed. All valves closed.

7.3 Batch object description

7.3.1 Batch inputs

Object 0x254X Batch control

Sub-index	Name	Data type	Default	Access		PDO mappable
				Read	Write	
0x01	Batch control	Unsigned8	0	x	x	x

A recipe can be selected, the dosing process started, paused/resumed and stopped via “Batch control”.

Batch control							
Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7
Start	Pause	Stop	Recipe bit 0	Recipe bit 1	Recipe bit 2	Not used	Not used



Important

Detailed information at: chapter [“7.1 Use the controller commands”](#)

Object 0x254X Flow

Sub-index	Name	Data type	Default	Access		PDO mappable
				Read	Write	
0x01	Flow	Real32	0	x	x	x

Flow at flow rate sensor.

Object 0x254X Target quantity manual

Sub-index	Name	Data type	Default	Access		PDO mappable
				Read	Write	
0x01	Target quantity manual	Real32	0	x	x	x

For a manual recipe (freely chosen target quantities), the previously saved value will be overwritten by this value.

7.3.2 Batch outputs

Object 0x250X NAMUR Status

Sub-index	Name	Data type	Default	Access		PDO mappable
				Read	Write	
0x01	NAMUR status	Unsigned8	0	x		x

NAMUR status	
0 - Diagnostics active	3 - Out of specification
1 - Error diagnostics active	4 - Function check
2 - Maintenance required	5 - Fault or error

Object 0x250X Valve output

Sub-index	Name	Data type	Default	Access		PDO mappable
				Read	Write	
0x01	Valve output	Unsigned8	0	x		x

Output to controller for all on/off valves

Object 0x250X Totaliser

Sub-index	Name	Data type	Default	Access		PDO mappable
				Read	Write	
0x01	Totaliser	Real32	0	x		x

Totaliser for the current dosing process.

Object 0x250X Batch state

Sub-index	Name	Data type	Default	Access		PDO mappable
				Read	Write	
0x01	Batch state	Unsigned8	0	x		x

Status of current dosing process

Batch state	
0 - Initialisation	4 - Error
1 - Ready	5 - Interrupted
2 - Running	6 - Cancelled
3 - Stopped	7 - Finished



Important

Detailed information at: chapter [“7.2 Process control of the batch”](#)

Object 0x250X Batch error state

Sub-index	Name	Data type	Default	Access		PDO mappable
				Read	Write	
0x01	Batch error state	Unsigned8	0	x		x

Batch error state							
Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7
General error	Producer not found	Dosing timeout	Recipe parameter invalid	No flow	Reverse flow	Unexpected flow	Not used

Object 0x250X Proportional valve 1

Sub-index	Name	Data type	Default	Access		PDO mappable
				Read	Write	
0x01	Proportional valve 1	Real32	0	x		x

Output to controller for proportional valve 1

Object 0x250X Proportional valve 2

Sub-index	Name	Data type	Default	Access		PDO mappable
				Read	Write	
0x01	Proportional valve 2	Real32	0	x		x

Output to controller for proportional valve 2

Object 0x250X Proportional valve 3

Sub-index	Name	Data type	Default	Access		PDO mappable
				Read	Write	
0x01	Proportional valve 3	Real32	0	x		x

Output to controller for proportional valve 3

7.4 Batch controller integration into a PLC/control system

Observe sequence:

→ Create gateway configuration or download from the [website](#).

Note: The current gateway configuration will be overwritten when importing the batch gateway configuration.

→ Run batch wizard. Select inputs and outputs required.

→ Manually map further optional batch objects.

7.5 Configuration examples

Example	Predefined recipe	Manual recipe
Task	Start recipe 3.	Set individual dosing quantity and initiate dosing process.
Precondition	<ul style="list-style-type: none"> Recipe 3 is configured. Batch setup has been successfully completed. 	<ul style="list-style-type: none"> Batch setup has been successfully completed.
Procedure	→ Set batch control 0x19 (0b00011001).	→ Enter desired target quantity in "TargetQuantityManual". → Set batch control 0x39 (0b00111001).
Result	✔ Dosing started using recipe 3.	✔ Dosing started using manual recipe.

8 VALVES AND THEIR FUNCTION

8.1 Valve arrangements

Overview of valve arrangements (called scenarios below) supported by the batch controller.

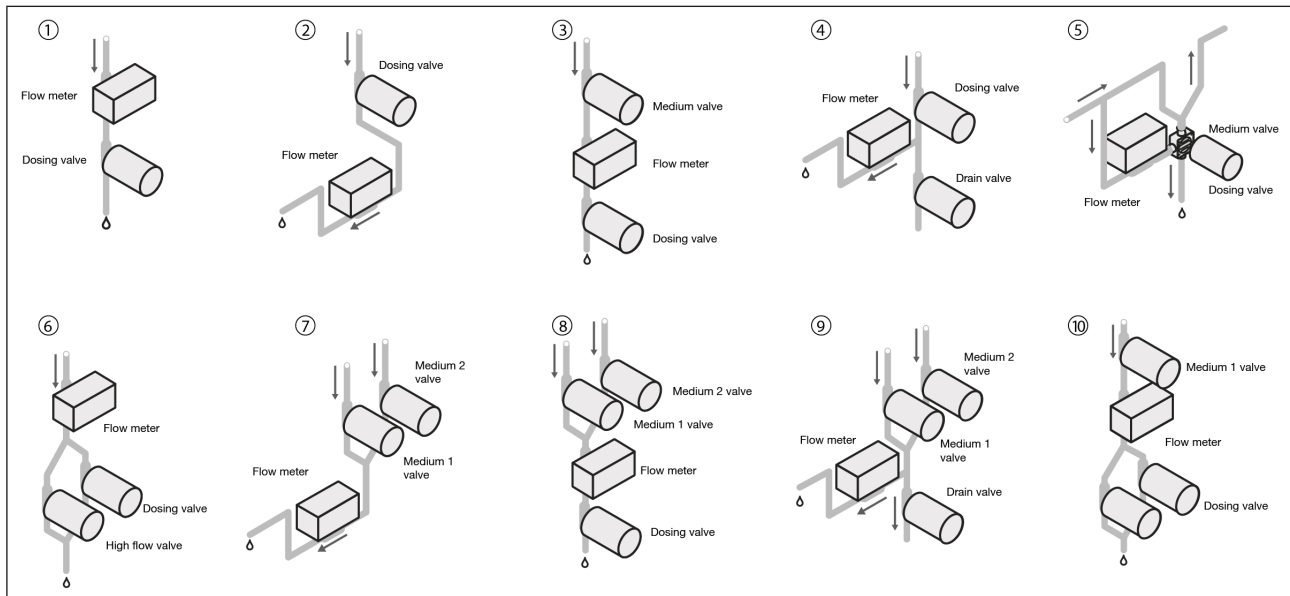


Fig. 6: Overview of possible scenarios

Depending on the application, the valves can be connected via an EDIP DO module, bÜS network, a valve island or control electronics. A wizard helps make setup easier (see chapter [“10.1 Batch setup – run wizard”](#))

The following section describes the valve arrangements for the batch applications being considered and how they work.

- x = valve available
- - = valve not available

Valve scenarios	Dosing valves		Selection valves ¹⁾		Drain valve
	Dosing valve	Dosing valve with high flow	Medium valve 1	Medium valve 2	
1	x	-	-	-	-
2	x	-	-	-	-
3	x	-	x	-	-
4	x	-	-	-	x
5	x	-	x ²⁾	-	-
6	x	x	-	-	-
7	-	-	x ³⁾	x ³⁾	-
8	-	-	x	x	-
9	-	-	x	x	x
10	x	x	x	-	-

With valve scenarios 6 and 10 it is possible to use 1 proportional valve, e.g. an electromotive valve, and configure it accordingly instead of 2 on/off valves for a large or a small flow.

¹⁾ Medium selection

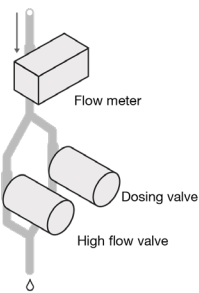
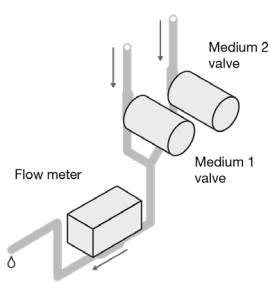
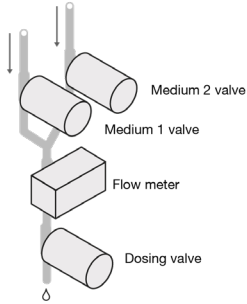
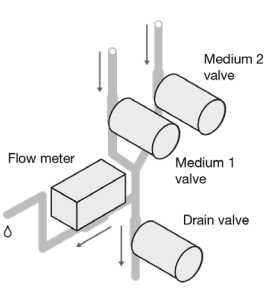
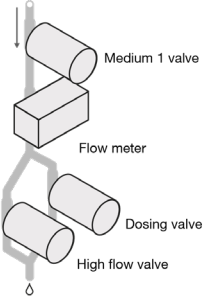
²⁾ Robolux

³⁾ Selection valve = dosing valve

8.2 Description of the valve scenarios

Scenario	Description	Figure
1	<p>The dosing valve is installed after the flow sensor.</p> <p>The flow sensor is permanently filled with medium.</p>	
2	<p>The dosing valve is installed before the flow sensor.</p> <p>The flow sensor is permanently filled with medium.</p>	
3	<p>The line with the flow sensor is filled via the medium valve 1.</p> <p>The dosing valve is installed after the flow sensor.</p>	
4	<p>The dosing valve is installed before the flow sensor.</p> <p>The flow sensor is permanently filled with medium until the drain valve is opened.</p>	
5	<p>This scenario is tailored to suit Robolux valves⁴⁾. If no dosing occurs, the medium valve 1 is opened so that the flow sensor permanently has medium flowing through.</p> <p>During dosing, the medium valve 1 is closed and the dosing valve opened.</p>	

⁴⁾ The valve programme is based on the patented Robolux technology, wherein the diaphragm actuates two crossbars. With this concept, dead spaces are avoided and the flow volume is reduced.

6	<p>Dosing valve and dosing valve with high flow are valves with different nominal diameters or openings. Both are installed after the flow sensor.</p> <p>This scenario can also be performed with a single proportional valve.</p>	
7	<p>Medium valve 1 and medium valve 2 are the dosing and selection valves. Both are installed before the flow sensor.</p> <p>An in-house recipe/dosing quantity is required for each medium</p>	
8	<p>Medium valve 1 and medium valve 2 are selection valves. Both are installed before the flow sensor.</p> <p>The dosing valve is installed after the flow sensor.</p>	
9	<p>Medium valve 1 and medium valve 2 are the dosing and selection valves. Both are installed before the flow sensor. An in-house recipe/dosing quantity is required for each medium.</p> <p>The flow sensor is permanently filled with medium until the drain valve is opened.</p>	
10	<p>Dosing valve and dosing valve with high flow are valves with different nominal diameters or openings. Both are installed after the flow sensor.</p> <p>By closing medium valve 1 and opening the dosing valve with low flow, or the dosing valve with high flow, the line can be drained via the dosing valve, including the flow sensor.</p>	

9 BATCH MODE SEQUENCE DIAGRAM

9.1 Description of batch modes

Mode	Description
Automatic	In this mode, the batch controller automatically corrects the dosed volume, starting with the first batch. Dosing is briefly interrupted during initial dosing for this purpose (first batch), then the overrun volume is automatically calculated and taken into consideration with all further dosing. It is also possible in this mode to configure a manual correction volume. This enables consistent deviations to be corrected (see chapter “9.3 Automatic - first batch”)
Teach-In	In this mode, automatic correction of the measured flow volume does not take place. Only the manually set correction quantity is taken into consideration. This mode is mainly advisable when the system conditions (pressure, flow) remain constant and the overrun volume is known, or when the dosing time is too short and the automatic corrections therefore cannot be made (see chapter “9.2 Automatic and Teach-In”)
Manual	Regardless of the recipe used in this operation mode, all valves that are required for dosing are manually opened as soon as the start command is received (e.g. the “Start” key is briefly pressed on the display). The valves are closed again when the stop command is received (e.g. via the display). The system can be cleaned, tested or dosed “by hand” in this mode. The volume that is part of the recipe and the dosing time limit are not taken into account (see chapter “9.4 Manual”)

9.2 Automatic and Teach-In

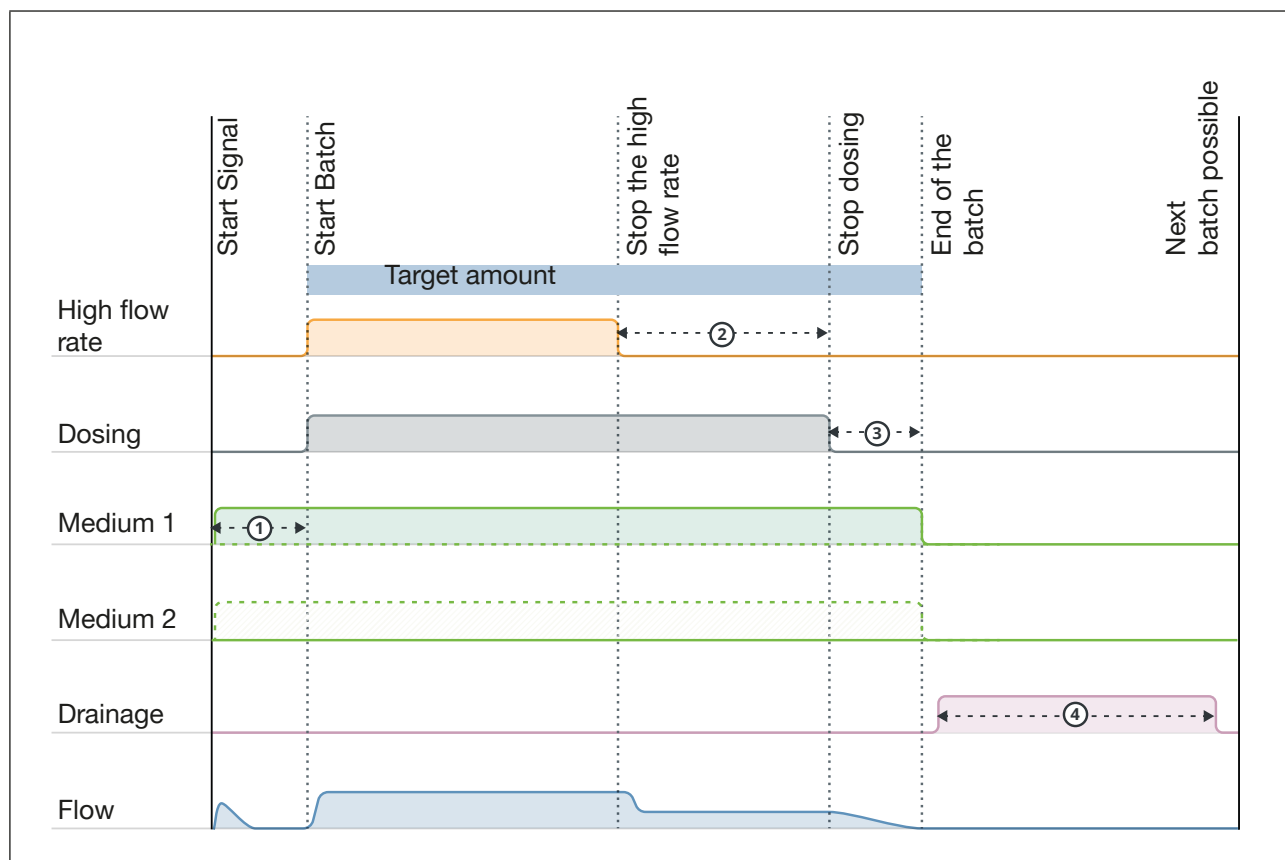


Fig. 7: Sequence diagram - Automatic and Teach-In

→ Start batch

If a **medium valve** is present:

- Selected medium valve (medium valve 1 or medium valve 2) opens
- After the delay in selecting the medium (**medium selection delay**), the dosing valves are opened (1)



The medium valve has different functions, depending on the scenario:

- Scenario 3, 8, 10:
Valve is exclusively used for selecting the medium (pure closing/opening function).
- Scenario 2, 4, 7, 9:
Medium valve is used for dosing.



If no medium valve is available, the dosing valves are opened directly and the flow rises to the maximum value.

If a **dosing valve with high flows** is available:

- User defines a volume which should only be dosed by the **dosing valve** at the end.
- If the quantity from which only the **dosing valve** should be used is reached in the totalizer, the **dosing valve with high flow** (target quantity – residual volume for **dosing valve**) (2) is closed.

Only applies to Automatic mode

If the target quantity - excluding the automatically set correction volume - is reached, the **dosing valve** is closed (3). If a manual correction volume is configured, this is also taken into account.

Only applies to Teach-In mode

Only the manual correction volume is used, automatic correction does not take place. After the flow has been reset to 0, the medium valve is closed.

If a **drain valve** is available:

- The **drain valve** can be opened for a certain time after the batch has been completed ("*Drain*" parameter in recipe) (4)
- If the **drain valve** is closed then the batch procedure is ended
- A new batch procedure can then be started.

9.3 Automatic - first batch

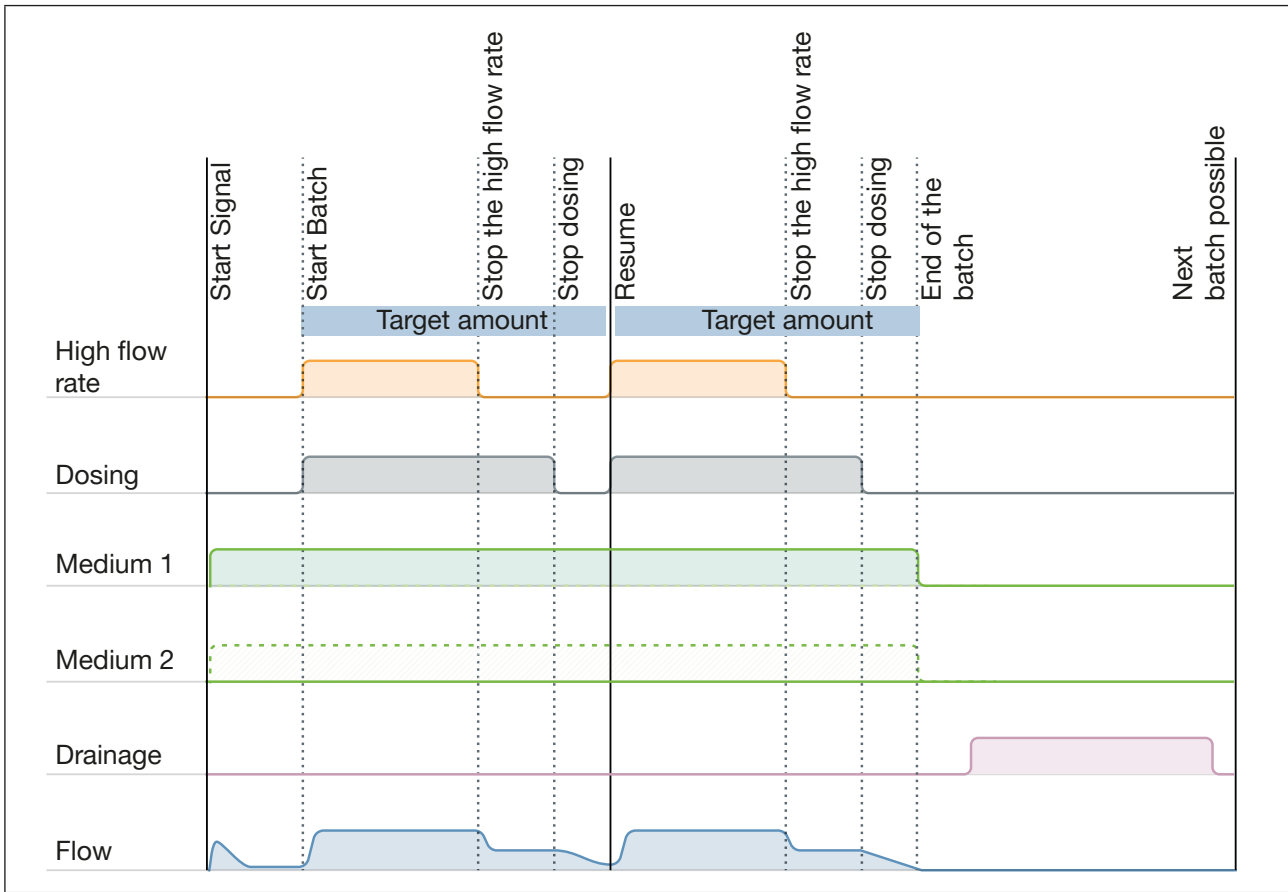


Fig. 8: Sequence diagram - first batch

There is an option to perform a **“first batch”** in **“Automatic”** batch mode. This is performed when the automatic correction volume has a value of 0 (when the system starts for the first time, can be reset via Communicator). Essentially, this functions like a **“normal batch”**. The difference is that the **“First Batch”** temporarily closes the dosing valves at half of the target volume. The correction volume is not known during initial start-up. The correction volume can be determined and used by closing at half of the target quantity. This makes the first dosing process more accurate.

The **dosing valve with high flow** is closed before the **dosing valve** in this process.

The automatic correction volume can be calculated by closing, if there is none available.

9.4 Manual

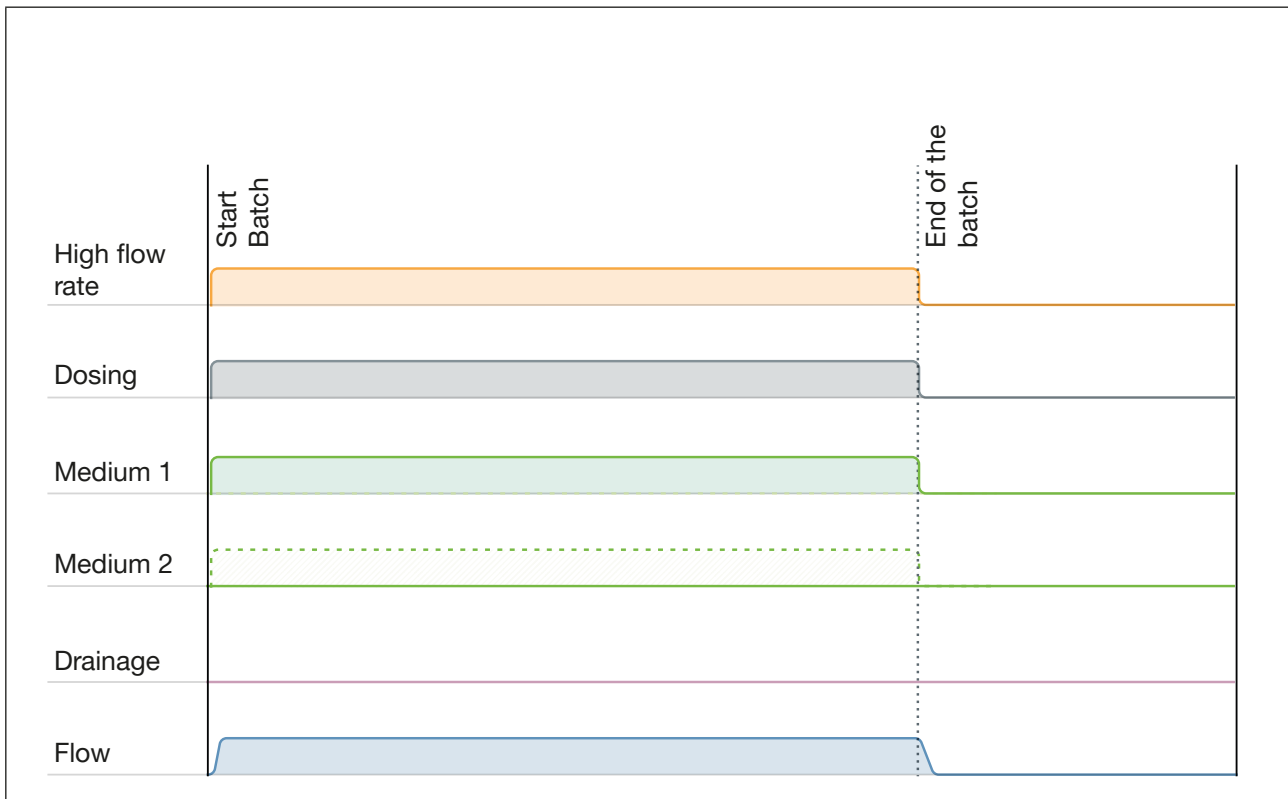


Fig. 9: Sequence diagram - manual

The medium valve (medium valve 1 or medium valve 2) is selected via the current recipe.

At the start of the batch, all valves, **the dosing valve with high flow** and the **dosing valve** are opened directly and the totaliser totals the flow.

All valves are closed with the next control signal and the batch is finished.

9.5 Troubleshooting

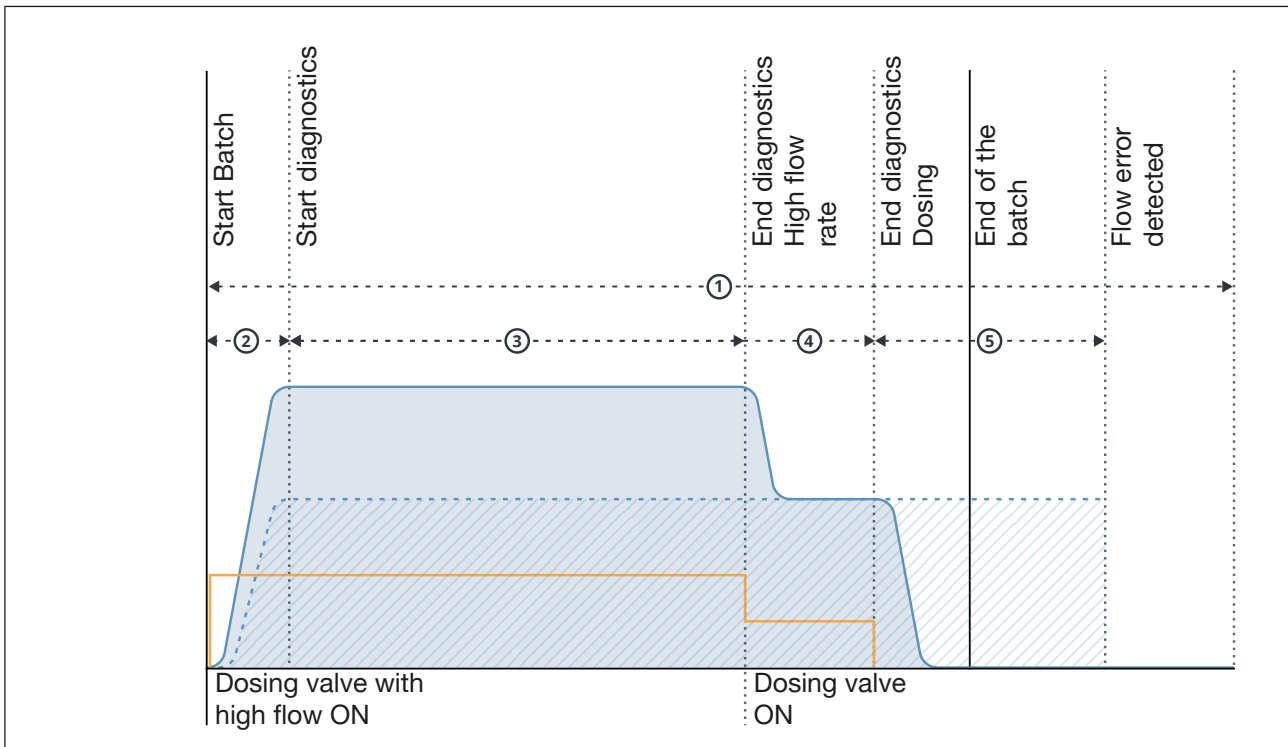


Fig. 10: Sequence diagram - troubleshooting

Error name	Description
General error	f(x)/f(x) licence error
Producer not found	Connected device is no longer in bÜS network.
Dosing time limit	Maximum valve opening duration Knowledge of the flow and target volume can be used to estimate how long a maximum dosing period should last. If the dosing time is exceeded, an error occurs and the valves are closed.
Invalid recipe parameter	Target quantity = 0
	Dosing time limit = 0
	Target quantity and dosing time limit = 0
No flow	System detects that no medium is flowing
Reversed flow direction	System detects that the medium is flowing in the wrong direction
Unexpected flow	After closure of the valves, the flow does not fall back to 0

Section 1

A maximum valve opening time is configured via *"Dosing time limit"*. If the target quantity is not reached within this time, all valves are closed after the period has ended and the error message *"Dosing time limit"* displayed.

Section 2

Diagnostics start after

- the *"start fill level diagnostics"* (default value: 10 %) of the target quantity or
- the *"flow validation time"* (default value: 10 s)

has been reached. Both limits can be set specifically for the customer in the scenario settings.



Start fill level diagnostics

A stable flow value is the prerequisite for fill level diagnostics. The controller can be used to set the percentage of the target quantity at which the fill level diagnostics start.

Afterwards, the calculation of whether the target quantity can be reached with the current flow takes place.

From this value onwards, logging of the minimum and maximum flow takes place.



Flow validation time

The following points are checked after the set period of time:

- No flow
- Flow in the wrong direction

An error message is displayed in both cases.

Section 3

At the *"Start Diagnosis"* time, the system inspects the current flow and can therefore detect the **No flow** or **Reverse flow** errors. The following diagnostic calculations are made during the dosing process:

- Determination of the minimum and maximum flow
- Inspection whether the target quantity can be reached with the current flow
- Automatically determined correction volume adjusted depending on the flow

Section 4

When using a **dosing valve with high flow** then the diagnostics is ended upon closure of the **dosing valve with high flow**. If only one valve is used for the dosing, the diagnostics are finished when this valve closes.

Section 5

If the flow does not drop back down to 0 after the valves close, the error **Unexpected flow** is recognised and displayed after 10 seconds at the earliest.

9.6 Pause behaviour

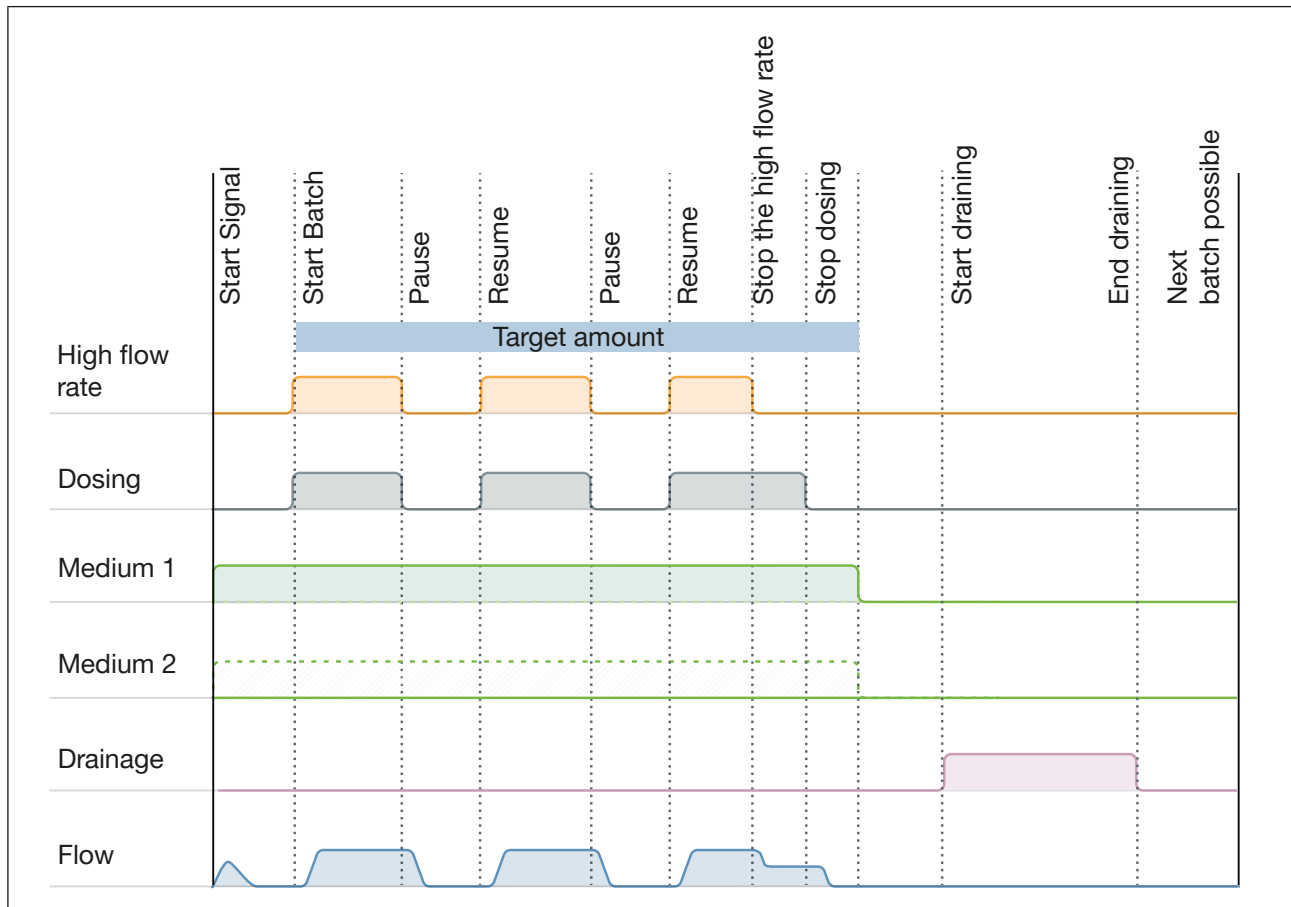


Fig. 11: Sequence diagram - pause behaviour

The pause behaviour in "Automatic" or "Teach-In" mode is identical. During a pause, both dosing valves are closed, while the medium valves remain open.

During a dosing process, dosing can be paused repeatedly and then restarted.

Pauses may be necessary when initial dosing takes several minutes and the ongoing process must be interrupted.

The following sequence steps of the dosing processes are not affected by this and run like a "normal dosing process".

10 BATCH CONTROLLER CONFIGURATION

10.1 Batch setup – run wizard

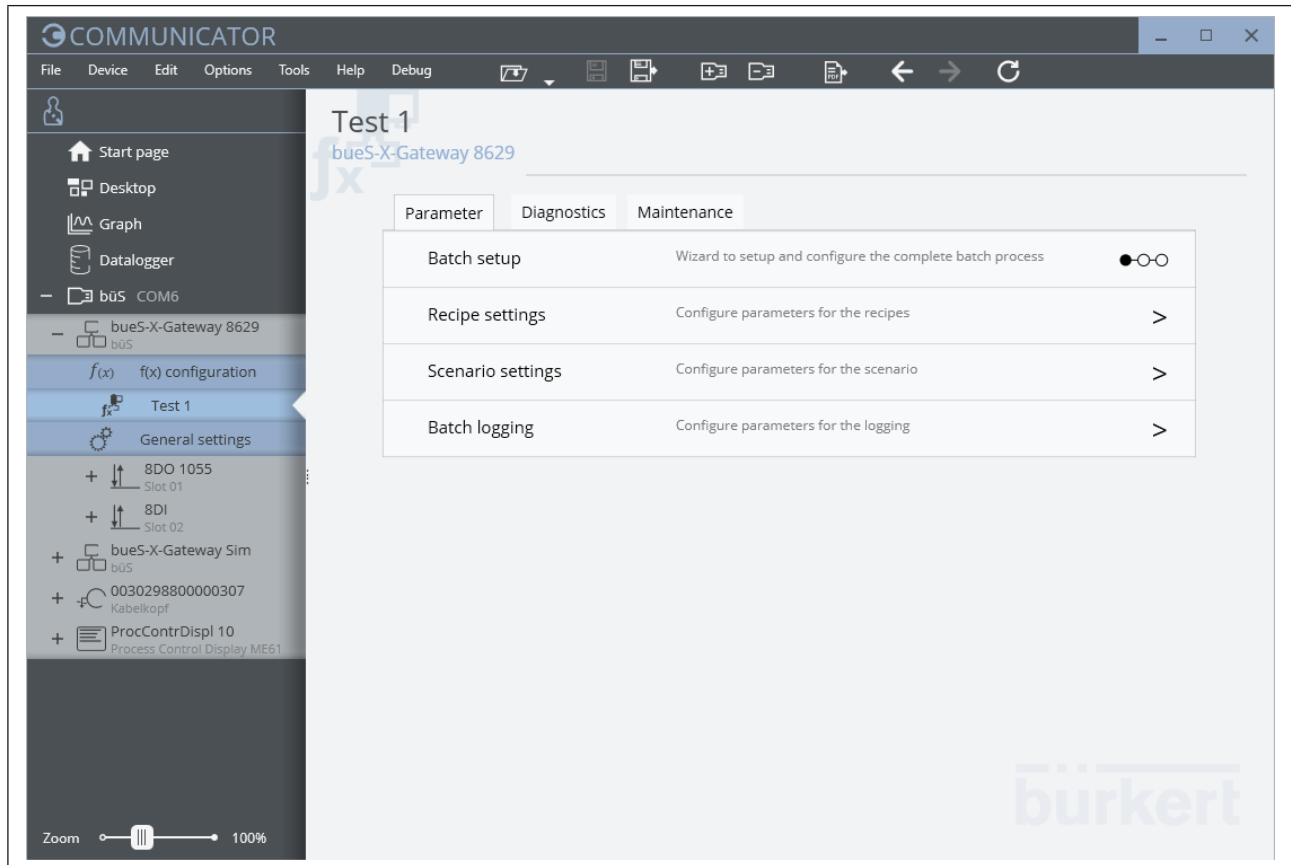


Fig. 12: Parameters

→ Select the batch to be configured (in this example, “Test 1”)

→ Start the wizard by clicking on **Batch setup**.



The wizard for performing the batch setup is described precisely below.

An example project with the following Bürkert devices is used for visualisation purposes, and for better understanding:

- Type ME44 - I/O module
- Type ME64 - I/O module
- Type 8652 - AirLINE
- Type 8653 - AirLINE Field
- Type 8605 - PWM control electronics for electromagnetic proportional valves
- Type 8098 - FLOWave SAW flowmeter
- Type ME43 - fieldbus gateway
- Type ME61 - EDIP process control display

10.1.1 Valve scenario overview

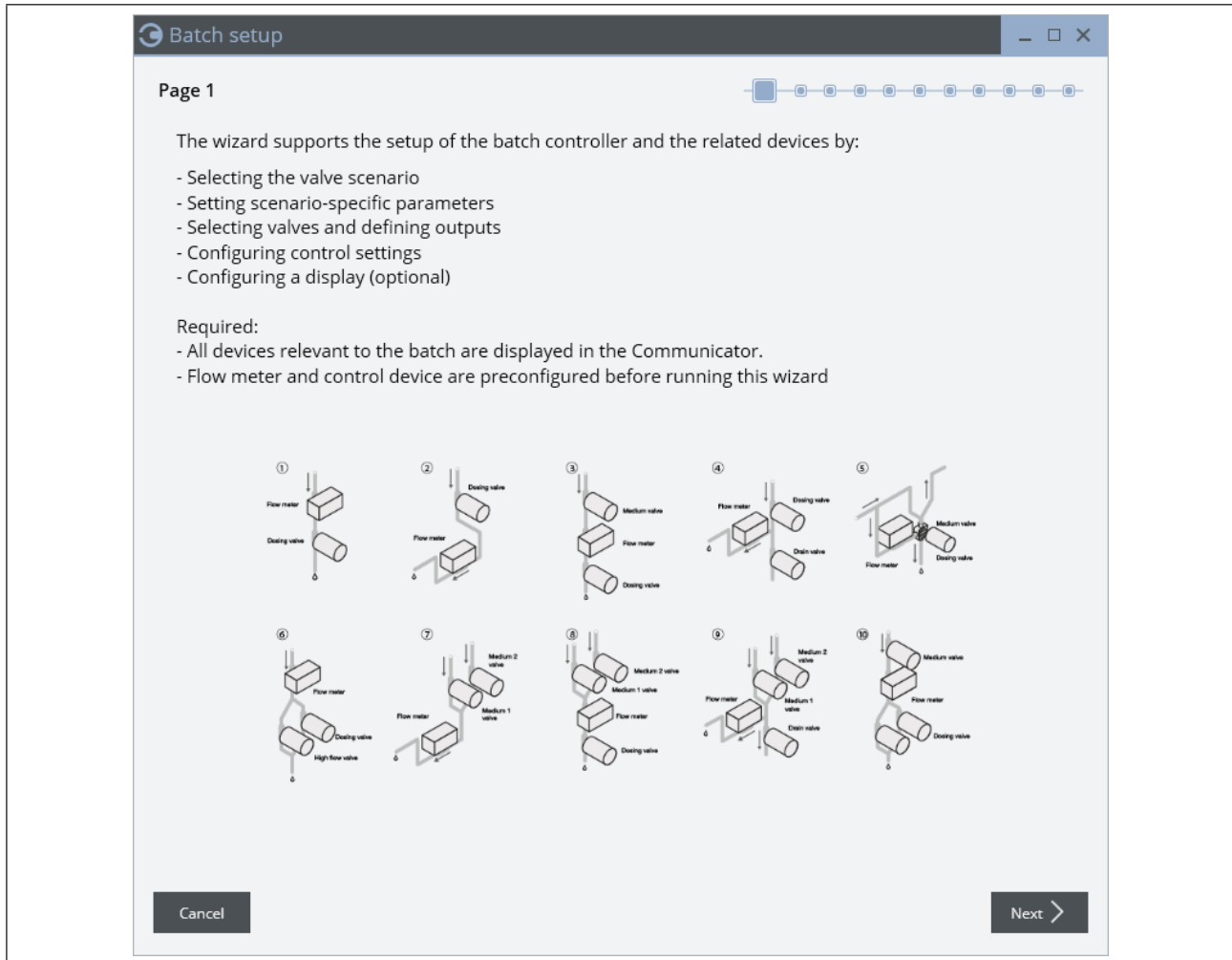


Fig. 13: Wizard overview page

The wizard provides support with the setup of the batch controller and the configuration of individual devices:

- Valve scenario selection
- Scenario-specific parameters
- Valve selection or output definition
- Controller configuration
- Display configuration (optional)



Prerequisite

- The flow sensor, as well as all valves and IO modules required for the application have been correctly connected regarding the electrics (bÜS (termination), supply (24 V, compressed air)) and connected to each other.
- Flowmeters used must be installed and calibrated correctly.
- Controller must be configured and integrated correctly.



The Communicator must display all devices connected via bÜS in the overview. When selecting the device in the Communicator, its status LED should start flashing.

10.1.2 Valve scenarios selection

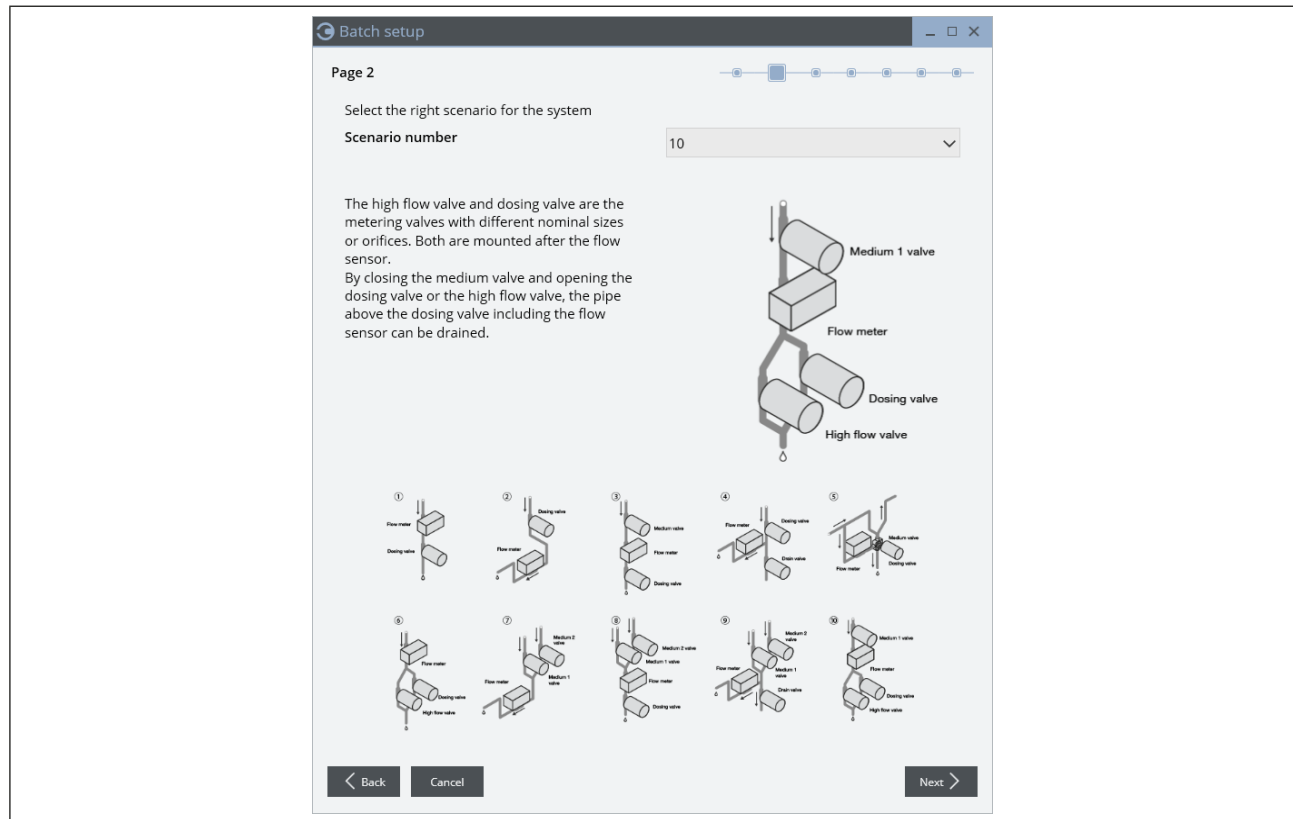


Fig. 14: Scenario selection - example of scenario 10

10.1.3 Configuration of scenario selected

Depending on the scenario selected, the following is displayed on page 3 of the wizard

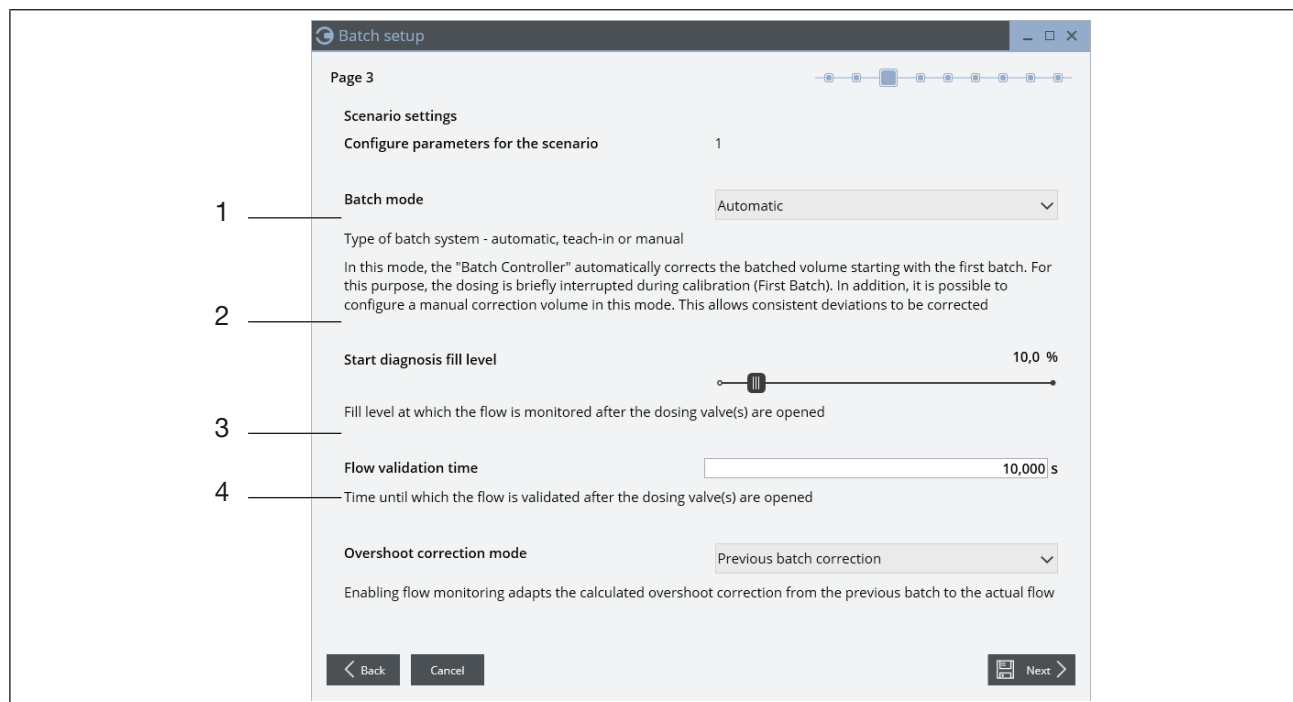


Fig. 15: Configuration of scenarios 1, 2, 4, 6

Batch setup Page 3

Scenario settings
Configure parameters for the scenario 3

1 **Batch mode** Automatic
Type of batch system - automatic, teach-in or manual
In this mode, the "Batch Controller" automatically corrects the batched volume starting with the first batch. For this purpose, the dosing is briefly interrupted during calibration (First Batch). In addition, it is possible to configure a manual correction volume in this mode. This allows consistent deviations to be corrected

2 **Start diagnosis fill level** 10,0 %
Fill level at which the flow is monitored after the dosing valve(s) are opened

3 **Flow validation time** 10,000 s
Time until which the flow is validated after the dosing valve(s) are opened

4 **Overshoot correction mode** Previous batch correction with flow monitoring
Enabling flow monitoring adapts the calculated overshoot correction from the previous batch to the actual flow

5 **Medium selection delay** 0,000 s
Delay of the dosing process after opening the medium selection valve.

< Back Cancel Next >

Fig. 16: Configuration of scenarios 3, 5, 7, 8, 9, 10

No.	Designation	Description	Scenario
1	Batch mode	Batch mode selection: "Automatic", "Teach-In" or "Manual" chapter "9.1 Description of batch modes"	All
2	Start fill level diagnostics Only for batch mode: "Automatic" and "Teach-In"	Fill level when the flow diagnostics start	All
3	Flow validation time Only for batch mode: "Automatic" and "Teach-In"	Time when the flow is tested after the valves open	All
4	Overrun correction mode Only for batch mode: "Automatic"	Mode for overrun correction <ul style="list-style-type: none"> "Previous batch correction" Adjustment while taking the last batch into consideration. "Previous batch correction with flow monitoring" Dynamic adjustment while taking the last batch and the current flow into consideration. 	All
5	Medium selection delay Only for batch mode: "Automatic" and "Teach-In"	Determines the delay from the opening of the medium selection valve to the start of the dosing process. The delay to be set depends on whether the line is full or, if the line is empty, medium, line lengths, pressure and nominal diameter.	3, 5, 7, 8, 9, 10

10.1.4 Flow measurement devices

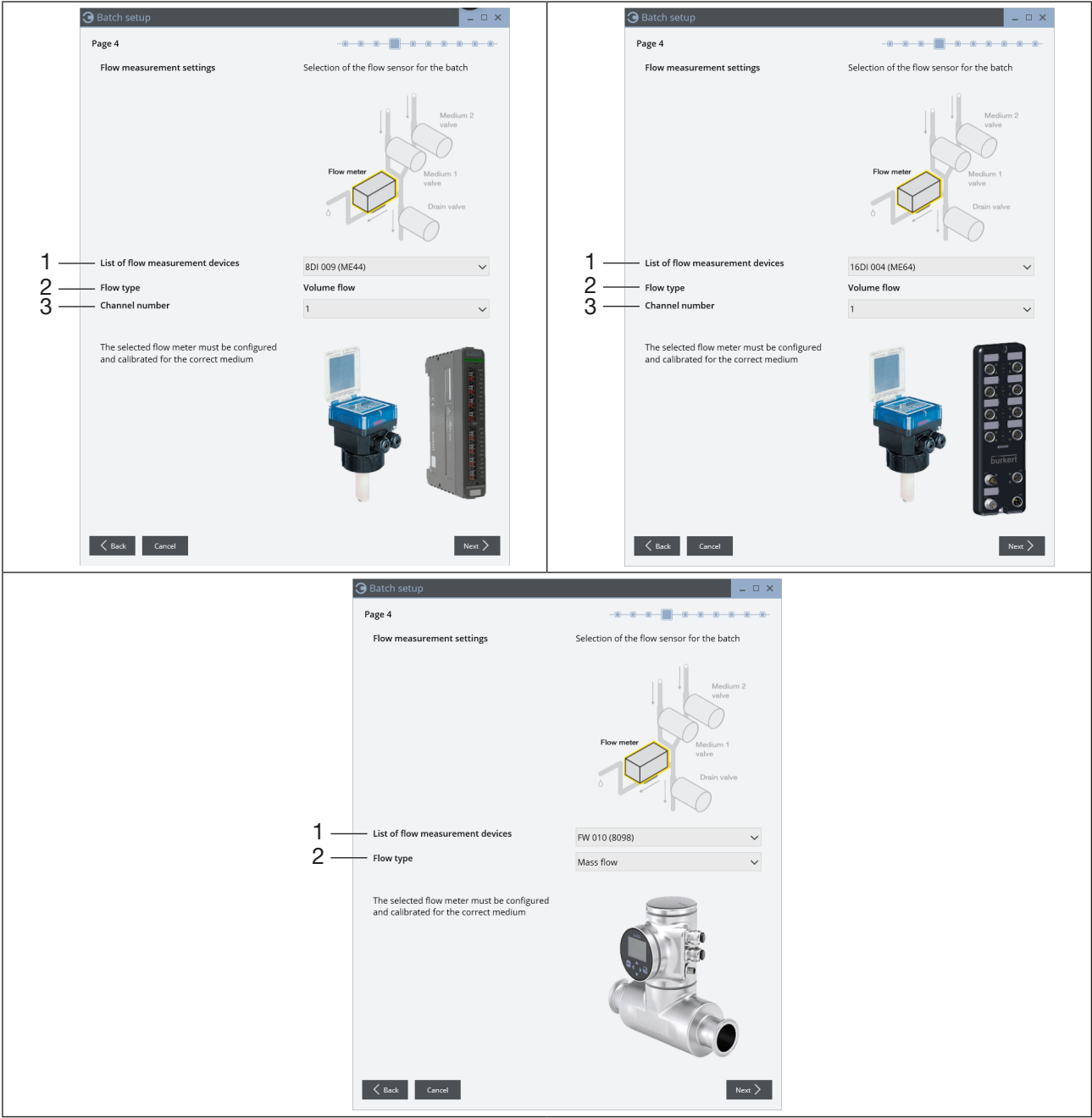


Fig. 17: Devices for flow measurement (flow measurement settings)

No.	Designation	Description	Scenario
1	List of flow meters	Selection between different flow measurement devices must be made	All
2	Type of flow	Volume flow Mass flow Only with supported Type 8098 FLOWave	All
3	Channel number	Channel number must be selected in a drop-down menu. Is only displayed when the device possesses multiple channels.	All

10.1.5 Settings of the controller



Note for Type ME61 - EDIP process control display
Existing screens on the display are deleted.
Device restart required in order to apply changes.



Note for DI devices

Channels on the input control device must be configured in digital input mode and arranged with keys in the following sequence:

- 0: Start
- 1: Break
- 2: Stop

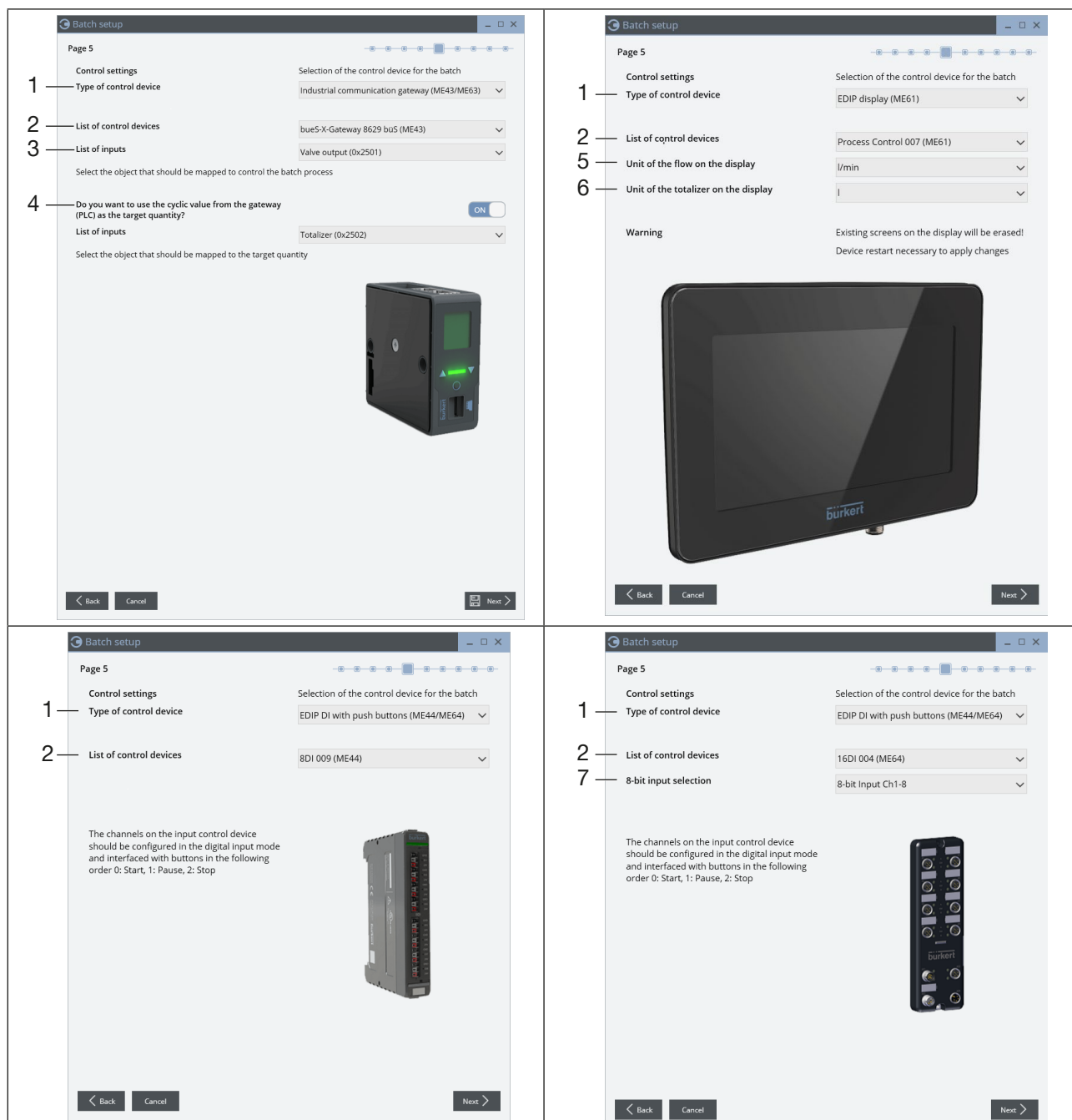


Fig. 18: Controller settings

No.	Designation	Description			Scenario
1	Type of controller	Input control device selection (to control batch process) Option EDIP Miscellaneous: All EDIP devices that are connected to the bÜS are displayed.			All
2	List of controllers	Selection of devices found on bÜS and possible devices			All
3	List of inputs (Only for ME43 and ME63)	The possible inputs are displayed here. (This point is displayed or hidden, depending on the previous selection.)			All
4	Cyclical value of gateway (PLC)	OFF: Internal batch controller recipes are used. ON: Upstream controller recipes are used.			All
5	Flow unit on the display (Only for ME61)	Flow unit must be selected	Volume flow l/min m3/min USgal/min ft3/min Mass flow kg/min lb/min		All
6	Totaliser unit on the display (Only for ME61)	Totaliser unit must be selected. When using the display, it is automatically configured by clicking on Continue , and the batch dashboard is prepared. The wizard continues configuration after the display restart.	Volume flow l m3 ml USgal ft3 fl.oz. Mass flow kg g oz lb		All
7	8-bit input selection (Only for ME64)	8-bit input Ch1-8 8-bit input Ch9-16			All

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1	Type of valve	On-Off valve
2	Type of device	Industrial communication gateway (ME43/ME
3	List of devices	Gateway - Indus 011 (ME43)
4	List of outputs	0x2540 Batch control
5	Select the object to which this valve should be mapped	
	Channel number	1

1

Type of valve

On-Off valve

2

Type of device

EDIP AirLINE (8652/8653)

3

List of devices

VI 013 (8652)

6

Valve inlet number

1

5

Channel number

1

1	Type of valve	On-Off valve
2	Type of device	EDIP AirLINE (8652/8653)
3	List of devices	FM 014 (8653)
5	Channel number	1

1	Type of valve	Proportional valve
2	Type of device	EDIP SDO (ME44)
3	List of devices	8DO 012 (ME44)
5	Channel number	1
7	Opening	100,0 %
8	Do you want to use the same valve as the dosing valve also?	ON

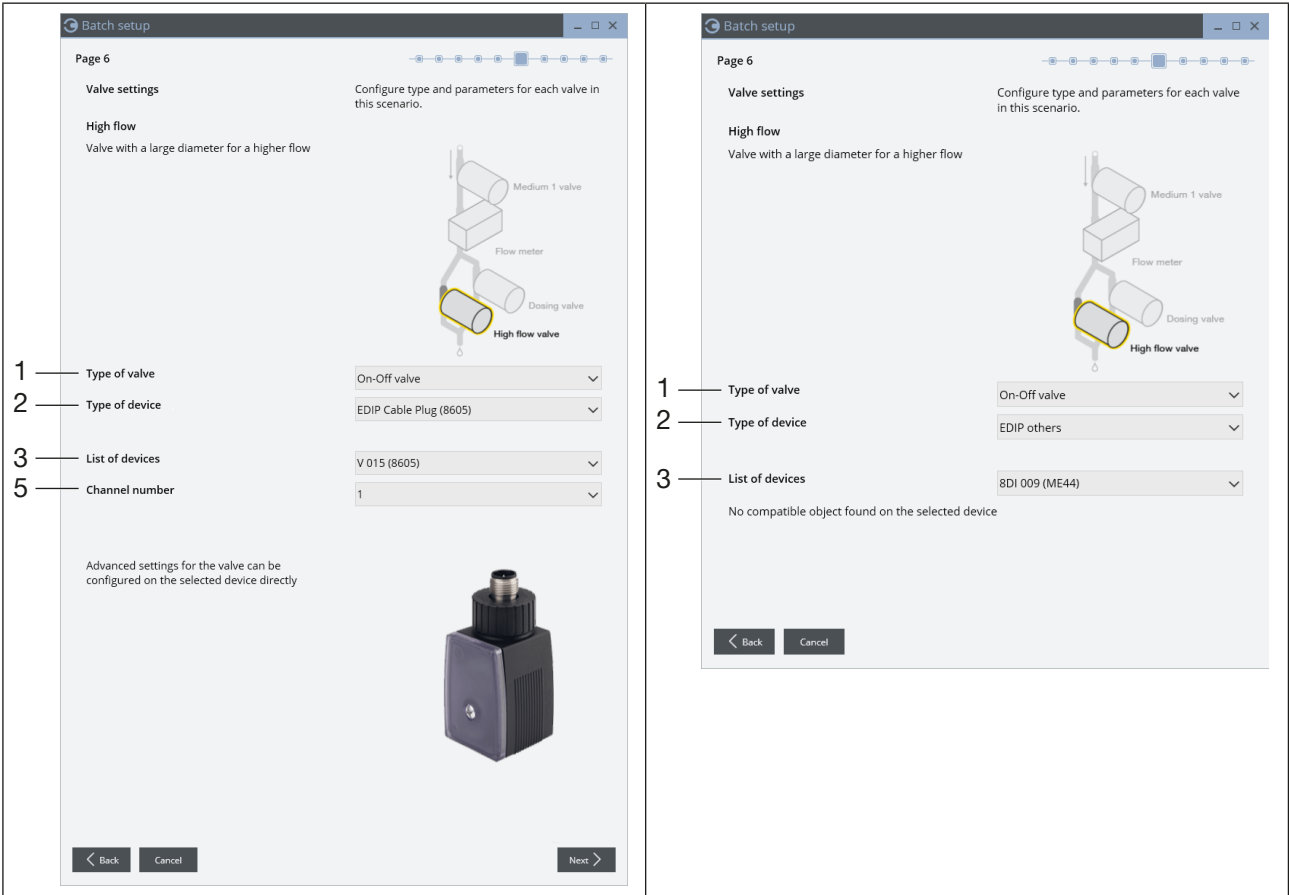


Fig. 19: Selection and configuration of the dosing valve with high flow

No.	Designation	Description	Scenario
1	Valve type	On/off valve	6, 10
		Inverted on/off valve	
		Proportional valve	
		Not for Type 8652/8653	
2	Device type	Type of the device to which the valves are connected. Option EDIP Miscellaneous: All EDIP devices that are connected to the bÜS are displayed.	6, 10
3	List of devices	Devices that are connected to the bÜS network and meet the “Type of device” selection criterion.	6, 10
4	List of outputs	Select correct output	6, 10
5	Channel number	Channel number must be selected in a drop-down menu.	6, 10
6	Valve inlet number	Drop-down menu for valve selection (valve 1-6) Only for Type 8652	6, 10

7	Opening	Setting the flow volume Only possible if “valve type” Proportional valve has been selected.	6, 10
8	Use the same valve also as a dosing valve	OFF (dosing valve with high flow \neq dosing valve Selection criteria of dosing valve with high flow and dosing valve can be individually adjusted.	6, 10
		ON (dosing valve with high flow = dosing valve) Selection criteria of dosing valve with high flow are assumed for the dosing valve. Opening must be set individually.	

10.1.7 Dosing valve

Batch setup

Page 6

Valve settings

Dosing

Main dosing valve

Medium 2 valve

Medium 1 valve

Flow meter

Dosing valve

1 — Type of valve

2 — Type of device

3 — List of devices

4 — List of outputs

5 — Channel number

On-Off valve

Industrial communication gateway (ME43/I)

Gateway - Indus 011 (ME43)

0x2540 Batch control

Select the object to which this valve should be mapped

2

Back

Cancel

Next

1 — Type of valve

2 — Type of device

3 — List of devices

6 — Valve inlet number

5 — Channel number

On-Off valve

EDIP AIRLINE (8652/8653)

VI 013 (8652)

1

2

Advanced settings for the valve can be configured on the selected device directly

Back

Cancel

Next

Batch setup

Page 6

Valve settings

Dosing

Main dosing valve

Medium 2 valve

Medium 1 valve

Flow meter

Dosing valve

1 — Type of valve

2 — Type of device

3 — List of devices

5 — Channel number

7 — Opening

Proportional valve

EDIP 8DO (ME44)

8DO 012 (ME44)

1

100,0 %

Advanced settings for the valve can be configured on the selected device directly

Back

Cancel

Next

Batch setup

Page 6

Valve settings

Dosing

Main dosing valve

Medium 2 valve

Medium 1 valve

Flow meter

Dosing valve

1 — Type of valve

2 — Type of valve output device

3 — List of valve output devices

5 — Channel number

On-Off valve

EDIP Cable Plug (8605)

V 015 (8605)

2

Advanced settings for the valve can be configured on the selected device directly

Back

Cancel

Next

Fig. 20: Dosing valve selection and configuration - example of scenario 10

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English

No.	Designation	Description	Scenario
1	Valve type	On/off valve	1, 2, 3, 4, 5, 6, 8, 10
		Inverted on/off valve	
		Proportional valve	
		Not for Type 8652/8653	
2	Device type	Type of the device to which the valves are connected.	1, 2, 3, 4, 5, 6, 8, 10
3	List of devices	Devices that are connected to the büS network and meet the “ Type of device ” selection criterion.	1, 2, 3, 4, 5, 6, 8, 10
4	List of outputs	Select correct output	1, 2, 3, 4, 5, 6, 8, 10
5	Channel number	Channel number must be selected in a drop-down menu.	1, 2, 3, 4, 5, 6, 8, 10
6	Valve inlet number	Drop-down menu for valve selection (valve 1-6) Only for Type 8652/8653	1, 2, 3, 4, 5, 6, 8, 10
7	Opening	Setting the flow volume Only possible if “valve type” Proportional valve has been selected.	1, 2, 3, 4, 5, 6, 8, 10

10.1.8 Selection valves

Medium valve 1

Batch setup

Page 6

Valve settings

Configure type and parameters for each valve in this scenario.

Medium 1

Valve for dosing medium 1



1 — Type of valve

2 — Type of valve output device

3 — List of valve output devices

4 — List of outputs

5 — Channel number

On-Off valve

Industrial communication gateway (ME43/ME63)

Gateway - Indus 011 (ME43)

0x2540 Batch control

1



Back

Cancel

Next

Batch setup

Page 6

Valve settings

Configure type and parameters for each valve in this scenario.

Medium 1

Valve for dosing medium 1



1 — Type of valve

2 — Type of device

3 — List of devices

6 — Valve inlet number

5 — Channel number

On-Off valve

EDIP AirLINE (8652/8653)

VI 013 (8652)

1

1

Advanced settings for the valve can be configured on the selected device directly



Back

Cancel

Next

Batch setup

Page 6

Valve settings

Configure type and parameters for each valve in this scenario.

Medium 1

Valve for dosing medium 1



1 — Type of valve

2 — Type of device

3 — List of devices

5 — Channel number

7 — Opening

Proportional valve

EDIP 8DO (ME44)

8DO 012 (ME44)

1

100,0 %

Advanced settings for the valve can be configured on the selected device directly



Back

Cancel

Next

Batch setup

Page 6

Valve settings

Configure type and parameters for each valve in this scenario.

Medium 1

Valve for dosing medium 1



1 — Type of valve

2 — Type of device

3 — List of devices

5 — Channel number

On-Off valve

EDIP Cable Plug (8605)

V 015 (8605)

1

Advanced settings for the valve can be configured on the selected device directly



Back

Cancel

Next

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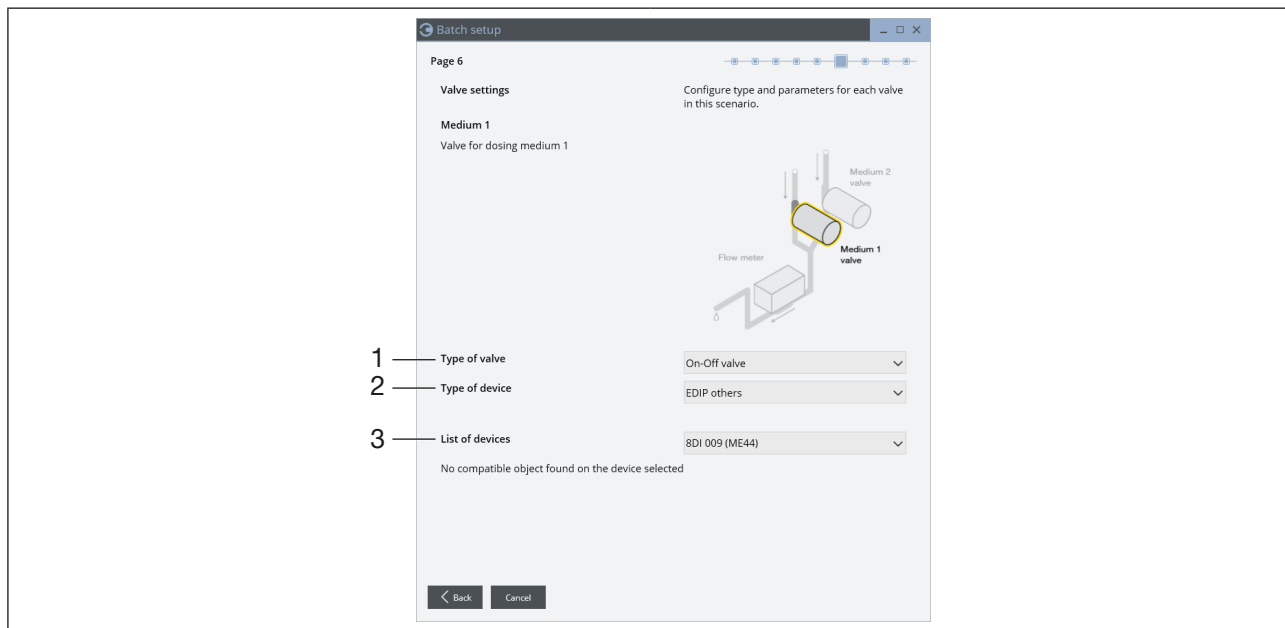


Fig. 21: Medium valve 1 selection and configuration

No.	Designation	Description	Scenario
1	Valve type	On/off valve	3, 5, 7, 8, 9, 10
		Inverted on/off valve	
		Proportional valve	
		Not for Type 8652/8653	
2	Device type	Type of the device to which the valves are connected.	3, 5, 7, 8, 9, 10
3	List of devices	Devices that are connected to the bÜS network and meet the “Type of device” selection criterion.	3, 5, 7, 8, 9, 10
4	List of outputs	Select correct output.	3, 5, 7, 8, 9, 10
5	Channel number	Channel number must be selected in a drop-down menu.	3, 5, 7, 8, 9, 10
6	Valve inlet number	Drop-down menu for valve selection (valve 1-6) Only for Type 8652/8653	3, 5, 7, 8, 9, 10
7	Opening	Setting the flow volume Only possible if “valve type” Proportional valve has been selected.	3, 5, 7, 8, 9, 10

Medium valve 2

Batch setup

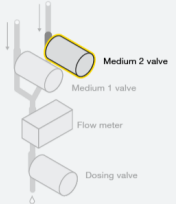
Page 8

Valve settings

Configure type and parameters for each valve in this scenario.

Medium 2

Valve for dosing medium 2



Medium 2 valve

Medium 1 valve

Flow meter

Dosing valve

1 — Type of valve

2 — Type of device

3 — List of devices

4 — List of outputs

5 — Channel number

On-Off valve


Industrial communication gateway (ME43/i)

Gateway - Indus 011 (ME43)

0x2540 Batch control

Select the object to which this valve should be mapped

2



Back

Cancel

Next

Batch setup

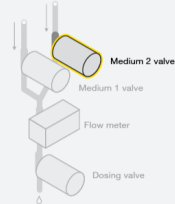
Page 8

Valve settings

Configure type and parameters for each valve in this scenario.

Medium 2

Valve for dosing medium 2



Medium 2 valve

Medium 1 valve

Flow meter

Dosing valve

1 — Type of valve

2 — Type of device

3 — List of devices

6 — Valve inlet number

5 — Channel number

On-Off valve


EDIP AirLINE (8652/8653)

VI 013 (8652)

1

2

Advanced settings for the valve can be configured on the selected device directly



Back

Cancel

Next

Batch setup

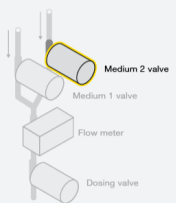
Page 8

Valve settings

Configure type and parameters for each valve in this scenario.

Medium 2

Valve for dosing medium 2



Medium 2 valve

Medium 1 valve

Flow meter

Dosing valve

1 — Type of valve

2 — Type of device

3 — List of devices

5 — Channel number


On-Off valve

EDIP AirLINE (8652/8653)

FM 014 (8653)

2

Advanced settings for the valve can be configured on the selected device directly



Back

Cancel

Next

Batch setup

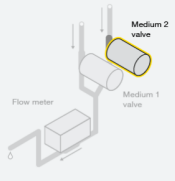
Page 7

Valve settings

Configure type and parameters for each valve in this scenario.

Medium 2

Valve for dosing medium 2



Medium 2 valve

Medium 1 valve

Flow meter

1 — Type of valve

2 — Type of device

3 — List of devices

5 — Channel number

7 — Opening

Proportional valve


EDIP BDO (ME44)

BDO 012 (ME44)

2

100,0 %

Advanced settings for the valve can be configured on the selected device directly



Back

Cancel

Next

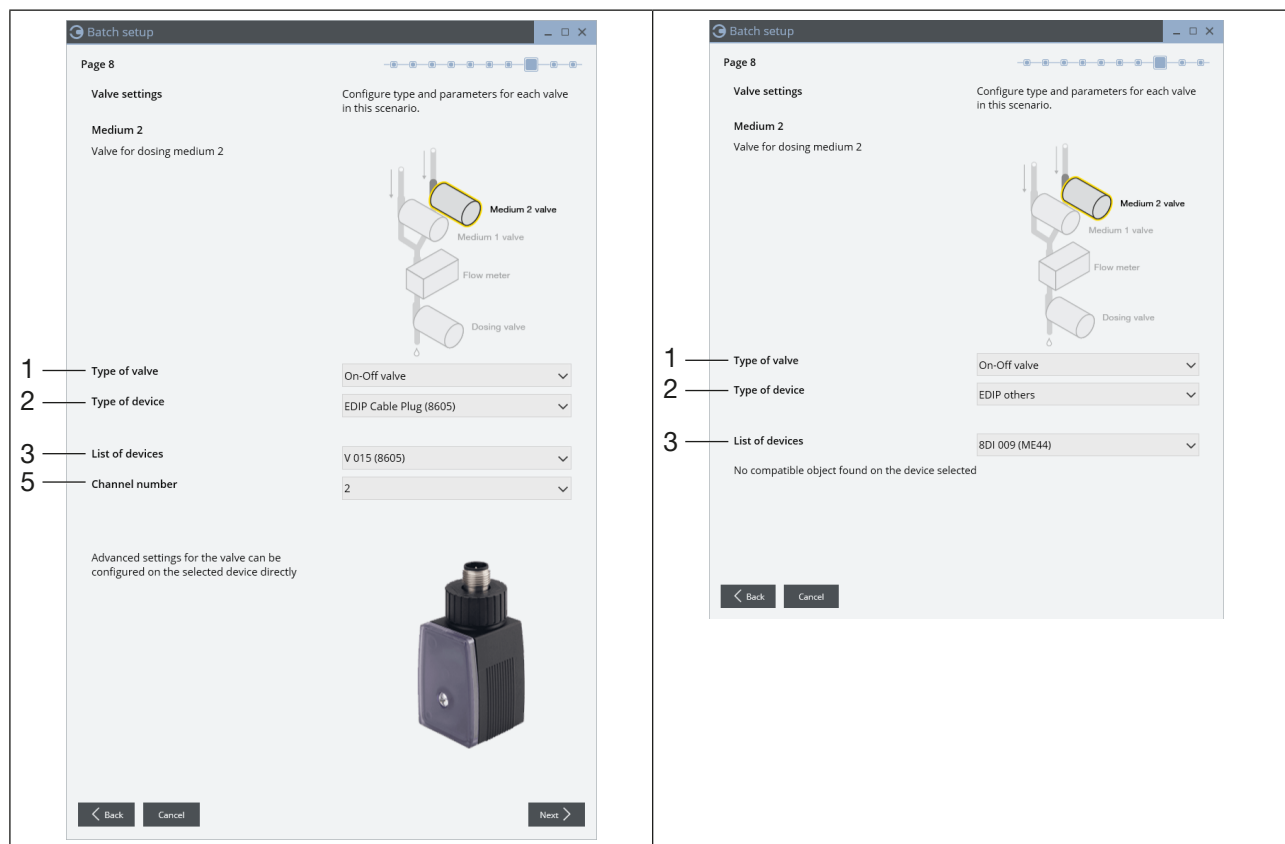


Fig. 22: Medium valve 2 selection and configuration

No.	Designation	Description	Scenario
1	Valve type	On/off valve	7, 8, 9
		Inverted on/off valve	
		Proportional valve	
		Not for Type 8652/8653	
2	Device type	Type of the device to which the valves are connected.	7, 8, 9
3	List of devices	Devices that are connected to the bÜS network and meet the "Type of device" selection criterion.	7, 8, 9
4	List of outputs	Select correct output	7, 8, 9
5	Channel number	Channel number must be selected in a drop-down menu.	7, 8, 9
6	Valve inlet number	Drop-down menu for valve selection (valve 1-6) Only for Type 8652/8653	7, 8, 9
7	Opening	Setting the flow volume Only possible if "valve type" Proportional valve has been selected.	7, 8, 9

10.1.9 Drain valve

Batch setup

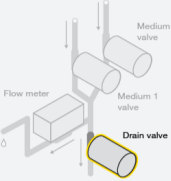
Page 8

Valve settings

Configure type and parameters for each valve in this scenario.

Drain

Valve for draining the liquid from the system



1 — Type of valve

2 — Type of device

3 — List of devices

4 — List of outputs

5 — Channel number

On-Off valve

Industrial communication gateway (ME43/)

Gateway - Indus 011 (ME43)

0x2540 Batch control

Select the object to which this valve should be mapped

2



Back

Cancel

Next

Batch setup

Page 8

Valve settings

Configure type and parameters for each valve in this scenario.

Drain

Valve for draining the liquid from the system



1 — Type of valve

2 — Type of device

3 — List of devices

6 — Valve inlet number

5 — Channel number

On-Off valve

EDIP AirLINE (8652/8653)

VI 013 (8652)

1

2

Advanced settings for the valve can be configured on the selected device directly



Back

Cancel

Next

Batch setup

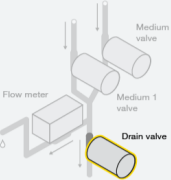
Page 8

Valve settings

Configure type and parameters for each valve in this scenario.

Drain

Valve for draining the liquid from the system



1 — Type of valve

2 — Type of device

3 — List of devices

5 — Channel number

7 — Opening

Proportional valve

EDIP 8DO (ME44)

8DO 012 (ME44)

3

100,0 %

Advanced settings for the valve can be configured on the selected device directly



Back

Cancel

Next

Batch setup

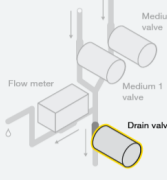
Page 8

Valve settings

Configure type and parameters for each valve in this scenario.

Drain

Valve for draining the liquid from the system



1 — Type of valve

2 — Type of device

3 — List of devices

5 — Channel number

On-Off valve

EDIP Cable Plug (8605)

V 015 (8605)

2

Advanced settings for the valve can be configured on the selected device directly



Back

Cancel

Next

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English

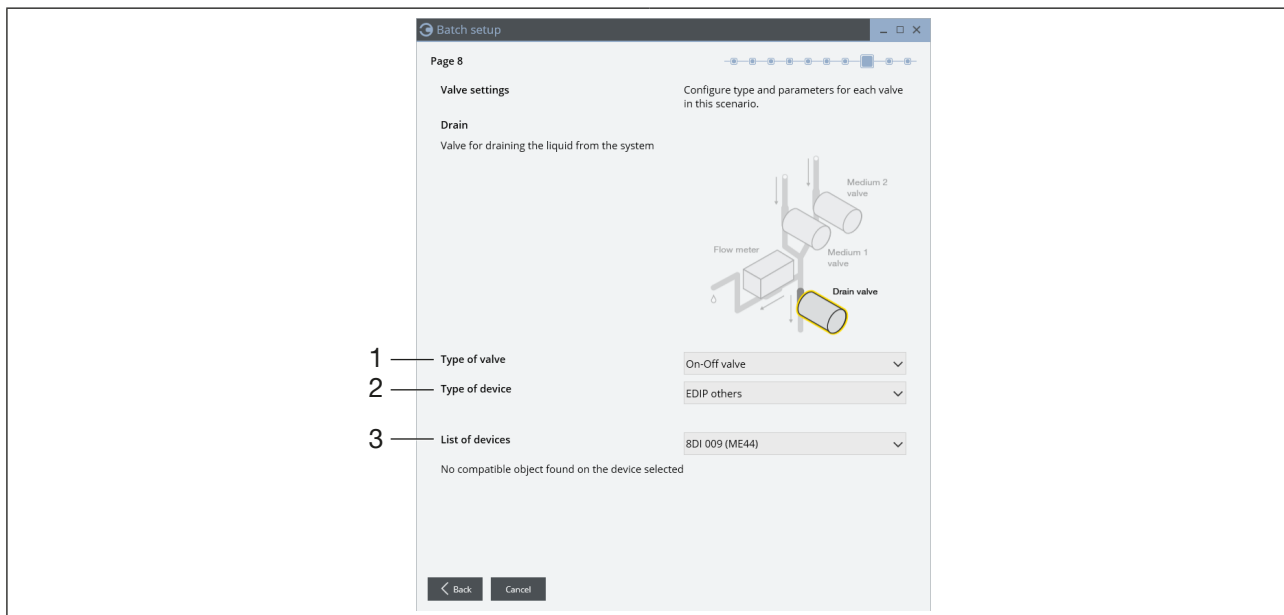


Fig. 23: Drain valve

No.	Designation	Description	Scenario
1	Valve type	On/off valve	4, 9
		Inverted on/off valve	
		Proportional valve	
		Not for Type 8652/8653	
2	Device type	Type of the device to which the valves are connected.	4, 9
3	List of devices	Devices that are connected to the bÜS network and meet the “Type of device” selection criterion.	4, 9
4	List of outputs	Select correct output	4, 9
5	Channel number	Channel number must be selected in a drop-down menu.	4, 9
6	Valve inlet number	Drop-down menu for valve selection (valve 1-6) Only for Type 8652	4, 9
7	Opening	Setting the flow volume Only possible if “valve type” Proportional valve has been selected.	4, 9

10.1.10 Recipe configuration

1

2

3

4

5

6

7

8

Batch setup

Page 9

Recipe settings

Configure parameters for the recipes

The values are saved automatically upon clicking next or upon changing the selected recipe

Recipe

Recipe 1

Name

Name of the recipe

Recipe 1

Type

Type of the recipe

Batch with drain

Target quantity

Target quantity of the recipe. Set to 0 to hide this recipe on the display

0 ml

Medium valve number

Select the medium for the recipe

1

Dosing timeout

Maximum dosing time for the recipe. If the dosing process takes longer than the specified duration, the dosing process will be aborted with an error. This parameter thus represents a safety parameter.

0 s

Manual overshoot correction

Depending on the whole setup, it could be needed to have a manual overshoot correction that can improve the accuracy of the batch quantity.

0 ml

Drain time

Opening time for drain valve after batch completion

0 s

Back

Cancel

Next

1

2

4

6

7

8

9

Batch setup

Page 9

Recipe settings

Configure parameters for the recipes

The values are saved automatically upon clicking next or upon changing the selected recipe

Recipe

Recipe 1

Name

Name of the recipe

Recipe 1

Target quantity

Target quantity of the recipe. Set to 0 to hide this recipe on the display

0 ml

Dosing timeout

Maximum dosing time for the recipe. If the dosing process takes longer than the specified duration, the dosing process will be aborted with an error. This parameter thus represents a safety parameter.

0 s

Manual overshoot correction

Depending on the whole setup, it could be needed to have a manual overshoot correction that can improve the accuracy of the batch quantity.

0 ml

Drain time

Opening time for drain valve after batch completion

0 s

Dosing valve rest quantity

Remaining quantity to be dosed with the dosing valve

0 ml

Back

Cancel

Next

Fig. 24: Recipe configuration

No.	Designation	Description	Scenario
1	Recipe	A maximum of 7 recipes are available. The individual settings can be adjusted here for each recipe. If the ME61 is being used, the recipe can be hidden by entering the quantity 0	All
2	Name	Freely selectable name for the recipe (this is displayed in the process control display)	All
3	Type	Recipe type: A choice can be made between “Batch”, “Drainage” or “Batch with drainage” at this point	Only for 4 and 9
4	Target quantity Only for Type: “Batch” or “Batch with drainage”	Target quantity of recipe	All
5	Medium valve number Only for Type: “Batch” or “Batch with drainage”	The medium valve is selected here, depending on the scenario	Only for 7, 8 and 9
6	Dosing time limit Only for Type: “Batch” or “Batch with drainage”	Safety parameters (maximum dosing time for the recipe): Knowledge of the flow and target volume can be used to estimate how long a maximum dosing period should last. If the dosing time is exceeded, an error occurs and the valves are closed.	All
7	Manual overrun correction Only for Type: “Batch” or “Batch with drainage”	The batch controller possesses an automatic and constant correction function. It may be necessary to enter a manual correction quantity in certain cases. This is then always automatically included in the calculation.	All
8	Draining time Only for Type: “Drain” or “Batch with drainage”	Opening time of drain valve after end of batch dosing	Only for 4, 9 and 10
9	Residual quantity in dosing valve	Residual quantity to be dosed with the dosing valve	Only for 6 and 10

10.1.11 Batch logging

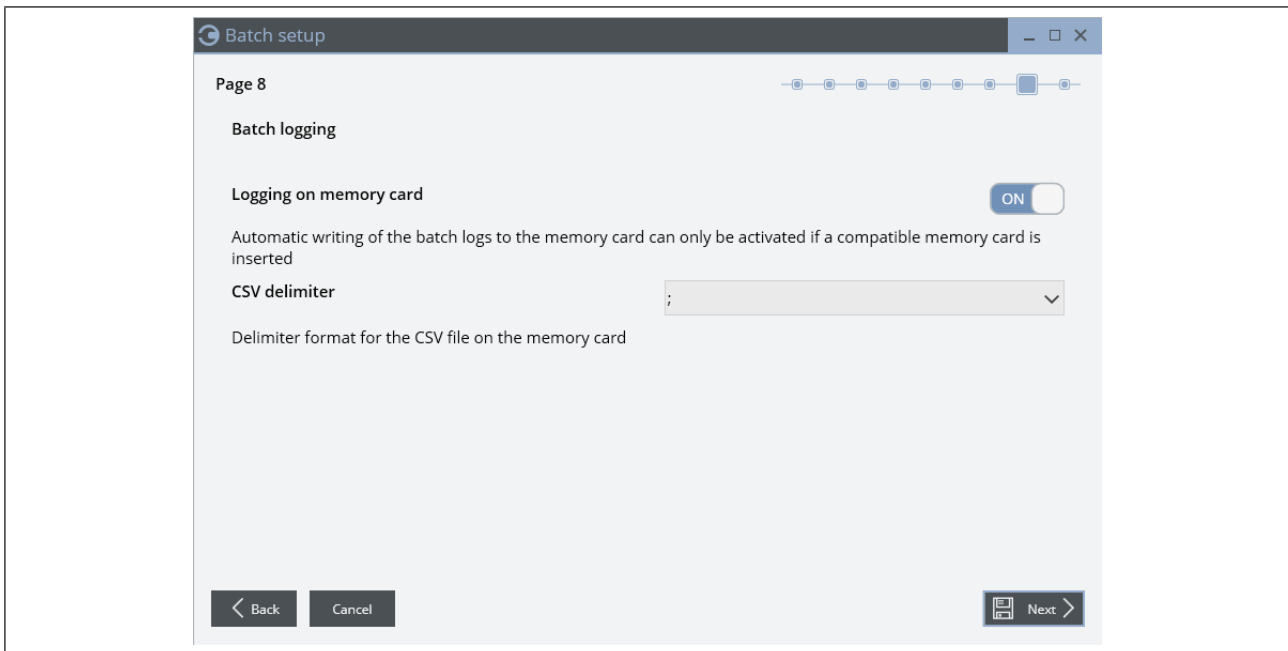


Fig. 25: Setting batch logging in the wizard

Batch logging is limited to 30 logs as a standard. For information on increasing the number of saved logs, see [“13 Batch logs”](#).

10.1.12 Installed devices

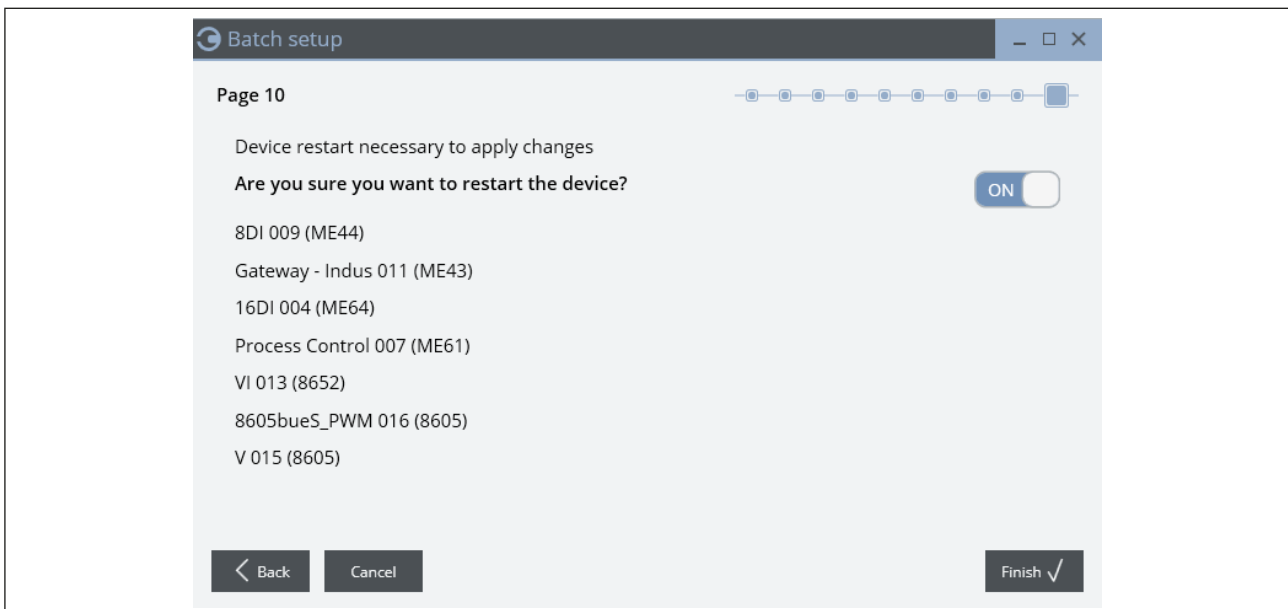


Fig. 26: Example representation of all devices configured by the wizard

To end the wizard, all devices required and configured for the batch are automatically restarted.

The restart is performed by clicking on **Finish**.

10.1.13 Batch controller re-configuration

→ Open **büs map** and select the **Network configuration** tab at this point (see “Fig. 27: Network configuration”).

Input side

If the wizard is restarted again after an initial successful configuration and the devices are reconfigured, the inputs of the batch controller (red) are reconnected.



Connections (mappings) that are no longer present are deleted.

Output side

Automatic updates do not occur on the output side (green).



Available mappings remain

Delete mapping manually if necessary.

→ Click the connection that should be deleted

→ **Delete selected connection:**

- **Apply change** or
- **discard change**

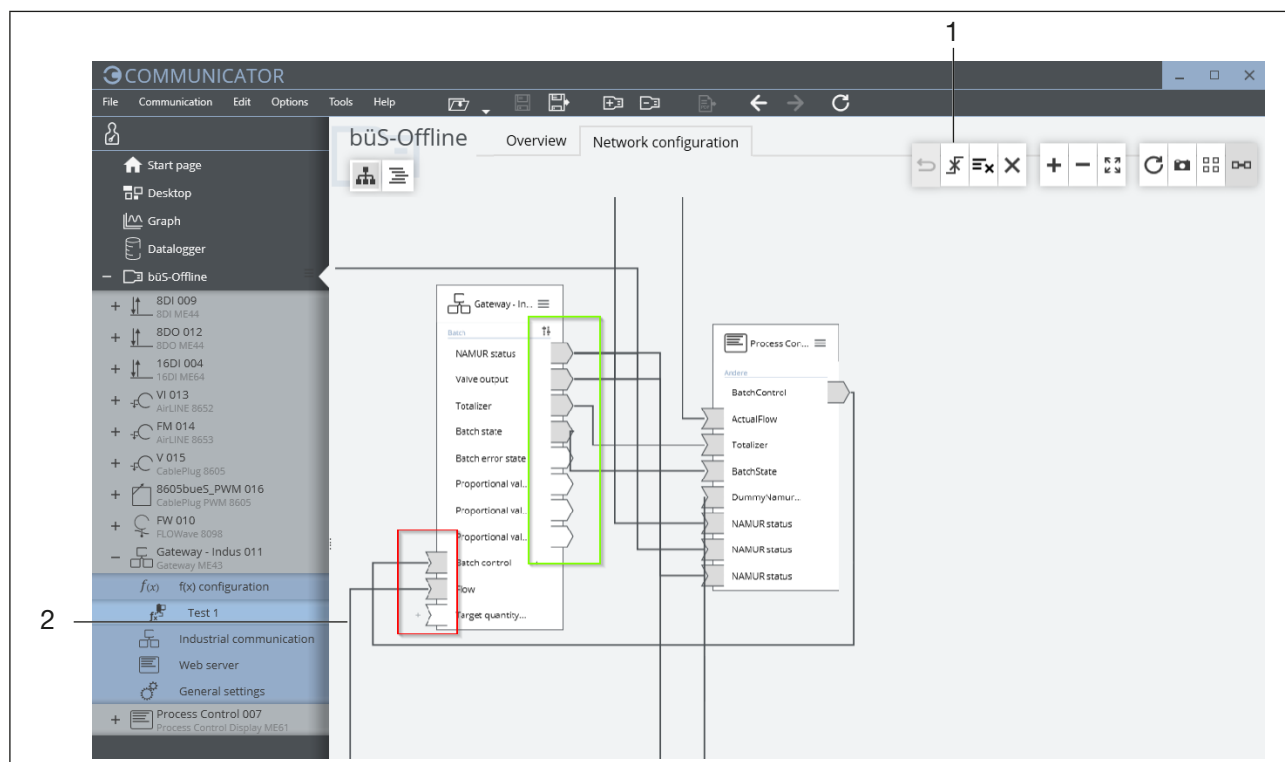


Fig. 27: Network configuration

No.	Designation	Description
1	Connection (mapping)	Click a connection to select it.
2	Delete selected connection	The selected connection can be individually deleted.

11 BATCH CONTROLLER UPDATE

As the Batch Controller is a component of the gateway firmware in question, it is updated via this firmware. Not every gateway firmware update automatically adds new features (or bug fixes) to the Batch Controller.



Read release notes for additional information.

The gateway restarts after an update to the gateway firmware via the Communicator. If the new features contained in the firmware are needed for the Batch Controller, it must be reinstalled.

Update sequence

- Right-click on gateway
- “Print all parameters in PDF...”
- Create PDF report for gateway. All relevant settings and information are displayed and saved as a PDF file.

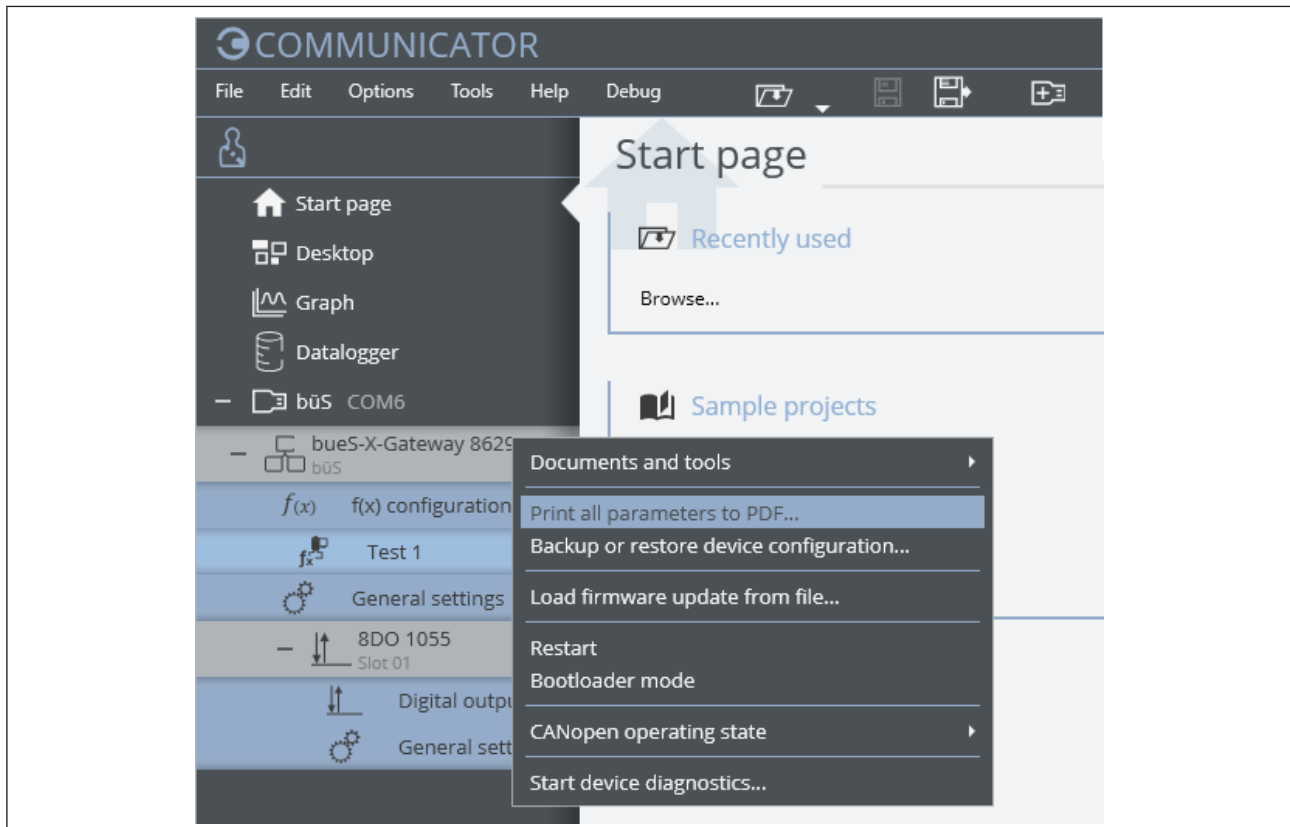


Fig. 28: Generate Batch Controller report

→ f(x)-click configuration

→ Delete Batch Controller via “x” (1) and confirm device restart (2) (see “Fig. 29: Delete Batch Controller and restart device”)

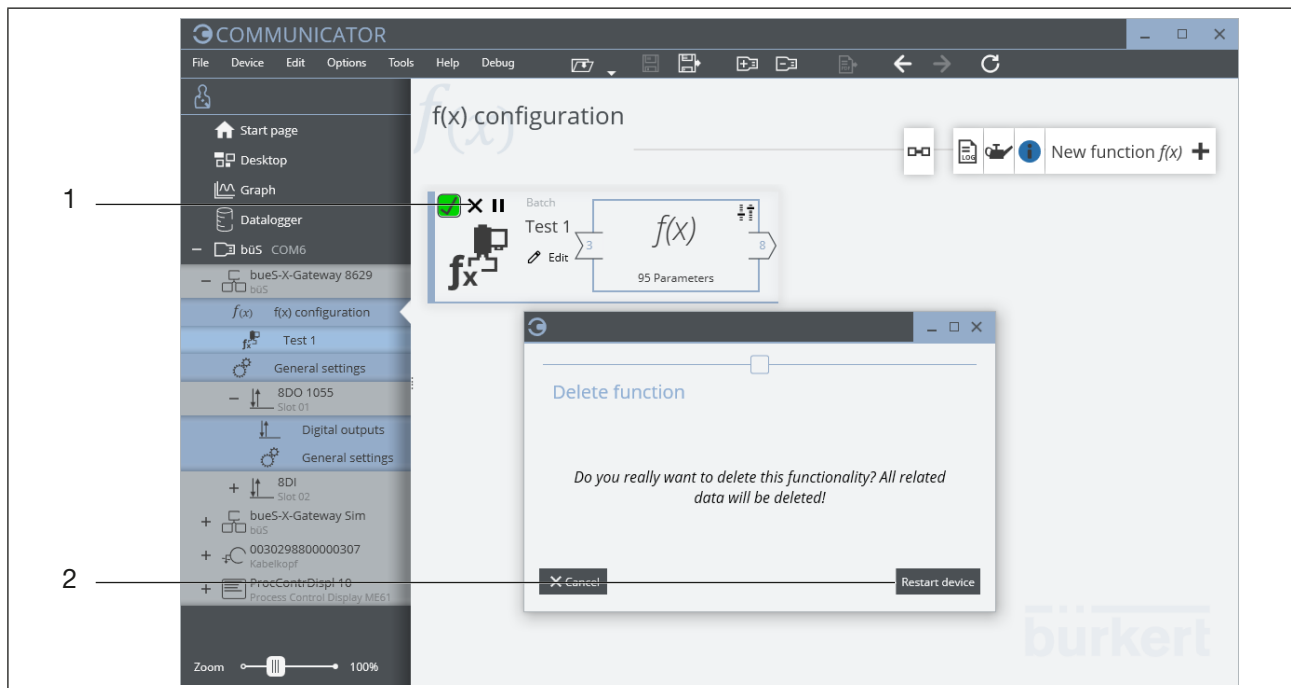


Fig. 29: Delete Batch Controller and restart device

→ The Batch Controller can then be added again.

→ If a licence was available, the newly initialised Batch Controller is automatically licensed again and can operated permanently (see chapter “6.4 Enable the batch function”.

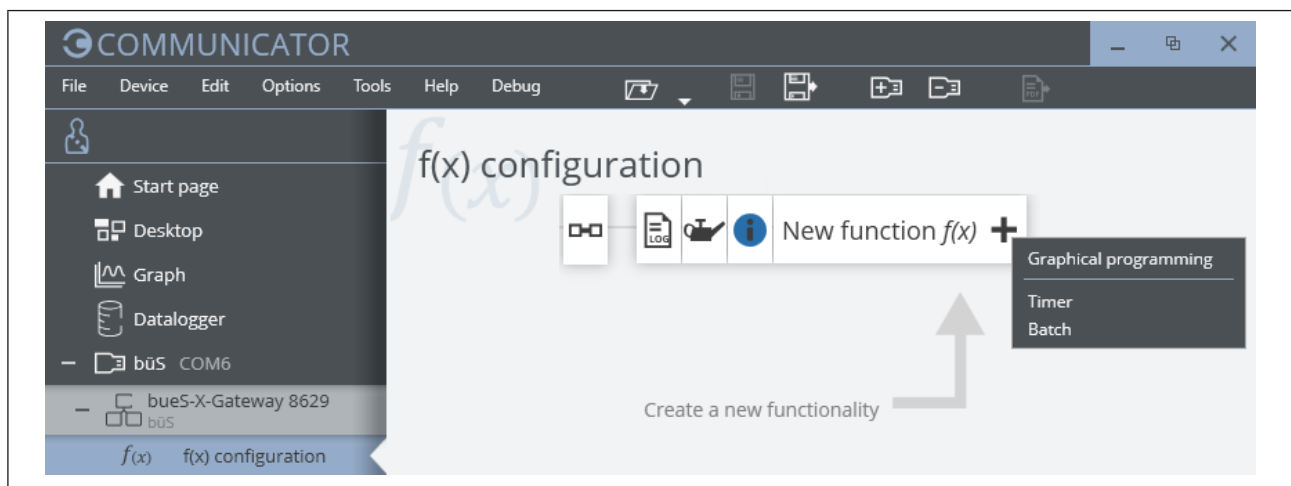


Fig. 30: Add Batch Controller

→ The wizard (see “10.1 Batch setup – run wizard”) can then be executed using the PDF report created. All scenario and recipe settings can be found in the report created.

12 RESTORE OR BACKUP DEVICE CONFIGURATIONS

Symbol	Menu	Command/description
	Restore or backup device/device configurations	Device configurations can be exported, imported, copied or overwritten.

In the menu bar:

- Click on interface **büS-Offline**
- Click on Communication
- **Save system configuration**

In context menu:

- Click on interface **büS-Offline**
- ≡ click
- **Save system configuration**

Or:

- Right-click o **büS-Offline** .
- **Save system configuration**

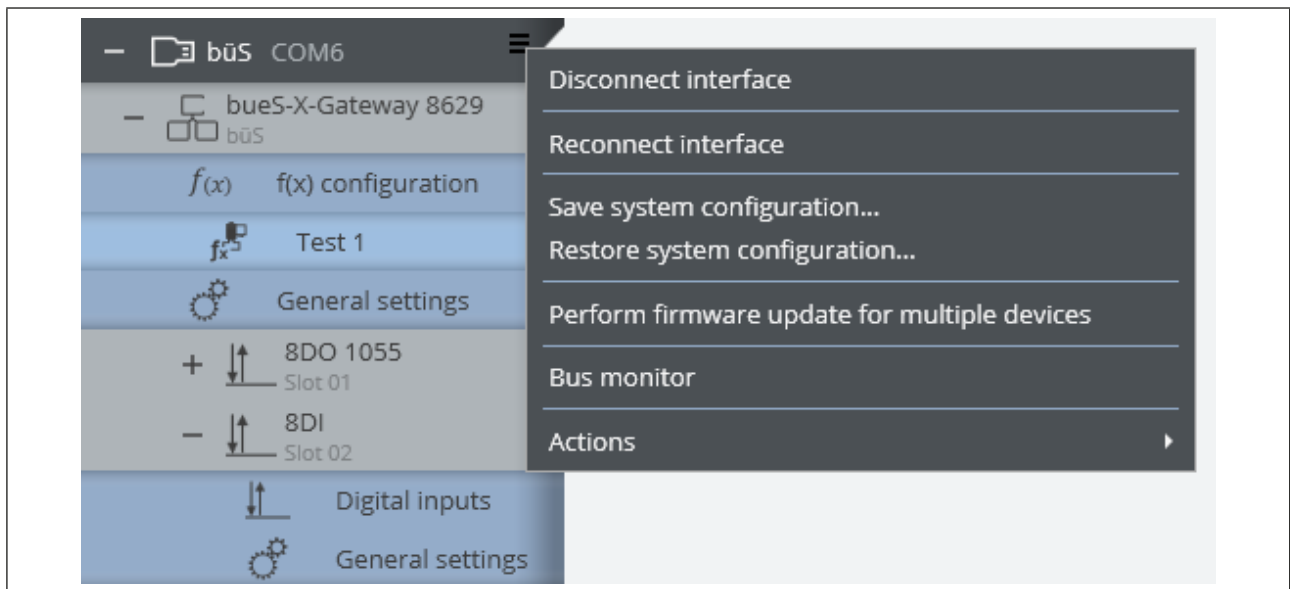


Fig. 31: Context menu device or product

- **Click** Backup and restore device configurations.

✓ A wizard will appear.

- Select function:
 - Restore Export device configuration
 - Backup Import device configuration
 - Clone Copy device configuration
 - Overwrite Overwrite device configuration




Function	Description	
Restore	Export device configuration Saves the device configuration in a file.	A wizard will appear: → Select storage location and designation for the device configuration. → Save. → Ok.  The device configuration is saved in a file. Note: the file type is "Device Backup File (*.load)"
Backup	Import device configuration. Imports the device configuration from a file into the device or product. Note: the identification number and serial number of the device or product must match in the device configuration.	A wizard will appear: → Select storage location and device configuration. → Open. → Select values. → Ok.  The device configuration is imported into the device or product. Note: the file type is "Device Backup File (*.load)"
Clone	Copy device configuration. Imports the device configuration from a file into the device or product. Note: the identification number of the device or product must match in the device configuration.	A wizard will appear: → Select storage location and device configuration. → Open. → Enter the data via the keyboard: The user can input name, location and description of the device or product here. Or: Data of restored file: Name, location and description are copied over from the file. → Select values. → Ok.  The device configuration is imported into the device or product.
Overwrite	Overwrite device configuration. Imports the device configuration from a file into the device or product. Note: the data is imported unchecked.	A wizard will appear: → Request password from Service.

Table 1: Restore or backup device configuration.

13 BATCH LOGS

13.1 Logging on memory card or logging on Bürkert Communicator

	Bürkert Communicator	Memory card
Language	Communicator language	English
Date and time.	ME43: local PC time	ME43: UTC
	ME63: elapsed time	ME63: elapsed time
File name	BatchLog_2023-10-24-11-47-02.csv (example)	BatchLog.csv
Protocols	max. 30 logs	over 30 logs

13.2 Parameter batch logging

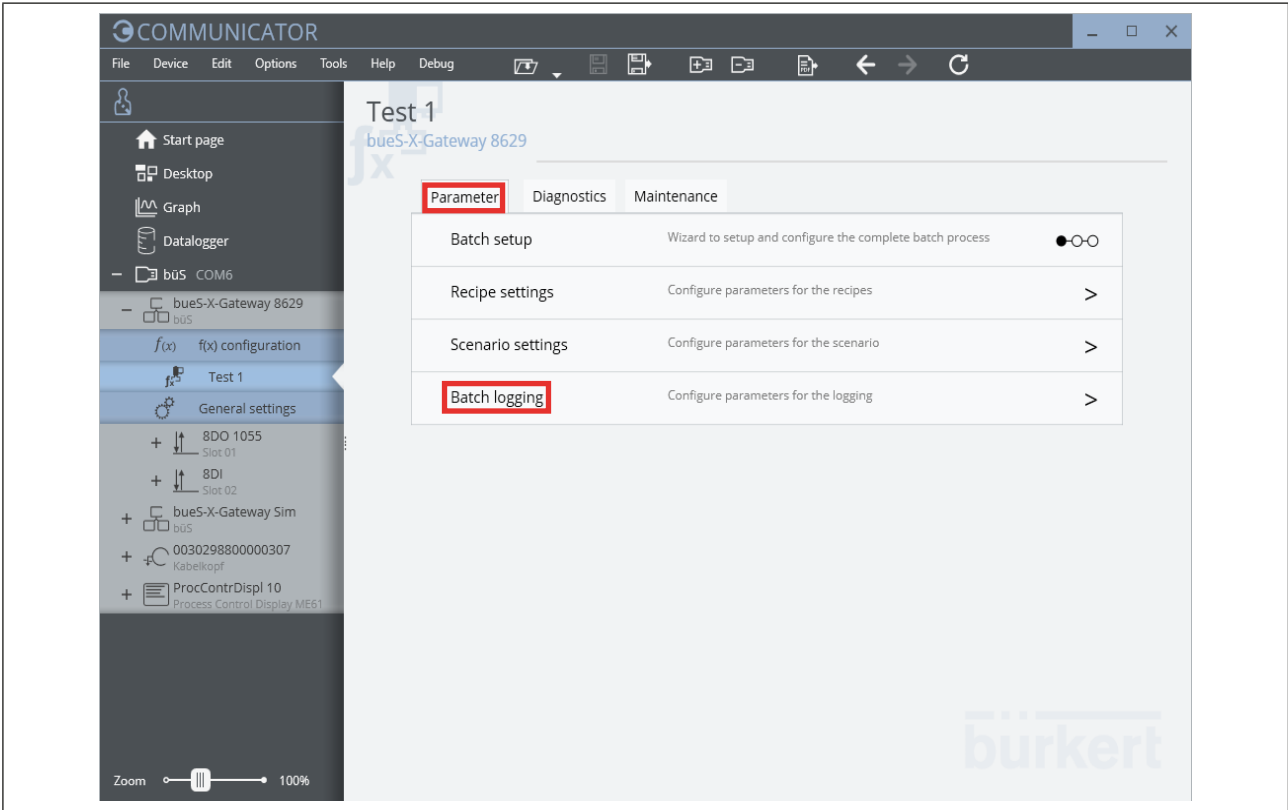


Fig. 32: Parameter batch logging

General

Batch logging is activated as a standard and enables protocols to be saved in the Bürkert Communicator. Only the last 30 logs are saved. When 30 logs have been reached, the oldest log is automatically overwritten.

With memory card

It is possible to save over 30 logs by inserting a memory card into the gateway.

→ Open batch logging

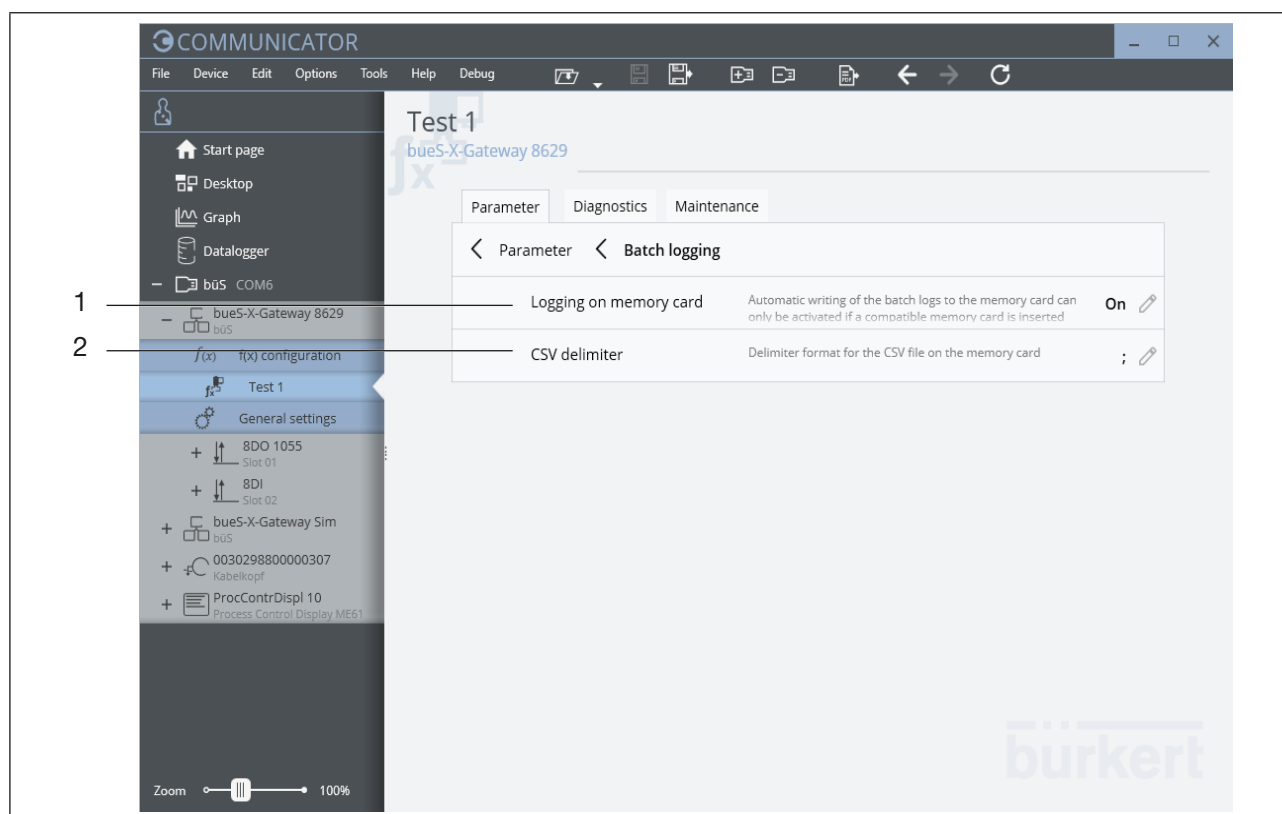


Fig. 33: Batch logging settings

No.	Designation	Description
1	Logging on memory card	Off Up to 30 batch logs are saved on the Bürkert Communicator.
		On Enables over 30 batch logs to be saved on one memory card
2	CSV separator	The separator (semicolon or comma) for a CSV file is selected depending on regional conventions and software requirements to ensure consistent data processing.

→ Click “Log on memory card”

→ Set selection to “On”

→ Select separator.

→ Restart the device

13.3 Batch logging diagnostics

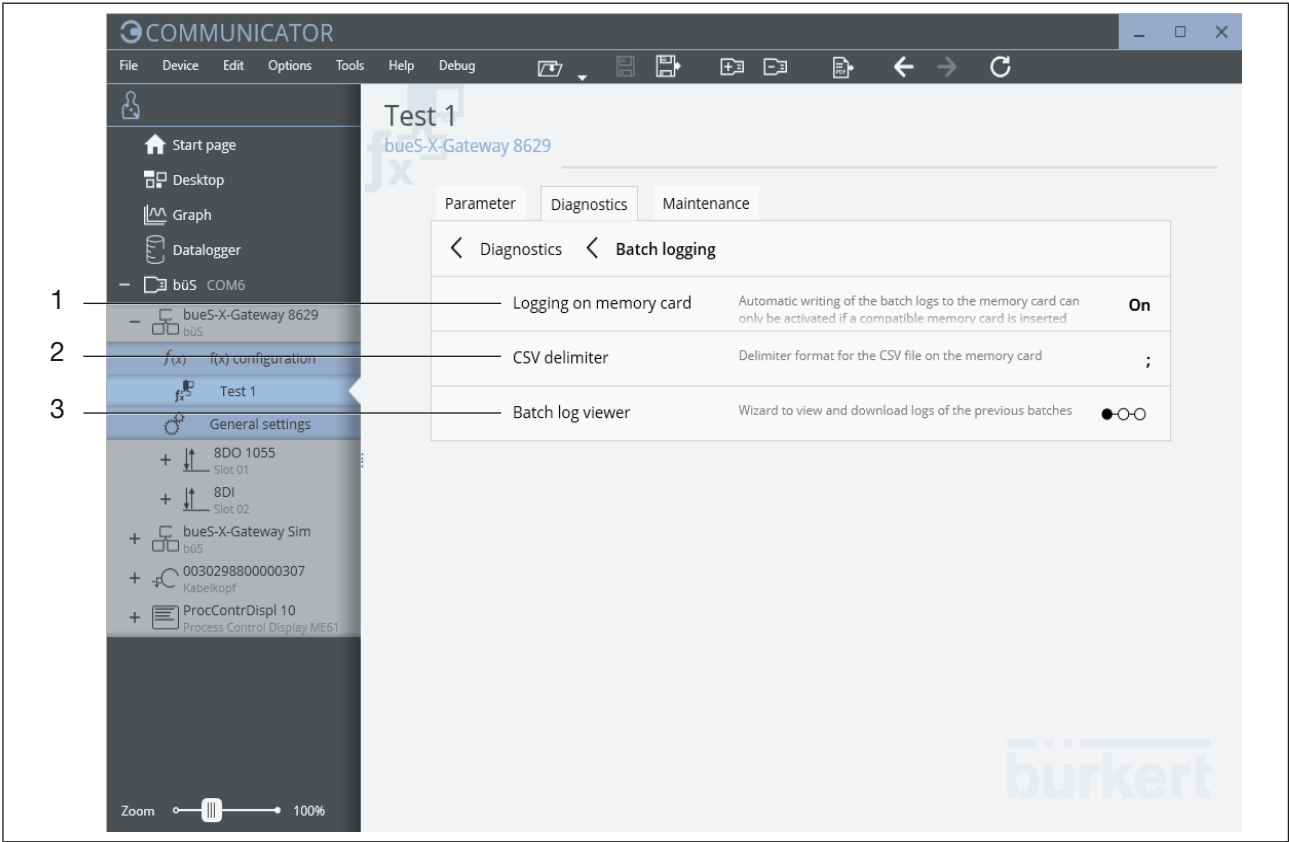


Fig. 34: Batch logging diagnostics

No.	Designation	Description
1	Logging on memory card	See chapter“13.2 Parameter batch logging”
2	CSV separator	See chapter“13.2 Parameter batch logging”
3	Batch logging display	Display area for protocol from the last dosing process executed. Batch logging can be saved in an Excel file via a CSV export. To do this, the Bürkert Communicator must be connected to a PC.

Batch logging display

1	2	3	4	5	6	7	8	9	10	11	12	13
a	b	c	d	e	f	g	h	i	j	k	l	m
2023-11-24 15:52:50	1	Recipe 1	0.500 l	0.222 l	0.000 l	5.221 l/min	4.994 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:52:53	2	Recipe 1	0.500 l	0.028 l	0.000 l	5.194 l/min	5.187 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:52:56	3	Recipe 1	0.500 l	0.103 l	0.000 l	5.232 l/min	4.997 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:05	4	Recipe 1	0.500 l	0.095 l	0.000 l	5.227 l/min	4.999 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:09	5	Recipe 1	0.500 l	0.061 l	0.000 l	5.230 l/min	5.005 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:11	6	Recipe 1	0.500 l	0.077 l	0.000 l	5.233 l/min	4.999 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:14	7	Recipe 1	0.500 l	0.053 l	0.000 l	5.214 l/min	5.008 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:16	8	Recipe 1	0.500 l	0.103 l	0.000 l	5.239 l/min	4.997 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:20	9	Recipe 1	0.500 l	0.173 l	0.000 l	5.215 l/min	4.994 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:22	10	Recipe 1	0.500 l	0.093 l	0.000 l	5.210 l/min	4.995 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:24	11	Recipe 1	0.500 l	0.053 l	0.000 l	5.209 l/min	5.015 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:26	12	Recipe 1	0.500 l	0.095 l	0.000 l	5.224 l/min	4.995 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:28	13	Recipe 1	0.500 l	0.045 l	0.000 l	5.228 l/min	5.059 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:29	14	Recipe 1	0.500 l	0.027 l	0.000 l	5.228 l/min	5.059 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:32	15	Recipe 1	0.500 l	0.086 l	0.000 l	5.223 l/min	4.994 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:35	16	Recipe 1	0.500 l	0.044 l	0.000 l	5.225 l/min	5.042 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:36	17	Recipe 1	0.500 l	0.019 l	0.000 l	0.000 l/min	0.000 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:39	18	Recipe 1	0.500 l	0.087 l	0.000 l	5.233 l/min	4.999 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:40	19	Recipe 1	0.500 l	0.075 l	0.000 l	5.234 l/min	4.994 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:42	20	Recipe 1	0.500 l	0.044 l	0.000 l	5.228 l/min	5.059 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:44	21	Recipe 1	0.500 l	0.075 l	0.000 l	5.228 l/min	4.997 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:46	22	Recipe 1	0.500 l	0.045 l	0.000 l	5.230 l/min	5.037 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:48	23	Recipe 1	0.500 l	0.094 l	0.000 l	5.231 l/min	4.999 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:52	24	Recipe 1	0.500 l	0.044 l	0.000 l	5.228 l/min	5.058 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:55	25	Recipe 1	0.500 l	0.094 l	0.000 l	5.215 l/min	4.994 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:56	26	Recipe 1	0.500 l	0.085 l	0.000 l	5.237 l/min	4.994 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:53:57	27	Recipe 1	0.500 l	0.043 l	0.000 l	5.237 l/min	4.994 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:54:02	28	Rezept 1	0.500 l	0.120 l	0.000 l	5.225 l/min	4.996 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error
2023-11-24 15:54:07	29	Recipe 1	0.500 l	0.078 l	0.000 l	5.233 l/min	4.999 l/min	0.000 l	0.000 l²	0.000 l	Finished	No error

Legend

- a Date and time
- b Dosing count
- c Recipe name
- d Target quantity
- e Dosed quantity
- f Overshoot correction
- g Maximum flow
- h Minimum flow
- i Average value of the dosed quantities
- j Variance of the dosed quantities
- k Standard deviation of the dosed quantities
- l Batch state
- m Batch error state

Download this batch log into a CSV file? ☒

CSV delimiter

Delimiter format for the CSV file on the memory card

Download path

Fig. 35: Example of batch logging display

No.	Designation	Description
1	Date and time.	Time and date of dosing process
2	Dosing meter	Number of completed batches
3	Recipe name	Name of recipe selected for the dosing process
4	Target amount	Target quantity of recipe
5	Dosing amount	Dosed quantity in batch process
6	Overrun correction	Automatic overshoot correction of batch
7	Maximum flow	Maximum flow occurring during dosing.
8	Minimum flow	Minimum flow occurring during dosing.
9	Average of dosed quantities	Average of last maximum 30 dosed quantities
10	Variance of dosed quantities	Average square deviation of the last maximum 30 dosed quantities from the average
11	Standard deviation of dosed quantities	Average deviation of the last maximum 30 dosed quantities from the average
12	Batch state	Dosing process status
13	Batch - error state	Display area for errors that occurred during the dosing process

CSV export

A protocol file in CSV format can be created to document the dosing processes. This CSV file contains different information on dosing processes.

→ Set CSV release in the batch logging display to “On”

→ Generate CSV file

→ Save CSV file

The data acquired can be used for other applications, thanks to the opportunity to document and analyse dosing processes.

13.4 Error notifications

Designation	Description	
F(x) Batch: memory card is not available. Confirm to disable batch logging.	disable	→ Confirm error message
	re-enable	→ Do not confirm error message → Insert memory card → Restart device to continue logging
F(x) Batch: writing batch log onto memory card failed	Error while writing onto memory card. Possible causes: <ul style="list-style-type: none"> • Memory card damaged • Memory card full 	
F(x) Batch: protocol file on memory card is reaching the maximum permitted size of 100 MB	Saving the batch protocol is only possible for a limited time (depending on the number of dosing processes that take place during the process)	
F(x) Batch: protocol file on memory card has reached the maximum permitted size of 100 MB	Protocol file has reached the maximum size and will no longer be written onto. Later dosing processes are no longer written on the memory card. (100 MB is equivalent to approx. 1 million dosing processes)	

14 BATCH DIAGNOSTICS

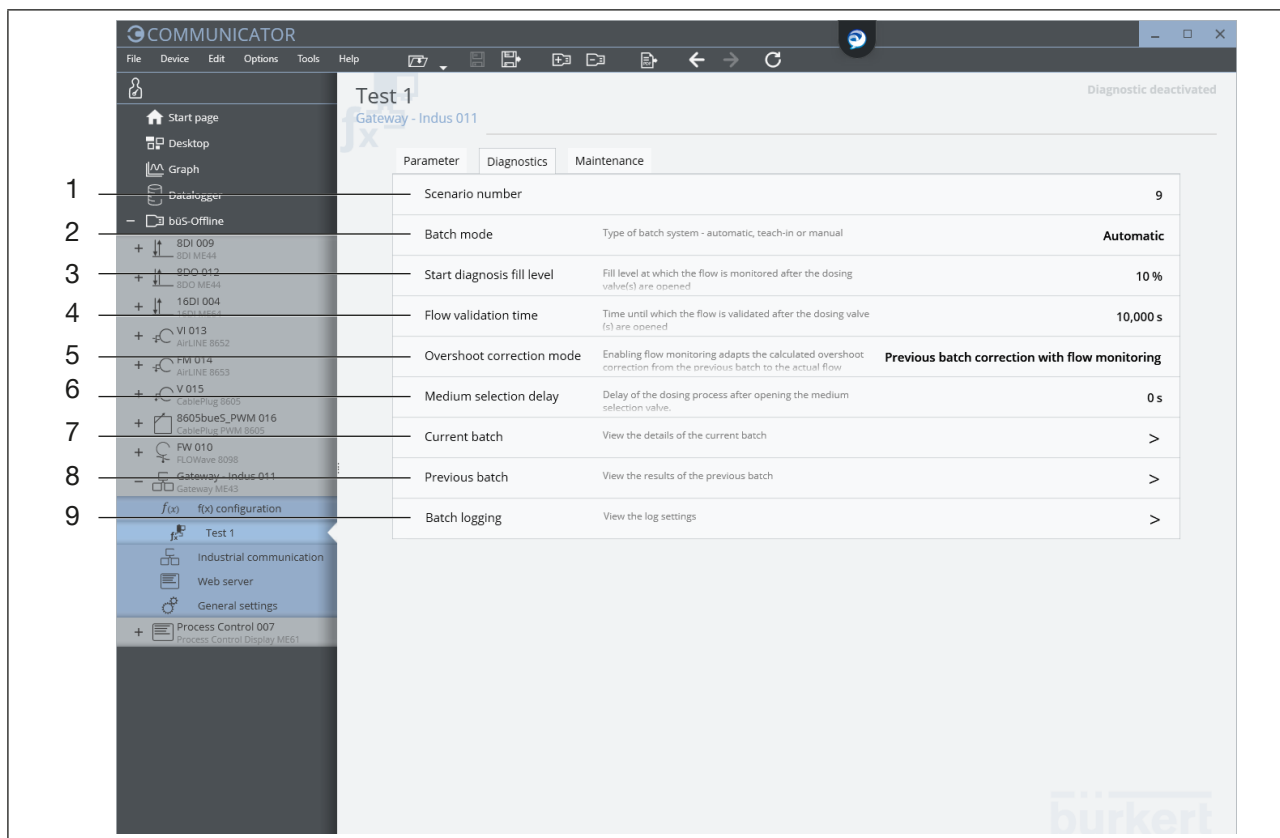


Fig. 36: Batch diagnostics

No.	Designation	Description
1	Scenario number	Number of scenario selected
2	Batch mode	Batch mode selection: "Automatic", "Teach-In" or "Manual"
3	Start fill level diagnostics	Fill level when the flow diagnostics start
4	Flow validation time	Time when the flow is tested after the valves open
5	Overrun correction mode	<p>Mode for overrun correction</p> <ul style="list-style-type: none"> "Previous batch correction" Adjustment while taking the last batch into consideration. "Previous batch correction with flow monitoring" Dynamic adjustment while taking the last batch and the current flow into consideration.
6	Medium selection delay	<p>Determines the delay from the opening of the medium selection valve to the start of the dosing process. The delay to be set depends on whether the line is full or, if the line is empty, medium, line lengths, pressure and nominal diameter.</p> <p>Only for scenario 7, 8, 9</p>
7	Current batch	See chapter "14.1 Current batch"
8	Previous batch	See chapter "14.2 Previous batch"
9	Batch logging	See chapter "13.3 Batch logging diagnostics"

14.1 Current batch

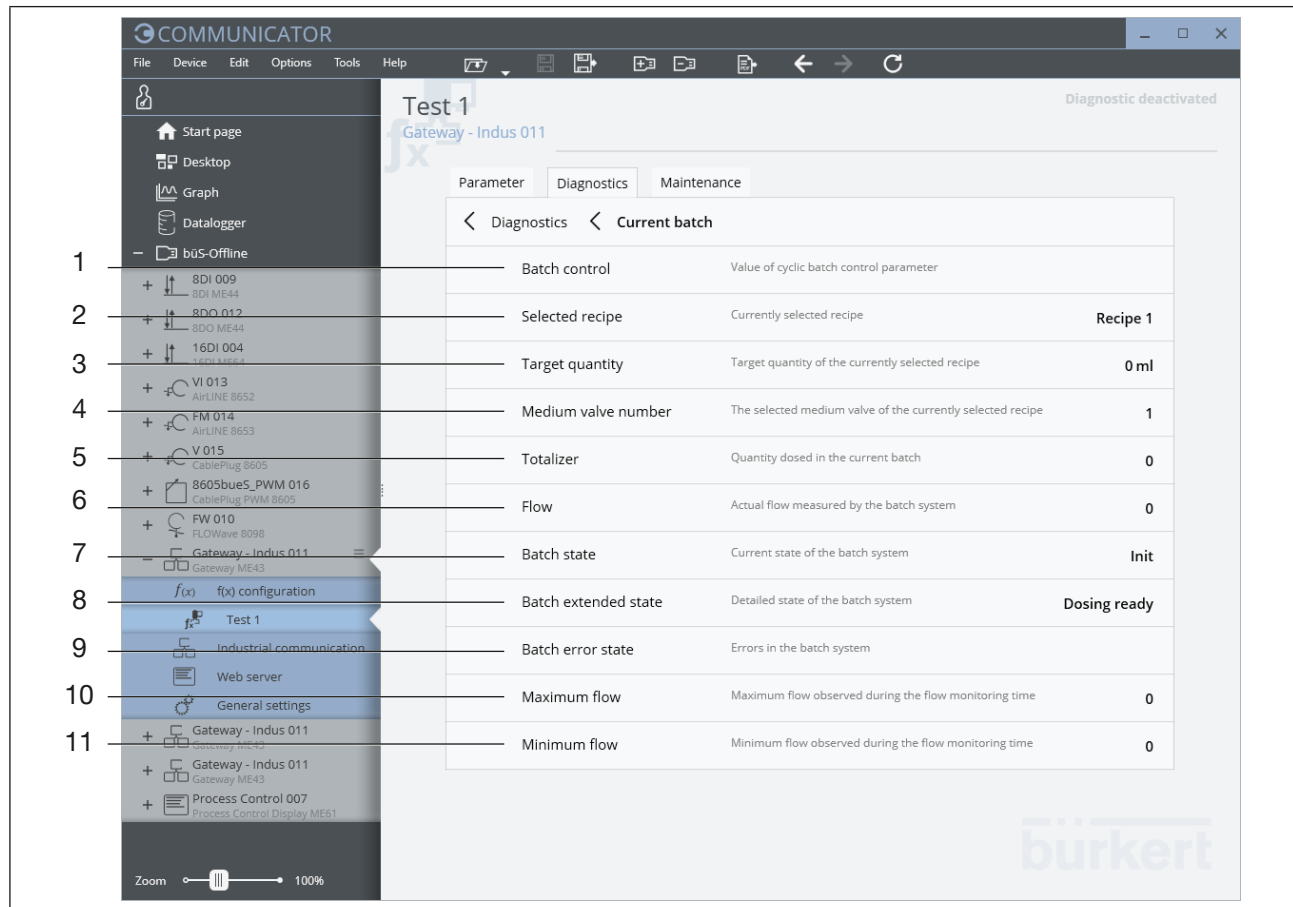


Fig. 37: Current batch

No.	Designation	Description
1	Batch controller	Batch procedure control
2	Selected recipe	Recipe currently selected
3	Target amount	Target quantity of recipe
4	Medium valve number	The selected medium valve is listed here, depending on the scenario
5	Totaliser	Cycles of the current batch
6	Flow	Actual flow volume
7	Batch state	Current state of batch system
8	Advanced batch status	Detailed state of batch system
9	Batch - error state	Error detected in dosing system
10	Maximum flow	Maximum flow occurring during dosing.
11	Minimum flow	Minimum flow occurring during dosing.

14.2 Previous batch

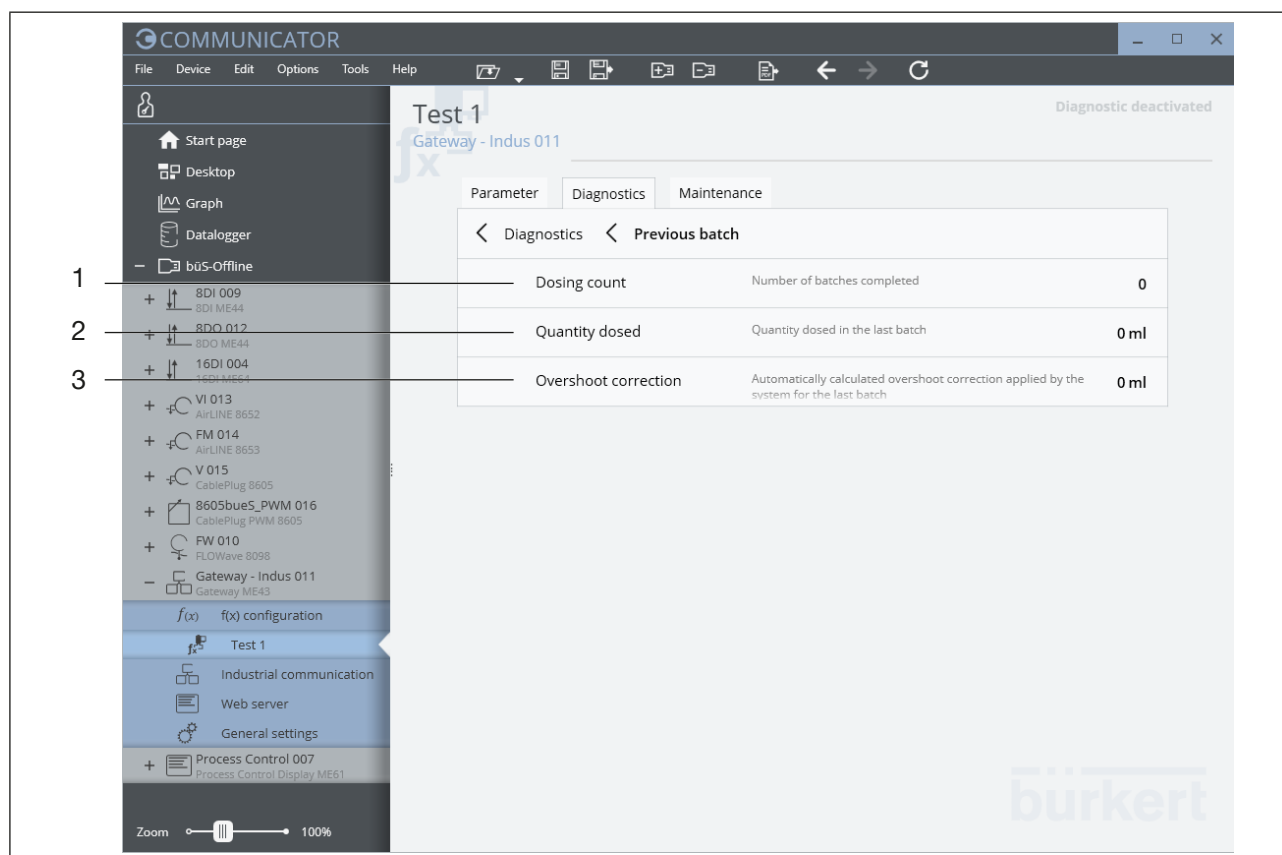


Fig. 38: Previous batch

No.	Designation	Description
1	Dosing meter	Number of completed batches
2	Dosing amount	Dosed quantity in last batch process
3	Overrun correction	Automatic overshoot correction of batch

15 BATCH PARAMETER

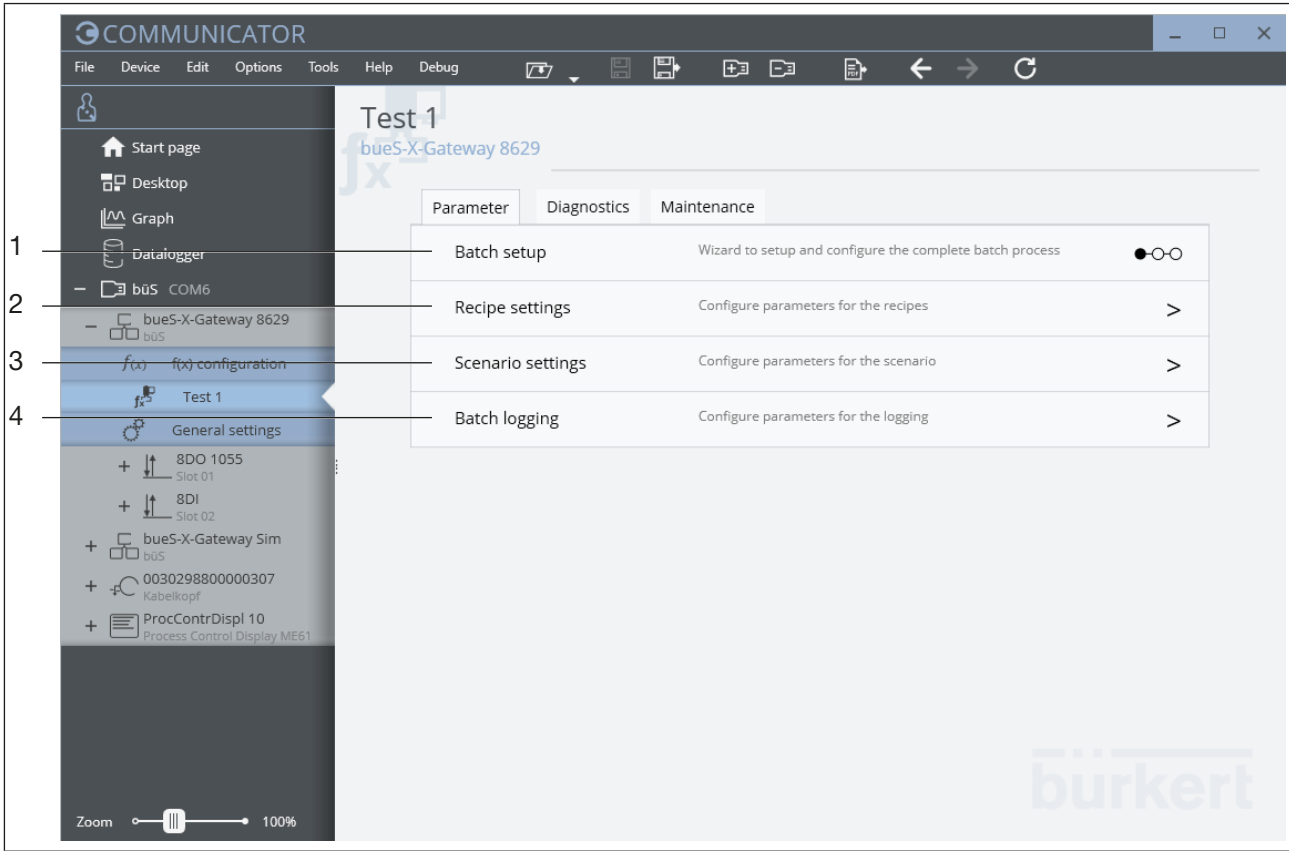


Fig. 39: Batch parameter

No.	Designation	Description
1	Batch setup	Wizard for setting up and configuring the complete batch process
2	Recipe settings	Configuration of parameters for the recipes
3	Scenario settings	Configuration of parameters for the scenario
4	Batch logging	See chapter “13 Batch logs”

15.1 Recipe settings

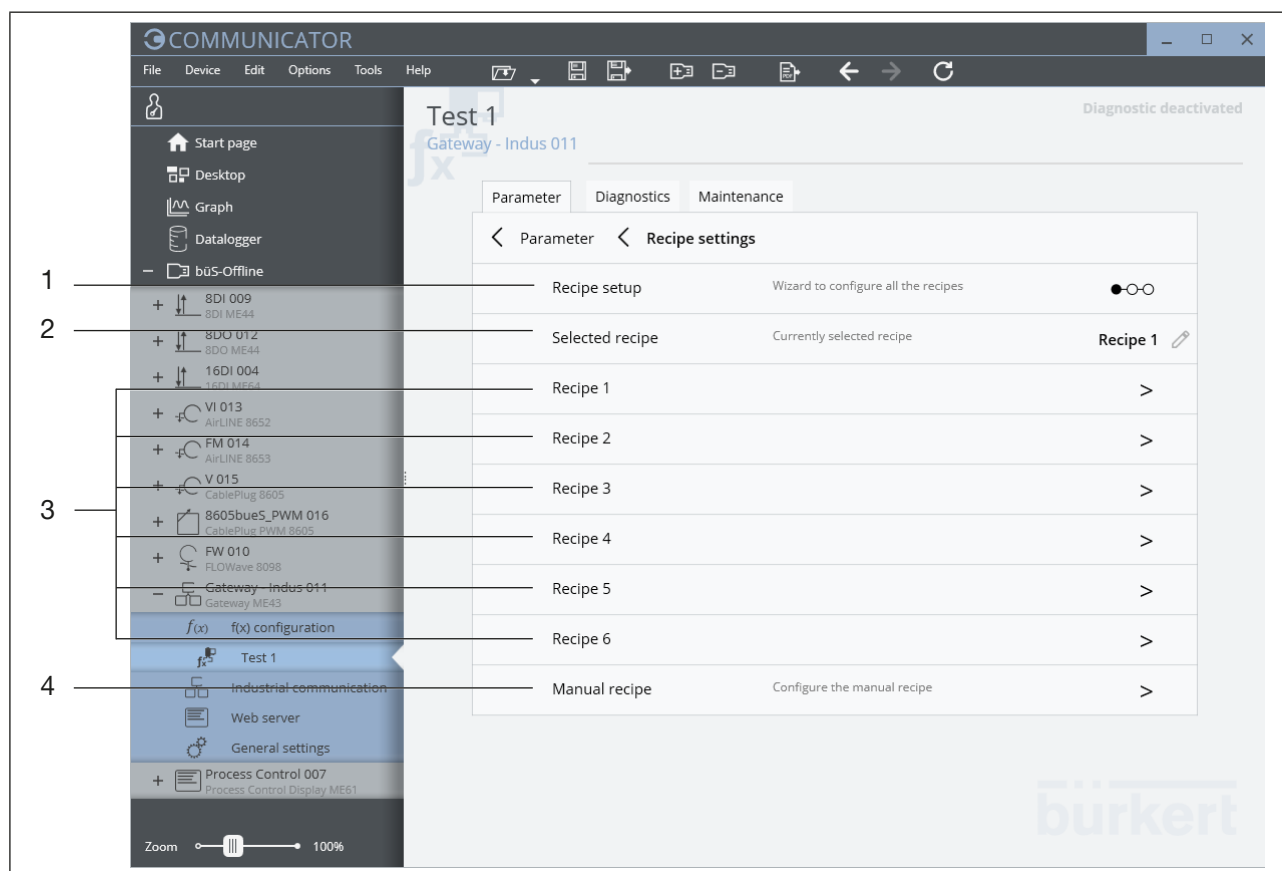


Fig. 40: Recipe settings

No.	Designation	Description
1	Recipe setup	Wizard for setting up and configuring the complete batch process
2	Selected recipe	Recipe currently selected
3	Recipe 1...6	Selection can be made between 6 different recipes.
4	Manual recipe	Manual recipe configuration

15.1.1 Steps for recipe setup

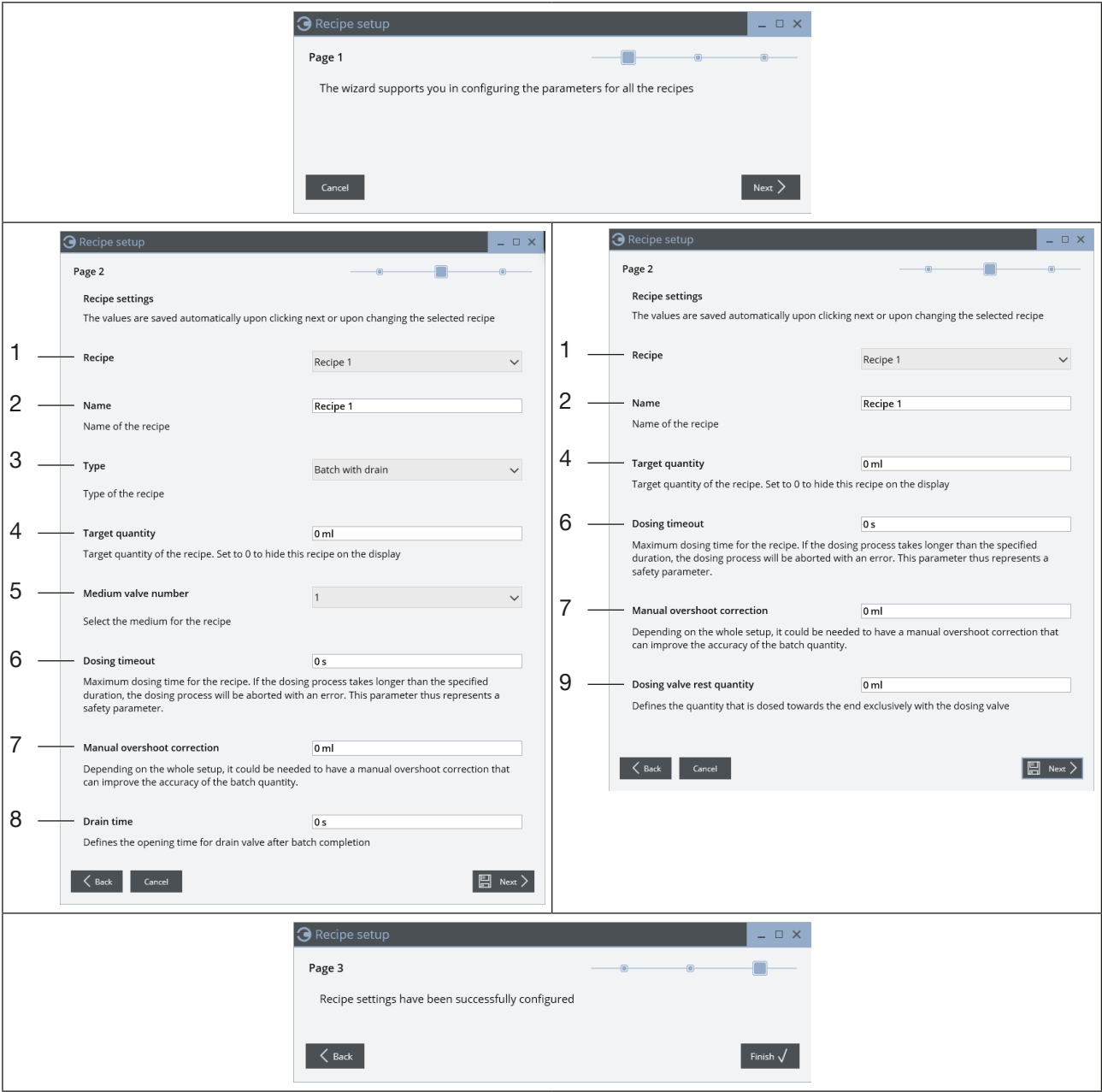


Fig. 41: Steps for recipe setup

No.	Designation	Description	Scenario
1	Recipe	A maximum of 7 recipes are available. The individual settings can be adjusted here for each recipe. If the ME61 is being used, the recipe can be hidden by entering the quantity 0	All
2	Name	Freely selectable name for the recipe (this is displayed in the process control display)	All
3	Type	Recipe type: A choice can be made between “Batch”, “Drainage” or “Batch with Drainage” at this point	Only for 4 and 9
4	Target amount	Target quantity of recipe	All
5	Medium valve number	The medium valve is selected here, depending on the scenario	Only for 7, 8 and 9
6	Dosing time limit	Safety parameters (maximum dosing time for the recipe): Knowledge of the flow and target volume can be used to estimate how long a maximum dosing period should last. If the dosing time is exceeded, an error occurs and the valves are closed.	All
7	Manual overrun correction	The batch controller possesses an automatic and constant correction function. It may be necessary to enter a manual correction quantity in certain cases. This is then always automatically included in the calculation.	All
8	Draining time	Opening time of drain valve after end of batch dosing	Only for 4, 9 and 10
9	Residual quantity in dosing valve	Residual quantity to be dosed with the dosing valve	Only for 6 and 10

15.1.2 Current recipe

Recipes 1-6, and the user-defined recipe, can be adjusted here

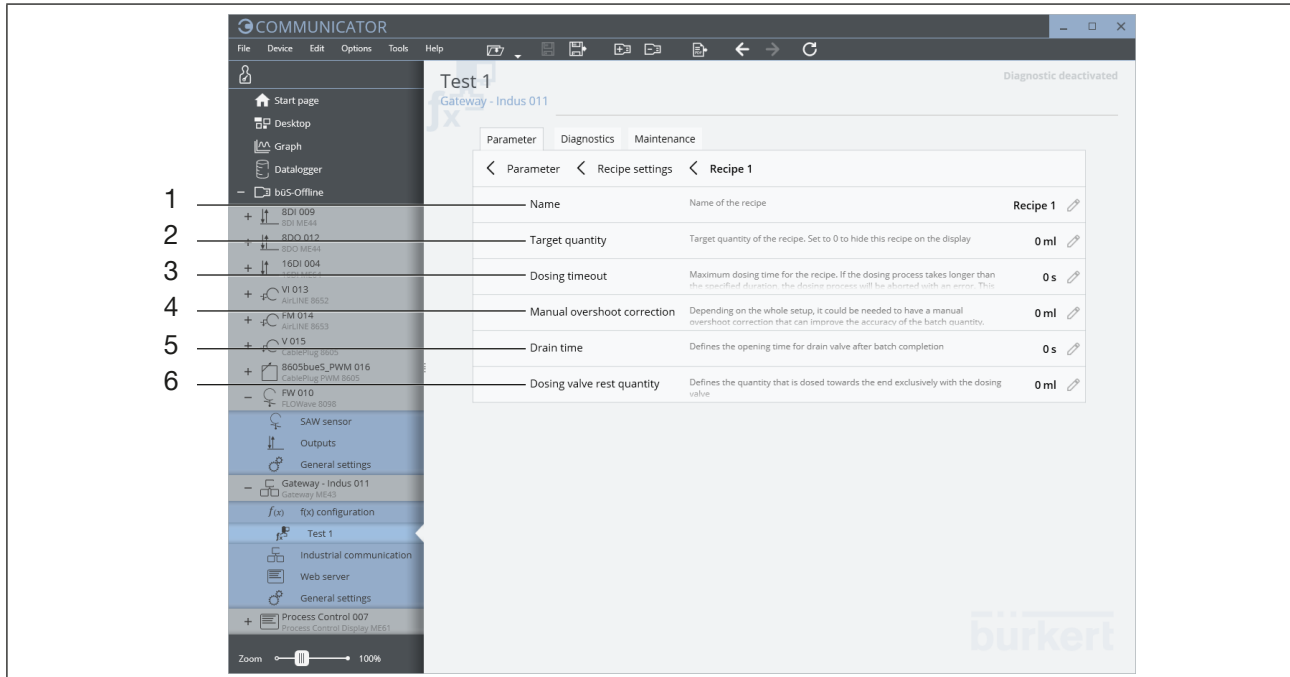


Fig. 42: Recipe options

No.	Designation	Description
1	Name	Freely selectable name for the recipe (this is displayed in the process control display)
2	Target amount	Target quantity of recipe
3	Dosing time limit	Safety parameters (maximum dosing time for the recipe): Knowledge of the flow and target volume can be used to estimate how long a maximum dosing period should last. If the dosing time is exceeded, an error occurs and the valves are closed.
4	Manual overrun correction	The batch controller possesses an automatic and constant correction function. It may be necessary to enter a manual correction quantity in certain cases. This is then always automatically included in the calculation.
5	Draining time	Opening time for drainage valve after batch has been completed
6	Residual quantity in dosing valve	Residual quantity to be dosed with the dosing valve Only for scenario 6 and 10

15.2 Scenarios setting

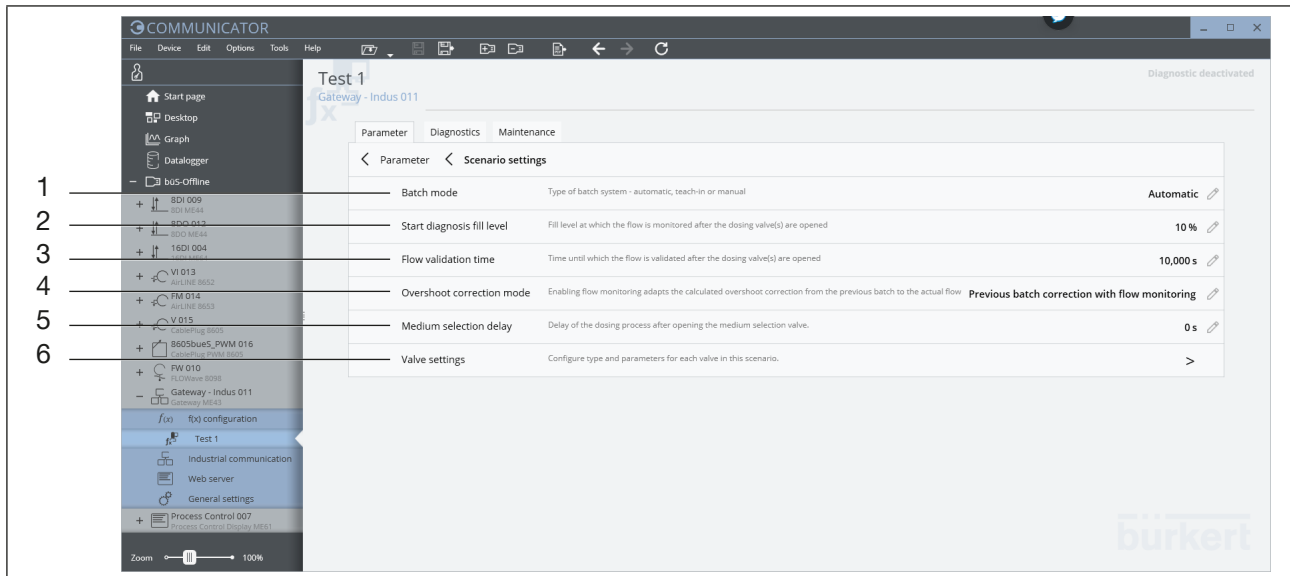


Fig. 43: Scenarios setting

No.	Designation	Description
1	Batch mode	Batch mode selection: “Automatic”, “Teach-In” or “Manual”
2	Start fill level diagnostics	Fill level when the flow diagnostics start
3	Flow validation time	Time when the flow is tested after the valves open
4	Overrun correction mode	<p>Mode for overrun correction</p> <ul style="list-style-type: none"> • “Previous batch correction” Adjustment while taking the last batch into consideration. • “Previous batch correction with flow monitoring” Dynamic adjustment while taking the last batch and the current flow into consideration.
5	Medium selection delay	<p>Determines the delay from the opening of the medium selection valve to the start of the dosing process. The delay to be set depends on whether the line is full or, if the line is empty, medium, line lengths, pressure and nominal diameter.</p> <p>Only for scenario 3, 5, 7, 8, 9, 10</p>
6	Valve settings	Configuration of valves used in scenario

16 BATCH OPERATION

16.1 Operation via display

After the ME61 was selected as a controller in the wizard, the batch dashboard appears on the ME61. In order to be able to use the preconfigured dashboard, it must be ensured that the supported display version is in use.



Fig. 44: Surface of display

No.	Designation	Description
1	Dose meter	Selected batch is displayed
2	Totaliser	Current dosing amount
3	Batch status	Current state of batch system For detailed information, see chapter “7.2 Process control of the batch”
4	Operation keys	<ul style="list-style-type: none">• Start• Pause• Stop
5	Recipe selection	Up to 7 recipes are available. The individual settings of the selected recipe are displayed here. For detailed information, see chapter “10.1.10 Recipe configuration” If the ME61 is being used, the recipe can be hidden by entering the quantity 0
6	Flow rate	Displays the temporary flow rate

16.2 Operated via the Communicator

16.2.1 Parameters set

Commissioning and operation of the batch controller can, in addition to the display, also be carried out with the Bürkert Communicator.

- Select the gateway in the navigation bar
- Enable batch control (1)
- Select recipe via bit values (2) (see chapter “16.2.2 Recipe selection”):
 - Recipe bit 0 => value 1
 - Recipe bit 1 => value 2
 - Recipe bit 2 => value 4
- Select start (3)

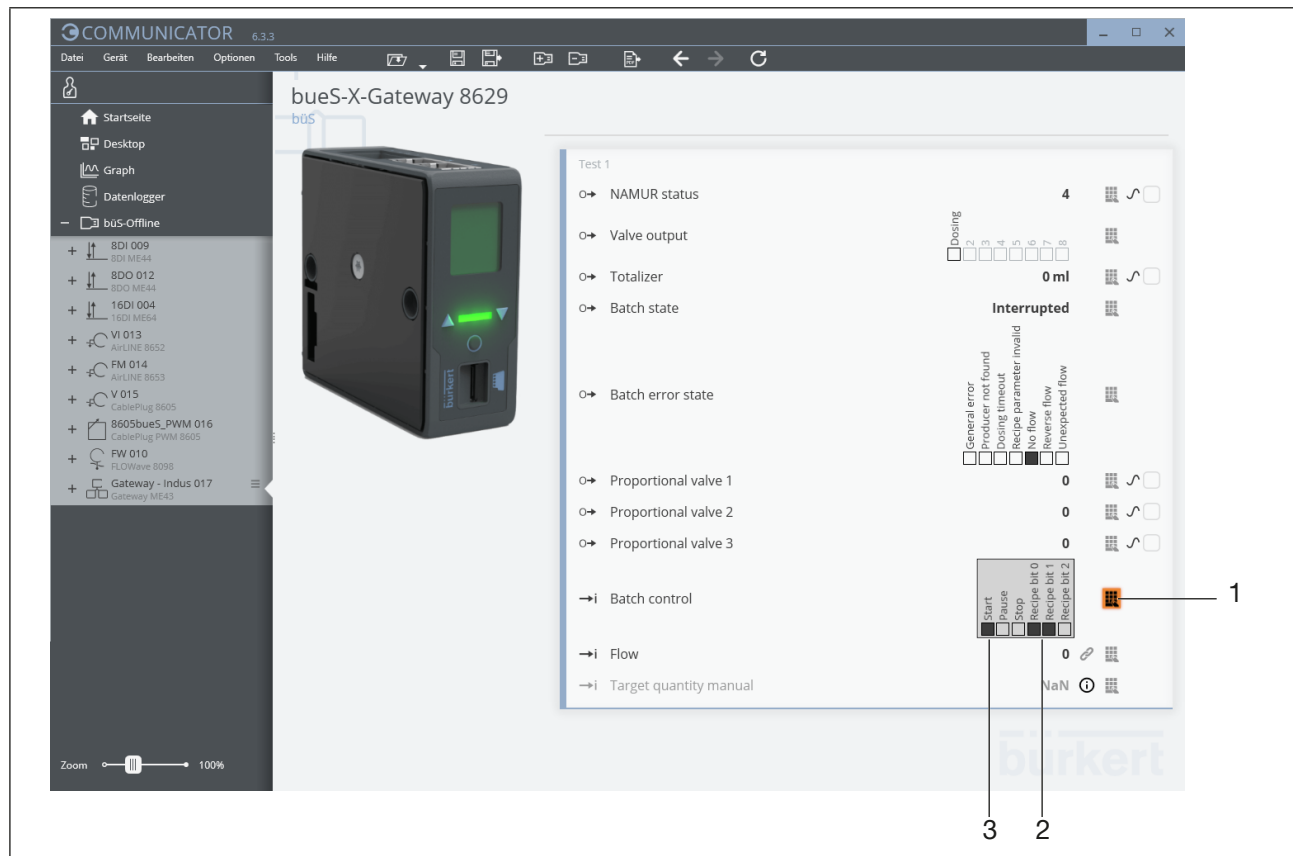


Fig. 45: Parameters set

16.2.2 Recipe selection

Recipe number	Recipe bit 0	Recipe bit 1	Recipe bit 2
1	x		
2		x	
3	x	x	
4			x
5	x		x
6		x	x
7	x	x	x

17 BATCH MAINTENANCE

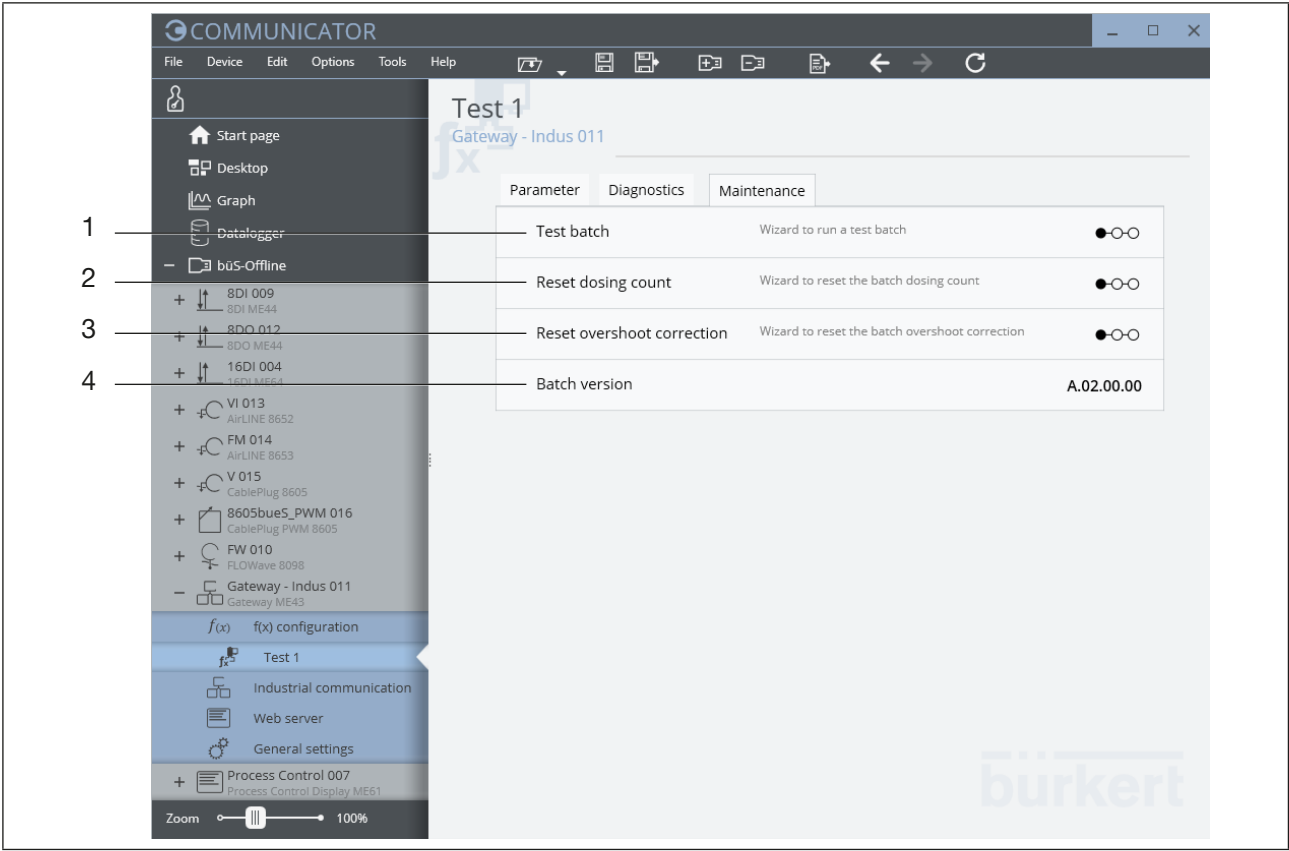


Fig. 46: Batch maintenance

No.	Designation	Description
1	Test batch	Can be used to calculate the dosing time. This is calculated here.
2	Reset dosing meter	Totaliser for the finished batch can be reset
3	Reset the overrun correction	The batch controller possesses an automatic and constant correction function. The manually set correction quantity can be reset with this start-up wizard.
4	Batch version	Software version of the batch

18 LICENCE ACTIVATION

The use of the f(x) function and/or the batch has been set by the manufacturer to only be available for an hour, for experimental purposes. In order to permanently use the functions without restrictions, a licence must be obtained.

The following steps must be completed to obtain this licence:




- Open Bürkert home page country.burkert.com and enter licence key or the order number 00572948 in the search field.
- Start search.
- Enable ordering/buying graphic programming.



Please note:

- The order and serial number of the device on which the batch controller is later used will be required for the order.
- You can find the order number and serial number on the type label.

→ After the order has been completed, a delivery note containing a licence is generated (see “Fig. 47: Example of a delivery note with the generated code”)

																																													
Lieferschein																																													
Bürkert GmbH & Co. KG, D-74653 Ingelfingen		Ihr Bürkert Vertriebs-Center München																																											
		Ihr Ansprechpartner:																																											
		Tel.:																																											
		Fax.:																																											
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		Auftrag Nr.																																											
		Lieferschein Nr.																																											
		Datum																																											
Versandart:	DPD																																												
Lieferbedingung (INCO 2010):	FCA / ab prod. Werk																																												
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		Nettogewicht / ST	0,001 KG																																										
Die folgenden Lizenzcodes können unter der URL http://communicator.burkert.com/deviceactivation aktiviert werden.																																													
X9\$Y-Yf9X-zS@B-ZS?A																																													
		www.burkert.de/feedback customer.feedback.cq@burkert.com																																											
<small> Christoph-Bürkert-Strasse 13-17, D-74653 Ingelfingen Telefon (07340) 10-91111, Telefax (07340) 10-91448 Internet www.burkert.de E-Mail info@burkert.de Kommanditgesellschaft Sitz Ingelfingen Registergericht Stuttgart HRB 590427 Persönlich haftende Gesellschafterin: Bürkert GmbH Sitz Ingelfingen Registergericht Stuttgart HRB 590379 Geschäftsführer: Herbert Röhbeck, Frank Hül, Dr. Udo Galt unsere Steuernummer: 750011/10131 DE146279895 </small>																																													
<small> Es gelten unsere Allgemeinen Geschäftsbedingungen. Diese können unter www.burkert.de eingesehen und als Datei heruntergeladen werden. Bankverbindungen Commerzbank AG Heidelberg IBAN-NR. DE52 6208 0012 0700 4175 00 BIC: COMDE33HAN Sparkasse Hohenheimkreis IBAN-NR. DE39 6225 1550 0007 6000 63 BIC: SOLADE33HAN </small>																																													
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→ Open input mask at: <https://communicator.burkert.com/deviceactivation> and enter the following information:

- Licence code
- Article number of the product for which the f(x) function/batch function is to be enabled
- Item serial number

Device activation

Fill the form below to generate your license key.

License code

ZJXB-QVU9-7N5E-KAHX

Bürkert item number

00307390

Serial number

1125

Senden

Fig. 48: Generate licence key

When the input mask is complete, a licence key (see “Fig. 49: License key”) that can be loaded into the Bürkert Communicator is generated.

Device activation

The license has been generated successfully. Please copy or download license key below.

Article: 00307390
 Serialnumber: 1125
 Licensecode: ZJXB-QVU9-7N5E-KAHX
 Licensearticle: 00567713
 ----- BEGIN LICENSE -----
 FxXtotXGZwulPnF9+62ni6cZkeQQjk0/8vvt6a9z7q5Sc4fyt72ae5Qtpw
 Y4/bcQfE13xb1lg0YS+t/C1Dr95jln0jzi7FsqgK4vT105YRQz1Cq7xxDA
 k6/HBUf1JNte0Ho3Ruap1Vf3re8HBox1nlpw8ZRP5m2B4KBYSrxdAoxk0SA
 BBUS1PHTovfDYDmxCdwlJf/dbu51IgyHSZ0vTbH23X8X7FZa+ogC8dXJ8oM
 9bhZhs/h1vdHKDNjrR6jzFZ4Z51RKSmb993yaEM3/8FXJ6C1T6zx6GnN8
 nckRhgvti38hxAlpy+sXEql+SKrah1bz0qNqa70TXCZvKF9R0hYBou6mec
 1Gb1JlmaZBSp2Ja1JzktDr0xe26+0knEyD11p01cZLT811EkoRahlvZ9hSFu
 2nx0udCXDcrV51/bcoqfz1sp00gAREkd03nJJxvpJrv4086zJfN09fybbyc
 Yr1s9Shs393p4pZ1m1Scngd/YLdj/55/ub6CMet4K56qgYCa4PVCwvegk
 z1K/0H/4BITLv0kh1f17P47enF38v/cvFFDMkYkkvUYqE/yEn0G6fCA--
 ----- END LICENSE -----

[Click here to download the license key.](#)

Impressum We make ideas flow.

Fig. 49: License key

→ Open Bürkert Communicator

→ **Tools**

→ **Enable device functions** (see “Fig. 50: Activate licence”)

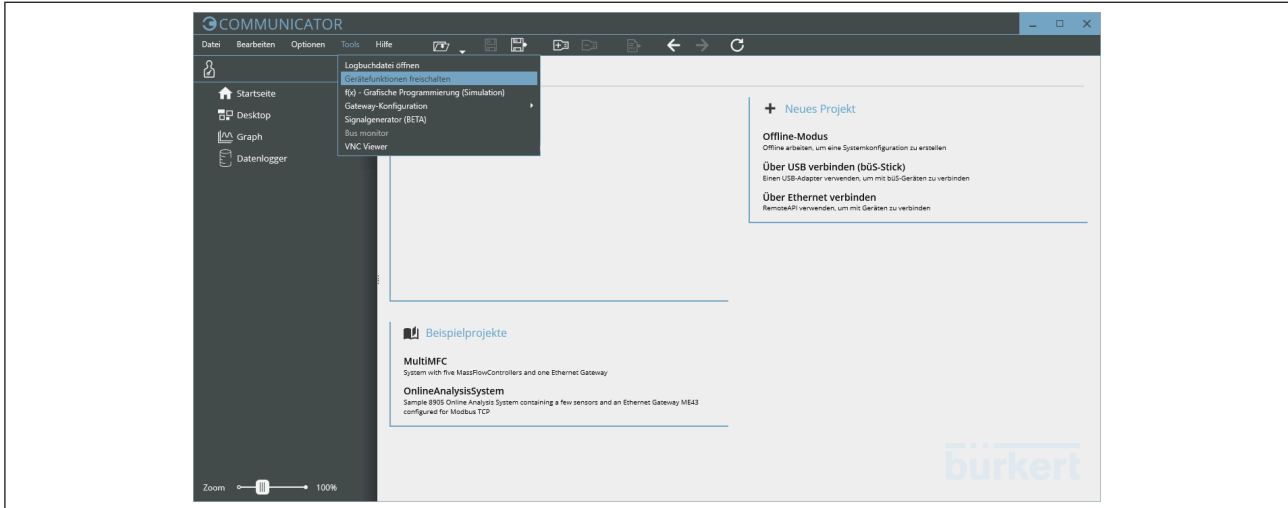


Fig. 50: Activate licence

→ **Load licence** (see “Fig. 51: Load licence”)

→ Open licence key

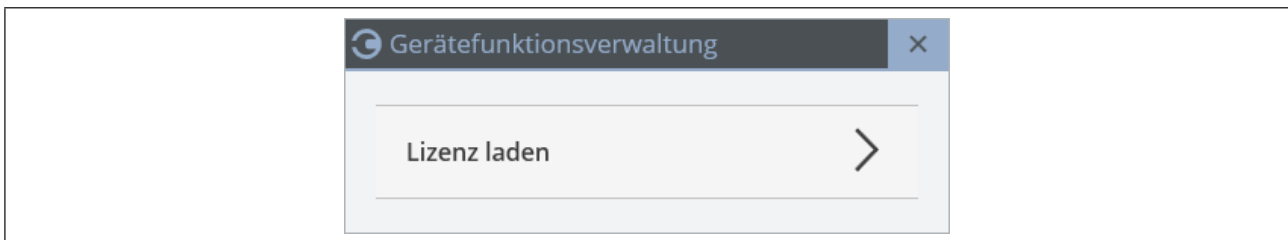


Fig. 51: Load licence

The unlimited f(x) function/batch function will be available after this procedure and can now be used.

