bürkert
FLUID CONTROL SYSTEMS

Type 8763

Pressure controller for precise time-pressure dosing
Druckregler für präzise Druck-Zeit-Dosierung
Régulateur de pression pour un dosage pression-temps précis

MAN 1000398638 EN Version: B Status: RL (released | freigegeben) printed: 11.09.2025

Operating Instructions

Bedienungsanleitung
Manuel d'utilisation

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1 OPERATING INSTRUCTIONS

The operating instructions describe the entire life cycle of the device. Keep these instructions available at the operation site.

Important safety information.

- ▸ Carefully read these instructions.
- ▸ Observe in particular the safety instructions, intended use and operating conditions.
- ▸ Persons, who work on the device, must read and understand these instructions.

1.1 Symbols

DANGER

Warns of an immediate danger.

- ▸ Failure to observe these instructions will result in death or serious injuries.

WARNING

Warns of a potentially hazardous situation.

- ▸ Failure to observe these instructions may result in serious injuries or death.

CAUTION

Warns of a potential danger.

- ▸ Failure to observe these instructions may result in moderate or minor injuries.

NOTE

Warns of damage.

- ▸ Failure to observe these instructions may result in damage to the device or the system.

Indicates important additional information, tips and recommendations.

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

▶ Highlights instructions to avoid a danger.

→ Designates a procedure, which you must carry out.

✓ Designates a result.

MENUE Symbol for software interface texts.

1.2 Definition of terms

Term	in these instructions stands for
Device	Pressure controller Type 8763

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2 INTENDED USE

The pressure controller Type 8763 is designed for time-pressure dosing of very low volumes.

- Use the device only as intended. Non-intended use of the device may be dangerous to people, nearby equipment and the environment.
- Do not use Type 8763 outdoors.
- Prerequisites for safe and trouble-free operation are correct transportation, storage, installation, start-up, operation and maintenance.
- To use the device, observe the permitted data, operating conditions and application conditions. These specifications can be found in the contract documents, the operating instructions and on the type label.
- Use the device only in conjunction with third-party devices and components recommended or approved by Bürkert.
- Use the device only when it is in perfect condition.

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3 BASIC SAFETY INSTRUCTIONS

These safety instructions do not take into account any unforeseen circumstances and events, which occur during installation, operation and maintenance. The operator is responsible for observing the location-specific safety regulations, also with reference to the personnel.

Risk of injury from high pressure and escaping medium.

- Before working on the system or device, switch off the pressure and vent or empty the lines.

Risk of injury due to electric shock.

- Before working on the device or system, switch off the power supply and secure to prevent reactivation.
- Observe the applicable accident prevention and safety regulations for electrical devices.

General hazardous situations.

To prevent injuries, observe the following:

- Use the device only when it is in perfect condition and in accordance with the operating instructions.
- Do not make any changes to the device and do not subject it to mechanical stress.
- Secure device or system to prevent unintentional activation.
- Do not feed any aggressive or combustible media into the media connections of the system.
- Do not feed any liquids into the media connections.
- Do not cover the ventilation slots of the body.
- Only trained technicians carry out installation and maintenance work.
- Install the device according to the regulations applicable in the country.
- After an interruption in the power supply, ensure that the process is restarted in a controlled manner.
- Observe the general rules of technology.

NOTE

Electrostatically sensitive components and assemblies.

The device contains electronic components that are susceptible to the effects of electrostatic discharging (ESD). Components that come into contact with electrostatically charged persons or objects are at risk. In the worst case scenario, these components are destroyed immediately or fail after start-up.

- Meet the requirements specified by EN 61340-5-1 to minimize or avoid the possibility of damage caused by sudden electrostatic discharge.
- Do not touch electronic components when the supply voltage is connected.

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4 GENERAL NOTES

4.1 Contact addresses

Germany

Bürkert Fluid Control Systems
Sales Centre
Christian-Bürkert-Str. 13-17
D-74653 Ingelfingen
Tel. + 49 (0) 7940 - 10-91 111
Fax + 49 (0) 7940 - 10-91 448
E-mail: info@burkert.com

International

The contact addresses can be found on the back pages of the printed operating instructions.

Also on the Internet at:

www.burkert.com

4.2 Warranty

A precondition for the warranty is that the device is used as intended in consideration of the specified operating conditions.

4.3 Information on the Internet

Operating instructions and data sheets for the Bürkert products can be found on the Internet at:

www.burkert.com

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5 PRODUCT DESCRIPTION

5.1 Structure and description

The pressure controller is designed for time-pressure dosing of very low volumes. The device can be operated either using büS or CANopen or with restrictions using an analogue control signal.

The pressure controller features an integrated pressure sensor that measures the actual pressure and transmits it with an accuracy of ≤0.25 % FS.

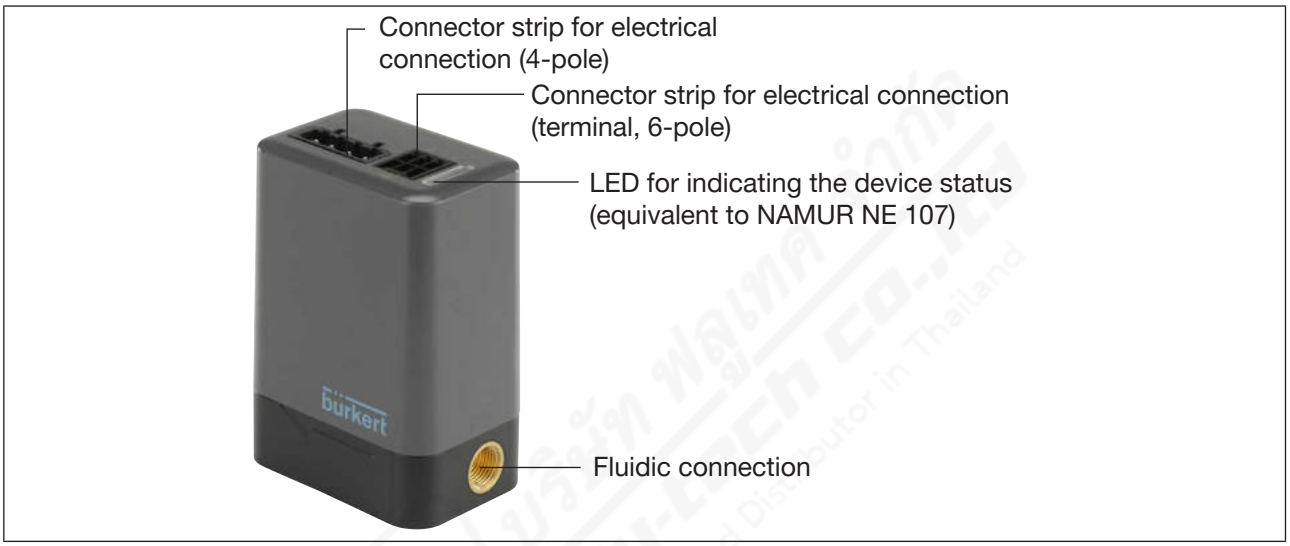

Figure 1: Structure of the pressure controller, digital variant

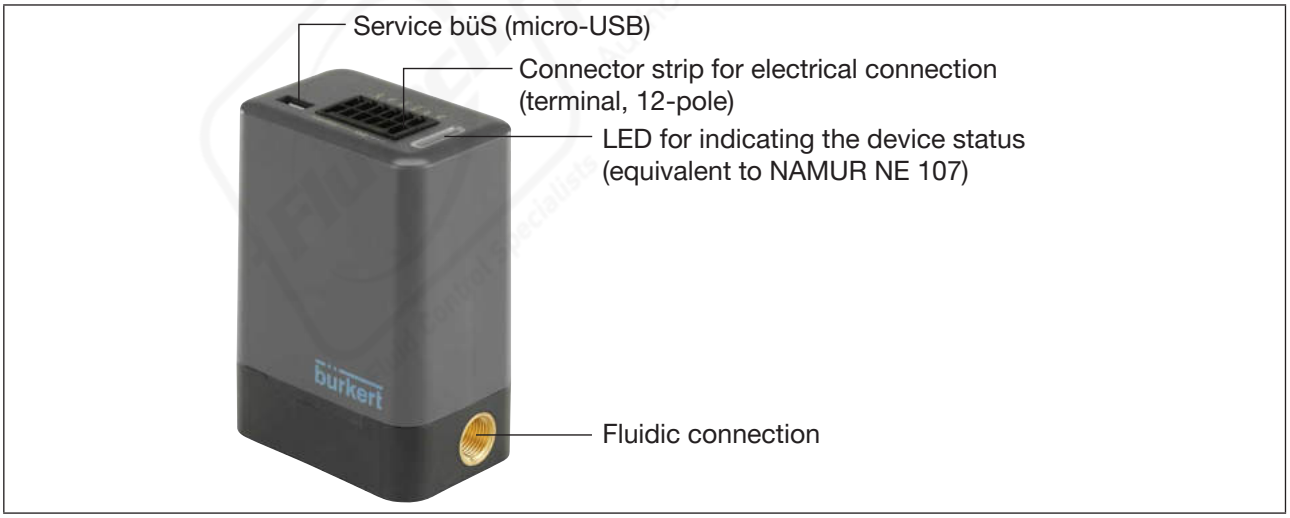

Figure 2: Structure of the pressure controller, analogue variant

Components of the pressure controller:

- pressure sensor,
- control element (low-friction proportional valve with high response sensitivity, Type 2871),
- a controllable exhaust element (valve Type 6712),
- control electronics.

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5.1.1 Control electronics

Functions of the control electronics:

- processes the set-point values and measurement values for pressure control,
- controls the proportional valve and the exhaust valve,
- controls auxiliary functions such as DO1 for an external pump and AI1 for an external sensor.

Set-point value büS (digital) or AI2 (analogue)

The set-point value (w) is either transmitted in analogue form via a standard signal input AI2 or digitally via the serial interface. In the analogue case, a DO2 signal provides the information as to whether the set-point pressure is reached (dead band ±0.5 %) (adjustable via Communicator).

In the case of analogue transmission of the set-point value, the following assignments apply:

Signal range	Set-point value for the minimum value of the range	Set-point value for the maximum value of the range
4...20 mA	4 mA, w = 0 %	20 mA, w = 100 %
0...10 V	0 V, w = 0 %	10 V, w = 100 %

5.2 Mode of operating

The pressure controller generates a precisely controlled pressure on the outlet side from an unregulated primary pressure of ≤3 bar (43,5 psi). At the input, the pressure controller is equipped with a 36-µm filter. The control deviation refers to a reference volume of 30 ml and, in the steady state and under standard conditions, <0.35 % FS of the installed pressure sensor value. The repeatability in this case is <0.1 %. The control parameters are optimised for reference volumes between 30-250 mL, but can also be operated outside this specification. The minimum control volume for air as a medium is 0.5 mL with restricted control accuracy. To guarantee better adjustment to the environment and volumes to be regulated, the corresponding PID parameters of the controller can be adjusted. The control accuracy is strongly dependent on external influences such as the volume to be controlled and fluctuating discharge rates due to dosing tasks.

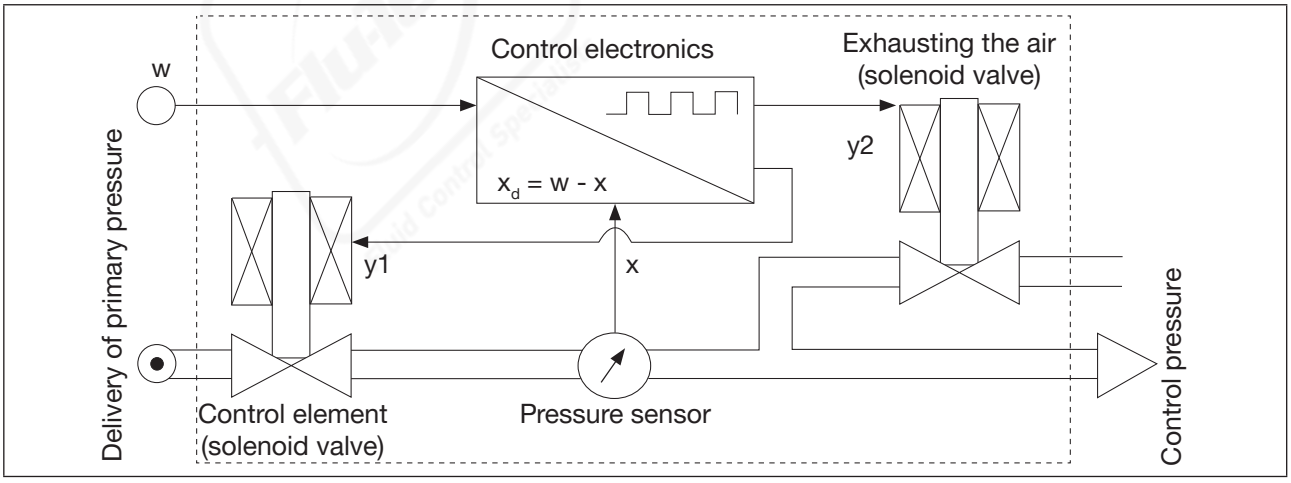

Figure 3: Function diagram of the pressure controller

The control electronics compare the control pressure (x) measured by the integrated pressure sensor with the specified set-point value (w). An actuating variable for the actuator is calculated in the control electronics. In case of a positive control deviation (x_d), the actuating variable (y1) is calculated for the control element to control its opening. In case of a negative control deviation (x_d), the actuating variable is calculated for exhausting the air (y2). The control pressure is maintained at a constant value, specified by standard signal or follows a freely

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programmed curve. Closed-loop control is applied independently of input pressure fluctuations. The high reaction speed of the control valve and the dynamic behavior of the pressure sensor determine the settling time.

5.3 Intended area of application

The pressure controller is suitable for pressure-controlled and time-controlled dosing applications. The user can, for example, measure the flow rate in the dosing application and adjust the set-point pressure accordingly. The pressure controller follows with the adjusted actual pressure. To ensure good control characteristics, the primary pressure should not be more than twice the control pressure.

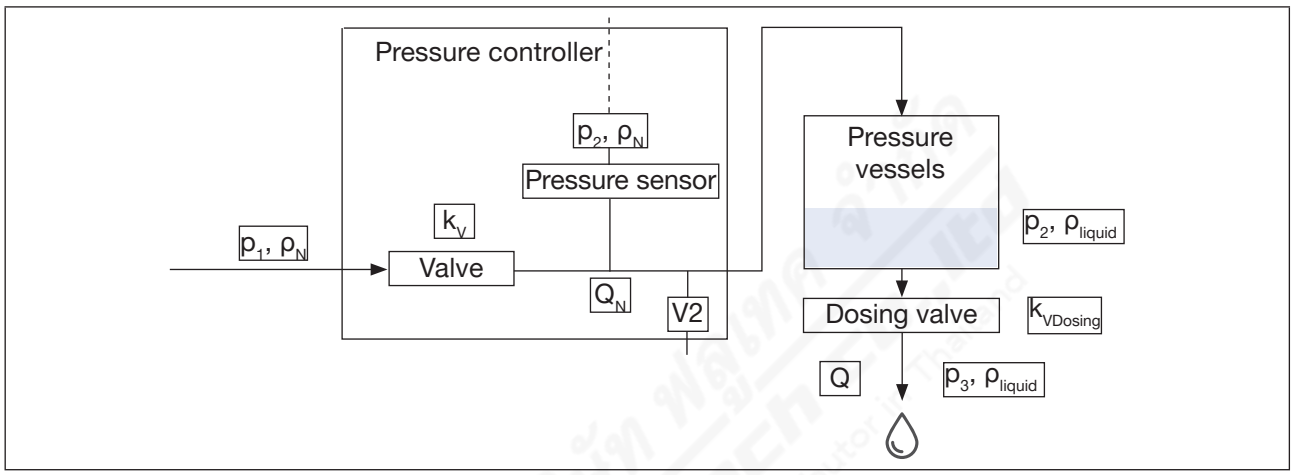

Figure 4: Description of use in a time-pressure dosing application

Intended area of application of the pressure controller, for example:

- pharmaceutical dosing applications e.g. filling applications,
- laboratory analysis,
- in-vitro diagnostics.

5.3.1 Continuous set-point pressure change

The pressure controller relieves the output of pressure by means of an exhaust valve. The device can build up and reduce pressure quickly and set the set-point pressure in both directions.

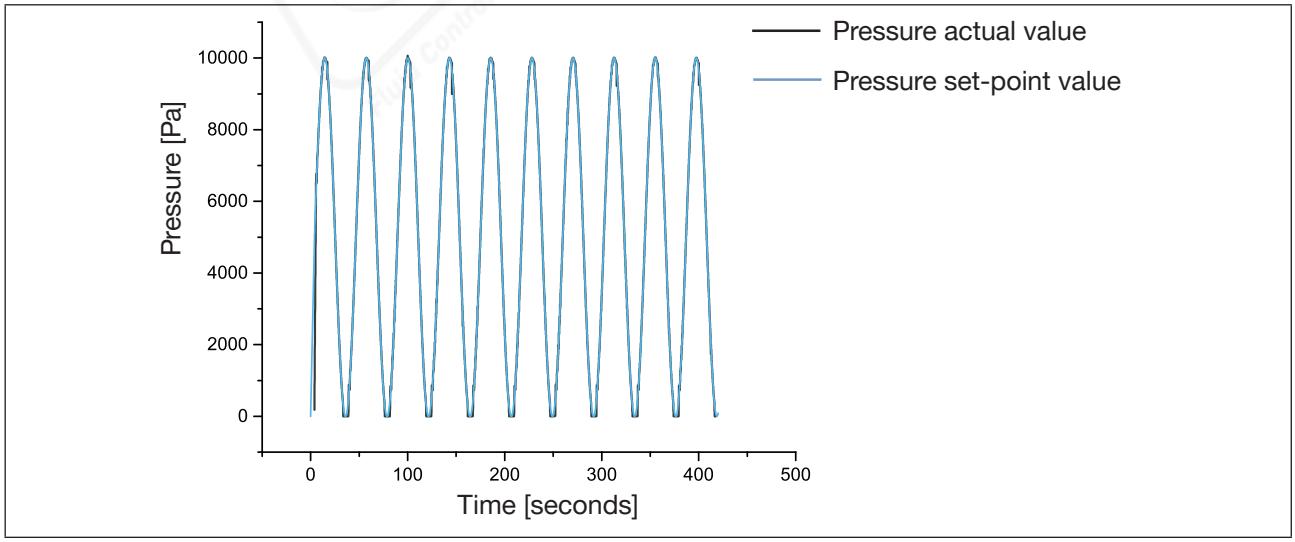

Figure 5: Diagram showing continuous set-point pressure change

Bidirectional closed-loop control can continue to be applied so that a set-point value change in pressure can be uniformly regulated downward (see “Figure 5”).

A sinusoidal change in set-point pressure imposes the maximum load on the control elements. For instance, the exhaust valve switches 2.23 million times “Figure 5” in 28 days. The service life on the deaeration side is designed for a minimum of 20 million switching cycles.

5.3.2 Abrupt set-point value changes

The set-point value change occurs abruptly and follows a ramp-shaped curve.

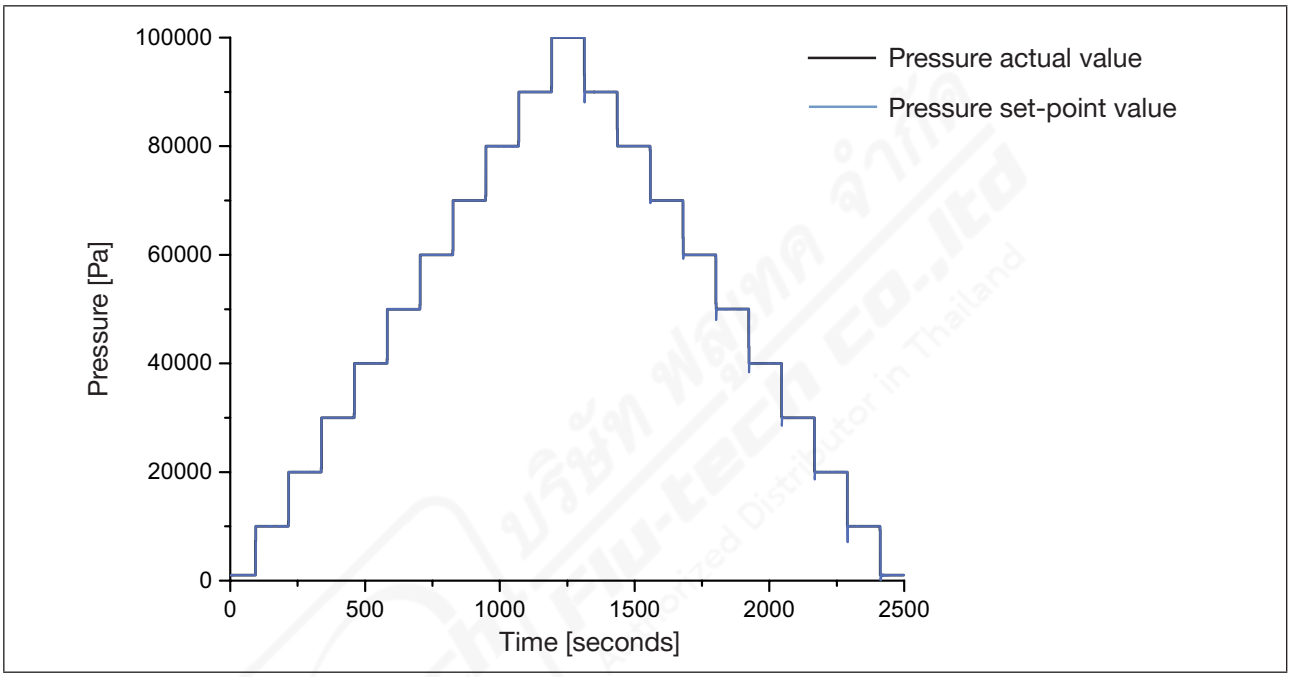

Figure 6: Diagram showing abrupt set-point value change

5.4 Auxiliary functions, physical inputs and outputs

Every pressure controller maintains a switchable DO output with 12 V. The DO output is designed for the use of inductive loads, especially those of a pump. The maximum load at DO1 and sensor supply 12 V combined must not exceed 500 mA.

5.4.1 DO1: 12 V DC switchable (e. g. pump)

A 12 V DC pump can be operated at output DO1. The current consumption of the pump is 500 mA.

The following pumps are tested and approved for use:

Pump	Max. continuous current	Order No.
SP 570 EC 12V DC	250 mA	906327
SP 600 EC-DV 12V DC	400 mA	906379
SP 620 EC-BL-DV 12V DC	500 mA	906380

The pumps are used for primary pressure delivery using neutral gases.

The delivery of primary pressure can be configured in the Bürkert Communicator. An external pressure sensor connected to the pressure controller measures the primary pressure supplied. If the pressure falls below a defined minimum level, the pump can start up until a defined maximum pressure is reached.

5.4.2 Constant 12 V DC supply (e.g. sensor supply)

The 12 V supply is constant, non-switchable and is used to power a sensor. The maximum load is 100 mA. In conjunction with a pump, the current consumption of the external consumers must not exceed 500 mA in total.

5.4.3 AI1: Analog Input 1

The AI1 input is used for analogue sensors. If the device is used to monitor primary pressure, it is possible to use a pressure sensor or a flow sensor. The use of a flow sensor in conjunction with devices for monitoring the process enables more complex open-loop control.

5.4.4 AI2: Analog Input 2

The analogue input AI2 on the analogue variant is used to specify the set-point value for the control pressure. For this purpose, a standard signal with 4...20 mA or 0...10 V can be used.

5.4.5 DO2: Output

The DO2 output is galvanically isolated and switches a voltage of ≤ 30 V with a resistance of 50 Ohm.
The output can be configured to the set-point pressure difference between the set-point pressure and the internal pressure sensor (internal) or between the set-point pressure and a pressure sensor at AI2 (external).

The user can monitor the pressure directly via the dosing volume with the aid of an external pressure sensor for additional quality control.

The set permitted error is 0.5% FS of the internal sensor value (configurable in the “DO2” configuration area → Detailed view “Parameters”).

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5.5 Device variants

The following device variants of the pressure controller are available:

Variant	Set-point value setting default	Pressure ranges
Analogue	4...20 mA, 0...10 V	0.006 to 0.35 bar (0.09 to 5.08 psi) 0.02 to 1 bar (0.29 to 14.5 psi) 0.04 to 2 bar (0.58 to 29 psi)
Digital	büS, CANopen	

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6 TECHNICAL DATA

6.1 Conformity

The device conforms to the EU directives as per the EU Declaration of Conformity (if applicable).

6.2 Standards

The applied standards, which are used to demonstrate conformity with the directives, are listed in the EU type examination certificate and/or the EU Declaration of Conformity (if applicable).

6.3 Operating conditions

WARNING

Risk of injury due to malfunction if used outdoors.

- Do not use the device outdoors and keep it away from heat sources that could cause the permissible temperature range to be exceeded.

Ambient temperature	+15...+40 °C
Medium temperature	+15...+40 °C
Permissible air humidity	90 % non-condensing
Degree of protection	IP20
Fluids	Neutral gases (air, nitrogen, argon, etc.)

6.4 Mechanical data

Body material	PPS, brass
Housing lid	PC
Seal material	FKM, PCTFE (only DN 0.1), deaeration side FFKM

6.5 Fluidic data

Input	G1/8
Output controlled	UNF1/4-28
Permissible primary pressure	3 bar (43,5 psi)

6.6 Electrical data

Operating voltage	18...35 V DC
Power consumption	<6 W (with connected additional consumers <12 W)

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6.7 Type label

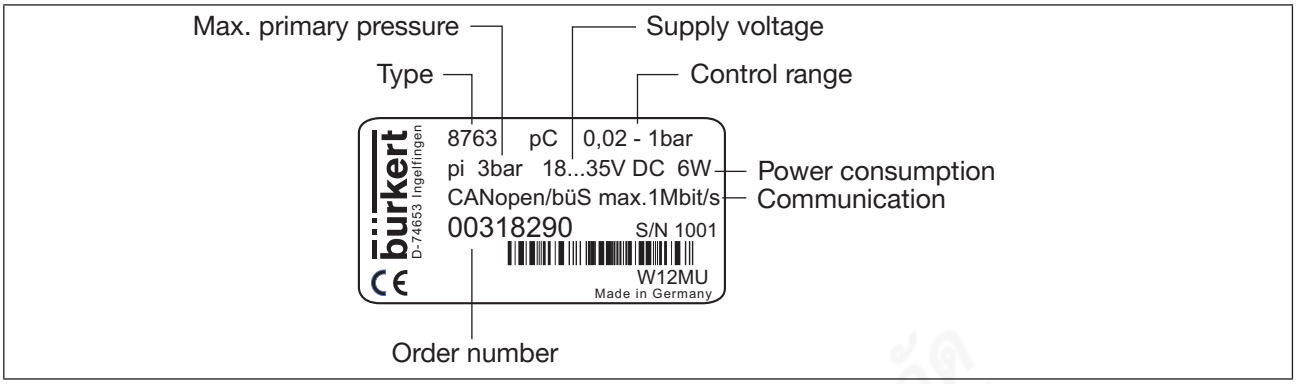

Figure 7: Description of the type label, example

7 INSTALLATION

7.1 Safety instructions

DANGER

Risk of injury from high pressure and escaping medium.

▸ Before working on the device or system, switch off the pressure. Vent or empty the lines.

Risk of injury due to electric shock.

▸ Before working on the device or system, switch off the power supply. Secure against reactivation.

▸ Observe the applicable accident prevention and safety regulations for electrical devices.

WARNING

Risk of injury due to improper installation.

▸ Installation may be carried out by authorised technicians only and with the appropriate tools.

Risk of injury due to unintentional activation of the system and uncontrolled restart.

▸ Secure the system against unintentional activation.

▸ Following installation, ensure a controlled restart.

NOTE

Electrostatic discharges at the connector contacts will damage the device.

▸ Do not touch the connector contacts.

7.2 Procedure in sequence

1. Create the fluidic connections to the device.
2. Create the electrical (currentless) connections to the device.
3. Switch on the electrical voltage supply.
4. Switch on the primary pressure.

7.3 Fluidic connection

→ Connect a G1/8 working port with an O-ring at the pressure input.

→ Connect a UNF1/4-28 working port with ≥1.5 mm internal diameter to the pressure output.

DANGER

Risk of injury from outgassing.

If aggressive fluid media are pressurized, the medium in question must be in the liquid phase at the applied temperature and must not be permitted to evaporate.

▸ When the system is at a standstill, ensure fluidic separation of the dosing medium from the pressure controller by means of a shut-off valve.

▸ Ensure adequate ventilation.

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To dissipate outgassing of the pressurised medium, a thread can be cut into the venting point as an option (UNF-10-32).

7.4 Electrical connection

7.4.1 Analogue variant

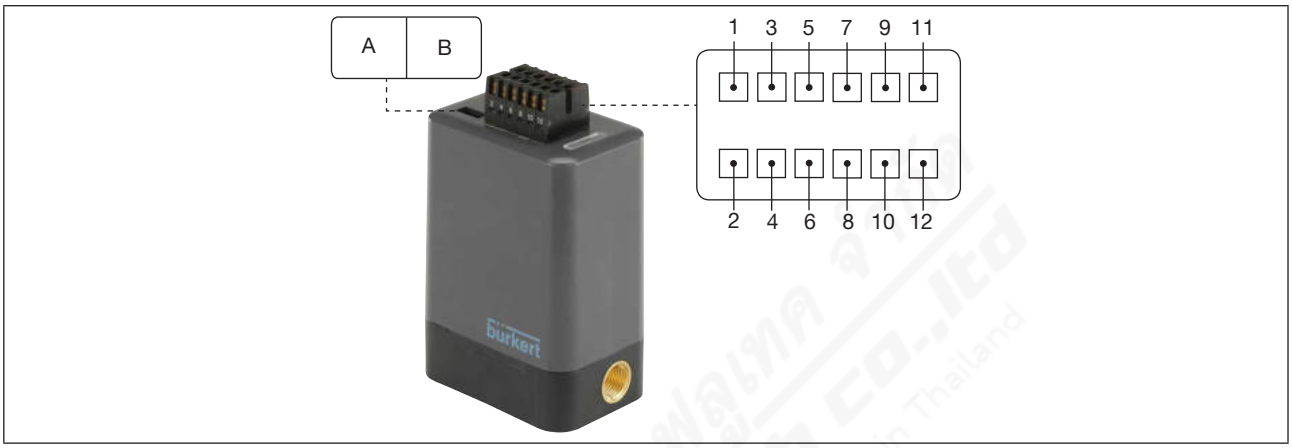


Figure 8: Electrical connection, analogue variant

Service büS (micro-USB)

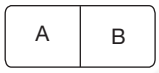
	Pin	Assignment
	A	CAN high
	B	CAN low

Table 1: Analogue variant, service büS

Connector strip, 12-pole for supply and auxiliary functions:

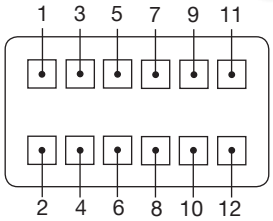
	Pin	Assignment
	1	Input voltage + (18...35 V DC)
	2	Input voltage -
	3	DO2 (digital output)
	4	Ground DO2
	5	DO1 (switchable, 12 V)
	6	GND
	7	Output voltage 12 V DC sensor supply
	8	GND
	9	AI1
	10	GND
	11	AI2
	12	GND

Table 2: Analogue variant, connector strip 12-pole

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7.4.2 Digital variant

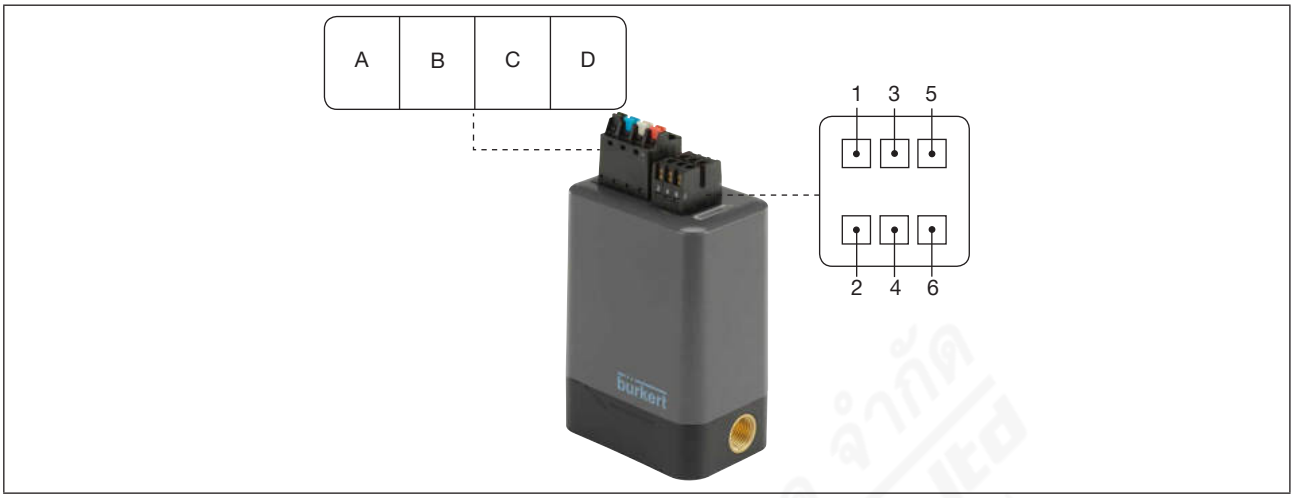
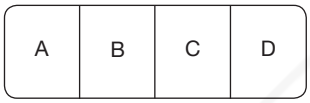


Figure 9: Electrical connection, digital variant

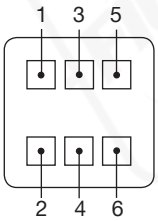
Connector strip for supply and büS:



Pin	Assignment
A	GND
B	CAN low
C	CAN high
D	Input voltage (18...35 V DC)

Table 3: Digital variant, connector strip 4-pole

Connector strip for the auxiliary functions:



Pin	Assignment
1	DO1 output voltage (12 V DC)
2	GND
3	Output voltage 12 V DC sensor supply
4	GND
5	AI1 (external sensor input)
6	GND

Table 4: Digital variant, connector strip 6-pole

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7.5 Disassembly

DANGER

Risk of injury from high pressure and escaping medium.

▸ Before working on the device or system, switch off the pressure. Vent or empty the lines.

→ Switch off primary pressure.

→ Vent the device by means of an exhaust valve (e.g. by changing the set-point value to 0 bar or manually switching the exhaust valve in the Bürkert Communicator).

→ Switch off electrical voltage supply.

→ Hold the device by the housing lid and disconnect electrical connection.

→ Disconnect fluidic connection.

→ Disassemble the device.

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8 DEVICE OPERATION

8.1 Operating the pressure controller using the Bürkert Communicator

You can use the Bürkert Communicator software to configure the device on the PC.

The Bürkert Communicator PC software can be downloaded free of charge from the Bürkert website. In addition to the software, the USB büS interface set, available as an accessory, is required.

The operating instructions for the basic functions of the Bürkert Communicator software can be found on the Bürkert website: www.burkert.com → Type 8920

8.2 Bürkert Communicator user interface

View of the configuration area:

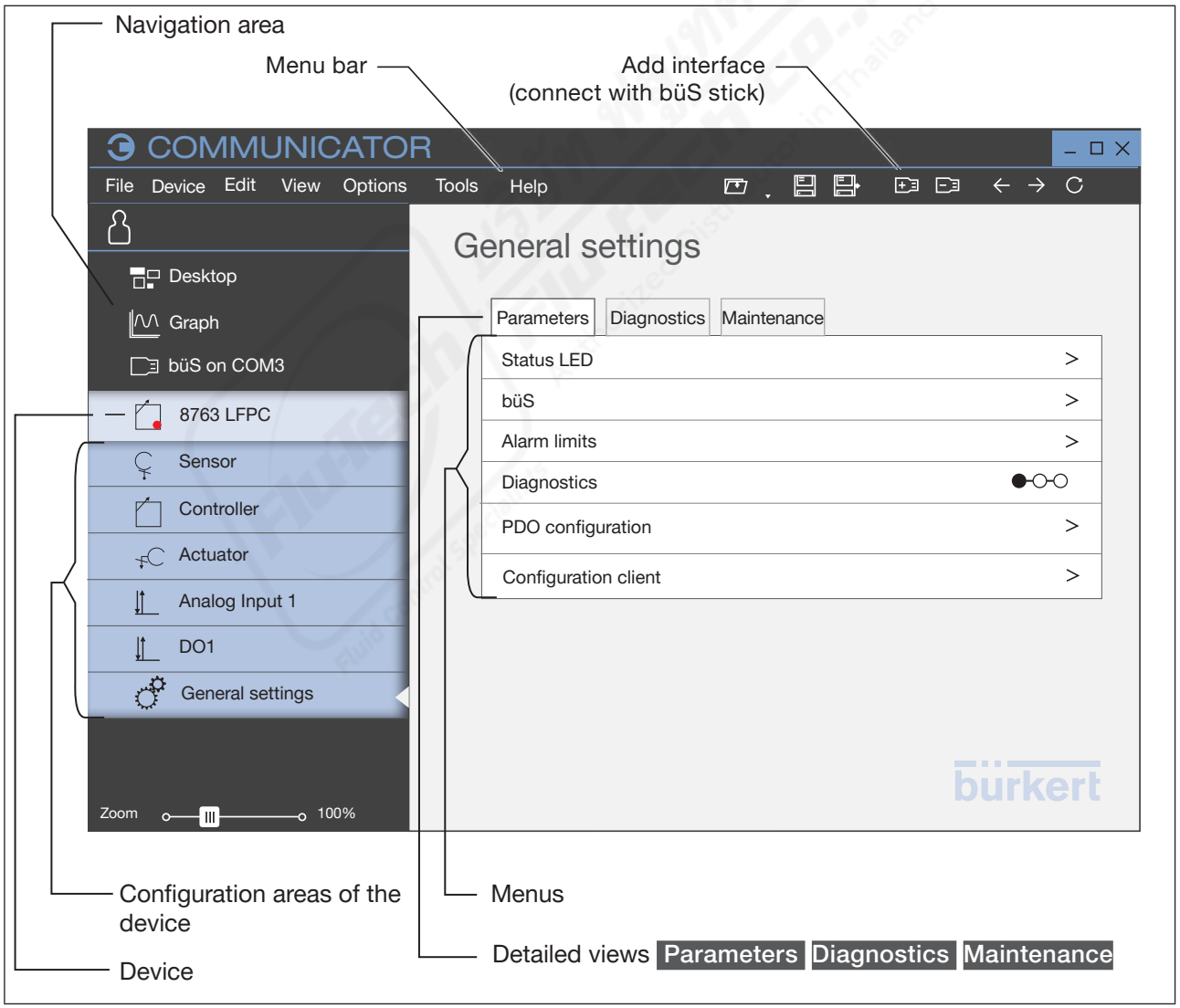

Figure 10: Bürkert Communicator user interface

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View of the application area:

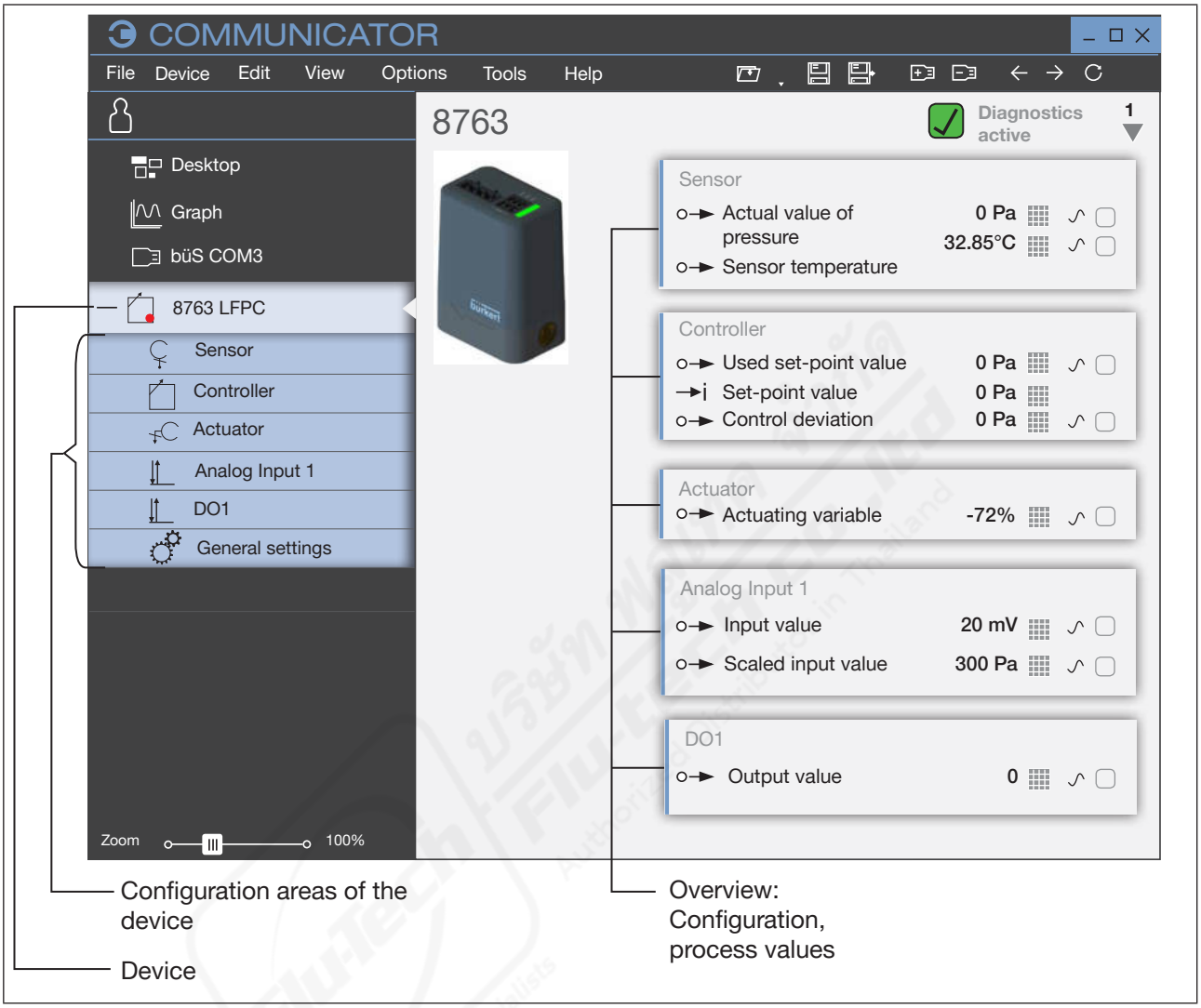

Figure 11: View of the application area

8.3 Establish the connection between device and Bürkert Communicator

→ Install the Bürkert Communicator software on the PC.

→ Set the terminating resistor (on the büS stick or external terminating resistor).

→ Use the büS stick to establish the connection between device and PC.

→ Open Bürkert Communicator.

→ In the menu bar, click the icon for **Add interface**.

→ Select the **büS stick**. **Complete the installation**.

✓ You have established the connection between device and Bürkert Communicator. The device is displayed in the navigation area.

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8.4 Possible settings

8.4.1 Menus in the “Sensor” configuration area

Detailed view “Parameters”

Level 1	Notes
Pressure value filter response time	Low-pass filter for pressure value. Value 0 corresponds to filter deactivated
Temperature value filter response time	Low-pass filter for temperature value. Value 0 corresponds to filter deactivated

Detailed view “Diagnostics”

Level 1	Notes
Pressure range	Current pressure range
Pressure	Current pressure value
Temperature	Current temperature value

Detailed view “Maintenance”

Level 1	Notes
Restore factory values	Reset device to factory settings

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8.4.2 Menus in the “Controllers” configuration area

Detailed view “Parameters”

Level 1	Notes
Setpoint source	Drop-down list: büS (factory setting), Fixed (fixed set-point value is stored internally and applied directly after a restart), Manual (manual input of the set-point value, without storage, no application after the restart) Open loop (open-loop control mode for valves, PID controller inactive, valve position can be specified in the main menu) Analog input 1 (for external set-point value setting default via analogue output modules)
Kp	Gain of the PID controller
Ks	Reset time of the PID controller
KS	Derivative time of the PID controller
Insensitivity range of the controller (dead band)	This function specifies that the controller only responds from a specific control difference onwards. Factory setting 0.5 %
Sealing function	This function ensures that the valve is tightly closed outside the control range
Fixed setpoint	Only appears if Setpoint source is configured as Fixed
Manual setpoint	Only appears if Setpoint source is configured as Manual

Detailed view “Diagnostics”

Level 1	Notes
Used set-point value	Set-point value pressure
büS setpoint	Only appears if Setpoint source is configured as büS
Control deviation	Control deviation pressure

Detailed view “Maintenance”

Level 1	Notes
Autotune	A wizard guides you through the configuration
Restore factory values Controller	Reset device to factory settings
Restore factory values Setpoint source	Reset device to factory settings

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8.4.3 Menus in the “Actuator” configuration area

Detailed view “Diagnostics”

Level 1	Level 2	Notes
Control valve	Duty cycle	Shows the current duty cycle of the control valve
	Seat diameter	Shows the seat diameter of the control valve
	Current consumption	Shows the present current consumption of the control valve
Exhaust valve	Duty cycle	Shows the current duty cycle of the exhaust valve
	Seat diameter	Shows the seat diameter of the exhaust valve
	Current consumption	Shows the present current consumption of the exhaust valve

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8.4.4 Menus in the configuration area “Analog Input 1”

Detailed view “Parameters”

Level 1	Notes
Operating mode	Drop-down list: 4-20mA, 0-10V or Not configured
Configure unit	A wizard guides you through the configuration
Value at 4mA	Only appears if Operation mode is configured as 4-20mA. Min. user scaling (with regard to the selected unit from the wizard)
Value at 0V	Only appears if Operating mode is configured as 0-10V. Min. user scaling (with regard to the selected unit from the wizard)
Value at 20mA	Only appears if Operating mode is configured as 4-20mA. Max. user scaling (with regard to the selected unit from the wizard)
Value at 10V	Only appears if Operating mode is configured as 0-10V. Max. user scaling (with regard to the selected unit from the wizard)
Filter response time	Default setting 100 ms

Detailed view “Diagnostics”

Level 1	Notes
Type	Analogue (fixed value)
Operating mode	Indication of the selected operating mode
Input value	Actual input value of the analogue input
Scaled input value	User-scaled value

Detailed view “Maintenance”

Level 1	Level 2	Notes
Restore factory values		Reset device to factory settings

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8.4.5 Menus in the “DO1” configuration area

Detailed view “Parameters”

Level 1	Notes
Operating mode	Drop-down list: Off, Permanently on, Analog threshold Analog threshold - Scaled input value can only be configured if analogue input 1 is not configured for the set-point value setting default büS (pump control using büS)
Lower threshold	Only appears if operation mode is configured as Analog threshold - Scaled input value. DO switches on if the value at the analogue input is below the entered lower threshold value
Upper threshold	Only appears if operation mode is configured as Analog threshold - Scaled input value. DO switches off if the value at the analogue input is greater than the entered upper threshold value

Detailed view “Diagnostics”

Level 1	Notes
Output value	Indication of the output value
Input value	Only appears if Operating mode is configured as büS

Detailed view “Maintenance”

Level 1	Notes
Restore factory values	Reset device to factory settings

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8.4.6 Menus in the “General settings” configuration area

Detailed view “Parameters”

Level 1	Level 2	Level 3	Notes
Status LED	Operation mode	NAMUR operation mode	Selection between NAMUR operation mode and LED off
		LED off	
büS	Displayed name		Enter a device name, can be changed without affecting communication
	Location		Enter the device installation location, displayed with the device name
	Description		Enter a user-defined description text, displayed e.g. in Tooltips
	Extended	Unique device name	Used for partner assignments and should therefore not be changed
		Baud rate	Enter the baud rate used
		Fixed CANopen address	Changes are only applied after the restart. If the specified address is already in use, the device switches to a different address.
		CANopen address	Enter the address/Node ID. If the specified address is already in use, the device switches to a different address.
		Bus operation mode	Operation mode of the büS interface: büS or CANopen compatibility mode, or individual device
		Deallocation delay	The time from the loss of a partner to the deletion of his configuration, input is possible but must generally not be changed
Alarm limits	Supply voltage	Error above	35.0 V
		Error below	18.0 V
		Warning above	33.0 V
		Warning below	20.0V
		Hysteresis	0.4 V
	Device temperature	Error above	85.0 °C
		Error below	-40.0 °C
		Warning above	76.5 °C
		Warning below	-36.0 °C
		Hysteresis	4.0 °C
Diagnostics			Switch complete diagnostics on or off
PDO configuration	PDO1		Enter the transmission times
	PDO2		
	PDO3		
	Multiplexed PDO		
	Reset to default values		

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Level 1	Level 2	Level 3	Notes
Configuration client	Operation mode		Defines whether the configuration is to be managed from a device
	Change operation mode		

Detailed view “Diagnostics”

Level 1	Level 2	Level 3	Notes
Device status	Operating duration		Display current values
	Device temperature		
	Supply voltage		
	Min./max. values	Max. temperature	Highest temperature ever measured
		Min. temperature	Lowest temperature ever measured
		Max. supply voltage	Highest supply voltage ever measured
		Min. supply voltage	Lowest supply voltage ever measured
	Device start counter		Display current values
büS status	Receive error		Current error counter value
	Receive error max		Maximum error counter value since the last device restart
	Send error		Current error counter value
	Send error max.		Maximum error counter value since the last device restart
	Reset error counter		Resets the maximum value of the error counter
	CANopen status		Presentation of the status
Logbook			Error logbook
Configuration client	Transferable memory status		Defines whether the configuration is to be managed from a device
	Status		
	Number of reconfigurations		

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Detailed view “Maintenance”

Level 1	Level 2	Level 3	Notes
Device information	Displayed name		Only displayed if a name was entered in the menu of the same name for the Parameters detailed view
	Identification number		
	Serial number		
	Software ident. number		
	Software version		
	büS version		
	Hardware version		
	Product type		
	Manufacturing date		
	eds version		
	Device driver	Driver version	
		Firmware group	
		DLL version	
		Place of origin	
Reset device	Reboot		
	Factory reset		

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8.5 Status LED

The LED for indicating the device status changes colour and status in accordance with NAMUR NE 107.

If several device statuses exist simultaneously, the device status with the highest priority is displayed. The priority is based on the severity of the deviation from standard operation (red = failure = highest priority).

Status LED in line with NE 107, issue 2006-06-12			
Colour	**Colour code**	**Description**	**Meaning**
red 	5	Failure, error or fault	Due to a malfunction in the device or its periphery, standard operation is not possible
orange 	4	Function check	Work is being carried out on the device, which means that standard operation is temporarily not possible
yellow 	3	Outside the specification	Deviation of parameters (e.g. different address or Node ID used) → Check parameters
blue 	2	Maintenance required	The device is in standard operation, but a function could soon be restricted → Perform device maintenance
green 	1	Diagnostics active	Device is in error-free operation. Status changes are highlighted in colour
white 	0	Diagnostics inactive	Device is switched on. Status changes are not displayed. Messages are not listed in the message list. Device is operating within its specifications

Table 5: Indication of the device state in line with NAMUR NE 107

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9 CONFIGURATION OF THE DEVICE

9.1 Autotune function

The Autotune function determines the optimum proportional gain of the controller. There is a separate proportional gain for the ventilation and exhaust valve. The proportional gain depends on the supply pressure, set-point pressure, storage volume and friction losses within the system.

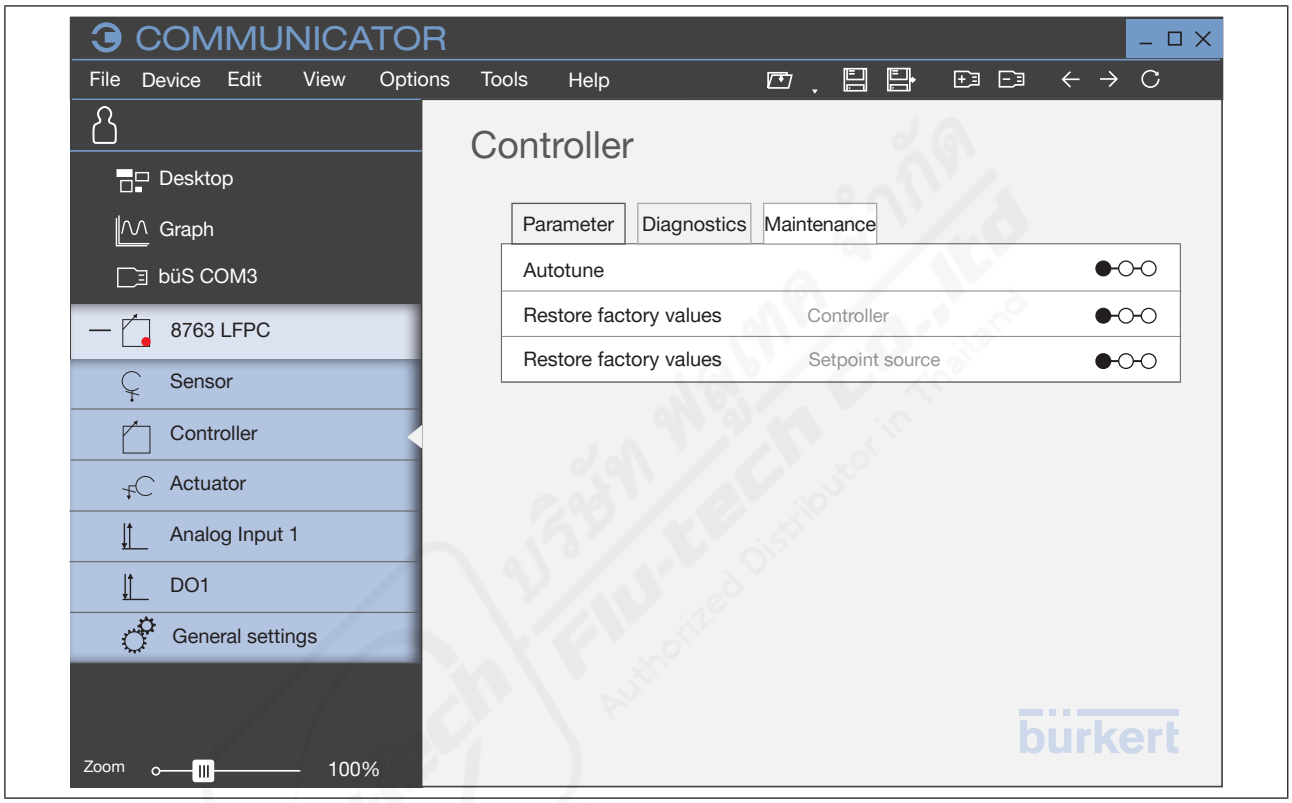

Figure 12: Autotune function

Running the Autotune function:

→ Install the application,

→ Connect the volume at the output,

→ Set the supply pressure at the input.

During the Autotune run, stop all dosing operations from the volume.

The Autotune function pressurises the volume during the operation to determine the parameters and calculates the proportional gain. The new proportional gain is stored in the device and can be reset to the factory settings.

A larger proportional gain makes the controller more aggressive and faster, which is useful for greater volumes and systems with low friction losses.

A smaller proportional gain slows down the controller, which is ideal for small volumes or applications with high friction losses.

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9.2 PDO configuration

The most important PDO settings are:

Process value			Format		Measurement specification		Communication parameter		
Name	Index (hex)	Sub (hex)	Data type	UNIT	Preci-sion	Interval [ms]	PDO No	Event time [ms]	Inhibit time [ms]
Measure values - Output values - Transmit PDOs									
Pressure	2500	1	FLOAT32	Pa	-	2	1	5000	1000
Temperature	2501	1	FLOAT32	K	-	100	1	5000	1000
In Ch1 Scaled Input	2502	1	FLOAT32	User-Unit	-	10	4	5000	1000
In Ch2 Scaled Input	2503	1	FLOAT32	User-Unit	-	10	4	5000	1000
Valve Control	2504	1	FLOAT32	%	-	8	3	5000	1000
DO1	2505	1	UNIT8	Binary Value	-	50	3	5000	1000
DO2	2506	1	UNIT8	Binary Value	-	20	3	5000	1000
In Ch1 Input Valve	2508	1	FLOAT32	mA or V	-	10	2	5000	1000
In Ch2 Input Valve	2509	1	FLOAT32	mA or V	-	10	2	5000	1000
Control Deviation	250A	1	FLOAT32	Pa	-	8	4	5000	1000
Setpoint	250B	1	FLOAT32	Pa	-	8	4	5000	1000
Namur Status	250C	1	UNIT8	Namur Status	-	-	3	5000	1000

The complete settings for configuring the device can be found in the Communicator under: Device → Documents and tools → Communication data sheet.

In the PDO configuration, only values that do not unnecessarily increase the büS load are entered.

Example:

For example, if users want the value of the pressure sensor (pressure) to be sent to the bus more than once per second, they must set PDO 1 to a smaller time value, e.g. 50 ms. As a result, all values on PDO 1 with the same speed are sent to the bus.

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10 PUMP AS PROVIDER OF PRIMARY PRESSURE

This chapter describes the delivery of primary pressure by an pump. The pump is activated by the 12-V DC digital output of the device. The pressure sensor for closed-loop control is read out via the analogue input.

10.1 Connect the pump electrically to the pressure sensor

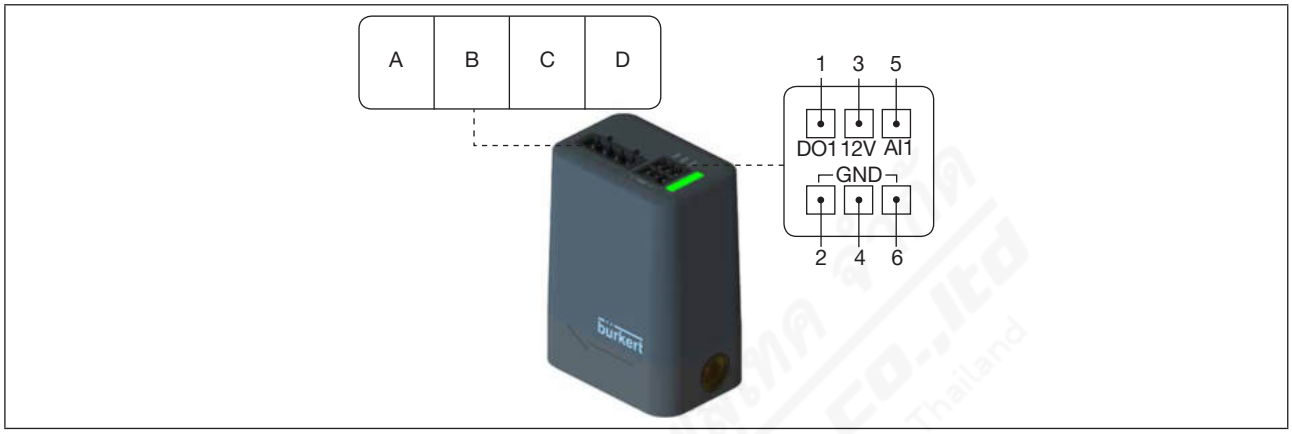

Figure 13: Labelling of the electrical connection

→ Connect pump 12 V to Pin 1 (DO1).

→ Connect pressure sensor (2-wire) to pin 3 (12V).

→ Connect pressure sensor (2-wire) to pin 5 (AI1).

GND is internally bridged and does not need to be wired separately. If the sensor is supplied with an external voltage, GND must be connected to ensure that the same ground potential is used.

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10.2 Setting in Communicator

The following settings on the pressure controller should be entered using the Communicator:

10.2.1 Setting the analogue input

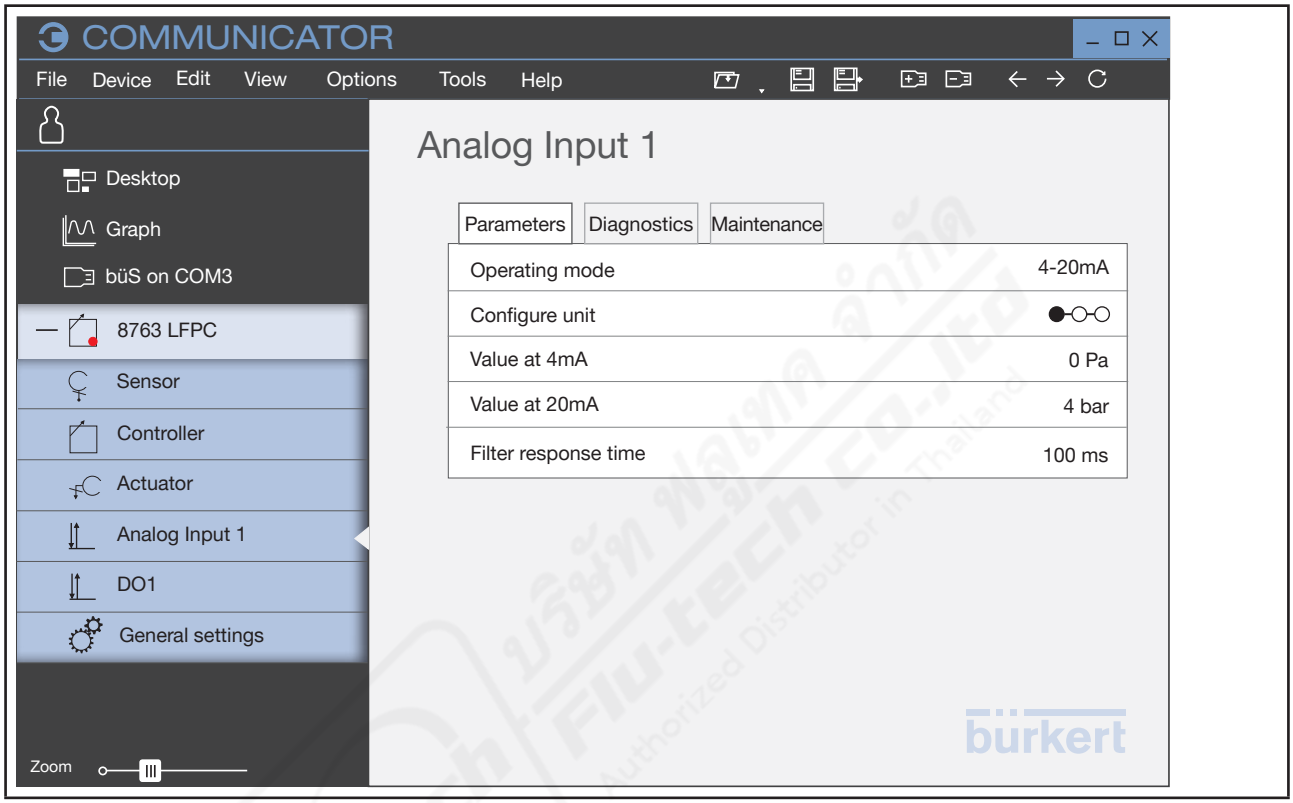

Figure 14: Setting the analogue input

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10.2.2 Setting the digital output

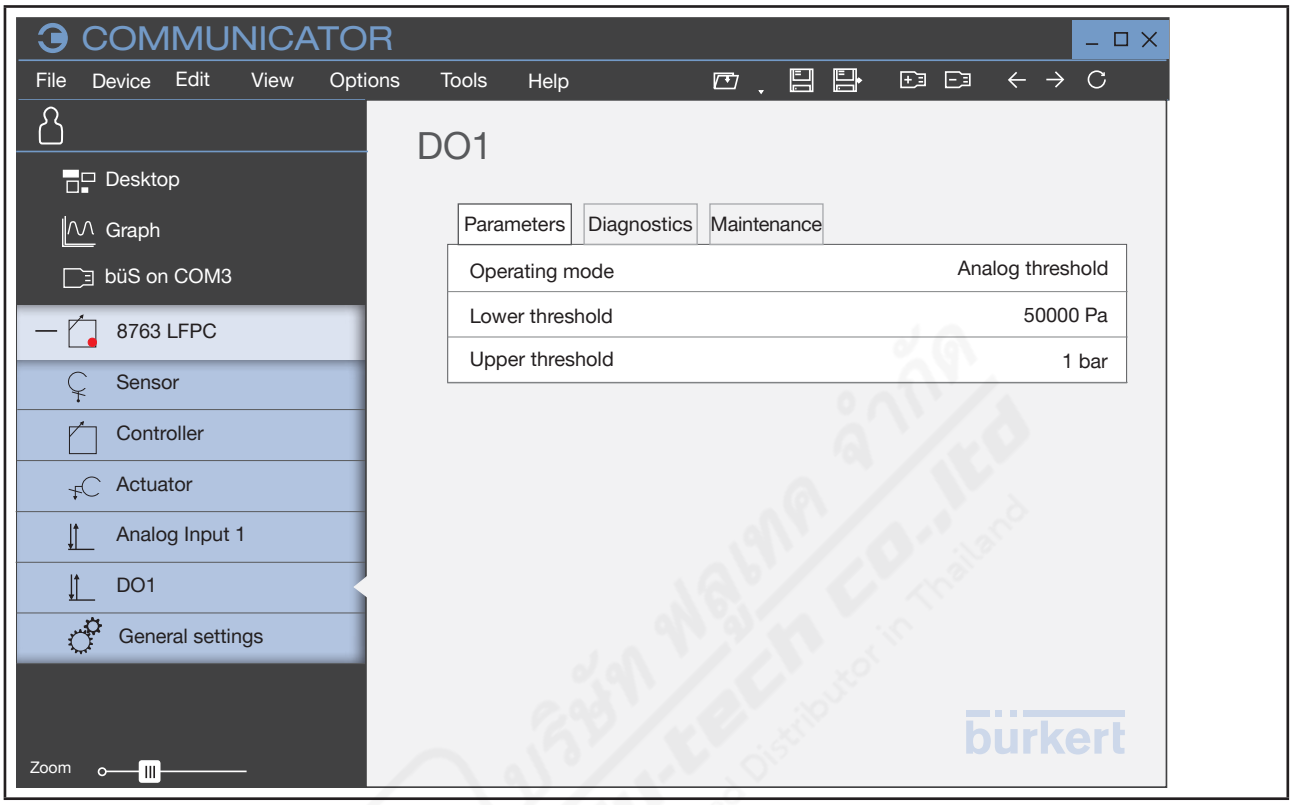

Figure 15: Setting the digital output

11 PACKAGING, TRANSPORT

NOTE

Damage in transit due to inadequately protected devices.

- Protect the device against moisture and dirt in shock-resistant packaging during transportation.
- Observe permitted storage temperature.

12 STORAGE

NOTE

Incorrect storage may damage the device.

- Store the device in a dry and dust-free location!
- Storage temperature: 0…+50 °C.

13 DISPOSAL

NOTE

Damage to the environment caused by device parts contaminated with media.

- Dispose of the device and packaging in an environmentally friendly manner!
- Observe applicable disposal and environmental regulations.

Adhere to the national waste disposal regulations.

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