burkert
FLUID CONTROL SYSTEMS

Multichannel, multifunction Transmitter/Controller

- Compatible with most common flow, pH/ORP, chlorine and conductivity sensors, directly connected
- Analogue and digital input signals
- Easy, intuitive user interface supported by a large adjustable backlit display (4 user defined views)
- Basic transmitter/controller with hardware extension (up to 6 free slots), selectable software extensions
- Data logging

Type 8619 can be combined with...

Type 8200+8203 pH/ORP sensor

Type 8201 pH system

Type 8221 Conductivity sensors 4-pole technology

Type 8220 Conductivity sensors 2-pole technology

Type 8232 Chlorine sensor

Type 8030 INLINE flowmeter

Type 8802 Process control valve

The 8619 multichannel multifunction, available in two housing variants for panel or wall mounting, is a transmitter/controller for connection of sensors which deliver raw signals for pH, ORP, conductivity and flow via pulses or sensors (like pressure, level, chlorine...) which delivers analogue signals: 0... 20 mA, 4... 20 mA, 0 - 5 V, 0 - 10 V.

Type 8619 is the ideal device for measurement and control and as well dosing processes e.g. in applications of water treatment plants (like boiler, cooling tower or reverse osmosis systems) and food and pharma plants.
The housing variant for wall mounting can also be installed on a pipe using a mounting set (has to be ordered separately, see accessories on page 11).

Modularity in hardware and software offer high flexibility for adjusting it to the applications resulting in having a very good price to functionality relation.

Sophisticated electronics and state of the art control algorithms ensure that optimum process control is maintained at all times with minimal operator intervention and achieving highest quality.

Technical data	
General data	
Mounting	panel-mounted (standardized 1/4 DIN housing for 92 x 92 mm cutout) wall-mounted (with mounting plate)
Materials	
Seal / Screws	Silicone / Stainless steel 316
Support plate for terminals	Stainless steel 304
Terminal blocks	PBT, contact in gold-plated copper alloy
Display / Front panel and keys	PC / Silicone
Housing	
Panel-mounted	PPO (incl. fastening element)
Wall-mounted	PA66 (incl. fastening plate, cable gland, protecting cover (display), protecting cap (free terminal place), stiffener hinge)
Supply 110/240 V AC terminal protecting cover (wall-mounted version)	Stainless steel 304
Cover screws (wall-mounted version)	PVC
Display	LC graphic display, light blue backlighted; 128 x 168 pixels resolution; German, English, French languages
Keypad	4 soft keys [F1] [F2] [F3] [F4] for dynamic functions 1 central navigation key with [↑] [↓] [→] [←] assignments
Data logger	up to 16 values
Sensor monitor	Direct display and verification of measured sensor values
Clock	Real-time clock with date
Board slots	6
Electrical connection	Terminal blocks
Recommended cable	Shielded cable
Solid H05(07) V-U	0.2 to 1.5 mm²
Flexible H05(07) V-K	0.2 to 1.5 mm²
With wire end ferrule	0.2 to 1.5 mm²
With plastic collar ferrule	0.2 to 1.5 mm²

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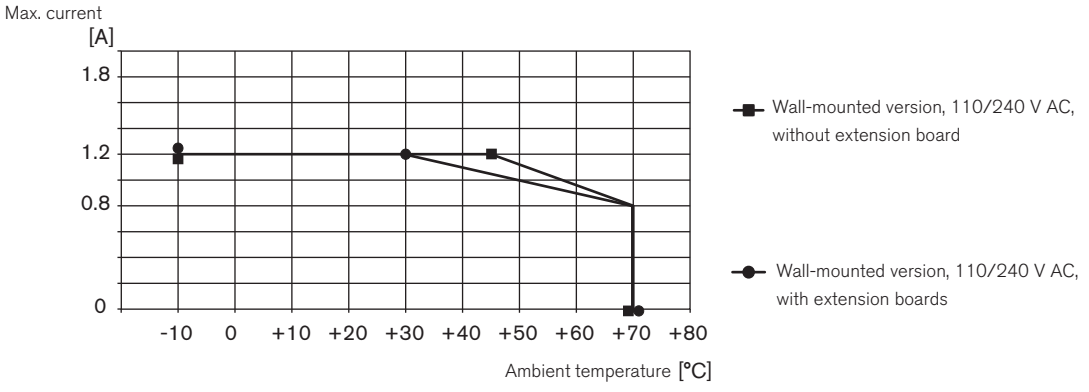
Technical data

Electrical data

Device version	**Panel-mounted -** Mainboard	**Wall-mounted -** Power supply board
Operating voltage ("SUPPLY")	12 - 36 V DC, ±10%, filtered and regulated, SELV (safety extra low voltage) circuit with a non dangerous energy level	▪ 12 - 36 V DC ±10%, filtered and regulated, SELV (safety extra low voltage) circuit with a non dangerous energy level ▪ 110/240 V AC, 50/60 Hz, max. 500 mA, integrated protection: 3.15 A time delay fuse
Power consumption (of multiCELL device - without additional boards and outputs not connected)	Max. 1.5 VA	Max. 2 VA
Power charges ("PWR OUT" or "POWER OUT" acc. to version)	12 - 36 V DC, max 1.8 A protected against polarity reversals	▪ 12 - 36 V DC version: 12 - 36 V DC, max 1.8 A protected against polarity reversals ▪ 110 - 240 V AC version: 24 V DC±2%, filtered and regulated, SELV (safety extra low voltage) circuit with a non dangerous energy level, max 1.2 A protected against polarity reversals The allowed max. current depends on the ambient temperature: see diagram below
Device version	**Panel-mounted -** Mainboard	**Wall-mounted -** Mainboard
Digital inputs DI1, DI2	Voltage: 0 - 36 V DC, input impedance 3 kΩ Switching threshold : V_{on} = 5 - 36 V DC, V_{off} < 2 V DC; Frequency: 0.5 to 2500 Hz Galvanic insulation, protected against reversed polarity of DC and voltage spikes	Voltage: 0 - 36 V DC, input impedance 3 kΩ Switching threshold : V_{on} = 5 - 36 V DC, V_{off} < 2 V DC; Frequency: 0.5 to 2500 Hz Galvanic insulation, protected against reversed polarity of DC and voltage spikes
Digital outputs DO1, DO2	Transistor: can be wired as PNP or NPN, galvanic insulation, protected against short circuit, max. 36 V DC, max. 700 mA per transistor output, 1 A max. in total if both transistor outputs are used; Operating modes: On/Off, Hysteresis, Window, PWM, PFM, Pulse; Frequency: max. 2000 Hz	Transistor: can be wired as PNP or NPN, galvanic insulation, protected against short circuit, max. 36 V DC, max. 700 mA per transistor output, 1 A max. in total if both transistor outputs are used; Operating modes: On/Off, Hysteresis, Window, PWM, PFM, Pulse; Frequency: max. 2000 Hz
Analogue output AO1, AO2	4... 20 mA, can be wired as sourcing or sinking, galvanic insulation, protected against reversed polarity of DC, max. loop impedance: 1100 Ω at 36 V DC, 610 Ω at 24 V DC, 100 Ω at 12 V DC Resolution: 6 µA	4... 20 mA, can be wired as sourcing or sinking, galvanic insulation, protected against reversed polarity of DC, max. loop impedance: 1100 Ω at 36 V DC, 610 Ω at 24 V DC, 100 Ω at 12 V DC Resolution: 6 µA
Memory card Type Capacity	 SD (Secure Digital) or SDHC (Secure Digital High Capacity) max. 8 GB	

If the device is mounted in a humid environment or outside the maximum allowed voltages are **35 V DC** instead of 36 V DC.

Max. allowed current in dependence of the ambient temperature



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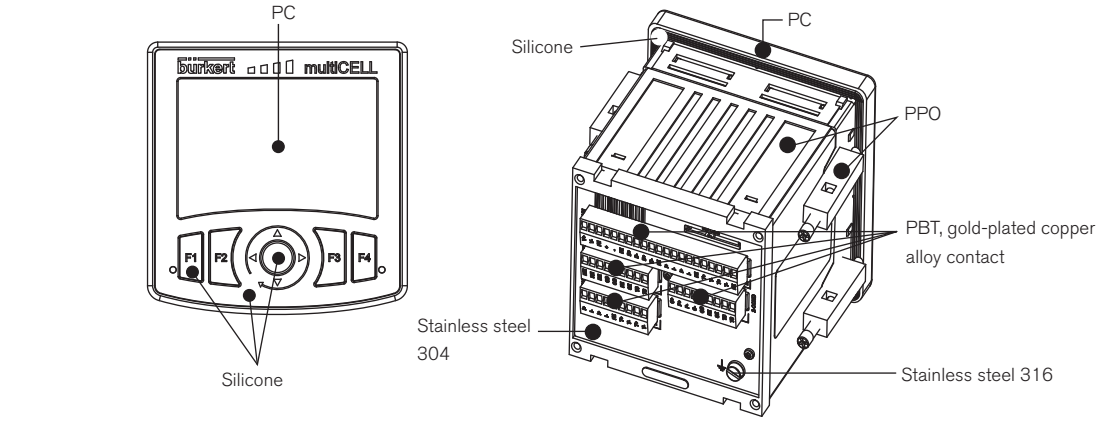
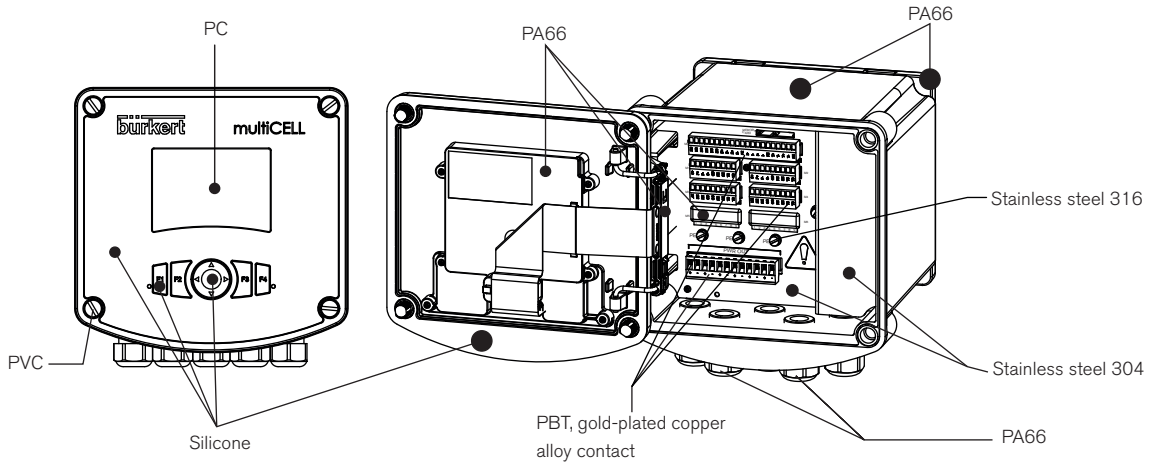
Materials view

Panel-mounted



Wall-mounted



Additional boards

4 different types of boards are available and can be inserted into any of the 6 slots (preconfigured at the factory)
- input board: 2 analogue inputs (4... 20 mA or 0... 20 mA or 0 - 5 V or 0 - 10 V) and 2 digital inputs (static or frequency/puls).
- output board: 2 transistor outputs and 2 analogue 4... 20 mA outputs
- input pH/ORP and Pt100/Pt1000 boards
- input conductivity and Pt100/Pt1000 boards

Technical data - input board	
Power consumption	0.1 VA
Analogue inputs AI1, AI2	can be wired as sourcing or sinking, galvanic insulation
Current	range: 0/3.5 - 22 mA max. voltage: 36 V DC impedance: 50 Ω resolution: 1.5 µA
Voltage	range: 0 - 5/10 V DC max. voltage: 36 V DC impedance: 110 kΩ resolution: 1 mV
Error	±0.25% of measured value
Digital inputs DI1, DI2	Voltage: 0 - 36 V DC, input impedance 3 kΩ Switching threshold : V_{on} = 5 - 36 V DC, V_{off} < 2 V DC; Frequency: 0.5 to 2500 Hz Galvanic insulation, protected against reversed polarity of DC and voltage spikes

Technical data - output board	
Power consumption	Max. 0.1 VA
Digital outputs DO1, DO2	Transistor: can be wired as PNP or NPN, galvanic insulation, protected against short circuit, max. 36 V DC, max. 700 mA per transistor output, 1 A max. in total if both transistor outputs are used; Operating modes: On/Off, Hysteresis, Window, PWM, PFM; Frequency: max. 2000 Hz
Analogue output AO1, AO2	4... 20 mA, can be wired as sourcing or sinking, galvanic insulation, protected against reversed polarity of DC, max. loop impedance: 1100 Ω at 36 V DC, 610 Ω at 24 V DC, 100 Ω at 12 V DC Resolution: 6 µA

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Technical data - pH/ORP board	
Power consumption	0.1 VA
pH/ORP input	simultaneous pH and ORP measurement with input for electrochemical pH/ORP
Temperature input	Pt100/Pt1000, 2 or 3 wires
pH measurement	
Measuring range	-2.0... 16 pH or -600... +600 mV
Resolution	0.01 pH or 0.1 mV
Measurement deviation	±0.02 pH or 1 mV + error of the pH probe*
Probe type	electrochemical
ORP measurement	
Measuring range	-2000... +2000 mV
Resolution	0.1 mV
Measurement deviation	±1 mV + error of the ORP probe*
Probe type	electrochemical
Temperature measurement	
Measuring range	-25 to +130°C *(-20 to 266°F)*
Resolution	0.1°C *(0.18°F)*
Measurement deviation	±1°C *(1.8°F)* + error of the temperature probe*
Probe type	Pt100/Pt1000, 2 or 3 wires

* see related probe data sheet

Technical data - conductivity board	
Power consumption	0.25 VA
Conductivity input	Operation with 2- or 4-pole-technology sensors
Temperature input	Pt100/Pt1000, 2 or 3 wires
Conductivity/Resistivity measurement	
Conductivity	
Measuring range	0 µS/cm... 2 S/cm (function of the conductivity cell)
Resolution	1 nS/cm
Measurement deviation	±0.5% of measured value + error of the conductivity probe*
Resistivity	
Measuring range	0.5 Ωcm... 100 MΩcm (function of the conductivity cell); 5.0 Ω... 1 MΩ (conductivity board alone)
Resolution	0.1 Ω.cm
Measurement deviation	±0.5% of measured value + error of the conductivity probe*
Temperature measurement	
Measuring range	-40 to +200°C *(-40 to 392°F)*
Resolution	0.1°C *(0.18°F)*
Measurement deviation	±1°C *(1.8°F)* + error of the temperature probe*
Probe type	Pt100/Pt1000, 2 or 3 wires

* see related probe data sheet

Environment conditions and standards - Mainboard, pH/ORP, conductivity, input and output boards

Ambient temperature	
Operation (with/without memory card[1])	
Only Mainboard	▪ Panel-mounted and 110/240 V AC wall-mounted version: -10 to +70°C *(14 to 158°F)* ▪ 12-36 V DC wall-mounted version: -10 to +75°C *(14 to 167°F)*
Min. 1 additionnal board	▪ all versions: -10 to +60°C *(14 to 140°F)*
Storage	▪ all versions:-20 to +70°C *(-4 to 140°F)*, limited to -10 to +70°C *(14 to 140°F)* if memory card is inserted
Relative humidity	< 85%, without condensation
Height above sea level	max. 2000 m

[1] if a different memory card is used, observe the operating temperatures specified by its manufacturer

Protection class	
Panel-mounted version	IP65 (panel-mounted, cabinet closed) IP20 (panel-mounted, inside the cabinet) NEMA 4X (panel-mounted, in front of the closed cabinet)
Wall-mounted version	IP65, IP67 and NEMA 4X, if the following conditions are met: - glands body tightened with a tightening torque of 5.5 Nm±20%, made at factory - glands plugged or wired - gland nuts tightened with a tightening torque of 4.5 Nm±20% - housing closed - 4 screws of cover cross tightened with a couple of 1.4 Nm±20%
Standard and directives CE	
EMC	EN 61000-6-2, EN 61000-6-3
Low voltage directives	EN 61010-1 for 110-240 V AC version
Vibration / Shock	EN 60068-2-6 / EN 60068-2-27
Approvals	
UL-Recognized and UL-Listed (in progress) for US and Canada	61010-1 + CAN/CSA-C22 No.61010-1

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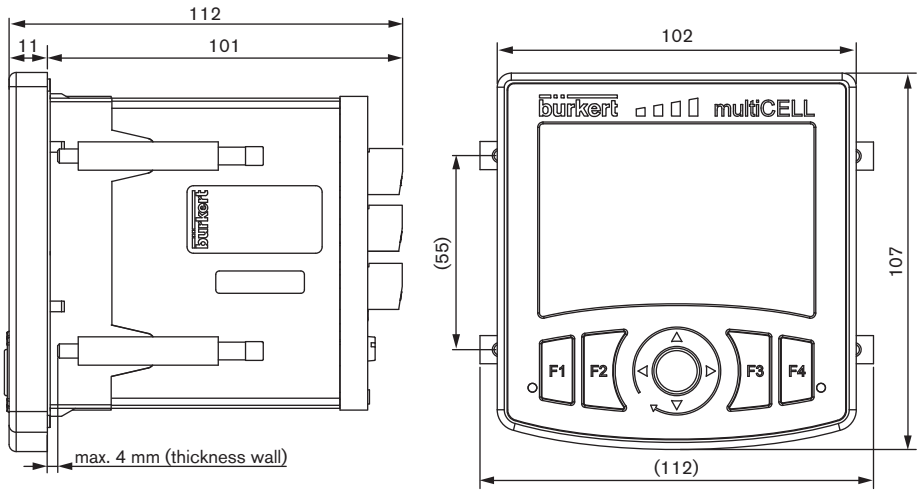
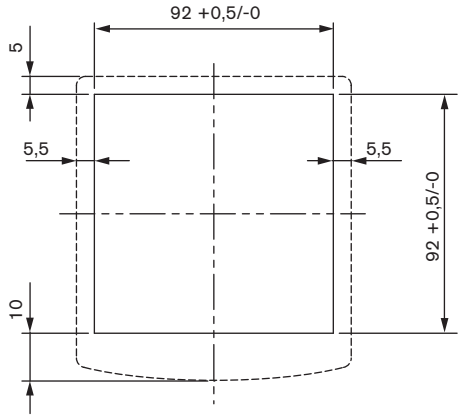
Dimensions [mm]

Panel-mounted



Cut-off panel



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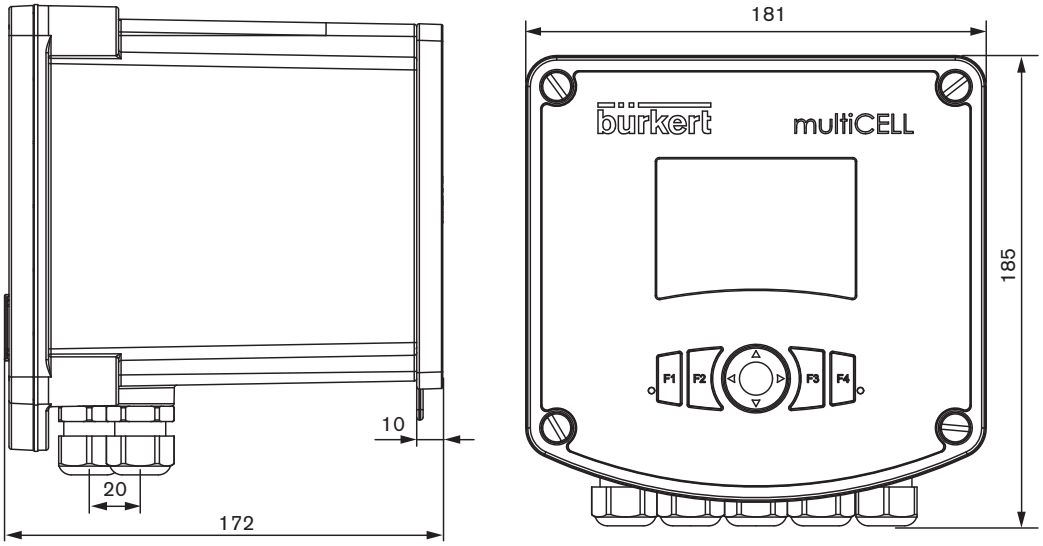
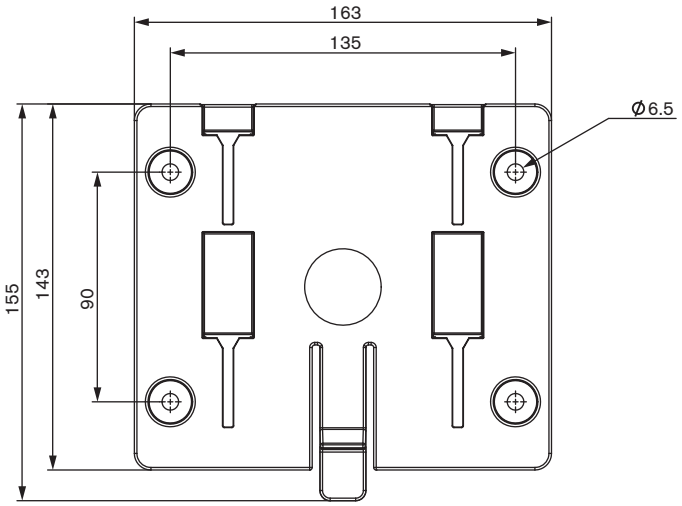
Dimensions [mm]

Wall-mounted



Dimensions for drilling



Principle of operation

The transmitter/controller is given by the internal board based structure capable to handle different types of sensors and selectively execute operations on the measurement values. From simple measurement and standard signal output and assignment of integrated mathematical formulas for selectable values up to control and dosing tasks all that can run in parallel.
The boards for signals and functions can be easily connected to each other by configuration and with setting individual parameters all the functionality can be adapted to the actual process conditions.

The base unit is either a panel-mounted version or a wall-mounted version and handles analogue and digital signal outputs, digital inputs and the front is supplied by a backlit graphical display. Up to six slots are available, which depending on the applications, can be occupied with boards for pH/ORP, conductivity, a board with additional analogue and digital outputs as well as a board with analogue and additional digital inputs. There is no need for a separate 4... 20 mA transmitter: the pH, conductivity boards accept raw signals from sensors.

Though highly functional the multiCELL can be operated easily and intuitively. The base for this is the large graphical display and the dynamically assigned function keys. Clearly arranged menu and board structures allow easy configuration and setting of parameters and offer a high transparency for the functions in use. Four user views can be configured by the operator. This allows the user to design a view himself displaying a value arrangement which he likes to see simultaneously and this can be available 4 times and independent from each other.

For data collection and storage e.g. of measurement values there is an optional data logger available which uses the memory card if inserted in the card slot. Uploading and restoring the complete database including the application special parameter settings of the complete 8619 and updating firmware via the memory card is available as standard.

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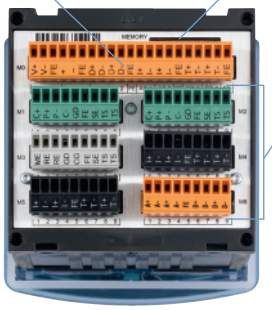
Construction

The mainboard slot enables:
- connection to the transmitter/controller power supply
- to power another device
- to dispose of 2 digital inputs (DI), 2 analogue (AO) and 2 digital (DO) outputs

Memory card slot :
- For upload and download of parameter settings
- Software updates and functional upgrades
  Simple operation: insert the memory card into the small slot on the rear of the device.

Additional board slots (up to 6) to choose among:
- board for conductivity sensor and/or temperature sensor (green connector)
- board for pH/ORP sensor and/or temperature sensor (light grey connector)
- board for 2 analogue and 2 digital outputs (black connector)
- board for 2 analogue and 2 digital inputs (small orange connector)



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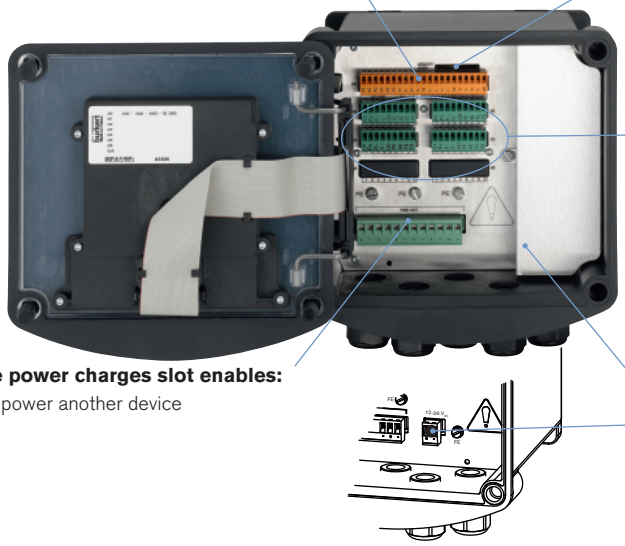
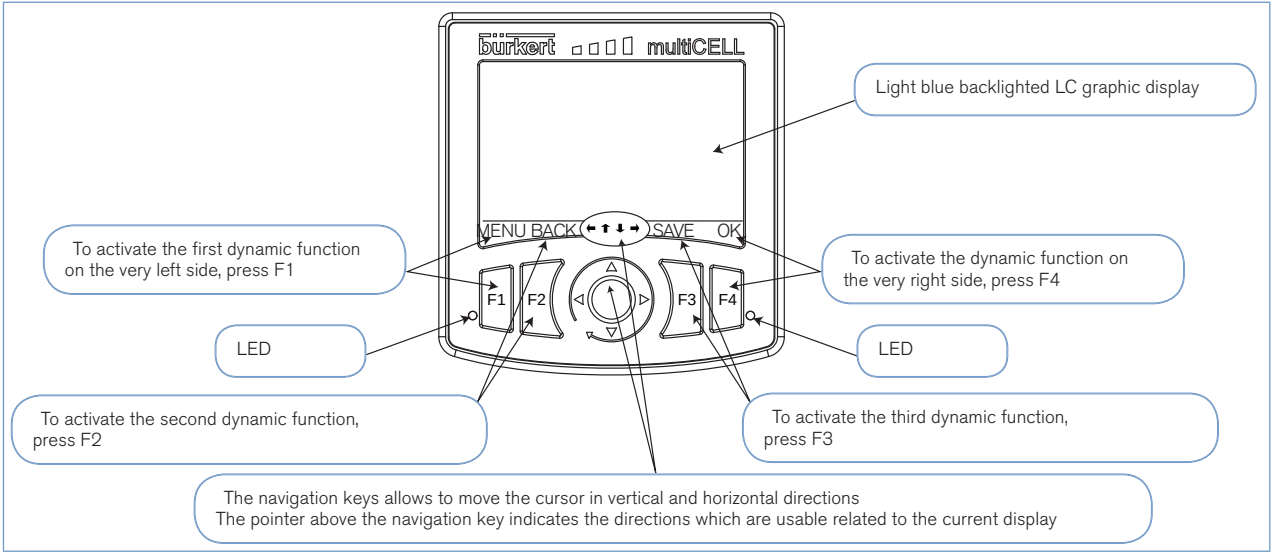
- board for 2 analogue and 2 digital outputs (black connector)
- board for 2 analogue and 2 digital inputs (small orange connector)



The power charges slot enables:
- to power another device

The power supply slot enables:
- connection to the transmitter/controller power supply (behind the protecting cover for 110/240 V AC version)

Display and dynamic soft keys



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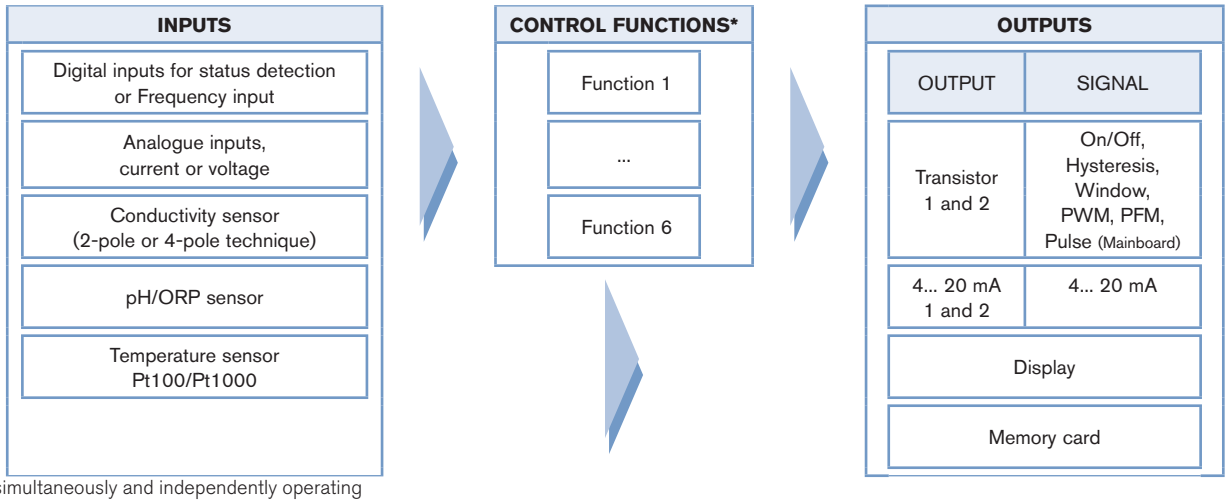
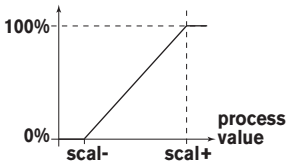
Process diagram



* simultaneously and independently operating

List of available functions

The transmitter/controller allows to allocate each sensor signal to a function (such as dosage, for example) fully configurable by the user. According to the model the following functions are offered as standard or as option

Functions	Availability	Formula	Example for usage
Arithmetic	Basic for all models	**A+B, A-B, A/B**	arithmetic operation between 2 values with same units. A or B can be a result of another function
PASS	Basic for all models	$\frac{A}{B}$ x 100%	calculates a flow ratio between 2 values. e.g: reverse osmosis
REJECT	Basic for all models	$\left(1 - \frac{A}{B}\right)$ x 100%	calculates a reject ratio between 2 values. e.g: reverse osmosis
DEVIAT	Basic for all models	$\left(\frac{A}{B} - 1\right)$ x 100%	calculates a deviation ratio between 2 values.
PROP	Basic for all models		calculates an output in proportion to a scaled input
ON/OFF	Basic for all models	**On/Off control loop**	for any type of input
Flow rate measurement	As base for model item no. 560205, 560213, 565984, 565985, 565986, 565987 for others as option		allows both digital inputs to be used as frequency inputs for flow measurement **(in standard for base unit)** or coexistent with analytical boards **(in option for others devices)**
PID	As option	**Continuous control loop**	for any type of input and with internal or external setpoint
Time dosing	As option		e.g. for cooling tower application. Dosing of 1 or 2 biocides in the circuits, at fixed time intervals or by defining dosing during one week, with 2 dosings per day. Can be connected to an ON/OFF conductivity function for prebleed.
Special Chemical batch (Volume dosing)	As option		specifically for cooling tower application. A defined volume of water is counted, then an actuator is energized during a defined time to add a chemical and the water volume being counted is resetted.
Concentration	As option		the concentration curves of NaCl, H_2SO_4, HNO_3, NaOH, HCl are implemented for use in complete concentration range and not only in low concentration.
Data logging on memory card	As option		up to 16 values can be stored at a defined time interval.

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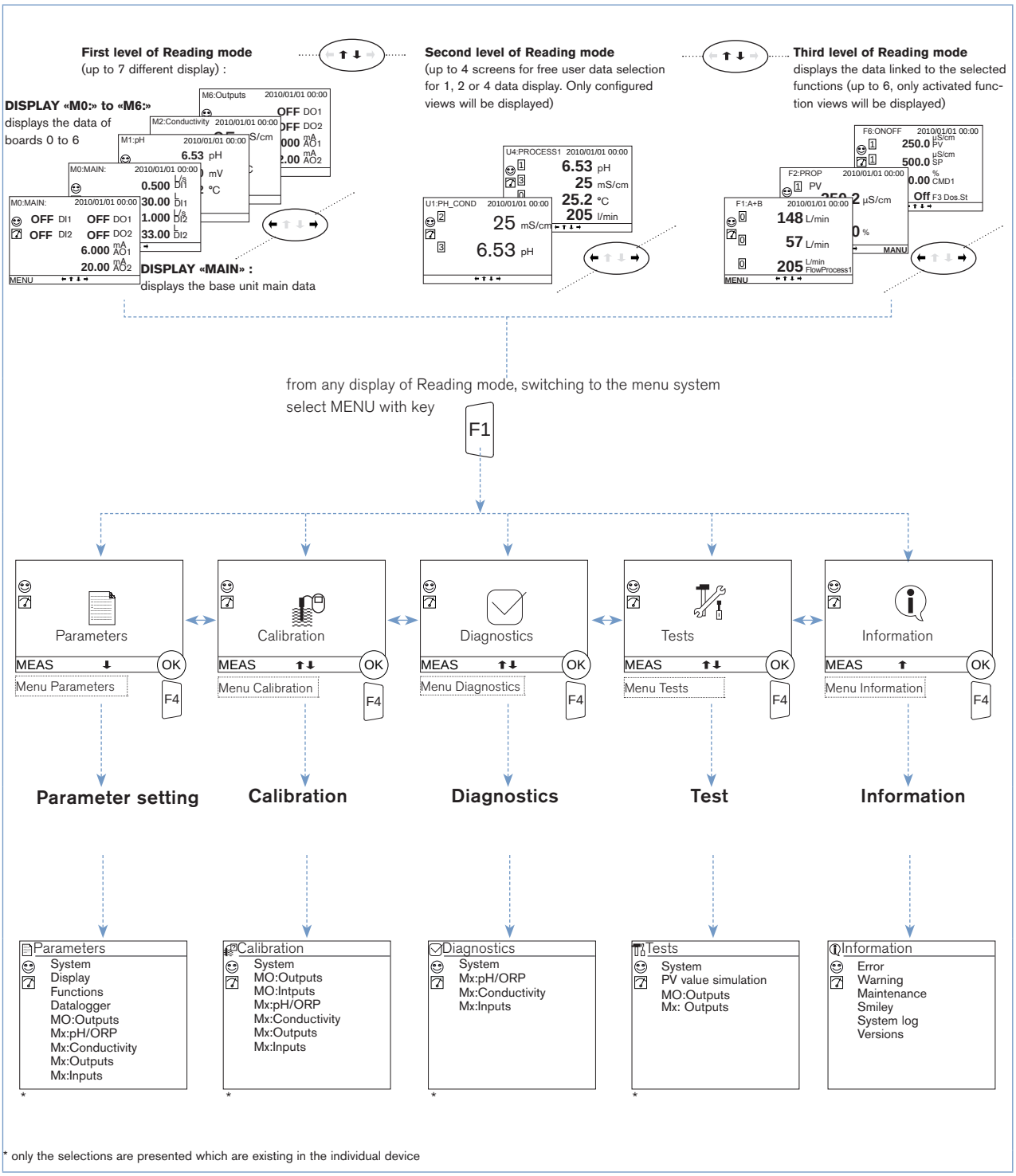
Menu structure



* only the selections are presented which are existing in the individual device

Ordering chart for multiCELL transmitter/controller Type 8619

Description	Inputs: Digital (DI) (On/Off or frequency)	Inputs: Analogue (AI) 0/4... 20 mA	Inputs: number and type of sensor raw signals	Inputs: Pt100/Pt1000	Outputs: Transistor (DO) (PWM or PFM or On/Off or pulse)	Outputs: Analogue (AO) 4... 20 mA	UL Approvals	Item no.: Panel-mounted version 12-36 V DC**	Item no.: Wall-mounted version 12-36 V DC**	Item no.: Wall-mounted version 100-240 V AC
BASE unit with flow measurement (Mainboard)	2	-	-	-	2	2	No	560 205	565 984	565 985
							Yes[1)]	560 213	on request	on request
pH/ORP (Mainboard + 1 pH/ORP board)	2	-	1 (pH/ORP)	1	2	2	No	560 200	565 988	565 989
							Yes[1)]	560 208	on request	on request
pH/ORP (Mainboard + 2 pH/ORP boards + 1 output board)	2	-	2 (pH/ORP)	2	4	4	No	560 202	565 992	565 993
							Yes[1)]	560 210	on request	on request
CONDUCTIVITY (Mainboard + 1 conductivity board)	2	-	1 (Cond.)	1	2	2	No	560 201	565 996	565 997
							Yes[1)]	560 209	on request	on request
CONDUCTIVITY (Mainboard + 2 conductivity boards + 1 output board)	2	-	2 (Cond.)	2	4	4	No	560 203	566 000	566 001
							Yes[1)]	560 211	on request	on request
pH/ORP and CONDUCTIVITY (Mainboard + 1 pH/ORP board + 1 conductivity board + 1 output board)	2	-	1 (pH/ORP) + 1 (Cond.)	2	4	4	No	560 204	566 004	566 005
							Yes[1)]	560 212	on request	on request
INPUT (Mainboard + 1 input board)	4	2	-	-	2	2	No	563 960	566 008	566 009
							Yes[1)]	563 961	on request	on request
pH/ORP + INPUT (Mainboard + 1 pH/ORP board + 1 input board + 1 output board)	4	2	1 (pH/ORP)	1	4	4	No	563 962	566 012	566 013
							Yes[1)]	563 963	on request	on request
CONDUCTIVITY + INPUT (Mainboard + 1 conductivity board + 1 input board + 1 output board)	4	2	1 (Cond.)	1	4	4	No	563 964	566 016	566 017
							Yes[1)]	563 912	on request	on request

[1)] cULus UL-Recognized for Panel-mounted version and c UL us UL-Listed (in progress) for Wall-mounted version

** ⚠ If the device is mounted in a humid environment or outside the maximum allowed voltages are **35 V DC** instead of 36 V DC.

Notes regarding the ordering of above mentioned multiCELL transmitter/controller:

- The above items are equipped of arithmetic, PASS, REJECT, DEVIAT, PROP, ON/OFF functions in standard (see p. 12, List of available functions).
  In the BASE unit the Flow measurement function is also a standard function, the other functions are available as option.
  Please also use the "request for quotation" form on page 12 go to page for ordering a device with additional options.
- If a totalizer function is required then a Flowmeter has to be connected via a digital input (mainboard or input board)

Ordering chart for additional software functions for Type 8619

Use the following order codes only in case you already own a 8619 and you like to add one or more of the given functions to your device.

⚠ **Please don't forget to note down the Item no. and serial number (see the device label) of your multiCELL on your order.**

Software option	Remark	Item no.
PID control	-	561 836
Data Logger	SD card is not included.	561 837
Chemical dosing (e.g. cooling tower)	The "Dosing" option also activates the "Flow" option if it does not exist by default in the device.	561 838
Flow measurement	Already be contained in the base unit device (560 205 and 560 213)	561 839
Concentration measurement of selected fluids	Requires at least one conductivity hardware board	561 840

Remark: the function upload and download of the complete data set of the 8619 is available as standard and does not need the data logger option

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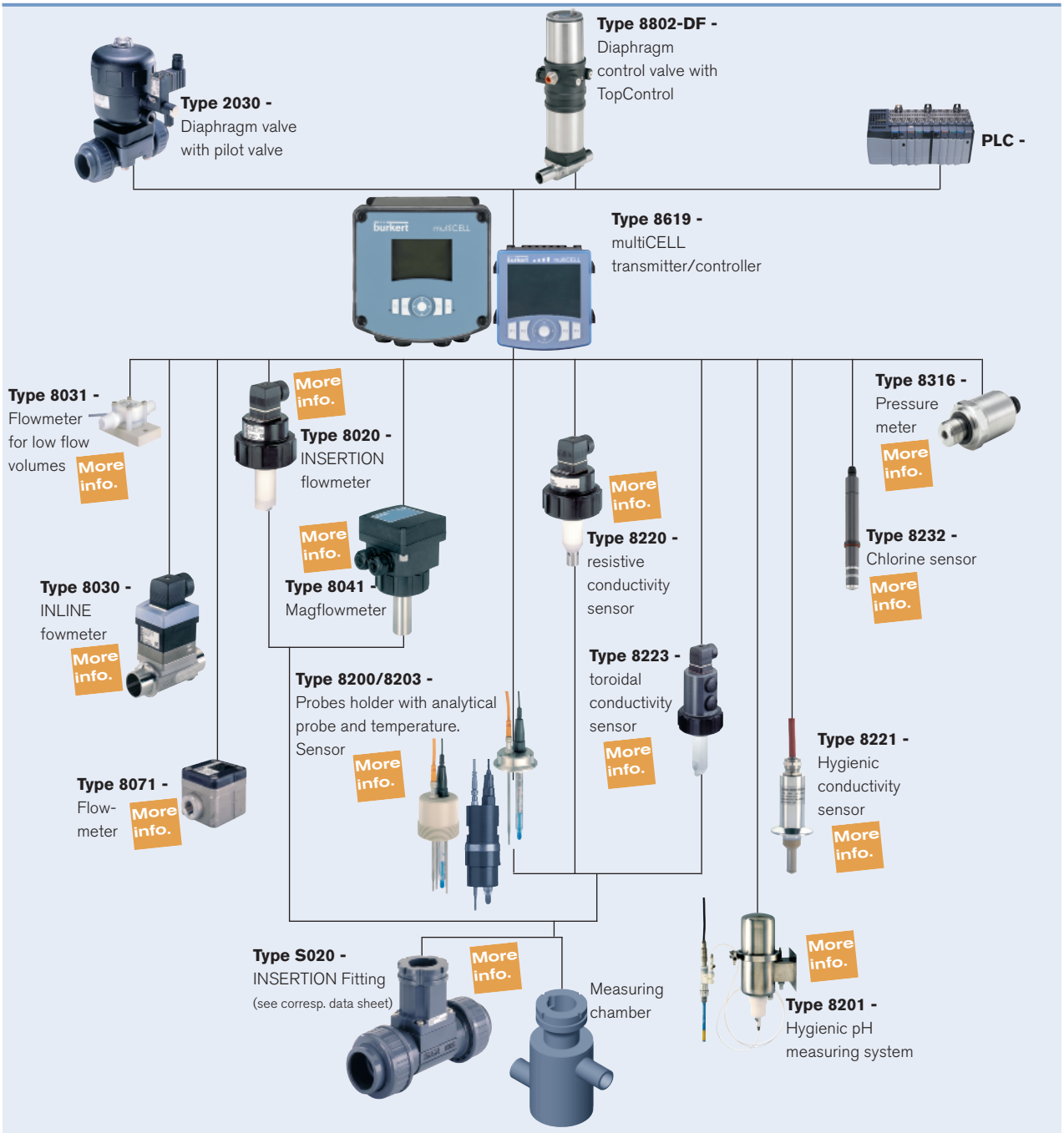
Ordering chart for accessories for Type 8619

Description	Item no.
SDHC Memory Card - Class 10 - 8 GB	564 072
Mounting set for pipe mounting	on request

Examples for interconnection possibilities with other Bürkert devices



When you click on the orange box "More info." below, you will come to our website for the resp. product where you can download the data sheet.

You will find more info about sensor-multiCELL connection cable in the data sheet of the selected sensor type. Please consult the corresponding data sheet.

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bürkert

multiCELL Transmitter/controller Type 8619 - request for quotation

Note
You can fill out the fields directly in the PDF file before printing out the form.

Please fill in and send to your local Bürkert Sales Centre* with your inquiry or order.

Company:	Contact person:
Customer No.:	Department:
Address:	Tel. / Fax.:
Postcode / Town:	E-mail:

multiCELL Transmitter/controller 8619

Quantity: _____ **Desired delivery date:** _____

Models: ☐ Panel-mounted version, 12-36 V DC ☐ Wall-mounted version, 12-36 V DC ☐ Wall-mounted version, 110/240 V AC

Hardware: ☒ Mainboard[1] (without flow function; if needed please order the flow measurement software option)

Slot M1	☐ conductivity + temperature board	☐ pH/ORP + temperature board	☐ output board[2]	☐ input board[3]
Slot M2	☐ conductivity + temperature board	☐ pH/ORP + temperature board	☐ output board[2]	☐ input board[3]
Slot M3	☐ conductivity + temperature board	☐ pH/ORP + temperature board	☐ output board[2]	☐ input board[3]
Slot M4	☐ conductivity + temperature board	☐ pH/ORP + temperature board	☐ output board[2]	☐ input board[3]
Slot M5	☐ conductivity + temperature board	☐ pH/ORP + temperature board	☐ output board[2]	☐ input board[3]
Slot M6	☐ conductivity + temperature board	☐ pH/ORP + temperature board	☐ output board[2]	☐ input board[3]

Software:

☐ PID
☐ Data logger
☐ Chemical dosing (e.g. Cooling Tower) + special batch
☐ Flow measurement
(The "Dosing" option also activates the "Flow" option if it does not exist by default in the device)
☐ Concentration Measurement for selected fluids (only if one of the slot is equipped with a conductivity board)

[1] 2 digital inputs + 2 analogue outputs + 2 transistor outputs
[2] 2 analogue outputs + 2 transistor outputs
[3] 2 analogue inputs + 2 digital inputs

Reset form

NOTE: If a totalizer function is required then a flowmeter has to be connected via a digital input (mainboard or input board)

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