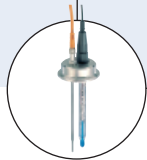




Multichannel, multifunction Transmitter/Controller

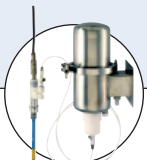
- Compatible with most common flow, pH/O.R.P. and conductivity sensors, directly connected
- Analogue and digital input signals
- Easy, intuitive user interface supported by a large adjustable backlit display (4 user defined views)
- Basic transmitter/controller with hardware extension (up to 6 free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

Type 8619 can be combined with...



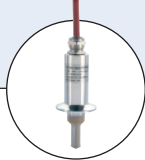
Type 8200+8203

pH/O.R.P. sensor



Type 8201

pH system



Type 8221

Conductivity sensors
4-pole technology



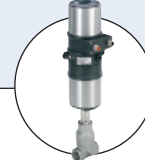
Type 8220

Conductivity sensors
2-pole technology



Type 8030

INLINE
flowmeter



Type 8802

Process control
valve

The 8619 multichannel multifunction is a transmitter/controller for connection of sensors which deliver raw signals for pH, O.R.P. and conductivity and flow via pulses or sensors 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.

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 mount unit for 92 x 92 mm cutout
Materials	Housing*, fastening element / Seal Cover, vision panel / Overlay Backplate / Screws Plug-in connector / Pin
Display	LC graphic display, light blue backlit; 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
Module slots	6
Electrical connection	Plug-in connectors
Recommended cable	Shielded cable Solid H05(07) V-U Flexible H05(07) V-K With wire end ferrule With plastic collar ferrule

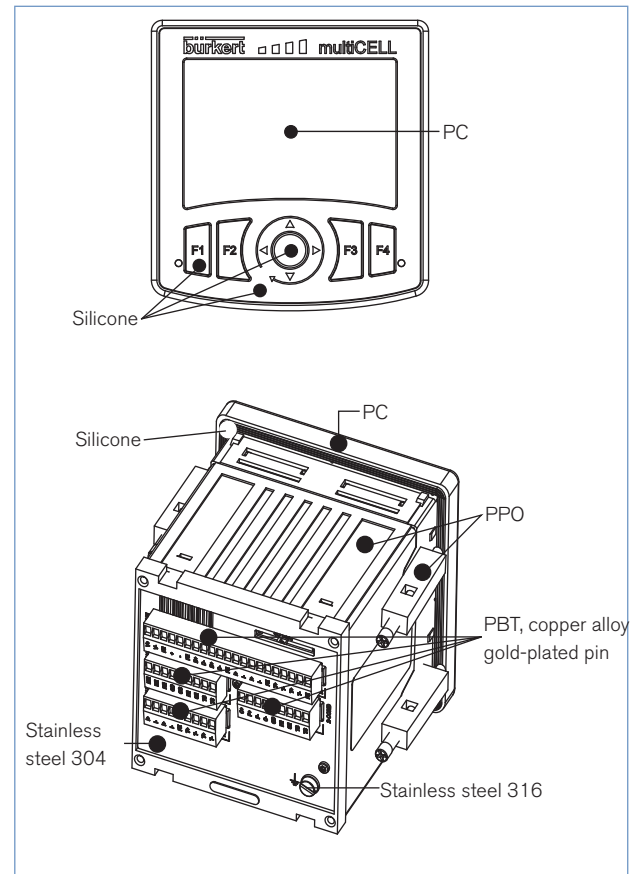
* on request: plastic and stainless steel wall mount enclosure

Technical data - Mainboard

Electrical data

Operating voltage ("SUPPLY")	12 - 36 V DC, filtered and regulated
Power consumption (of multiCELL device - with- out additional modules and outputs not connected)	Max. 1.5 VA
Power charges ("PWR OUT")	12 - 36 V DC, max 1.8 A
Digital inputs DI1, DI2	Voltage: 0 - 36 V DC, input impedance 3 k Ω Switching threshold : $V_{on} = 5 - 36$ V DC, $V_{off} < 2$ V DC; Frequency: 0.5 to 2500 Hz Galvanic insulation, protected against re- versed 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 if only one transistor output is used, 1 A max. in total if both transistor outputs are used
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
Memory card Type	SD (Secure Digital) or SDHC (Secure Digital High Capacity)
Capacity	max. 8 GB

Materials view



Additional modules

4 different types of modules are available and can be inserted into any of the 6 slots (preconfigured at the factory)

- input module: 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 module: 2 transistor outputs and 2 analogue 4... 20 mA outputs
- input pH/ORP and Pt100/Pt1000 modules
- input conductivity and Pt100/Pt1000 modules

Technical data - input module

Power consumption	0.1 VA
Analogue inputs AI1, AI2	can be wired as sourcing or sinking, gal- vanic insulation
Current	range: 0/3.5 - 22 mA max. voltage: 36 V DC impedance: 50 Ω resolution: 1.5 μ A
Voltage	range: 0 - 5/10 V DC max. voltage: 36 V DC impedance: 110 k Ω resolution: 1 mV
Error	$\pm 0,25\%$ of measured value
Digital inputs DI1, DI2	Voltage: 0 - 36 V DC, input impedance 3 k Ω Switching threshold : $V_{on} = 5 - 36$ V DC, $V_{off} < 2$ V DC; Frequency: 0.5 to 2500 Hz Galvanic insulation, protected against re- versed polarity of DC and voltage spikes

Technical data - output module

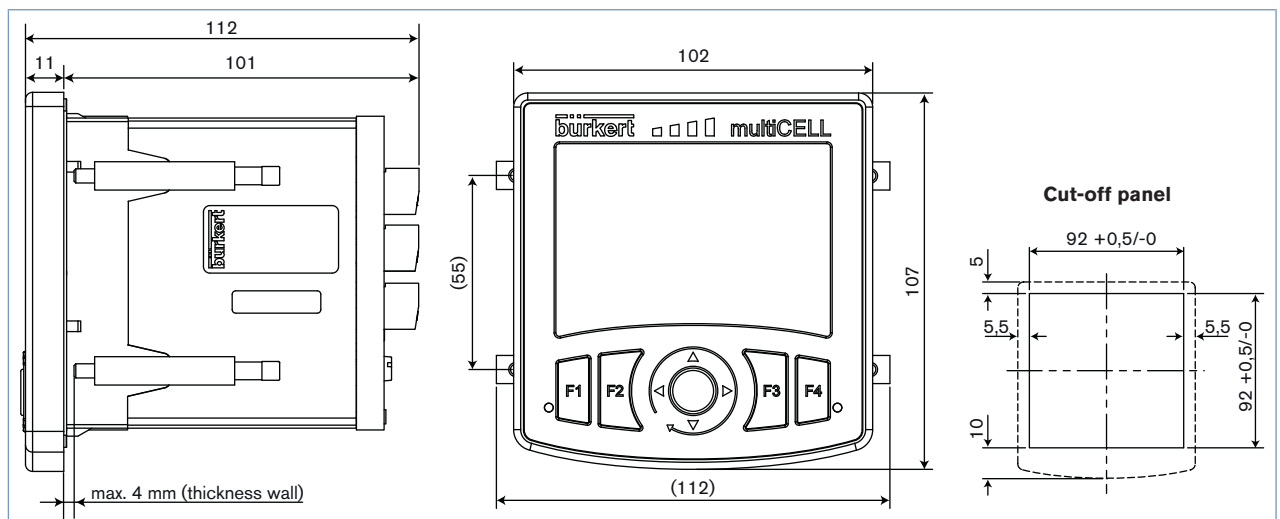
Power consumption	Max. 0.1 VA
Digital outputs DO1, DO2 Transistor	Can be wired as PNP or NPN, galvanic insulation, protected against short circuit, max. 36 V DC, max. 700 mA if only one transistor output is used, 1 A max. in total if both transistor outputs are used
Frequency	max. 2000 Hz
Analogue output 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

Technical data - pH/ORP module	
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
Accuracy	±0.02 pH or 1 mV
ORP measurement	
Measuring range	-2000... +2000 mV
Resolution	0.1 mV
Accuracy	±1 mV
Temperature measurement	
Measuring range	-25°C to +130°C (-20°F to 266°F)
Resolution	0.1°C (0.18°F)
Accuracy	±1°C (1.8°F)

Technical data - conductivity module	
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
Resolution	1 nS/cm
Error (without sensor)	< 0.5% of measured value
Resistivity	
Measuring range	0.5 Ω/cm... 100 MΩ/cm
Resolution	0.1 Ω/cm
Error (without sensor)	< 0.5% of measured value
Temperature measurement	
Measuring range	-40°C to +200°C (-40°F to 392°F)
Resolution	0.1°C (0.18°F)
Accuracy	±1°C (1.8°F)

Environment conditions and standards - Mainboard, pH/ORP, conductivity, input and output modules			
Ambient temperature		Protection class	
Operation	-10°C to +70°C (14°F to 140°F) - limited to 0°C to 70°C (32°F to 140°F) if memory card is used		IP65 (panel-mounted, cabinet closed) IP20 (panel-mounted, inside the cabinet) NEMA 4X (panel-mounted, in front of the closed cabinet)
Storage	-20°C to +70°C (-4°F to 140°F)		
Relative humidity	< 85%, without condensation	Standard and directives 	
		EMC Vibration / Shock	EN 61000-6-2, EN 61000-6-3 EN 60068-2-6 / EN 60068-2-27
		Approvals UL-Recognized for US and Canada 	61010-1 + CAN/CSA-C22 No.61010-1

Dimensions [mm]



Principle of operation

The transmitter/controller is given by the internal module 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 modules 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. A 12 - 36 V DC power supply is sufficient to have the device running.

The base unit is a panel mount 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 modules for pH/O.R.P., conductivity, a module with additional analogue and digital outputs as well as a module with analogue and additional digital inputs. There is no need for a separate 4... 20 mA transmitter: the pH, conductivity modules accept raw signals from sensors.

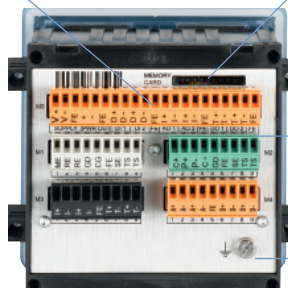
Though highly functional the multiCELL can be operated easily and intuitively. The base for this is the large graphical display and the dynamically assigned function keys. Clearly arranged menu and module structures allow easy configuration and setting of parameters and offer a high transparency for 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.

Construction

The mainboard 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



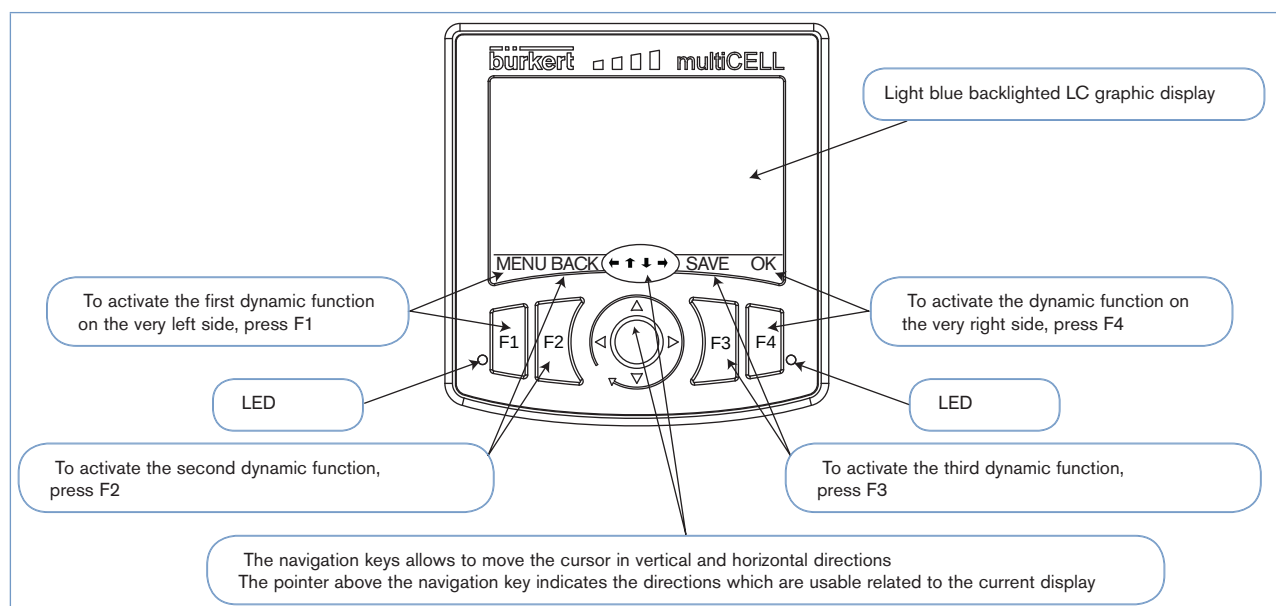
Memory card slot :

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

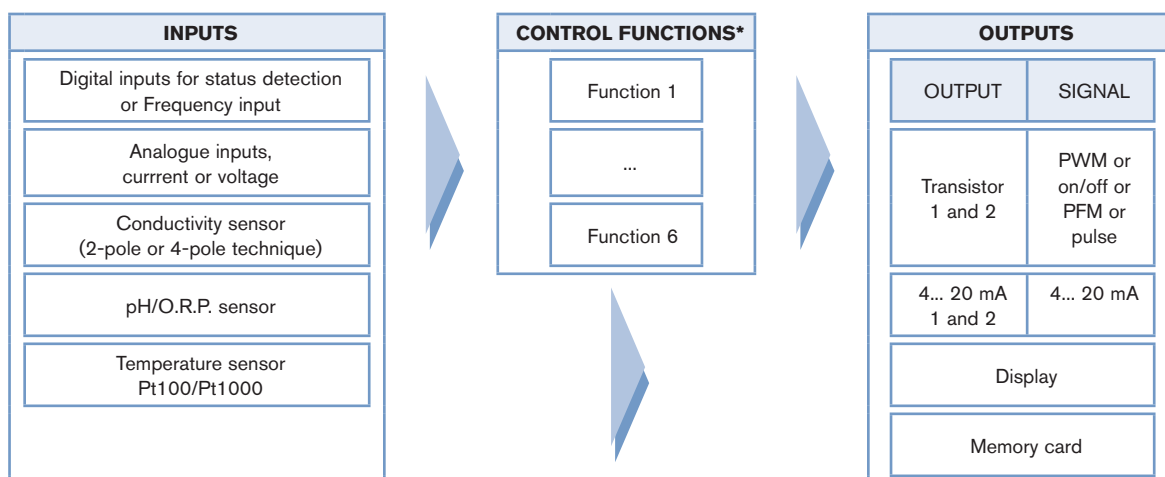
Additional module slots (up to 6) to choose among:

- module for 2 analogue and 2 digital inputs (small orange connector)
- module for 2 analogue and 2 digital outputs (black connector)
- module for pH/O.R.P. sensor and/or temperature sensor (light grey connector)
- module for conductivity sensor and/or temperature sensor (green connector)

Display and dynamic soft keys



Process diagram



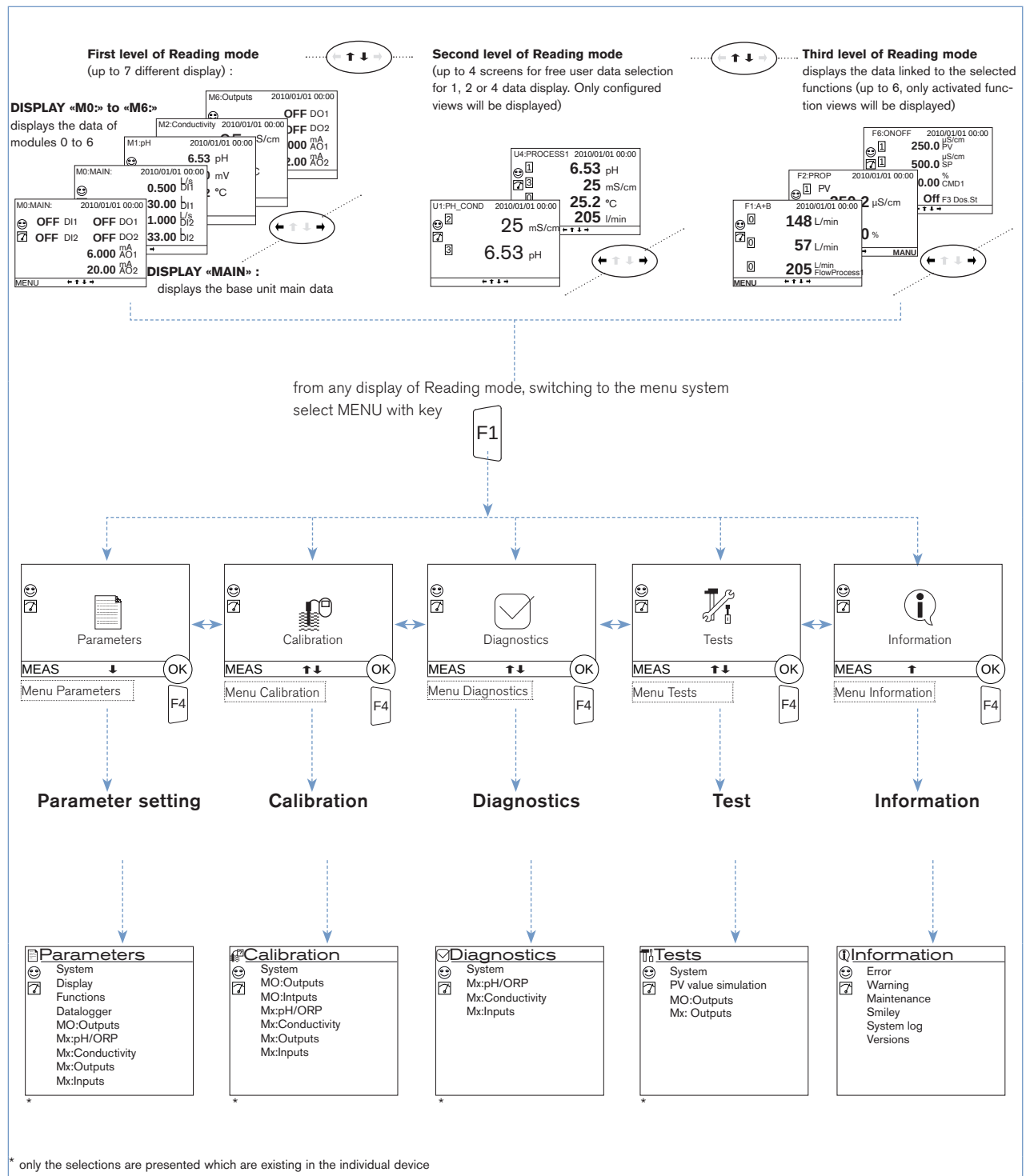
* simultaneously and independently operating

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	$\frac{A}{B} \times 100\%$	calculates a flow ratio between 2 values. e.g: reverse osmosis
REJECT	Basic for all models	$(1 - \frac{A}{B}) \times 100\%$	calculates a reject ratio between 2 values. e.g: reverse osmosis
DEVIAT	Basic for all models	$(\frac{A}{B} - 1) \times 100\%$	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, 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 modules (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 ₂ SO 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.

Menu structure



Ordering chart for multiCELL transmitter/controller Type 8619

Description	Operating voltage	Inputs				Outputs		UL Approvals	Item no.
		Digital (DI) (On/Off or frequency)	Analogue (AI) 0/4... 20 mA	number and type of sensor raw signals	Pt100/ Pt1000	Transistor (DO) (PWM or PFM or On/Off or pulse)	Analogue (AO) 4... 20 mA		
BASE unit with flow measurement (Mainboard)	12-36 V DC	2	-	-	-	2	2	No	560 205
								 UL-Recognized	560 213
pH/ORP (Mainboard + 1 pH/ORP module)	12-36 V DC	2	-	1 (pH/ORP)	1	2	2	No	560 200
								 UL-Recognized	560 208
pH/ORP (Mainboard + 2 pH/ORP modules + 1 output module)	12-36 V DC	2	-	2 (pH/ORP)	2	4	4	No	560 202
								 UL-Recognized	560 210
CONDUCTIVITY (Mainboard + 1 conductivity module)	12-36 V DC	2	-	1 (Cond.)	1	2	2	No	560 201
								 UL-Recognized	560 209
CONDUCTIVITY (Mainboard + 2 conductivity modules + 1 output module)	12-36 V DC	2	-	2 (Cond.)	2	4	4	No	560 203
								 UL-Recognized	560 211
pH/ORP and CONDUCTIVITY (Mainboard + 1 pH/ORP module + 1 conductivity module + 1 output module)	12-36 V DC	2	-	1 (pH/ORP) + 1 (Cond.)	2	4	4	No	560 204
								 UL-Recognized	560 212
INPUT (Mainboard + 1 input module)	12-36 V DC	4	2	-	-	2	2	No	563 960
								 UL-Recognized	563 961
pH/ORP + INPUT (Mainboard + 1 pH/ORP module + 1 input module + 1 output module)	12-36 V DC	4	2	1	1	2	2	No	563 962
								 UL-Recognized	563 963
CONDUCTIVITY + INPUT (Mainboard + 1 conductivity module + 1 input module + 1 output module)	12-36 V DC	4	2	1	1	2	2	No	563 964
								 UL-Recognized	563 912

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. 9, 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 9 [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.

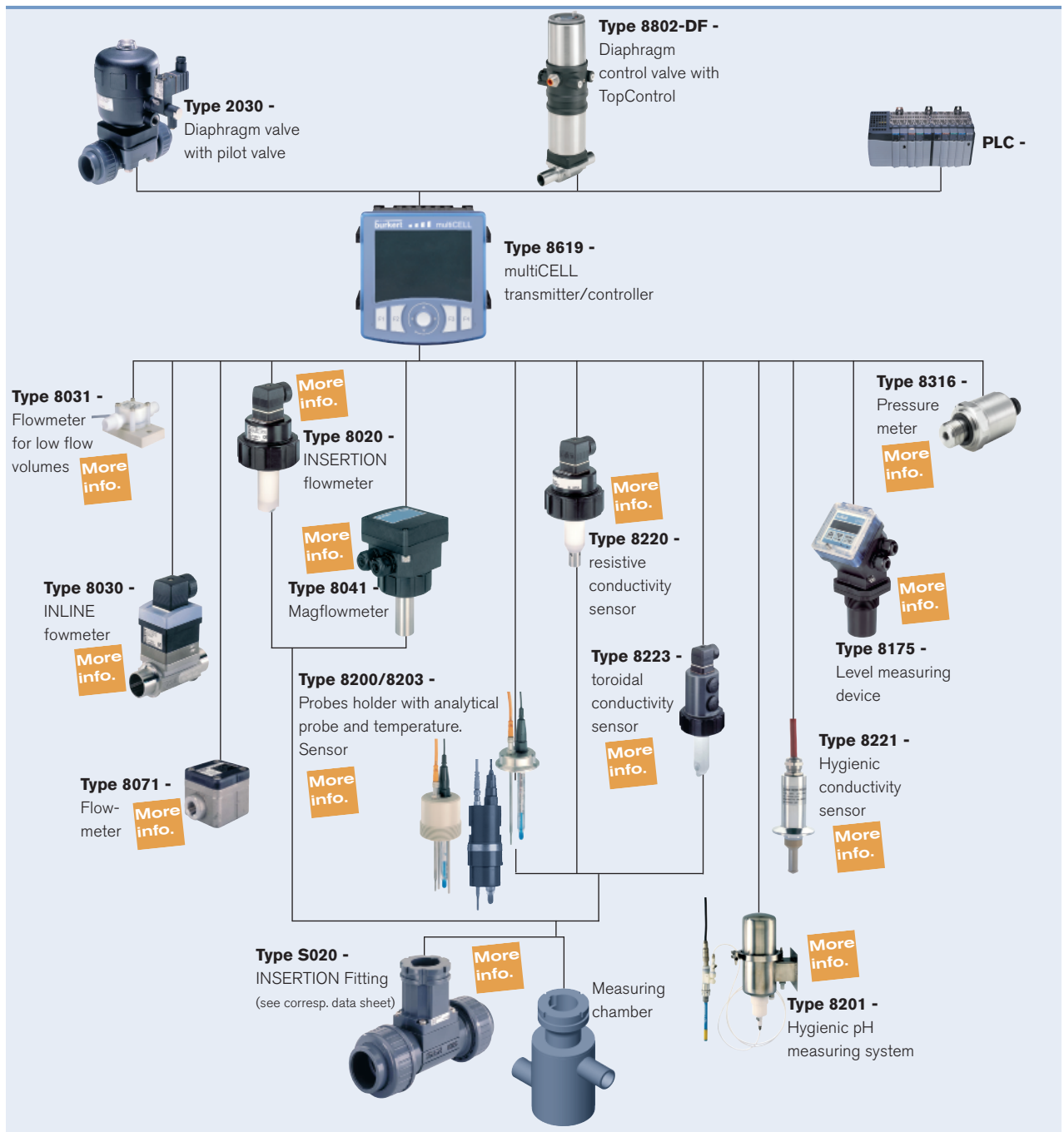
Software option	Remark	Item no.
PID control	-	561 836
Data Logger	SD card is not included.	561 837
Chemical dosing (e.g. cooling tower)	The "Dosing" option also activates the "Flow" option if it does not exist by default in the device.	561 838
Flow measurement	Already be contained in the base unit device (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

Ordering chart for accessories for Type 8619

Description	Item no.
SDHC Memory Card - Class 10 - 8 GB	564 072

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.

multiCELL Transmitter/controller Type 8619 - request for quotation

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

Note

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

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

multiCELL Transmitter/controller 8619

Quantity: Desired delivery date: ■ Hardware: ☐ Mainboard¹⁾ (without flow function; if needed please order the flow measurement software option)

- | | | | | |
|---------|--|--|--|---|
| Slot M1 | ☐ pH/ORP + temperature module | ☐ conductivity + temperature module | ☐ output module ²⁾ | ☐ input module ³⁾ |
| Slot M2 | ☐ pH/ORP + temperature module | ☐ conductivity + temperature module | ☐ output module ²⁾ | ☐ input module ³⁾ |
| Slot M3 | ☐ pH/ORP + temperature module | ☐ conductivity + temperature module | ☐ output module ²⁾ | ☐ input module ³⁾ |
| Slot M4 | ☐ pH/ORP + temperature module | ☐ conductivity + temperature module | ☐ output module ²⁾ | ☐ input module ³⁾ |
| Slot M5 | ☐ pH/ORP + temperature module | ☐ conductivity + temperature module | ☐ output module ²⁾ | ☐ input module ³⁾ |
| Slot M6 | ☐ pH/ORP + temperature module | ☐ conductivity + temperature module | ☐ output module ²⁾ | ☐ input module ³⁾ |

■ Software:

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

¹⁾ 2 digital inputs + 2 analogue outputs + 2 transistor outputs²⁾ 2 analogue outputs + 2 transistor outputs³⁾ 2 analogue inputs + 2 digital inputs

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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www.burkert.comIn case of special application conditions,
please consult for advice.Subject to alteration.
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