



Multichannel, multifunction Transmitter/Controller

- Compatible with most common flow, pH/ORP, chlorine and conductivity sensors
- Simple, intuitive user interface supported by a large adjustable backlit display (4 user defined views)
- Basic transmitter/controller with hardware extension possibilities (up to 6 free slots)
- Functionality extendable by software options



Type 8200+8203

pH/ORP sensor pH system



Type 8221

Conductivity sensors 4-pole technology 2-pole technology

Type 8220



Type 8232 Chlorine sensor



Type 8030 INLINE flowmeter



Type 8041

Electromagnetic flowmeter

The 8619 multichannel multifunction, available in two housing variants for panel or wall mounting, is a microprocessor 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...2 V, 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 offers high flexibility for adjusting it to the applications resulting in having a very good price to functionality relation.

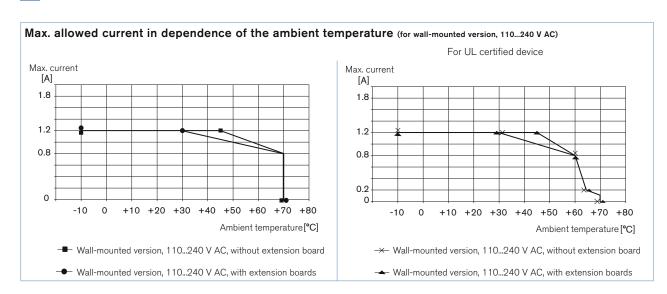
Sophisticated electronics and state of the art control algorithms ensure that optimum process control is maintained at all times with minimal operator intervention and achieving highest quality.

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 Support plate for terminals Terminal blocks Display / Front panel and keys Housing Panel-mounted Wall-mounted Protective cap (110240 V AC supplied wall-mounted version) Cover screws (wall-mounted version)	Silicone / Stainless steel 316 Stainless steel 304 PBT, contact in gold-plated copper alloy PC / Silicone PPO (incl. fastening element) PA66 (incl. fastening plate, cable gland, protecting cover (display), protecting cap (free terminal place), stiffener hinge) Stainless steel 304 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 Solid H05(07) V-U Flexible H05(07) V-K With wire end ferrule With plastic collar ferrule	Cable with max. operating temperature of min. 90°C 0.21.5 mm², shielded cable



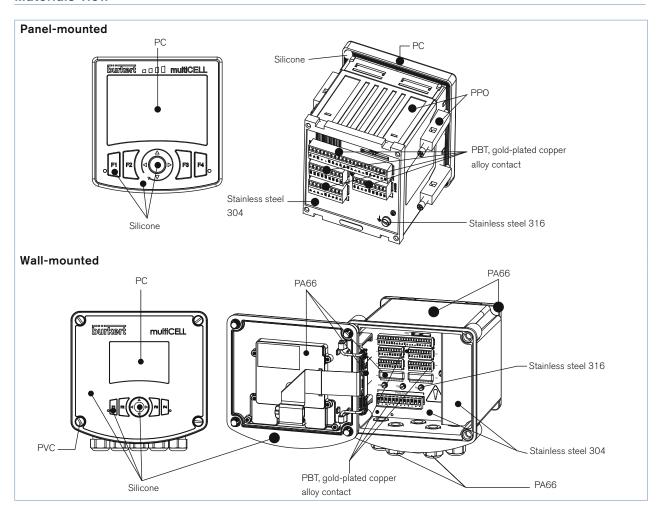
Electrical data		
Device version	Panel-mounted - Mainboard	Wall-mounted - Power supply board
Operating voltage ("SUPPLY")	1230 V DC, ±10%, max. 2 A, filtered and regulated, SELV (safety extra low voltage) circuit with a non dangerous energy level	1236 V DC ±10%, max. 2 A, filtered and regulated, SELV (safety extra low voltage) circuit with a non dangerous energy level 110240 V AC, 5060 Hz, max. 500 mA, integrated protection: 3.15 A time delay fuse ground cable cross-section: 1.5 mm²
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)	1230 V DC, max 1.8 A protected against polarity reversals	1236 V DC version: 1236 V DC, max 1.8 A; protected against polarity reversals 110240 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: 036 V DC, input impedance 3 kΩ Switching threshold: Von = 536 V DC, Voff < 2 V DC; Frequency: 0.52500 Hz Galvanic insulation, protected against reversed polarity of DC and voltage spikes	Voltage: 036 V DC, input impedance 3 kΩ Switching threshold : Von = 536 V DC, Voff < 2 V DC; Frequency: 0.52500 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	420 mA, can be wired as sourcing or sinking, galvanic insulation, protected against reversed polarity of DC, max. loop impedance: 860 Ω at 30 V DC, 610 Ω at 24 V DC, 100 Ω at 12 V DC Resolution: 6 μ A	420 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 μ A
Memory card Type / Capacity	SD (Secure Digital) or SDHC (Secure Digital High Capacity) / max. 8 Note: We recommend to use the 8 GB SDHC memory card availat tested with and validated for the 8619 Transmitter/Controller. And	ole at Bürkert (see accessories on page 12) because it has been

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





Materials view



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... 2 V 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 Al1, Al2	can be wired as sourcing or sinking, galvanic insulation				
Current	range: 0 or 3.522 mA max. voltage: 36 V DC impedance: 50 Ω resolution: 1.5 μ A				
Voltage	range: 02 or 5 or 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: 036 V DC, input impedance 3 k Ω Switching threshold: V _{on} = 536 V DC, V _{off} < 2 V DC; Frequency: 0.52500 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	420 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 μ A			



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	-2.016 pH or -600+600 mV				
Resolution Measurement deviation	0.01 pH or 0.1 mV				
Probe type	±0.02 pH or 1 mV + error of the pH probe*				
ORP measurement	electrochemical				
Measuring range Resolution Measurement deviation	-2000+2000 mV 0.1 mV ±1 mV + error of the ORP probe*				
Probe type	electrochemical				
Temperature measurement					
Measuring range	-25+130°C (-20+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/cm2 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	$0.5~\Omega$ cm $100~M\Omega$.cm (function of the conductivity cell);				
	5.0 Ω 1 M Ω (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+200°C (-40+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

Ambient temperature Operation (with/without		Protection Panel-mou
memory card ¹⁾)		T dilet illoc
Only Mainboard	 Panel-mounted and 110240 V AC wall-mounted version: 	
	-10+70°C (14+158°F) • 1236 V DC wall-mounted version: -10+75°C (14+167°F)	Wall-mour
Min. 1 additionnal board	• all versions: -10+60°C (14+140°F)	
Storage	 all versions:-20+70°C (-4+140°F), limited to -10+70°C (14+140°F) if memory card is inserted 	
Relative humidity	< 85%, without condensation	Standard a
Height above sea level	max. 2000 m	directives

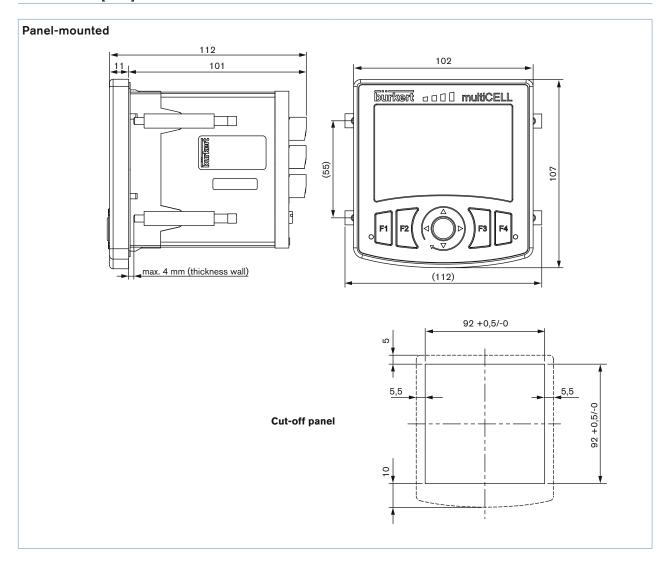
Protection class	acc. to EN60529
Panel-mounted version	IP65 (panel-mounted, cabinet closed)
	IP20 (panel-mounted, inside the cabinet)
	NEMA250 4X (panel-mounted, in front of the closed
	cabinet)
Wall-mounted version	IP65, IP67, if the following conditions are
	met:
	- glands body tightened with a tightening
	torque of 5.5 Nm±20%, made at factor
	glands blanked off or wiredgland nuts tightened with a tightening
	torque of 4.5 Nm±20%
	- housing closed
	- 4 screws of cover cross tightened with
	a tightening torque of 1.4 Nm±20%
Standard and	The applied standards, which verify con-
directives C€	formity with the EU Directives, can be found
	on the EU Type Examination Certificate and
	or the EU Declaration of conformity (if ap-
	plicable)
Certification	
UL-Listed	c(VL)us Measuring Equipment
for IIC and Canada	
for US and Canada	LISTED E237737



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

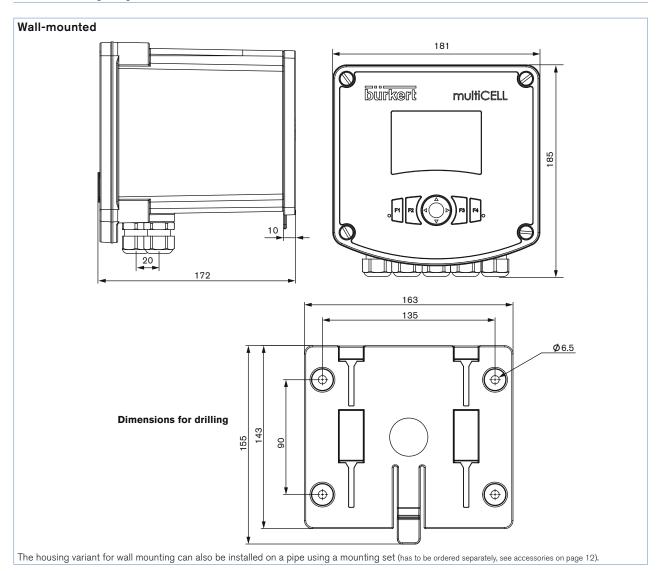
burkert

Dimensions [mm]





Dimensions [mm]



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.

burkert

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:

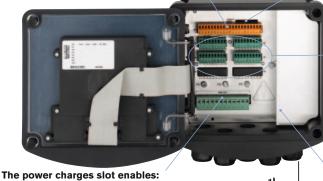
- For upload and download of parameter settings
- Software updates and functional upgrades Simple operation: insert the memory card into the small slot on the rear of the device.

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

The mainboard slot enables:

 to dispose of 2 digital inputs (DI), 2 analogue (AO) and 2 digital (DO) outputs



• to power another device

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.

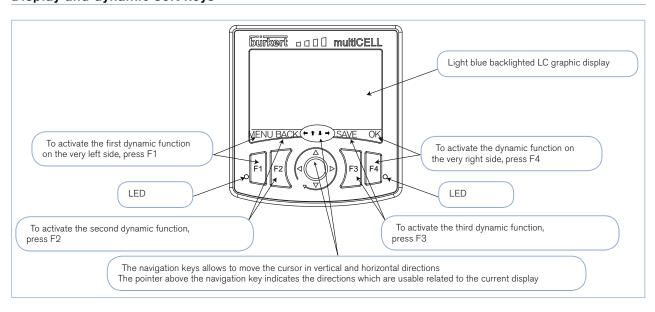
Additional board slots (up to 6) to choose among:

- board for conductivity sensor and/or temperature sensor (areen 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)

The power supply slot enables:

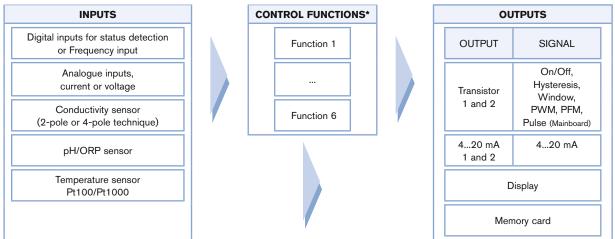
 connection to the transmitter/controller power supply (behind the protecting cover for 110...240 V AC version)

Display and dynamic soft keys





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

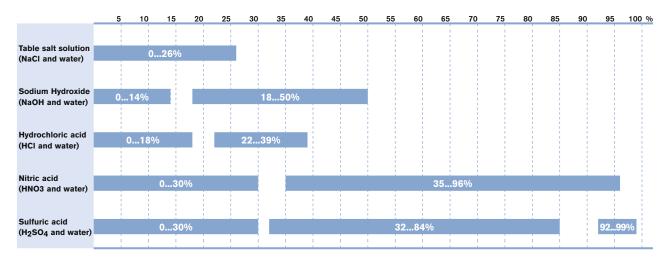
Functions	Availability	Formula	Example for usage
Arithmetic	Basic for all models	A+B, A-B, A/B	arithmetic operation between 2 values with same units. A or B can be a result of another function
PASS	Basic for all models	A/B x 100%	calculates a flow ratio between 2 values. e.g: reverse osmosis
REJECT	Basic for all models	(1 - AB) x 100%	calculates a reject ratio between 2 values. e.g: reverse osmosis
DEVIAT	Basic for all models	(A/B - 1) x 100%	calculates a deviation ratio between 2 values.
PROP	Basic for all models	100% process value	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 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.



List of available functions (continued)

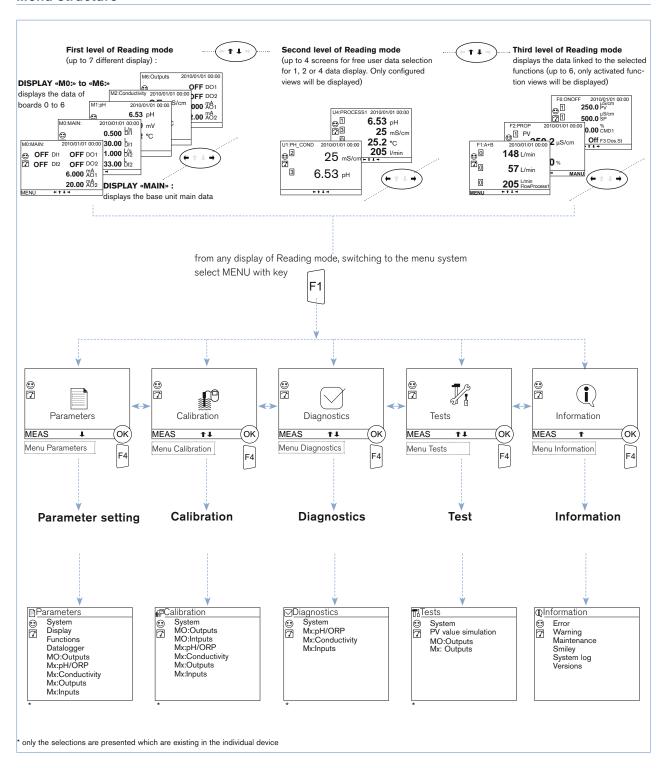
Concentration tables multiCELL

If multiCELL 8619 is equipped with an conductivity board, multiCELL is able to calculate the concentration depending on the measured conductivity and temperature. Therefore concentration tables for binary mixtures of (five) different substances and water are available. This one of the nine concentration ranges has to be selected which fits perfect to the application.





Menu structure





Ordering chart for multiCELL transmitter/controller Type 8619

	Inputs				Outputs			Item no.		
Description	Digital (DI) (On/Off or frequency)	Analogue (AI) 0/420 mA current and/or 02, 05, 010 V DC voltage	Number and type of sensor raw signals	Pt100/Pt1000	Transistor (DO) (PWM or PFM or On/Off or pulse)	Analogue (AO) 420 mA	UL approvals	Panel-mounted version 1236 V DC**	Wall-mounted version 1236 V DC**	Wall-mounted version 110240 V AC
BASE unit with flow measurement	2	_	_	_	2	2	No	560 205	565 984	565 985
(Mainboard)					_	_	Yes1)	560 213	565 986	565 987
pH/ORP (Mainboard + 1 pH/ORP	2	_	1 (pH/ORP)	1	2	2	No	560 200	565 988	565 989
board)			. (5.2.0.4.)	·		_	Yes1)	560 208	565 990	565 991
pH/ORP (Mainboard + 2 pH/ORP	2	_	2 (pH/ORP)	2	4	4	No	560 202	565 992	565 993
boards + 1 output board)			2 (\$11/01(1)	_			Yes1)	560 210	565 994	565 995
CONDUCTIVITY (Mainboard + 1 con-	2	_	1 (Cond.)	1	2	2	No	560 201	565 996	565 997
ductivity board)			i (Oona.)	· ·			Yes1)	560 209	565 998	565 999
CONDUCTIVITY (Mainboard + 2 con-	2	_	2 (Cond.)	2	4	4	No	560 203	566 000	566 001
ductivity boards + 1 output board)			2 (Cond.)		4	4	Yes1)	560 211	566 002	566 003
pH/ORP and CONDUCTIVITY			1 (pH/ORP)				No	560 204	566 004	566 005
(Mainboard + 1 pH/ORP board + 1 con- ductivity board + 1 output board)	2	-	+ 1 (Cond.)	2	4	4	Yes1)	560 212	566 006	566 007
INPUT (Mainboard + 1 input board)	4	2		_	2	2	No	563 960	566 008	566 009
INFOT (Mainboard + 1 input board)	4	2	-	_	2	2	Yes1)	563 961	566 010	566 011
pH/ORP + INPUT (Mainboard +							No	563 962	566 012	566 013
1 pH/ORP board + 1 input board + 1 output board)	4	2	1 (pH/ORP)	1	4	4	Yes ¹⁾	563 963	566 014	566 015
CONDUCTIVITY + INPUT (Main-							No	563 964	566 016	566 017
board + 1 conductivity board + 1 input board + 1 output board)	4	2	1 (Cond.)	1	4	4	Yes ¹⁾	563 912	566 018	566 019

¹⁾ c UL-Listed (Measuring Equipment E237737) for Panel-mounted and Wall-mounted version

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. 13, 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 13 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	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

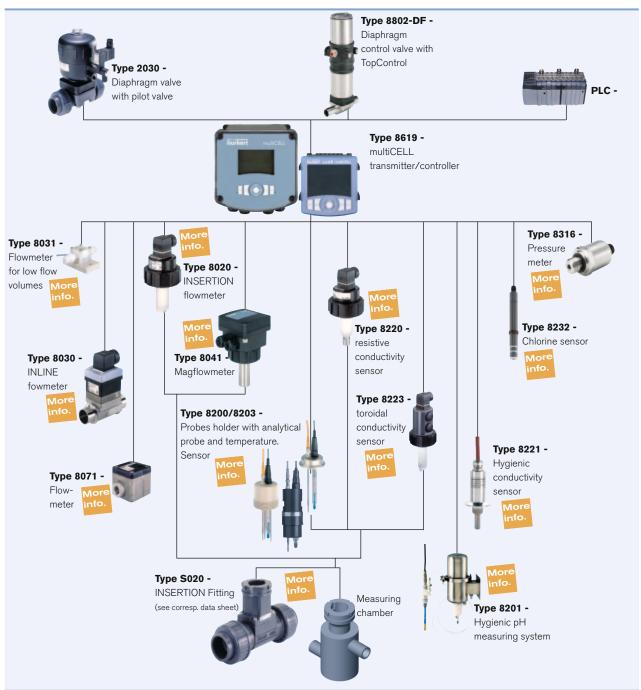
^{** /} If the device is mounted in a humid environment or outside the maximum allowed voltages are 35 V DC instead of 36 V DC.



Ordering chart for accessories for Type 8619

Description	Item no.
SDHC Memory Card - Class 10 - 8 GB	564 072
Mounting set for pipe mounting	564 596

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 Note 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...30 V DC Wall-mounted version, 12...36 V DC ☐ Wall-mounted version, 110...240 V AC Mainboard¹⁾ (without flow function; if needed please order the flow measurement software option) Hardware: Slot M1 conductivity + temperature board pH/ORP + temperature board output board2) input board3) Slot M2 conductivity + temperature board ☐ pH/ORP + temperature board output board2) input board3) Slot M3 conductivity + temperature board pH/ORP + temperature board output board2) input board3) conductivity + temperature board ☐ pH/ORP + temperature board output board2) input board3) Slot M4 Slot M5 conductivity + temperature board pH/ORP + temperature board output board2) input board3) Slot M6 conductivity + temperature board pH/ORP + temperature board output board2) input board3) 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 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

To find your nearest Bürkert office, click on the orange box \rightarrow

www.burkert.com

In case of special application conditions, please consult for advice.

Subject to alteration.
© Christian Bürkert GmbH & Co. KG

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