

# FINE CONTROLS (UK) LTD



Fine Controls have been supplying process controls & instrumentation equipment since 1994, & now serves an ever expanding customer base, both in the UK & globally.

We offer a full range of valve & instrumentation products & services, with our product range representing leading technologies & brands:

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**Temperature:** Temperature Probes & Thermowells, Temperature transmitters, Temperature Regulators & Temperature Displays

**Level:** Level Transmitters & Switches

**Pressure:** Pressure Gauges & Transmitters, Precision & High Pressure Regulators & I-P Converters, Volume boosters.

**Precision Pneumatics:** Pressure Regulators, I-P Converters, Volume Boosters, Vacuum Regulators

**Valves:** Solenoid & Pneumatic Valves, Control Valves & Positioners, Actuated Ball, Globe or Diaphragm Valves & Isolation Valves

**Services:** Repair, Calibration, Panel Build, System Design & Commissioning

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**FAIRCHILD**



**bürkert**



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**MIDLAND-ACS**  
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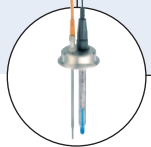
Fine Controls (UK) LTD, Bassendale Road, Croft Business Park,  
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## multiCELL - Multifunction Transmitter/Controller

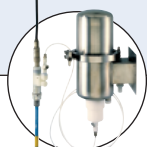


- Compatible with most common flow, pH/O.R.P. and conductivity sensors, directly connected
- Simple, intuitive user interface supported by a large adjustable backlit display (4 user defined views)
- Basic transmitter/controller with hardware extension possibilities (up to 6 free slots)
- Functionality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

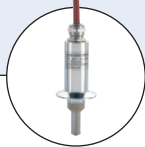
Type 8619 can be combined with...



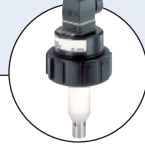
**Type 8200**  
Probes holder



**Type 8201**  
pH sensor



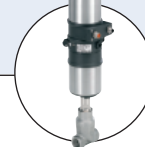
**Type 8221**  
Conductivity sensor  
4-pole technology



**Type 8220**  
Conductivity sensor  
2-pole technology



**Type 8030**  
INLINE flow sensor



**Type 8802**  
Process control  
valve



**Type 7800**  
Dosing pump

The 8619 multifunction transmitter/controller is a microprocessor transmitter/controller for connection of sensors which deliver raw signals for pH, O.R.P. and conductivity and flow via pulses. 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 so achieving highest quality.

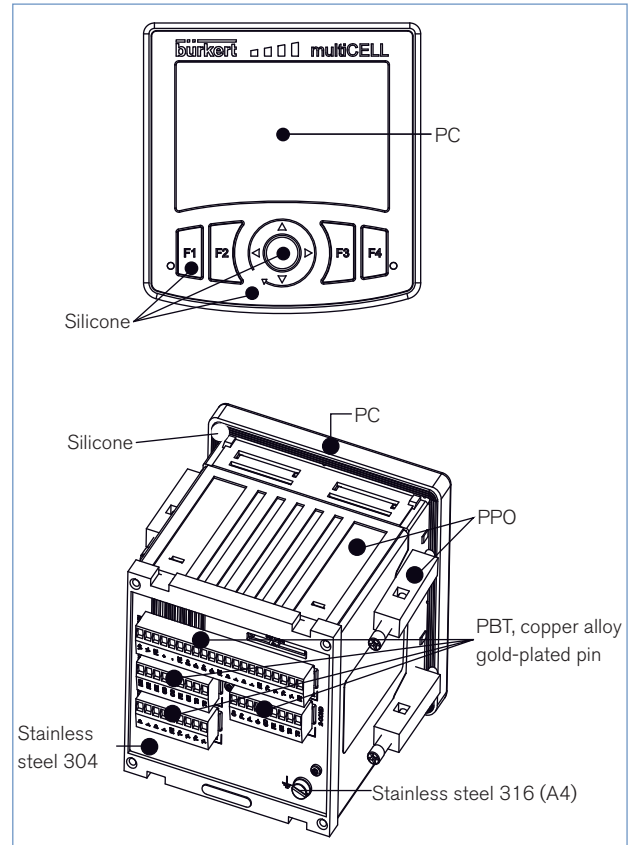
Technical data	
<b>General data</b>	
<b>Mounting</b>	panel mount unit for 92 x 92 mm cutout
<b>Materials</b>	Housing, fastening element / Seal PPO / Silicone Cover, vision panel / Overlay PC / Silicone rubber Backplate / Screws Stainless steel 304 / Stainless steel A4 Plug-in connector / Pin PBT / Copper alloy gold-plated
<b>Display</b>	LC graphic display, light blue backlit; 128x168 pixels resolution; German, English, French languages
<b>Keypad</b>	4 soft keys [F1] [F2] [F3] [F4] for dynamic functions 1 central navigation key with [↑] [↓] [→] [←] assignments
<b>Logbook</b>	Data logger of up to 16 values
<b>Sensor monitor</b>	Direct display of measured sensor values
<b>Clock</b>	Real-time clock with date
<b>Module slots</b>	6
<b>Electrical connection</b>	Plug-in connectors
<b>Recommended cable</b>	Shielded cable, clamping range Solid H05(07) V-U 0.2 up to 1.5 mm <sup>2</sup> Flexible H05(07) V-K 0.2 up to 1.5 mm <sup>2</sup> With wire end ferrule 0.2 up to 1.5 mm <sup>2</sup> With plastic collar ferrule 0.2 up to 1.5 mm <sup>2</sup>

**Technical data - Mainboard**

Electrical data	
<b>Power supply</b> ("SUPPLY")	12-36 V DC, filtered and regulated
<b>Power consumption</b> (of multiCELL device - without additional modules and outputs not connected)	Max. 1.5 VA
<b>Power charges</b> ("PWR OUT")	12-36 V DC, max 1.8 A
<b>Digital inputs</b> <b>DI1, DI2</b>	Voltage: 5-36 V DC, input impedance 3 kΩ Frequency: 0.5 up to 2500 Hz Galvanic insulation Protected against reversed polarity of DC and voltage peak
<b>Digital outputs</b> <b>DO1, DO2</b> 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
<b>Analog output</b> <b>AO1, AO2</b>	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
<b>Memory card</b> Type Capacity File system	SD (Secure Digital)* max. 2 GB FAT16

\*SDHC cards can not be used

**Materials view**



**Additional modules**



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

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

Technical data - pH/ORP module	
<b>Power consumption</b>	0.1 VA
<b>pH/ORP input</b>	simultaneous pH and ORP measurement with input for electrochemical pH/ORP
<b>Temperature input</b>	Pt100 / Pt1000, 2 or 3 wires
<b>pH measurement</b> Measuring range Resolution Accuracy	-2.0...16 pH or -600... +600 mV 0.01 pH or 0.1 mV ±0.02 pH or 1 mV
<b>ORP measurement</b> Measuring range Resolution Accuracy	-2000 ...+2000 mV 0.1 mV ± 1 mV
<b>Temperature measurement</b> Measuring range Resolution Accuracy	-25 to +130°C (-20 to 266°F) 0.1°C (0.18°F) ± 1°C (1.8°F)

Technical data - conductivity module	
<b>Power consumption</b>	0.25 VA
<b>Conductivity input</b>	Operation with 2- or 4-pole-technology sensors
<b>Temperature input</b>	Pt100 / Pt1000, 2 or 3 wires
<b>Conductivity/Resistivity measurement</b> Conductivity Measuring range Resolution Accuracy (without probe)	0 μS/cm ... 2 S/cm 1 nS/cm < 0.5% of measured value
Resistivity Measuring range Resolution Accuracy (without probe)	0.5 Ω/cm ... 2 MΩ/cm 0.1 Ω/cm < 0.5% of measured value
<b>Temperature measurement</b> Measuring range Resolution Accuracy	-40 to +200°C (-40 to 392°F) 0.1°C (0.18°F) ± 1°C (1.8°F)

Technical data - output module	
<b>Power consumption</b>	Max. 0.1 VA
<b>Digital outputs</b> <b>DO1, DO2</b> Transistor	Can be wired as PNP or NPN, galvanic insulation, protected against short circuit, max. 36 V DC, max. 700 mA, 1 A max. per transistor if the 2 transistor outputs are wired
Frequency	max. 2000 Hz
<b>Analog output</b> <b>AO1, AO2</b>	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

Environment conditions and Standards - Mainboard, pH/ORP, conductivity, output modules			
<b>Ambient temperature</b>		<b>Protection class</b>	IP65 (panel-mounted, cabinet closed) IP20 (panel-mounted, inside the cabinet) NEMA 4X (panel-mounted, in front of the closed cabinet)
Operation	-10 to +60°C (14 to 140°F) - limited at 0 to 60°C (32 to 140°F) if memory card is used		
Storage	-20 to +60°C (-4 to 140°F)		
<b>Relative humidity</b>	< 85%, without condensation	<b>Standard and directives</b> 	EN 61000-6-2, EN 61000-6-3 EN 60068-2-6 / EN 60068-2-27
		EMC Vibration / Shock <b>Approvals</b> UL-Recognized for US and Canada 	61010-1 + CAN/CSA-C22 No.61010-1

## 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 tasks all that can run in parallel.

The modules for signals and functions can be easily connected to each other 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 analog 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 as well a module with additional analog and digital outputs. There is no need for a separate 4...20 mA transmitter: the pH, conductivity modules accept raw signals from sensors.

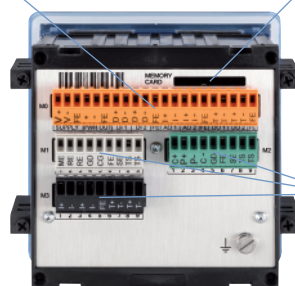
Though highly functional the multiCELL can be operated easily and intuitively. The base for this is the large graphical display and the dynamically assigned function keys. Clearly arranged menu and module structures allow easy configuration and setting of parameters and offer a high transparency for 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, calibration parameters and as well the complete device database with restore functionality there is an optional data logger available which uses the memory card if inserted in the card slot.

## Construction

### The mainboard enables:

- Connection to the transmitter/controller power supply
- to power another device
- to dispose of 2 digital inputs (DI), 2 analog (AO) and 2 digital (DO) outputs



### Memory card slot :

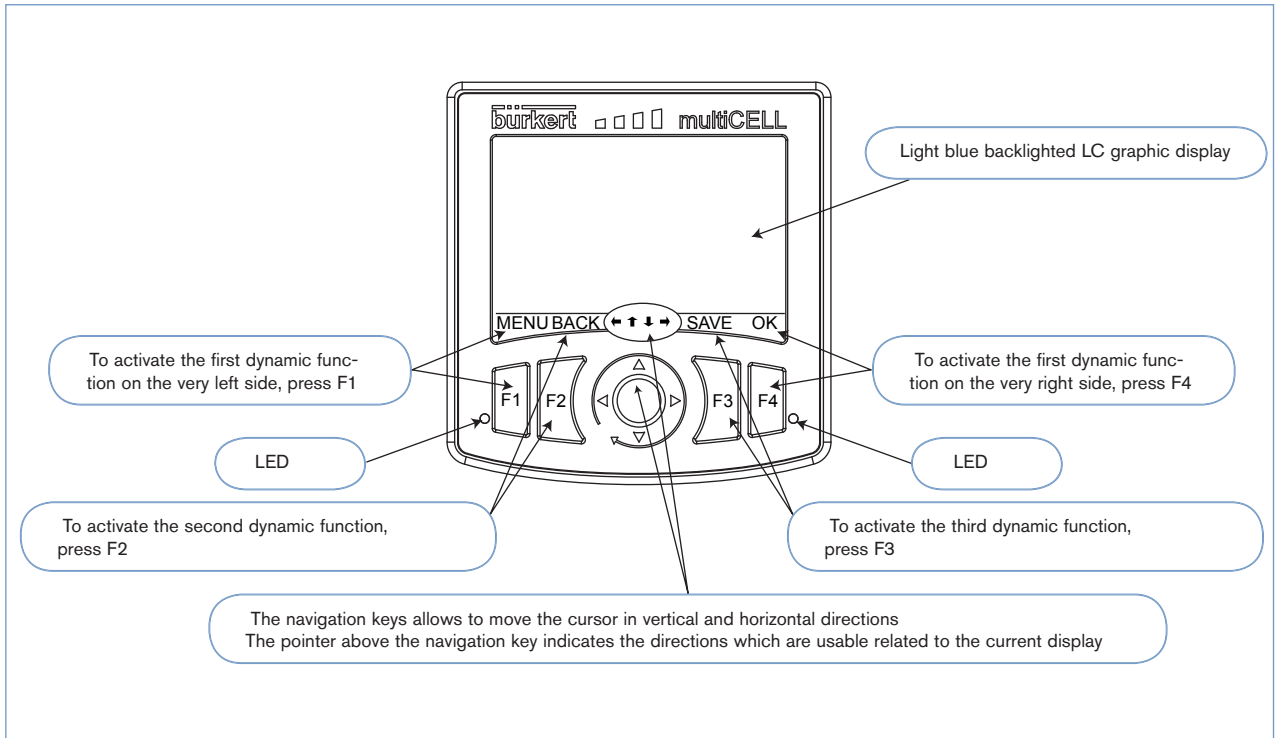
- For upload and download of parameter settings
- Software updates

Simple operation: insert the memory card into the small slot on the rear of the device.

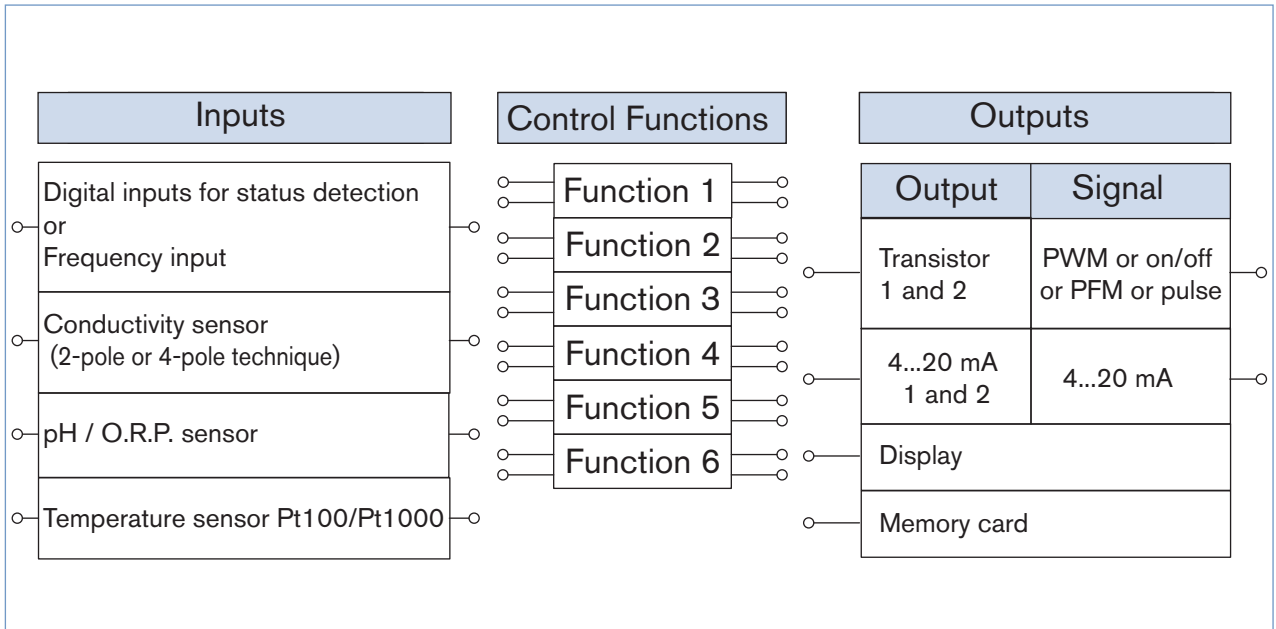
### Additional module slots (up to 6) to choose among:

- module for pH/O.R.P. sensor and/or temperature sensor
- module for conductivity sensor and/or temperature sensor
- module for 2 analog and 2 digital outputs

Display and dynamic soft keys

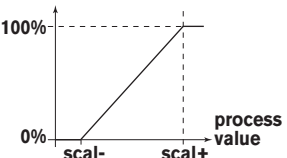


Process diagram

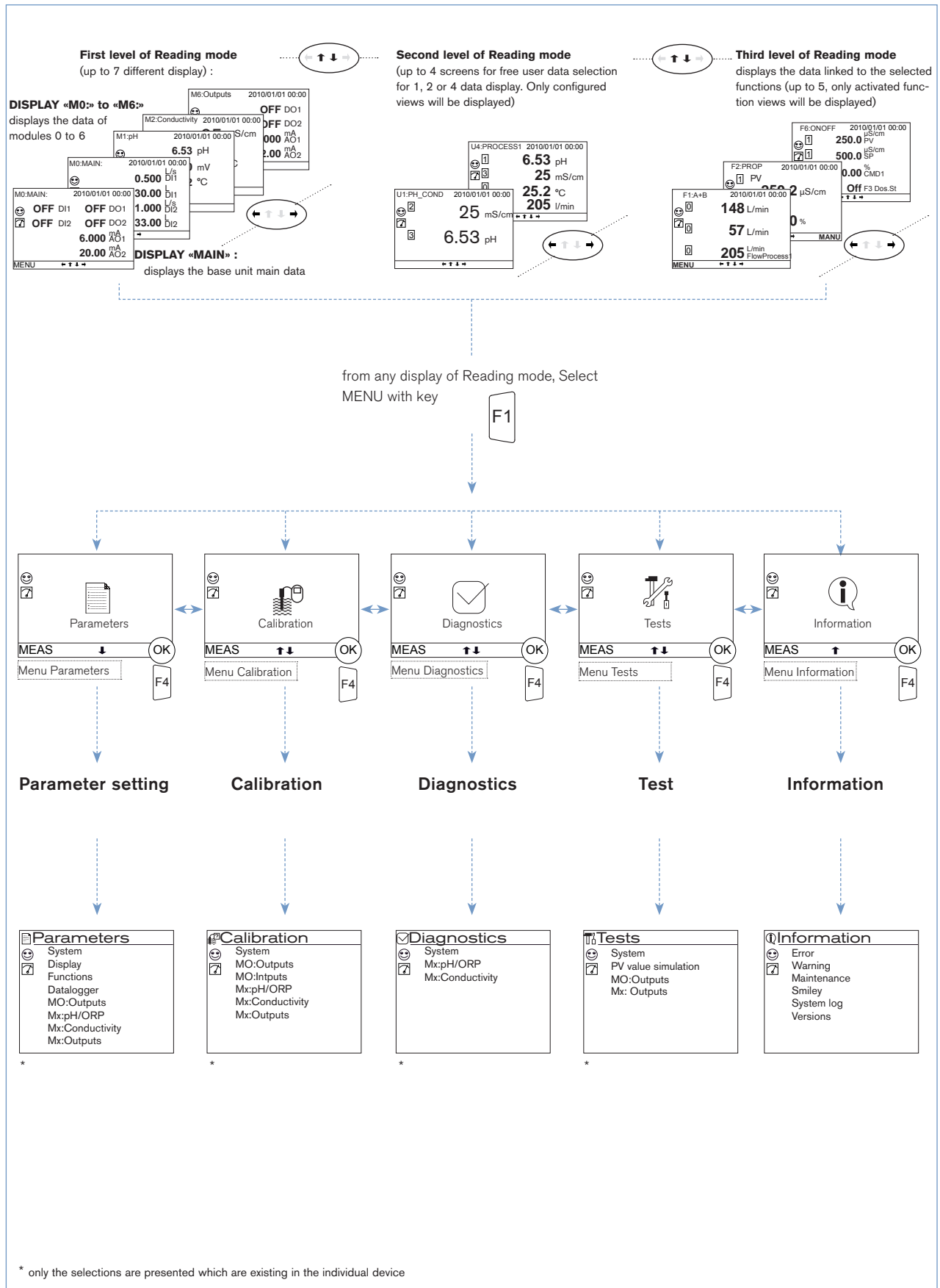


## Control functions

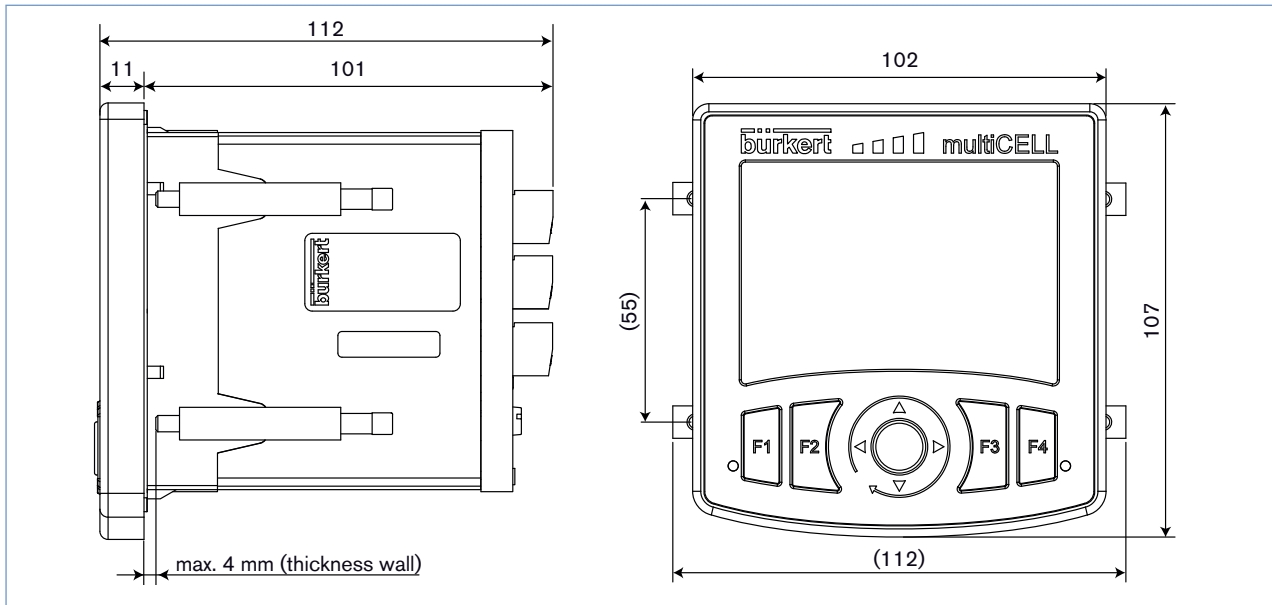
The transmitter/controller allows to allocate each sensor signal to a function (such as dosage, for example) fully configurable by the user. According to the model the following functions are offered as standard or as option

Functions	Availability	Formula	Example for usage
<b>Arithmetic</b>	Basis for all models	<b>A+B, A-B, A/B</b>	arithmetic operation between 2 values with same units. A or B can be a result of another function
<b>PASS</b>	Basis for all models	$\frac{A}{B} \times 100\%$	calculates a flow ratio between 2 values. e.g: reverse osmosis
<b>REJECT</b>	Basis for all models	$(1 - \frac{A}{B}) \times 100\%$	calculates a reject ratio between 2 values. e.g: reverse osmosis
<b>DEVIAT</b>	Basis for all models	$(\frac{A}{B} - 1) \times 100\%$	calculates a deviation ratio between 2 values.
<b>PROP</b>	Basis for all models		calculates an output in proportion to a scaled input
<b>ON/OFF</b>	Basis for all models	<b>On/Off control loop</b>	for any type of input
<b>Flow rate measurement</b>	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 in parallel to analytical modules
<b>PID</b>	As option	<b>Continuous control loop</b>	for any type of input and with internal or external setpoint
<b>Time dosing</b>	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.
<b>Special Chemical batch (Volume dosing)</b>	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.
<b>Concentration</b>	As option		the concentration curves of NaCl, H <sub>2</sub> SO <sub>4</sub> , HNO <sub>3</sub> , NaOH, HCl are implemented for use in complete concentration range and not only in low concentration.
<b>Data logger on memory card</b>	As option		up to 16 values can be stored at a defined time interval.

Menu structure



Dimensions [mm]



Ordering chart for multiCELL transmitter/controller Type 8619

Description	Power supply	Digital (DI) (On/Off or frequency)	Inputs		Outputs		UL Approvals	Item no.
			number and type of sensor raw signal	Pt100/Pt1000	Transistor (DO) (PWM or PFM or On/Off or pulse)	Analog 4-20 mA		
BASE unit (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

**Note 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.4 Control 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.



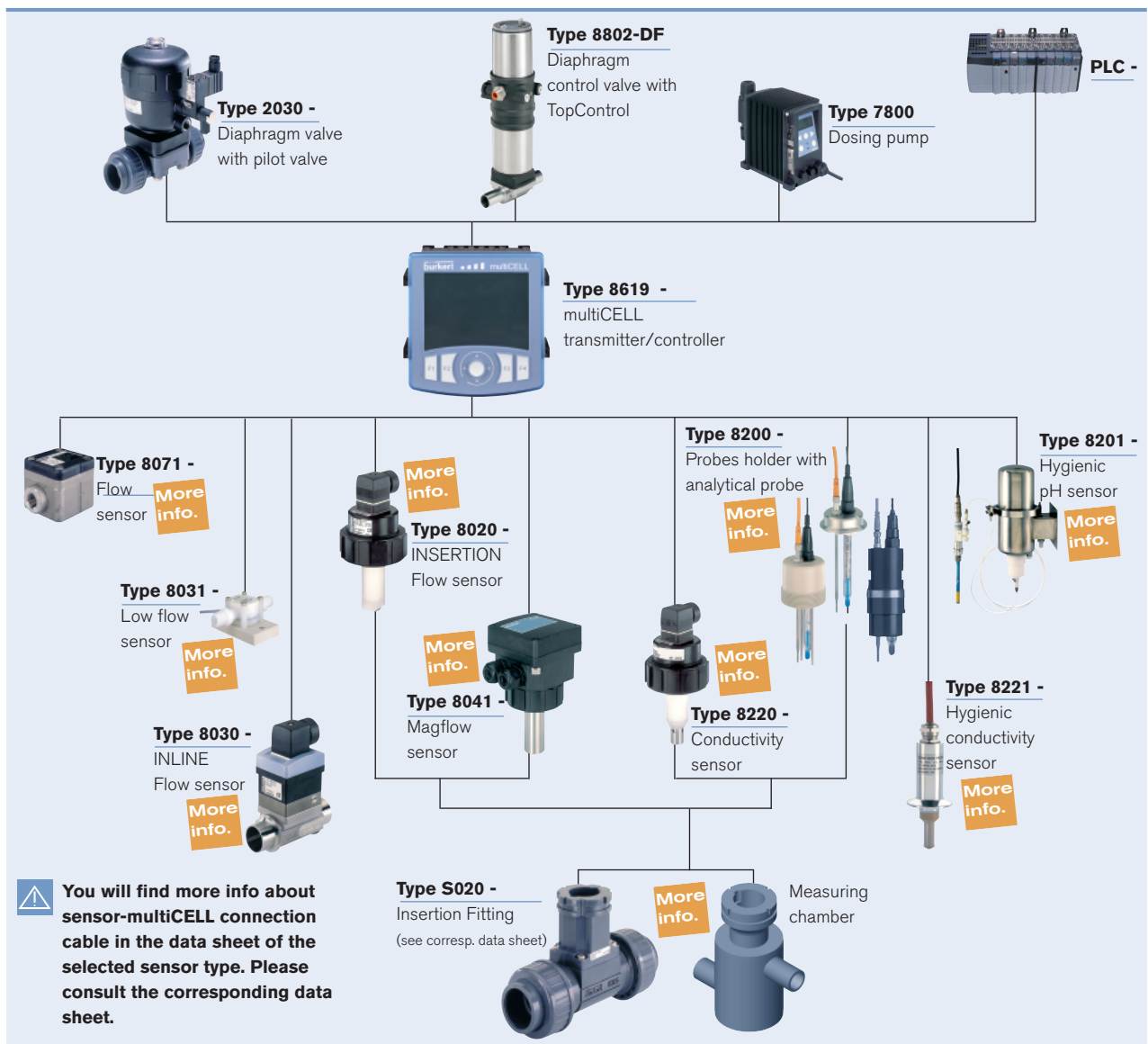
## Ordering chart for additional software functions for Type 8619

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 jot down on the order the Item no. of your 8619 multiCELL transmitter/controller and its serial number (see the device label).

Function	Description	Item no.
PID control	with each hardware version	561 836
Memory card (Data Logger)	with each hardware version	561 837
Chemical dosing (e.g. cooling tower)	with each hardware version	561 838
Flow measurement	with analytical hardware version	561 839
Concentration measurement of selected fluids	with conductivity hardware version	561 840

## 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.

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:

■ **Hardware:**

Mainboard (without flow function)

<b>Slot M1</b>	<input type="checkbox"/> pH/ORP + temperature module	<input type="checkbox"/> conductivity + temperature module	<input type="checkbox"/> output module
<b>Slot M2</b>	<input type="checkbox"/> pH/ORP + temperature module	<input type="checkbox"/> conductivity + temperature module	<input type="checkbox"/> output module
<b>Slot M3</b>	<input type="checkbox"/> pH/ORP + temperature module	<input type="checkbox"/> conductivity + temperature module	<input type="checkbox"/> output module
<b>Slot M4</b>	<input type="checkbox"/> pH/ORP + temperature module	<input type="checkbox"/> conductivity + temperature module	<input type="checkbox"/> output module
<b>Slot M5</b>	<input type="checkbox"/> pH/ORP + temperature module	<input type="checkbox"/> conductivity + temperature module	<input type="checkbox"/> output module
<b>Slot M6</b>	<input type="checkbox"/> pH/ORP + temperature module	<input type="checkbox"/> conductivity + temperature module	<input type="checkbox"/> output module

■ **Software:**

PID

Data logger

Chemical dosing (e.g. Cooling Tower) + special batch

Flow measurement

Concentration Measurement for selected fluids (only if one of the slot equipped with conductivity module)

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