



## Kontrol 102

The Kontrol 102 series are professional controllers designed for advanced high-end water treatment applications. All models are equipped with analogue and digital outputs that can be set by the end user via software with full programming autonomy for the operator.

## TECHNICAL CHARACTERISTICS

### Graphic display and Keypad

128x128 and 240x128 pixel resolutions monochrome display with graphic icons to show digital output status, washing cycle and alarms with four different color backlights. Simultaneous flashing values for the measurement (numeric + paragraph) and temperature readings. Five quick control keys for instrument calibration, setup, advanced and view levels.

### Enclosure Box and Power Supply

Wall mounting in ABS plastic material: IP65 protection Full Box; dimensions 220X144x122.5 mm.  
Panel mounting in ABS plastic material: IP65 Front panel; IP20 Rear side; dimensions 96x96x100 mm.  
Universal Power Supply 100÷240 Vac 50/60 Hz  
Low Power Supply 24÷48 Vdc or 24 Vac

### Current Outputs

4÷20 mA Output current analog signal.  
Two independent programmable Output Measures with Proportional routine regulation.  
PID regulation with Proportional-Integrative-Derivative algorithms mainly used in a wide range of applications for industrial process control.

### Relay Outputs

Four independent relays, two SetPoints, remote alarm and Back Washing probe setting by software. On/Off, Timed and Proportional (PWM) routine function setting.

### Solid State Relay (SSR)

Two Frequency output signal with two independent SetPoints.

### Snail Lock fixing system

Quick connection for panel mounting version.

### Communication Features

WiFi Embedded Advanced Module for Access point and Station connectivity

## APPLICATIONS

- Waste water
- Fish farming
- Boilers
- Irrigation
- Dairy
- Drinking water
- Reverse osmosis
- CIP
- Cooling towers
- Galvanic process

### PRODUCTS KEY

K	Kontrol							
	102	<b>Series</b>						
		<b>PR</b>	pH/Redox – pH/Redox Probes					
	<b>PD</b>	pH/ Redox - Electric Conductibility (Conductivity) Probes						
	<b>PM</b>	pH/ Redox - Input 4-20mA Probes						
	<b>MD</b>	Input 4-20mA - Electric Conductibility (Conductivity) Probes						
	<b>HC</b>	pH/Redox - Amperometric Chlorine Probes						
	<b>MM</b>	Double independent Input 4-20mA Probes						
	<b>P</b>	Box Panel Type 96x96 mm.						
	<b>Z</b>	Box Wall Type 220x144 mm.						
	<b>M</b>	100-240 Vac						
	<b>S</b>	24-48 Vdc; 24 Vac						
	<b>0</b>	None (Optional)						
	<b>000</b>	None (Optional)						
	<b>K</b>	<b>102</b>	<b>PR</b>	<b>P</b>	<b>M</b>	<b>0</b>	<b>000</b>	

### pH/ORP Specifications

Range pH	0 to 14.00 pH
Range mV	- 2.000 to 2.000 mV
Resolution pH	0.01 pH
Accuracy pH	± 0.01 pH
Resolution mV	1 mV
Accuracy mV	± 1 mV
Input Impedance	> 10 <sup>12</sup>
Insulation	Functional

### Conductivity/Resistance Specifications

Range with C 0.01 cm <sup>-1</sup> / K 100 sensor	0.005 µS/cm to 200 µS/cm (5 KΩ x cm to 200 MΩ x cm)
Range with C 0.10 cm <sup>-1</sup> / K 10 sensor	0.05 µS/cm to 2 mS/cm (500 Ω x cm to 20 MΩ x cm)
Range with C 0.20 cm <sup>-1</sup> / K 5 sensor	0.1 µS/cm to 4 mS/cm (250 Ω x cm to 10 MΩ x cm)
Range with C 1.00 cm <sup>-1</sup> / K 1 sensor	0.5 µS/cm to 20 mS/cm (50 Ω x cm to 2 MΩ x cm)
Range with C 10.0 cm <sup>-1</sup> / K 0.1 sensor	5 µS/cm to 200 mS/cm (5 Ω x cm to 200 KΩ x cm)
Range with C 20.0 cm <sup>-1</sup> / K 0.05 sensor	10 µS/cm to 400 mS/cm (2,5 Ω x cm to 100 KΩ x cm)
Resolution Cond/Res	0.0001 / 0.001 / 0.01 / 0.1 / 1 (adjustable from menu)
Accuracy Cond/Res	± 2% on the measuring point
Maximum distance of the sensor	up to 50 m (up to 164 ft)
TDS Range	0.3 to 2.0 ppm/µS
Insulation	Functional

### mA Input Specifications

Sensor type	Sensor with two or three wires
Sensor power supply 4/20mA 2 wires	24 Vdc ± 5%, max 30mA (*)
Short circuit protection	Active
Measure Range	from 0 to 20 mA or from 4 to 20 mA
Error Condition	NAMUR Alarm: OFF, 3.6 mA, 22 mA
Resolution	1 µA
Accuracy	± 0,2 %
Isolation	Functional

### Chlorine Amperometric Measure Specifications

Sensor Type	Chlorine Amperometric Probe
Measure Range	0 – 5 ppm
Resolution	± 0.01 ppm
Accuracy	± 0.10 ppm

### PT100/ PT1000 Specifications

Temperature Input	PT100/PT1000
PT100/PT1000 Detection	Automatic
Error Condition	Automatic detection of disconnected/damaged probe
Driving Current	1 mA
Temperature Measure Range	-50.0 to 150.0 °C (-58.0 to 302.0 °F)
Sensor Maximum Distance	10 to 20 m (33 to 65 ft) depending on sensor
Temperature Resolution	0.1 °C (°F)
Temperature Accuracy	PT100: ± 0.5°C (± 0.9 °F) - PT1000: ± 0.2°C (± 0.4 °F)
Insulation	Functional

(\*) DO NOT exceed the maximum allowable current limit, RISK of damaging the apparatus

### Power Supply (version 100÷240 Vac)

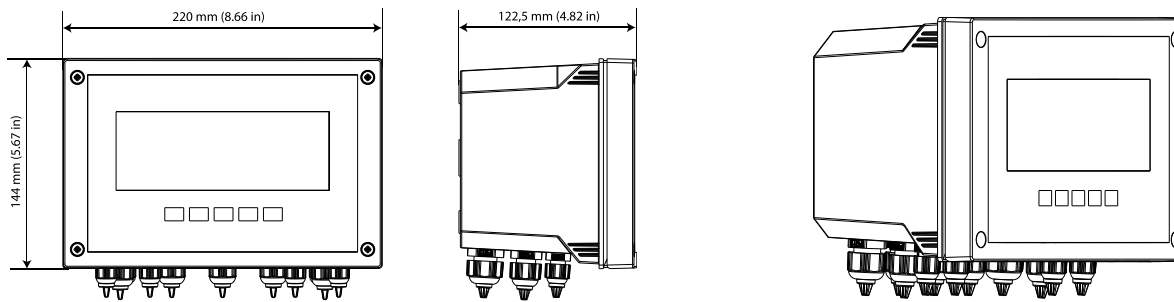
Electrical requirements	from 100 to 240 VAC ±10%, 8 W (note 1)
Frequency	50 to 60 Hz
Power Supply Fuse	Fuse Glass Body 5x20mm T1.25AL250V
Short Circuit Protection	Active

<b>Power Supply (version 24÷48 Vdc)</b>	
Electrical requirements	from 24 to 48 Vdc, or 24Vac ±20%, 8 W <sup>(note 1)</sup>
Power Supply Fuse	Fuse Glass Body 5x20mm T1.25AL250V
Short Circuit Protection	Active
Reverse Polarity Protection	Active
<b>Relay Outputs</b>	
RL1, RL2, RL3 and RL4	2-SPST mechanical 250 VAC/5A, 30 VCC/3 A
Relay RL1, RL2 Configuration	Load Activation
Relay RL3, RL4 Configuration	Load Activation, Probe Wash, Alarm Repetition
Cycle time	1sec to 3600sec
Delay time	1sec to 3600sec
Test Mode	ON, OFF
<b>SSR Outputs (Solid State Relays)</b>	
SSR1 and SSR2	2-SPST 60 V, max 100 mA, Bidirectional, NPN, PNP
Resistance in ON State	5 ohm max
Leakage Current in OFF State	1 uA max
SSR1 and SSR2 Configuration	Pulse output
Frequency Range	0 to 400 pulse/min
Pulse Duration	100 msec
Test Mode	0 to 400 pulse/min
<b>Outputs 4÷20 mA</b>	
Analog Output Signals	2 outputs 4÷20 mA, galvanically isolated from one another and from the power supply.
Measure Error	+/- 0,01 mA
Load	max. 800 Ω
Error Condition	NAMUR Alarm: OFF, 3.6 mA, 22 mA
Test Mode	3 to 23 mA
<b>Digital Inputs</b>	
REED Digital Input	Input for dry contact 5 Vdc, max 6 mA
<b>WiFi Communication</b>	
WiFi Communication	WiFi Embedded Advanced Module for Access point and Station connectivity
<b>Output 24 Vdc for Probes</b>	
Voltage	24 Vdc ±5%, max. 250 mA <sup>(note 2)</sup>
Short Circuit Protection	Self-Resettable fuse
<b>User Interface</b>	
Connection Terminals	Removable screw terminals AWG 14 < 2.5 mm <sup>2</sup>
Machine Cycle Time	ca. 1 s
Keyboard	5 tactile feedback keys
Display	Graphic LCD 128x128 or 240x128 pixels, FSTN, Trans reflective
Display Refresh	500 msec
Backlight	White, Green, Orange and Red with energy saving function

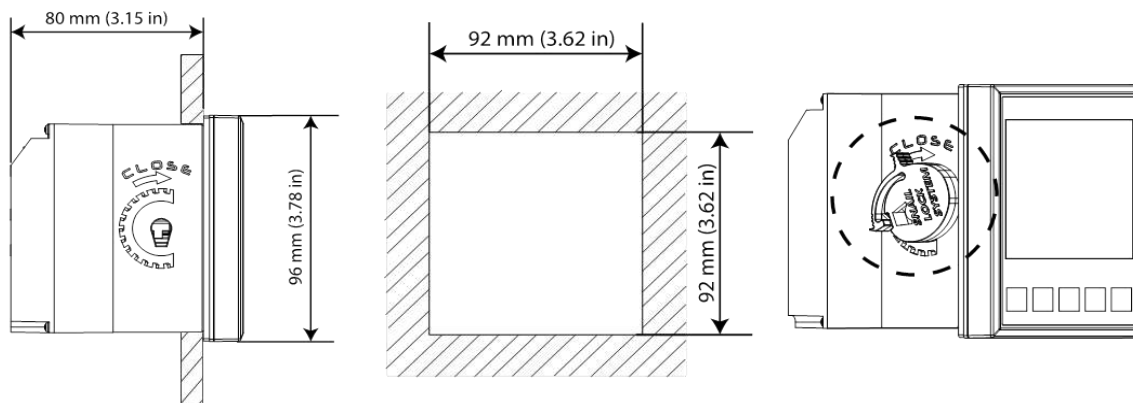
<sup>(note 1)</sup> Only Instrument: 8W; Instrument + 1 probe: 10,5W; Instrument + 2 probes: 13,5W;

<sup>(note 2)</sup> DO NOT exceed the maximum allowable current limit, RISK of damaging the apparatus

### DIMENSIONS



**-Wall mounting size (220x144x122,5 mm) – Dimensions and footprint for wall mounted device**



**-Panel mounting size (96x96x100 mm) - Panel cutout and dimensions for Snail Lock System for panel mounted device**