Controller Instrument
Kontrol 102 SERIES





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 ABS plastic material IP65 Full box for 220X144x122.5 mm.
Panel mounting ABS IP65 Front panel only for both 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

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APPLICATIONS

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

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PRODUCTS KEY

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

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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^{12}
Insulation	Functional
Conductivity/Resistance Specifications	
Range with C 0.01 cm^{-1} / 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^{-1} / 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^{-1} / 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^{-1} / 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^{-1} / 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^{-1} / 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

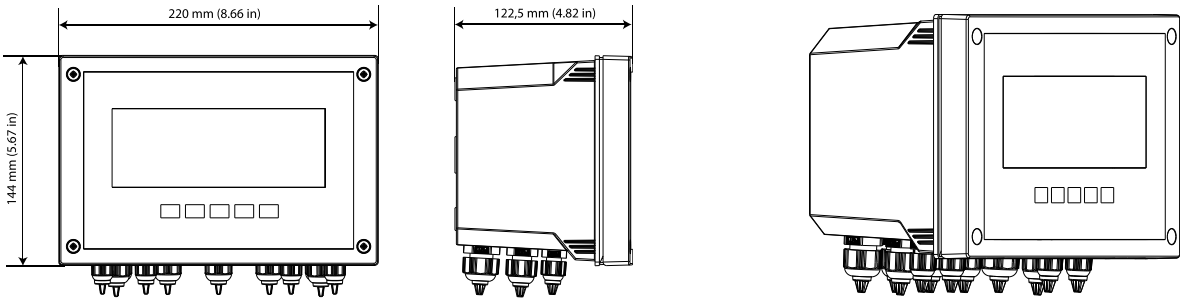
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Power Supply (version 24÷48 Vdc)	
Electrical requirements	from 24 to 48 Vdc, or 24Vac ±20%, 8 W (note 1)
Power Supply Fuse	Fuse Glass Body 5x20mm T1.25AL250V
Short Circuit Protection	Active
Reverse Polarity Protection	Active
Relay Outputs	
RL1, RL2, 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
SSR Outputs (Solid State Relays)	
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
Outputs 4÷20 mA	
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
Digital Inputs	
REED Digital Input	Input for dry contact 5 Vdc, max 6 mA
WiFi Communication	
WiFi Communication	WiFi Embedded Advanced Module for Access point and Station connectivity
Output 24 Vdc for Probes	
Voltage	24 Vdc ±5%, max. 250 mA (note 2)
Short Circuit Protection	Self-Resettable fuse
User Interface	
Connection Terminals	Removable screw terminals AWG 14 < 2.5 mm^2
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

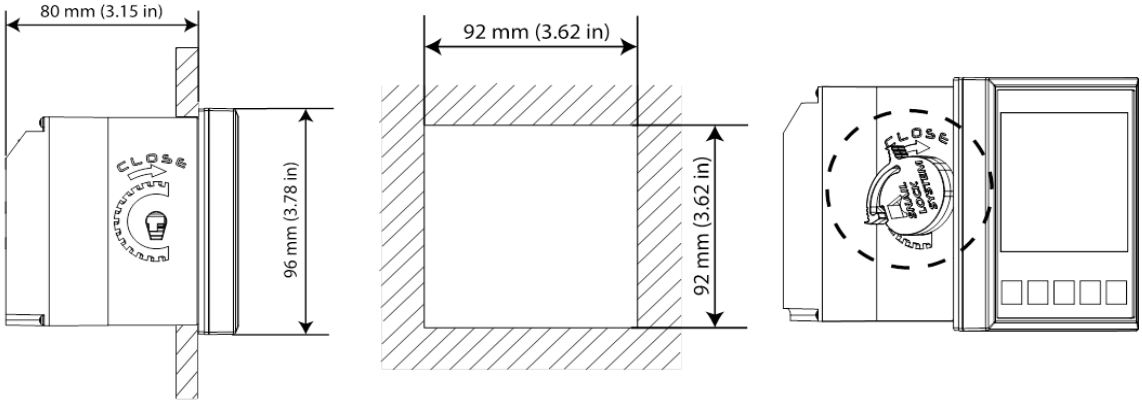
(note 1) Only Instrument: 8W; Instrument + 1 probe: 10,5W; Instrument + 2 probes: 13,5W;
(note 2) DO NOT exceed the maximum allowable current limit, RISK of damaging the apparatus

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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