

DUROMAT[®] Professional



Hardness analysis (total hardness, residual hardness) and alkalinity of the water (carbonic hardness, positive m value) (with graphic display)

Colorimetric analyzer, with microprocessor for the control of water hardness with the following measuring ranges:

measuring range (depends on the type of reagent)	
Water hardness (total and residual)	Alkalinity (carbon hardness, positive m value)
French degrees: 0.022 - 53.57 ° f German degrees: 0.012 - 30 ° dH English degrees: 0.02 - 37.59 ° e ppm CaCO ₃ : 0.22 - 534 ppm CaCO ₃ mmol / l: 0.002 - 5.3 mmol / l mg / l: 0.22 - 534 mg / l	French degrees: 0.54 - 40.2 ° f German degrees: 0.3 - 22.5 ° dH

Application (for example): control of water hardness after a softener, for the protection of a reverse osmosis system. With display of the measured hardness and possibility of calibration with a calibration solution (optional) or calibration with water on site.

The analyser is complete with:

4 programmable relay outputs: maximum value one, maximum value two (or minimum value and maximum value), command for a cooler, for a washing valve, pump, error, missing indicator, remote signaling.

1 output 0 (4) -20mA: analysis result (linear hardness) and operation.

2 programmable digital inputs: water meter, turbine water meter (Hall), flow meter, external start or stop commands.

MODBUS connection.

CANBUS connection (optional).

SD card connection: data / results / error saving and transfer with date and time, software update.

A bad analysis can be repeated (just exceeded the maximum value, without giving an alarm signal)

Extensive function control program, relay drive, Leeds drive, accessory control.

Steps of an analysis cycle: opening an inlet solenoid valve - washing the measuring chamber for a settable time - checking the transparency of the water (zero point) - dosing the indicator by a peristaltic pump - result of the measured hardness (with display of the measured hardness) - final washing of the measuring chamber - the equipment stops waiting for the next analysis (timed, volumetric, manual or external signal start).

Certifications / instructions:

- CE certification
- documentation in English (on request: Italian, French, German etc.)

Technical data of DUROMAT[®] professional:

Electrical connection:	230V 50-60Hz (exactly: 85-264V, 47-63 Hz) 24V AC/DC
Power consumption:	25 VA
Degree of protection on plate:	IP 43
Degree of protection with box:	IP 56
Weight mounted on a plate:	2,5 Kg
Weight mounted in box:	3,0 Kg
Dimensions mounted on plate:	width x height x depth 280x360x113 mm
Dimensions mounted in box:	width x height x depth 300x390x130 mm
Reagent quantity in the bottle:	500 ml
Reagent consumption:	10,000 analysis with softened water results
Relays outputs:	4 outputs, maximum load 250V 4A (hardness alarm, hardness pre-alarm, failure, lack of indicator, analysis contact)
Inputs:	2 inputs, maximum load 18V 12mA (STOP or START analysis, water meter)
Other outputs:	0 (4) -20mA hardness result or appliance operation MODBUS (CANBUS optional) SD card (results, errors)
Analysis interval:	programmable up 3 to 9.999 minutes
Washing time:	programmable up 0,5 to 10 minutes
<u>Quality of water:</u>	
Temperature:	5° - 40° C
Optically:	transparent, without color, without suspended substances, without air bubbles and CO2
Chemically:	pH 4 -10.5, iron <3ppm, copper <0.2ppm, aluminium <0.1ppm, manganese <0.2ppm acid capacity K S4.3 <5mmol / l
Water pression:	0,2-6 bar (2x104 – 6x105 Pa)
Drain:	without pressure (funnel)
Inlet / drain water connection:	6 mm external diameter hose

Available reagents (content 500ml):

Art	Type	Water hardness measuring range (total hardness, residual hardness)					
		°f	°dH	°e	ppm	mg/l	mmol/l
200852	500S/500	0,022-0,21	0,012-0,12	0,02-0,15	0,22-2,14	0,22-2,14	0,002-0,021
200855	500/500	0,04-0,36	0,02-0,2	0,03-0,25	0,36-3,56	0,36-3,56	0,04-0,036
200860	501/500	0,05-0,54	0,03-0,3	0,04-0,38	0,53-5,34	0,53-5,34	0,005-0,0531
200862	502/500	0,11-1,07	0,06-0,6	0,075-0,75	1,067-10,7	1,067-10,7	0,011-0,107
200863	503/500	0,16-1,61	0,09-0,9	0,11-1,13	1,60-16,02	1,60-16,02	0,02-0,16
200865	505/500	0,27-2,68	0,15-1,5	0,19-1,88	2,67-26,70	2,67-26,70	0,03-0,2
200870	510/500	0,54-5,36	0,3-3,0	0,38-3,76	5,34-53,4	5,34-53,4	0,0534-0,534
200875	520/500	1,07-10,71	0,6-6,0	0,8-7,5	10,7-106,8	10,7-106,8	0,107-1,070
200876	530/500	1,61-16,07	0,9 - 9,0	1,13-11,28	16,02-160,2	16,02-160,2	0,160-1,605
200878	550/500	2,68-26,79	1,5-15	1,9-18,8	26,7-267,00	26,7-267,00	0,27-2,67
200880	600/500*	5,36-53,57	3,0-30	3,76-37,59	53,4-534	53,4-534	0,53-5,3
		Alkalinity measuring range (carbon hardness, positive m value)					
200887	710/500	0,5-13,4	0,3-7,5	0,37-9,34	5,34-53,4	5,34-53,4	0,11-2,68
200889	715/500	0,8-20,5	0,5-11,5	0,62-14,3	8,01-80,10	8,01-80,10	0,16-4,11
200890	720/500	1,1-26,8	0,6-15,0	0,75-18,7	10,68-106,8	10,68-106,8	0,21-5,36
200891	730/500	1,6-40,2	0,9-22,5	1,12-28,0	16,02-401,8	16,02-401,8	0,32-8,04

(*) need for on-site calibration

DUROMAT® professional Mounted in box 0,2 - 6 ate (2x10 ⁴ – 6x10 ⁵ Pa) (reagent is not included)		Water hardness (total hardness, residual hardness) alkalinity (carbon hardness, positive m value)
		85 – 264V 47-63Hz 200151
		24V AC/DC 200156
DUROMAT® professional On a plate 0,2 - 6 ate (2x10 ⁴ – 6x10 ⁵ Pa) (reagent is not included)		Water hardness (total hardness, residual hardness) alkalinity (carbon hardness, positive m value)
		85 – 264V 47-63Hz 200150
		24V AC/DC 200155
Optional (not required for the operation):		
CanBus		200157
WiFi	2021: in progress	200158
Cleaning set	For road transport For air transport	200013 200013S
Pressure reducer	¼", 1-8bar	200022
Sampling suction pump	Auto suction 3 meters	200028
Coolers	Temperature from 40 to 80 ° C	200030
	Temperature up to 120 ° C	200031
	Temperature up to 200 ° C	200045

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