

## LEVEL CONTROL STUDY UNIT



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### Experimental capabilities

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- Study of a level regulation loop
- Identification of components: Sensors, Regulator, Actuator, disruptive element
- Setting the regulator via interface
- PID regulation or auto-adaptive
- Visualization of different signals by software
- Characteristic curves (level, valve opening)

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## Operating principle

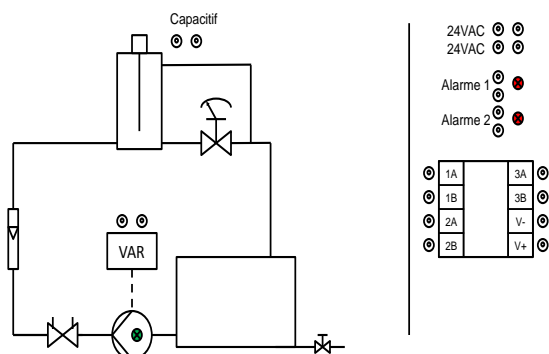
The RCN 200 bench allows the study of the level control. A pump ensures the water supply in a transparent test reservoir. A capacitive sensor measuring the water level in the tank. A digital PID controller receives the level of information and needs to adjust the speed of the pump driven by the inverter to reach the setpoint.

The unit comes complete with instrumentation, technical and educational materials in french as well as all the accessories required for proper operation (Included supervision software)

The robust design of this equipment makes it perfectly suited for school use.

Its anodized aluminum structure on wheels makes it very robust as well as a great flexibility of integration into your premises. The manufacture of this equipment meets the European machine directive

## Illustrations



## Technical details

### 1 Polyethylene tank with drainage

Volume 75 L

### 2 Supply pump with inverter

Centrifugal pump with stainless steel body

Flow rate regulating valve at the outlet

Electronic speed variator

### 3 Float flowmeter PVC

Linear scale 160-1600 L / min

Direct reading by the floater position

### 4 Transparent tank of level testing

Base 270 mm

Height 625 mm

### 5 Capacitive level sensor

Insulated steel stem

Measuring range: 0-600 mm

4/20 mA current output proportional to the level

### 6 Perturbation valve

Graduated linear ball valve

### 7 PID microprocessor controller

Accuracy class: 0.2

Scope of configurable range

4-20 mA analog output

2 programmable relay outputs

### 8 Synoptic resuming the bench schema

Sensor and actuator signals are returned on the sleeves of the scheme

Two power supplies 24 VAC for two LEDs

alarm

A status indicator of the pump, bushings

inputs and outputs and of the indicator

## Services required

- Electricital supply : 230 VAC mono - 50 Hz – 1,5kW
- Water supply : 15L/min – 3 bars (tank 75 L)
- Dimensions: (LxWxH mm): 1000 x 800 x 1750
- weight (Kg): 80

## Documentation

- User's manual
- Pedagogical manual
- Technical documentation of the components
- Lab exercises
- Certificate of conformity CE

Note : if the equipment installation is operated by our staff, all supplies and exhaust connections required must stand at less than 2m from the machine

# RCN200

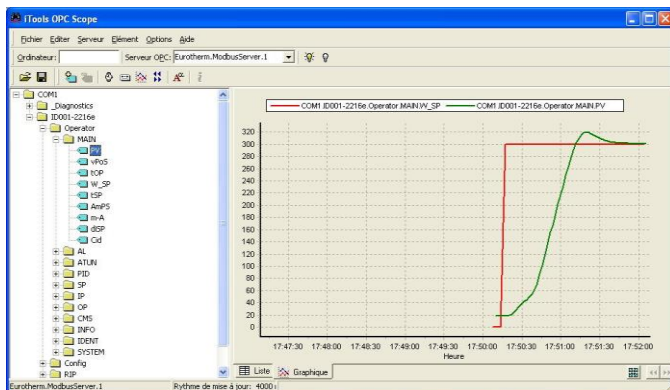
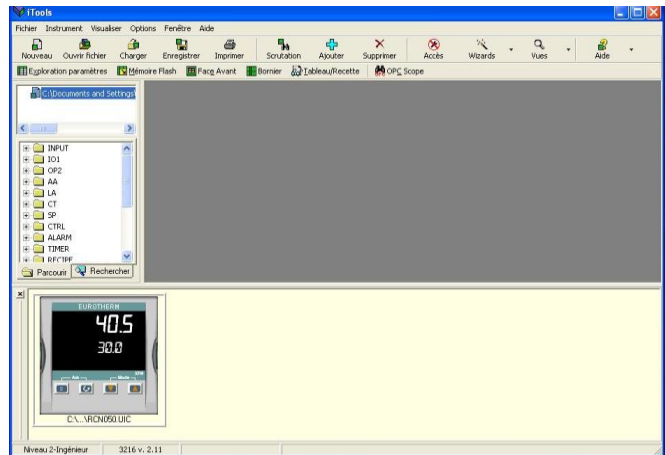


## Supervision : Parameters, Plot curves

The bench is also equipped as standard with a supervision and setting software. The connection to the PC is made by a standard USB port. The software is divided into two parts:

### SETTING :

This section provides access to the regulator parameters directly via a data browser similar to that of Windows. The front panel of regulator is reproduced on the PC screen and the operator can actuate the buttons and controls as if he was on the pilot.



### Plotting the curves

This section allows you to draw curves with the signals of the regulator. For example on this image below we visualize the setpoint and the real-time measurement, but it is possible to add other parameters such as the output signal ... The data stored during the plot can then be saved in a file in Excel format.