

AUTOMATED PUMPING SKID



Description

- The equipment is delivery complete, instrumented with technical manual and practical work
- The system includes a tank and three return groups to feed the distribution tank (water tower)
- Consumption is adjusted by a leakage flow valve flowing into the lower tower
- The cycle is managed by an industrial PLC
- Study of the concept of a lifting station

Experimental capabilities

- Study of the concept of a lifting unit
- Measurement of level parameters
- Pump rotation, maintenance management
- PID type control on frequency converter or TOR
- Programmation on API

Operating principle

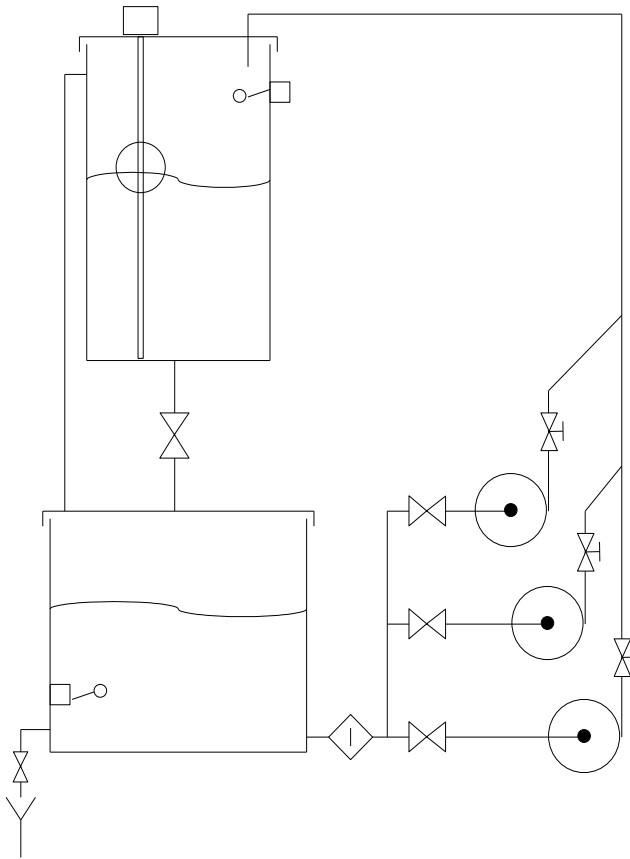
The principle of the bench is to study the concept of a pumping station and to simulate the operation of a water tower. It is equipped with two tanks; the upper tub represents the water tower and the lower tub a well. The goal will be to maintain a certain level of water in the upper tub. For this we have 3 pumps (with one on speed variator), an analog level sensor on the upper tub, two detectors of min and max levels. The bench is fitted with a programmable logic controller for performing several functions. Students can select different regulation methods Digital or PID.

The bench is also equipped with a supervision computer by means of a touch screen with Didatec interface included.

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

Its anodized aluminum frame with legs gives it great strength as well as great flexibility of integration into your premises. The manufacturing of this equipment meets the European machine directive

Illustrations



Technical details

- 3 identical multistage pumps
 - Body, stainless steel wheel and axle
 - 5m³/h, 0,30kW, 25 mCE
- Frequency inverter
 - Simple vector control
 - Programming Keyboard
 - Setpoint input from the PLC
- Analog level sensor
 - Floater technology 800 mm
 - Stem in contact with the fluid in stainless
 - 4-20 mA output
- Programmable Logic Controller schneider
 - Model TM 221
 - 9 digital inputs - 7 digital outputs
 - 2 analog inputs
 - Supplied with programming software
 - Possibility of literal programming or contact
- Safety elements
 - 30 mA differential circuit breaker
 - Level sensor low and high ...
- Tank
 - Lower: Polypropylene, capacity 150 L
 - Upper: Polypropylene, capacity 150 L
- Programming Touchscreen
- Measurement of current and voltage sockets
 - Measurement of current and voltage of each phase of power
 - Portable Multimeter included
- Float flowmeter
 - 600-6000 L/h

Services required

- Power supply : 400 VAC – 50 Hz – 32 A
- Power supply type: 3 phases + neutral + earth
- Water supply : 15 L/min – 3 bars (Bin filling)
- Water disposal: at ground level
- Dimensions: (LxWxH mm): 1690 x 750 x 1930
- weight (Kg): 170

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

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SDP050



Included with the installation: Touchscreen of supervision



Display of the evolution of the various process data

- PID control mode
- Digital control mode ...

Illustrations :



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Illustrations non contractuelles / Illustrations not contractual

version : FT-SDP050-STD-C

SDP050

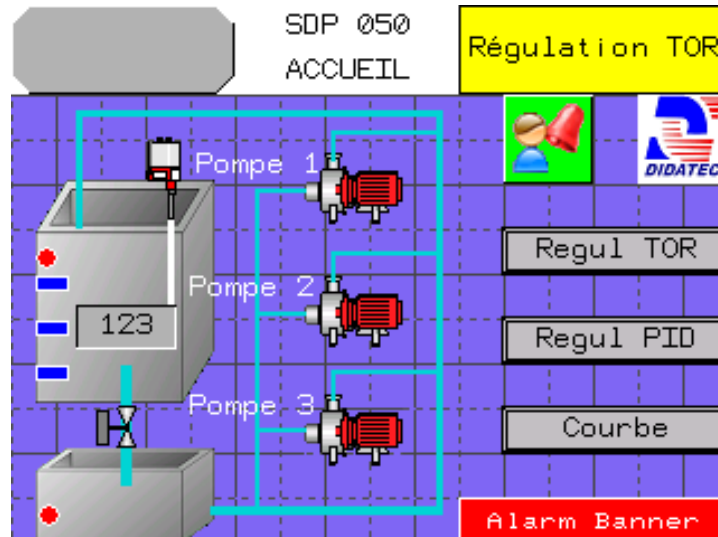


Supervision: Parameter setting, Plot of curve

The bench is also equipped as standard with a touch screen of supervision and parameter setting. The connection to the PC is made via a USB port.

The interface, displayed on the screen consists of several screens.

Navigation is done via the home screen:

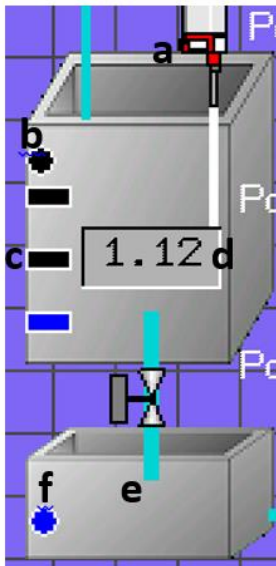


On the left side appears an image of the tub, of the level sensor and pumps.

On the right appear the buttons allowing to steer towards the other screens.

On top appears the control mode selector (on the right) and the display of the operating mode (on the left).

Picture of the tub:



a . Analog level sensor

b. Status light of the high level sensor (black if FALSE, red if TRUE)

c. Threshold indicator. If the level is above the threshold indicator turns blue

d. Level indicator of the bin

e. Lower bin

f. Status light of the low level sensor (blue if TRUE, red if FALSE)

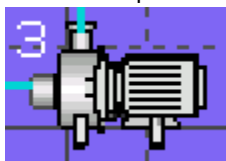
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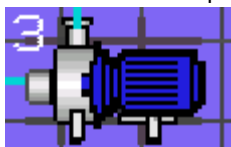
Image of pumps:

The pumps can be in 4 different states, each distinguished by a color

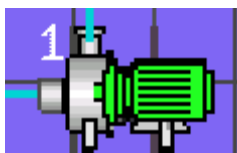
- GREY: Pump at standstill



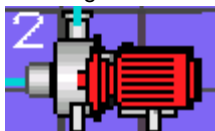
- BLUE: Shows an operating mode "Manual"



- GREEN: Indicates an operation mode "Control"



- Flashing RED: Indicates a defect on the pump.



Navigation buttons:



Referral towards the mode configuration screen "Digital control".

Referral towards the mode configuration screen "PID control".

Referral to the display screen of the level curve.

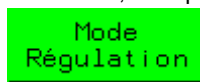


Referral to the alarm screen.

Upper bar:

The upper part of the screen allows to displays the operating mode and to select the system control mode.

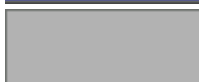
- On the left, the operation mode display has 3 states



Mode « Control »



Mode « Manual »



Inactive

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- On the right the control mode selector allows, through support, to move from "Digital control" to "PID control" (and vice versa).

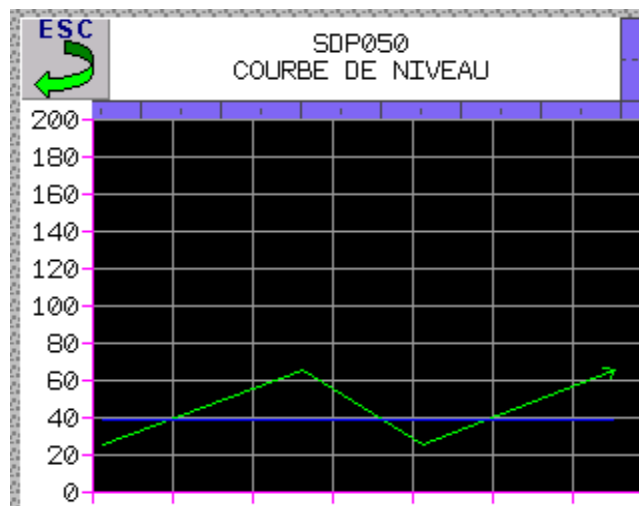


Return button:



Available on each screen (except home page), allows the return to the previous screen.

Level curve:



The graph shows the curve of the level (in green) in centimeters as well as the setpoint (in blue).