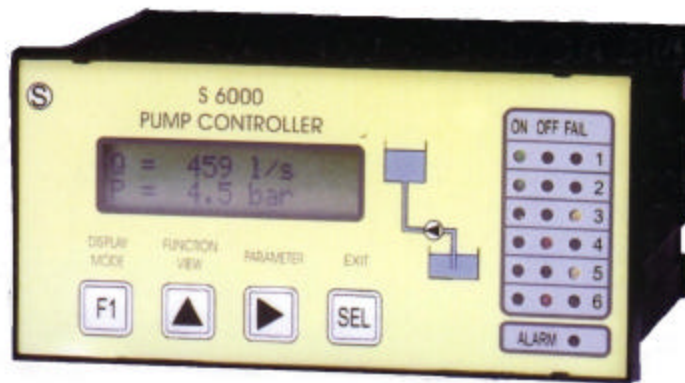# S6000 – PUMP CONTROL UNIT

CE Complying equipments with prescriptions on electromagnetic compability (standard 89/336/CEE.)
Industrial environment, reference standard : EN 50081-2 EMISSION /EN 50082-2 Immunity

Very versatile microprocessor control unit suitable for plant automation. Used mainly for control and management of pumps, motors, blowers and adjustment valves. Provides the answer to all lifting system automation problems (water collecting wells, wall tanks etc.), automation of water distribution networks, fire prevention systems and oxygenation tanks (in both the water purification and fish farming sectors). The machine has two PID regulators permitting regulation of flow rate, pressure etc., an incorporated clock for process time control and a motor rotation system to ensure uniform wear. It is easy to use and program and can be programmed on site from keypad with parameters displayed on backlit LCD display. It has an RS232 interface for monitoring and remote programming. It can control up to 6 motors in the basic version, expandable to 22 using the optional expansion modules S6000/ESP/8D/8R.

The S6000 is a valid alternative to the automation of plants by means of PLC as it offers, in one single compact economic solution, a control and programming unit with operator interface for immediate use, programmable directly on site.

144x72 self-extinguishing Noryl case designed for panel mounting, front panel with polycarbonate membrane with backlit LCD multi-function viewer, 2 lines x 16 characters, 4 keys for local programming, 18 status LEDs (3 for each of the 6 pumps that can be controlled) indicating ON (green), OFF (red) and FAIL (yellow) and 1 red LED to indicate alarm situations. Rear connections with pull-out terminal blocks.

Power supply:
S6000-1-ST : 115 / 230 Vac ±10 % 48 ÷ 60 Hz
S6000-2-ST : 24 Vcc ±10 %
S6000-3-ST : 24 Vca ±10 % 48 ÷ 60 Hz
Power consumption: 10W
Analogue inputs: 2 with 0/4÷20 mA signal on 100ohm, with 8 bit resolution
Digital inputs: 6 optoisolated
Analogue outputs: 2 optoisolated with double range (0 / 4 ÷ 20 mA and 0 ÷ 10 Vdc)
Relay outputs:
- 6 with SPST changeover contact 5 A 250 Vac
- 1 output with SPDT contact 5 A 250 Vac
Digital outputs: 1 optoisolated open collector 20 mA max
Operating temp.: 0 ÷ 50 °C
Humidity: 90 % at 40 °C (non-condensing)
Dimensions (b x h x d) : 144 x 72 x 121 mm
Weight: approx. 800 g

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APPLICATIONS AND EXAMPLES

The flexibility of the S6000 makes it suitable for many different applications. Some of the most typical applications in the field of industrial plant engineering are listed below:

1) OXYGENATION AND OXIDISATION TANK (WATER PURIFICATION PLANTS, FISH FARMING etc.)

The blower motors are controlled according to a PID type algorithm implemented in the machine software. The application serves to maintain a level of dissolved oxygen equal to the programmed value.

The fail sensors will activate appropriate procedures if faults are detected in any of the motors.

2) PUMP SEQUENCER WITH PRESSURE CONTROL

The raised tank receives water from the water mains; to ensure a certain pressure at the measuring point a set of pumps that supply the mains is used.
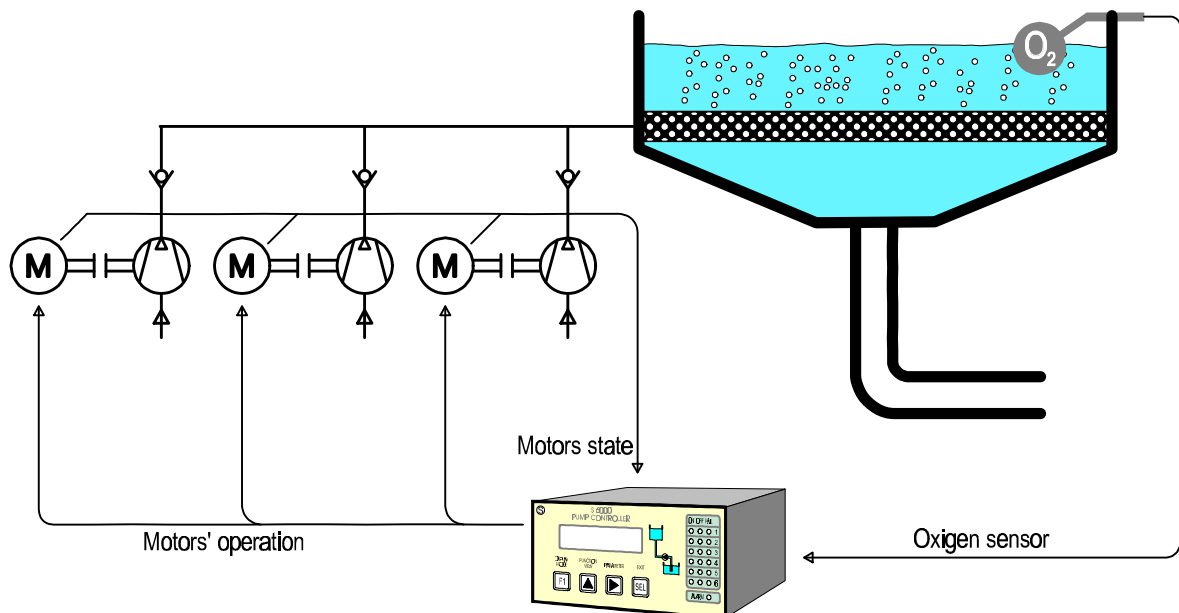
The same system applies to hydraulic systems in blocks of flats. The pumps are driven in rotation in order to ensure uniform wear, equally distributing the utilisation time.
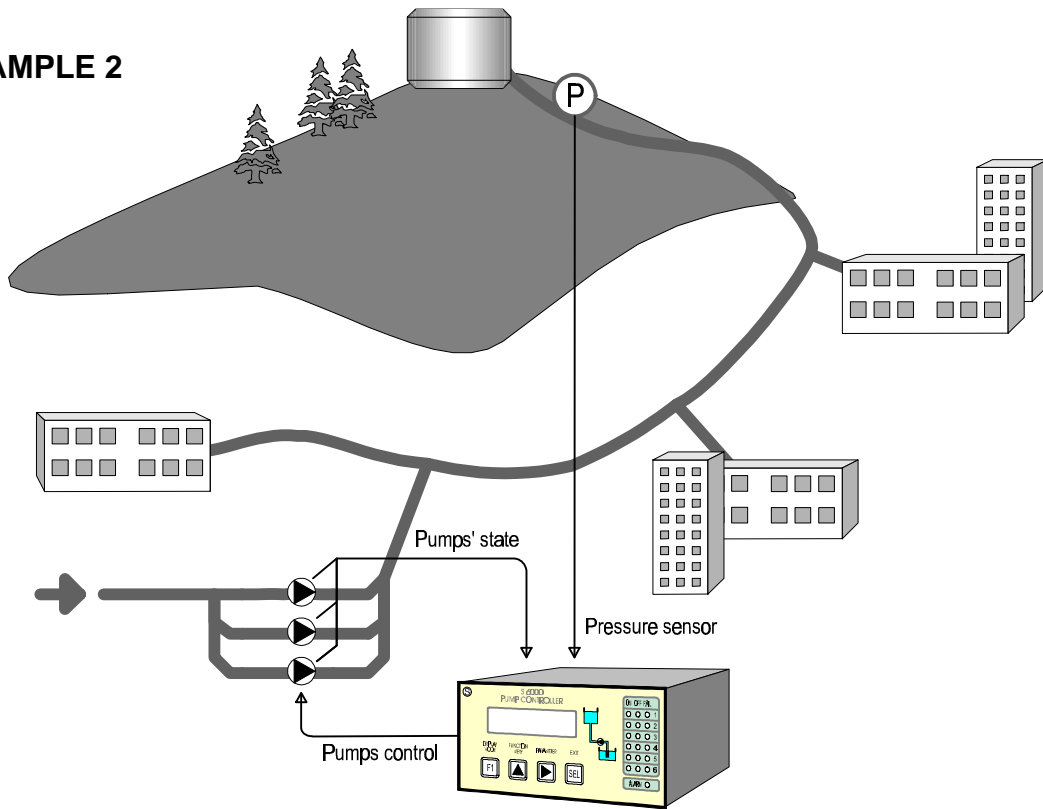
3) PRESSURE AND FLOW RATE CONTROL

A closed circuit water network is controlled in order to guarantee a minimum flow rate; when the draw-off drops, the pressure is maintained at a certain level.

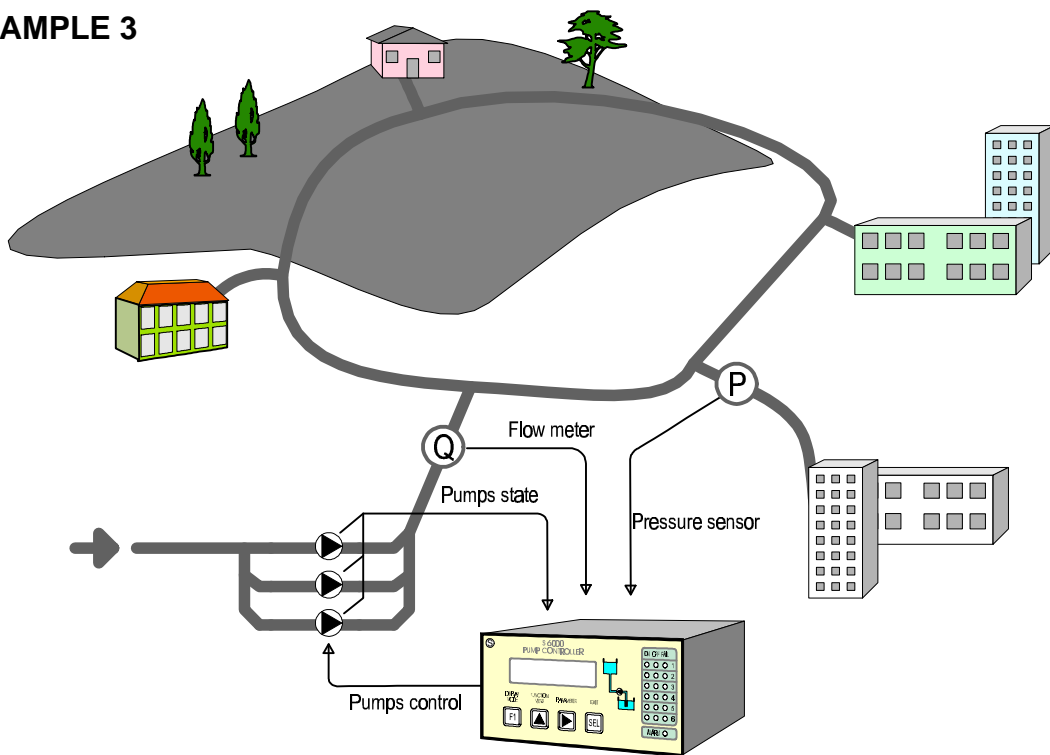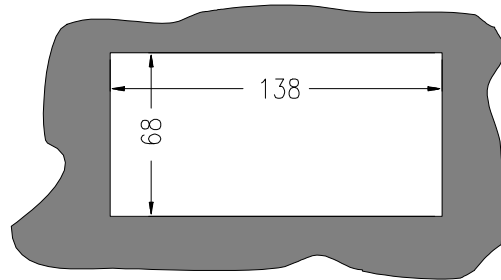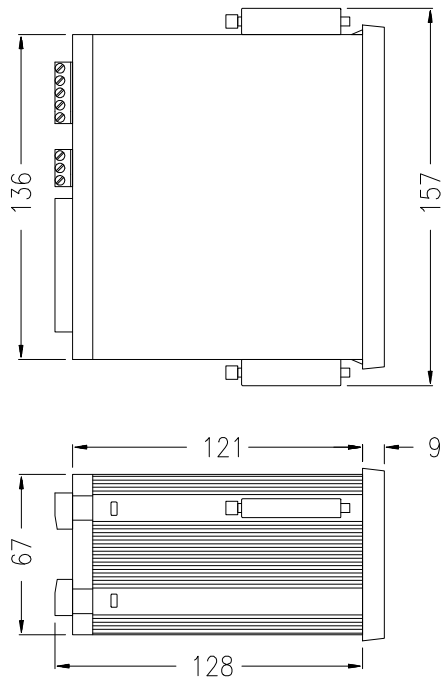The motor control strategy is described in example no. 2.

EXAMPLE 1

EXAMPLE 2

Pumps' state

Pressure sensor

Pumps control

EXAMPLE 3

Flow meter

Pumps state

Pressure sensor

Pumps control

DIMENSIONS AND PANEL DRILLING

136   157

138   68

121   9

67

128

S6000/ESP/8D/8R INPUT/OUTPUT EXPANSION MODULE FOR S6000

Module to be connected to the S6000 programmer via serial cable. Up to 2 modules can be connected to an S6000 programmer.
Each module has:
8 optoisolated digital inputs with contact control
4 SPDT relay outputs with capacity 5 A 250 Vac (resistive load)
4 SPST relay outputs with capacity 5 A 250 Vac
(All the relays have a shared terminal).
The self-extinguishing Noryl case is the width of 9 modules and is designed to fit on a DIN 35 mm mounting rail.

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