

PC 2000-W – waste water pump controller

1. General

PC 2000-W is a microprocessor based pump controller. The equipment is made for managing waste water, raw water or storming water pumping stations. **PC 2000-W** can control up to 4 pump groups. **PC 2000-W** can optionally drive mixers, valves or screens, depending on the specific application. Whenever the pumping station uses a variable speed pump driven by a frequency converter, **PC 2000-W** will continuously adjust its speed by comparing the water level with the programmed set-point. By using any combination of variable and fixed speed pumps, will accurately maintained the water level to the requested value.

2. Day and Night Set-Points

To comply with major flow differences between day and night, **PC 2000-W** allows defining independent pump day and night start/stop levels.

3. Computing station Inflow/Outflow and Pump capacity

By defining the pit shape through entering cross-section areas at different levels and consider water level changes, **PC 2000-W** can compute station inflow and outflow and the pump capacity of each unit. Alarms are generated for low pump capacity.

4. Extra Safety

PC 2000-W can use continuous level sensors as well as level switches.

In order to maintain proper operation of the system

in the event of a faulty level sensor, one can add to the system low level (dry running) and high level (overflow) switches. While the level sensor is out-of-order, the pumps will operate in emergency backup mode, in the range given by the two level switches.

5. Alarms

PC 2000-W logs a large number of different events and alarms. This logged information can be conveniently reviewed by the operator, allowing for timely corrections of the system faults.

PC 2000-W can log up to 200 events.

The logged alarms are organized in three different categories listed separately:

- Unacknowledged Alarms
- Active Alarms
- All Alarms (Alarm History)

Pump Failures, Sensor Failures and System Alarms

can be also displayed in separate lists.

For the controllers that are integrated in a monitoring system, A or B index can be assigned for each alarm type.

6. Accumulated values

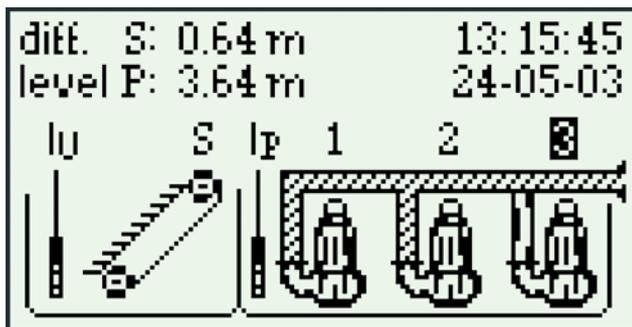
PC 2000-W is able to read the actual flow and the power consumption (impulses or analog signals) from flow meters and energy meters installed in the pumping station. It then computes the corresponding accumulated values: pumped volume, energy consumption and specific consumption (Wh per pumped cubic meter). The accumulated values (total, current day, last 7 days) are stored and displayed numerically or as a graphical bar chart. Pump running time, number of pump starts, overflow time and number are computed, as well as their corresponding accumulated values. The accumulated values



(total, current day, and the last 7 days) are stored and displayed as well.

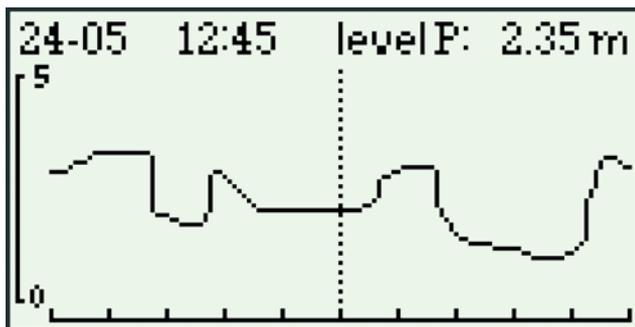
7. Logged data

Pump status (on, off, failed, fixed speed, variable speed) and up to 10 analog signals (pit level, motor currents, inflow, outflow etc.) are logged using a 5 minutes sampling rate. Data are stored for 8 days (current day and the last 7 days).



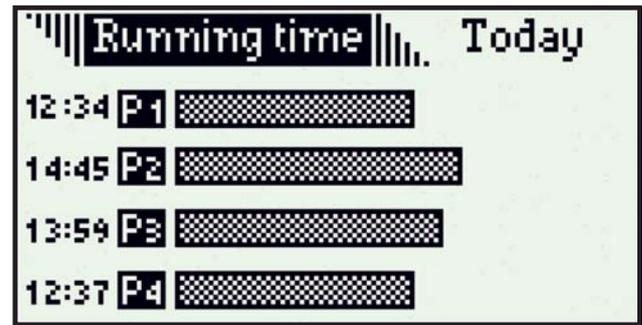
8. Displayed data

PC 2000-W has a graphical LCD (128x64 dots) and 12 function keys. Current and logged values (level, motor currents, inflow, outflow, power) pump status (on/off, available/failed, variable/fixed speed), alarm history and settings parameter are displayed.



9. Internal bus

PC 2000-W can display the data collected from different device types (protection relays, energy meters, frequency converters, soft-starters etc.) via an RS 485 interface or a CAN interface.



10. Functions

PC 2000-W includes various functions tailored for waste water pumping stations. These include programmable day/night set-points, cyclic or running time pump alternation, start/stop delays, switching delay, random start levels (around the set-point), pipe and pit cleanings, high inflow automatic starts, check-run of off-state pumps, running state confirmation, low and high motor current alarm levels. The operator can select and configure these functions to optimize the pumping station operation and to increase the interval between scheduled maintenance.

11. Security levels

To avoid unauthorized access, **PC 2000-W** uses two passwords: an operator access code (which allows operator to adjust only some values) and a system access code (that gives a full access to the set parameters).

12. Communication

PC 2000-W has a serial interface (RS 232 C) allowing connection either to a Notebook PC, to a telephone modem, to a GSM modem or to a radio-modem.

The system for remote data transfer can be chosen selecting one of the following:

- Data transfer by the public telephone network (PSTN)
- Data transfer by cellular telephone network (GSM)
- Data transfer using radio data transmission
- Data transfer to a Notebook PC