Probit ®

PC 2000-C – Clean Water Pump Controller

1. General

PC 2000-C is a microprocessor based pump controller. The equipment is made for managing clean water pumping stations, pressure boosting stations and fire fighting pumping stations. **PC 2000-C** can control up to 6 pump groups. If the system uses a variable-speed pump, **PC 2000-C** will read the pressure level from a sensor placed in the discharge pipe and will compare this value to a reference set point. The controller will maintain the discharge pressure at the set point by varying the speed of the variable speed pump and switching the other pumps "on" and "off". If the system contains only fixed speed pumps, or the frequency converter failed, **PC 2000-C** will switch the pumps "on" and "off" in order to maintain the discharge pressure within set limits.

2. Multiple Set-Points

PC 2000-C can operate up to 6 set points per day to allow pressure variation as a result satisfying different demands.

These set points can be programmed weekly (same values from Monday to Sunday), weekday/weekend (same values from Monday to Friday and another set of values for Saturday and Sunday) or daily.

3. Water supply system

The pumping stations controlled by **PC 2000-C** can be supplied directly from the public water distribution network or from a buffer tank.

For the pumping stations that are supplied from the water distribution network, a pressure sensor measures the suction pipe pressure.

For the pumping stations that are supplied from a buffer tank the pumping system can also be used for fire fighting, water height being measured through a level sensor and/or detected through four level float switches (low level, fire level, restart level and overflow).

4. Extra Safety

PC 2000-C works with sensors and switches as well. To increase the system safety, pressure and level sensors can be used in conjunction with pressure-switches and float switches.

To prevent dry running when the pressure sensor on the suction pipe (or the level sensor in the tank) is damaged, an extra pressure switch (or low level float switch) can be used.

To prevent overpressure when the pressure sensor on the discharge pipe is damaged, an extra pressure switch can be used.

5. Alarms

A large number of alarms can be detected, logged and displayed on the screen, helping the operator to determine the cause of the fault and fix it promptly.

Up to 200 alarms can be logged.

The logged alarms are organized in three different type lists:

• 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 which are integrated in a monitoring system, A or B index can be assigned for each alarm type.

6. Accumulated values

PC 2000-C 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 and computes the corresponding accumulated values: pumped volume, energy consumption and system efficiency (kW per pumped cubic meter). The accumulated values (total, current day and the last 7 days) are stored

and displayed, including a graphical representation bar.

Pump running time and pump starts number are computed and their corresponding accumulated values (total, current day and the last 7 days) are stored and displayed as well.
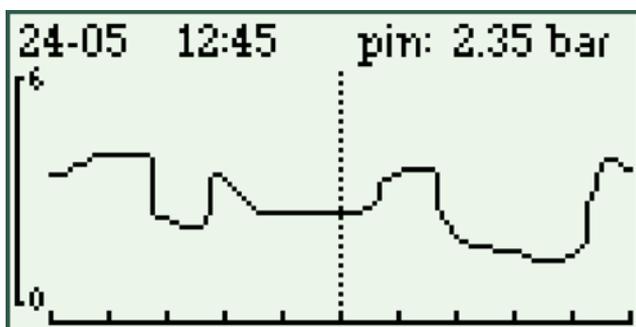
7. Logged data

Pump status (on, off, failed, fixed speed, variable speed) and up to 7 analog signals are logged using a 5 minute sampling rate. Data are stored for 8 days (current day and the last 7 days).


8. Displayed data

PC 2000-C has a graphical LCD (128x64 dots) and 12 function keys. Current values (pressure-in, the water level in the buffer tank, pressure-out, flow, power), pump status (on/off, available/failed, variable/fixed speed), alarm history etc. are displayed.

Pump status and logged data (pressure-in, pressure-out, head, level in tank, the height of water computed from the fire fighting level, flow, power etc.) are alphanumerically and graphically represented.
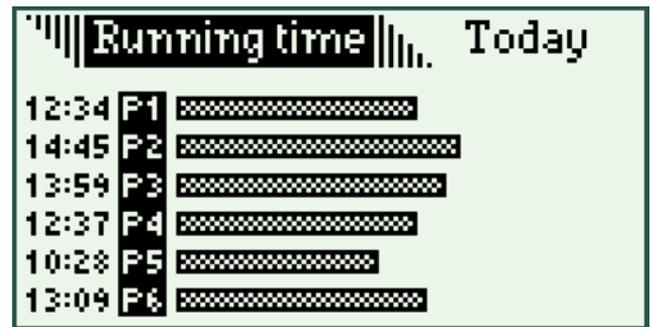
9. Internal bus

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

10. Functions

The controller includes a lot of specific functions fitting the application needs that optimize the pump running. Operator can set alternation of the fixed speed pumps (on/off alternation, alternation after a continuous running time), frequency converter swaps, start/stop delays etc.

11. Security levels

To avoid unauthorized access, **PC 2000-C** 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-C 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