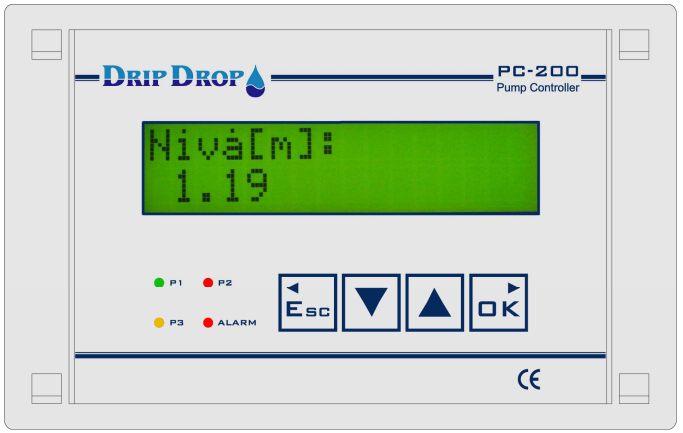
# INSTALLATION MANUAL

Version: 0906-UK

# PC-200

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# 8 Electromagnetic compability (EMC)

| Electromagnetic compability (EMC) | | | | | |
|---|---|---|---|---|---|
| **Description** | **Standard** | **Class** | **Level** | **Notes** | **Test** |
| Network frequency magnetic field | CEI 61000-4-8 | | 30A/m | | A |
| Immunity to radiated RF--fields | CEI 61000-4-3 | 3 | 10V/m | 26MHz-1GHz | A |
| Electrostatic discharge immunity | CEI 61000-4-2 | 4 | ± 8kV | Air discharge | C |
| | | | ± 4kV | Cont. discharge | C |
| Radiated emission | SR EN 2022:2004 | A | | 26MHz-1GHz | A |

# 9 Accessories

| Description | Art. nr | Comments |
|---|---|---|
| PC200 | 20101-03-150 | Pump controller |
| Level sensor SP-25 (0-1m H2O) | 40101-06-103 | 4-20mA |
| Level sensor SP-25 (0-4m H2O) | 40101-06-102 | 4-20mA |
| Level sensor SP-25 (0-5m H2O) | 40101-06-106 | 4-20mA |
| Level sensor SP-25 (0-10m H2O) | 40101-06-108 | 4-20mA |
| Current transformer CTD-1X.50.5A.XXX | 40101-54-104 | 4-20mA |

# 7 Technical specification.

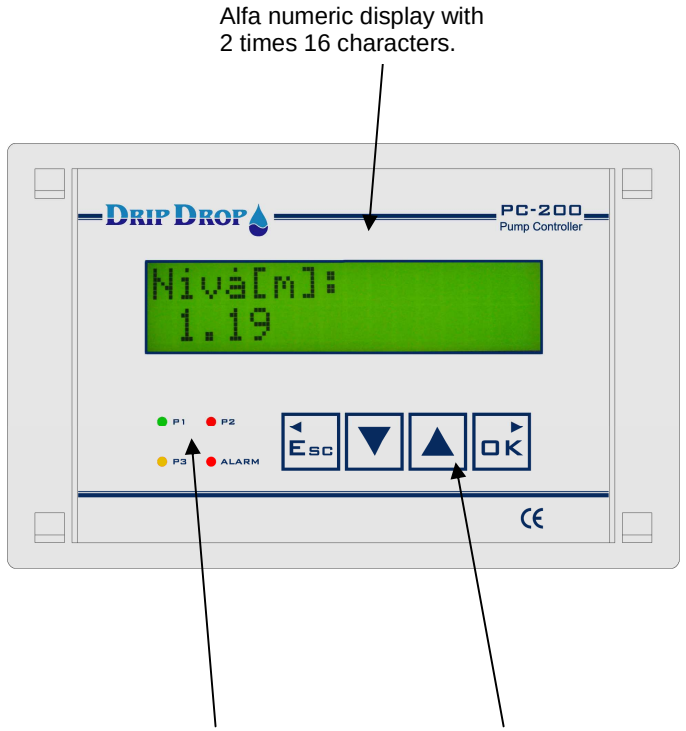
| | |
|---|---|
| Power supply | 24 VDC ( 20,4-28,8 VDC) |
| Power consumption | 3 W |
| Mounting | Panel mounting |
| Dimensions | 166 x 106 x 60 mm (W x H x D) |
| Weight | 0,25 kg |
| Temp. Range (operation) | -5 to +55 degrees °C |
| Housing | IP 20 |
| Display | 2 x 16 signs alfa numeric |
| Indication diods | 4 two colour LED |
| Digital relay outputs (DO) | (5) potential free output relays.<br>Maximum load 6 A 250VAC/30VDC |
| Open collector transistor outputs (DO) | (2) 24 VDC (max. load 50 mA) |
| Digital inputs (DI) | (9) + 24 VDC<br>Opto isolated to 500 V(1 min)<br>Type 1 CEI 61131-2 |
| Digital input (DI) | (1) – 24 VDC. (Person alarm) |
| Phase voltage inputs (L) | (3) 230 VAC Ur,Us, Ut. (Phase-N) |
| Current inputs (I) | (3) max 5A (Motor current) |
| Pulse inputs (CI) | (1) + 24 VDC<br>Opto isolated to 500 V(1 min)<br>Max. frequency 500 Hz |
| Analogue inputs (AI) | (2) 0/4-20 mA + 24 VDC<br>Max impedans 100 ohm |
| Thermo inputs (T) | (3) digital input for thermo contact s from pump motor. -24 VDC |



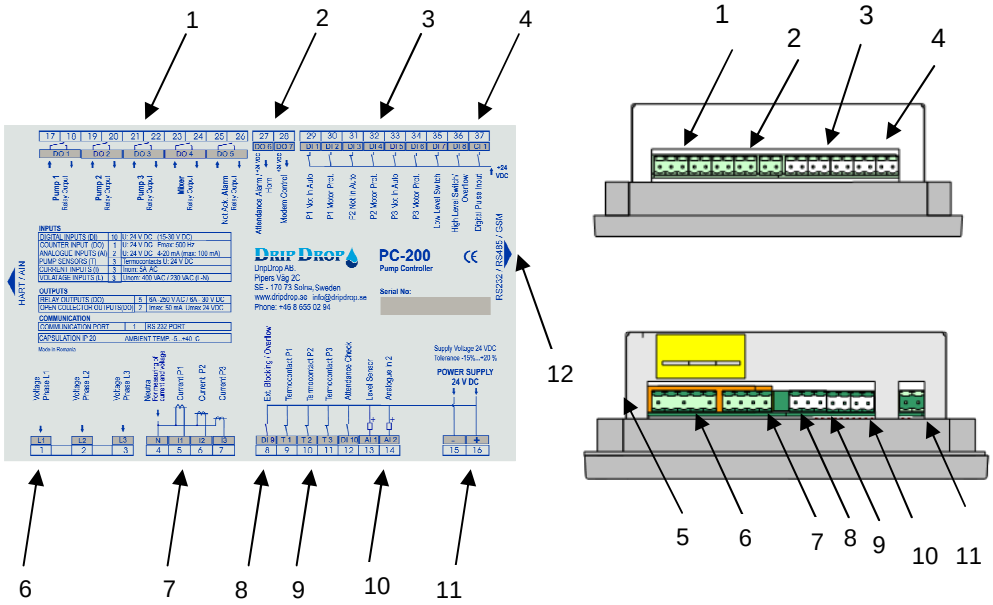
# 1 Descriptipon of PC-200

The PC-200 is a simple pump controller for controlling maximum 3 pumps with both filling and emptying function. The unit is made for front panel mounting in a control cabinet. The operator interface has an alfa numeric LCD display with 2x16 signs, 4 separate diodes for alarm indication and 4 keys for menu handling and status control. All electrical connections are made via built in plug connectors.

***Front panel***



## Back side







| |
|---|
| 1. Digital relay outputs (5) max 6A / 250 VAC |
| 2. Digital transistor outputs (2) max 360 mA |
| 3. Digital inputs (10) 24 VDC |
| 4. Digital pulse counters (1) 24 VDC |
| 5. Earth connector |
| 6. Voltage inputs (Voltage control) |
| 7. Current inputs (motor currents) |
| 8. Digital inputs (2) 24 VDC |
| 9. Thermo inputs (3) -24 VDC |
| 10. Analogue inputs (2) 4-20 mA / max 50 mA |
| 11. Power connection (24 VDC) |
| 12. Communications port (RS-232) |



# 6 Current measurement and modem connection

For motor current measurements, usually current transformers 50/5 A or bigger, are used. Due to difficulties to get current transformers with less than 50/5 A for pumps with lower nominal current than 50A, it is necessary for currents measurement for pumps with currents below 50A to twist one phase one or several turns around the transformer coil as shown in drawing below.

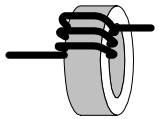


*Figure 4.2 shows how one of the phases of the phases of the pump is fed around the transformer coil.*
*For a 50/5 A transformer following applies:*
*1 turn for pump currents up to 25A*
*2 turns for pump currents up to 12,5A*
*3 turns for pump currents up to 6,25A*

## 6.1 GSM modem connections.

For sending alarms via SMS or to connect the PC.200 to a SCADA and supervision system DripDrop recommend to use GSM-modem Westermo GDW-11 as standard. Blow is shown how the modem is connected to the PC-200. The signal connection is via a RJ-45 plug in the PC-200 and a screw terminal on the modem.

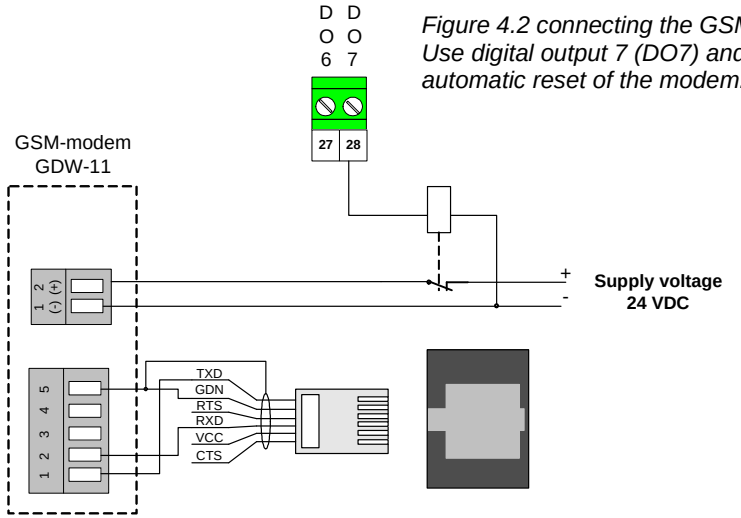



*Figure 4.2 connecting the GSM modem GDW-11. Use digital output 7 (DO7) and a relay for automatic reset of the modem.*

## 5 Signal connections

Observe that it is necessary to have a working" Zero Phase" for the use of voltage supervision and pump current supervision.

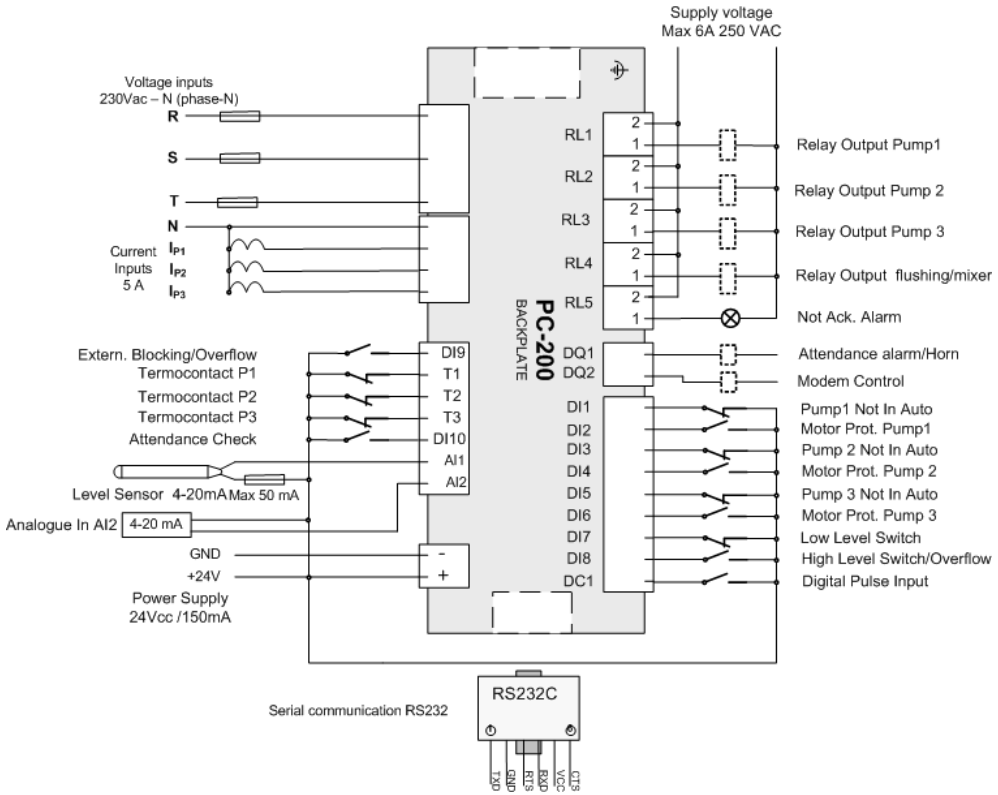



*Figure 4.2 Shown relays for the digital inputs on the digital inputs is our recommendation for use of the relay contacts in normal state.*



## 2 Dimensions and mounting.

The pump controller PC-200 is mounted in the front door of the cabinet as shown in the drawing below. The unit is fixed to the door with the two metal pieces and 4 screws delivered with the unit. (see the drawing). All cables to the unit will be on the backside of the unit and can be placed in cable channels or similar.

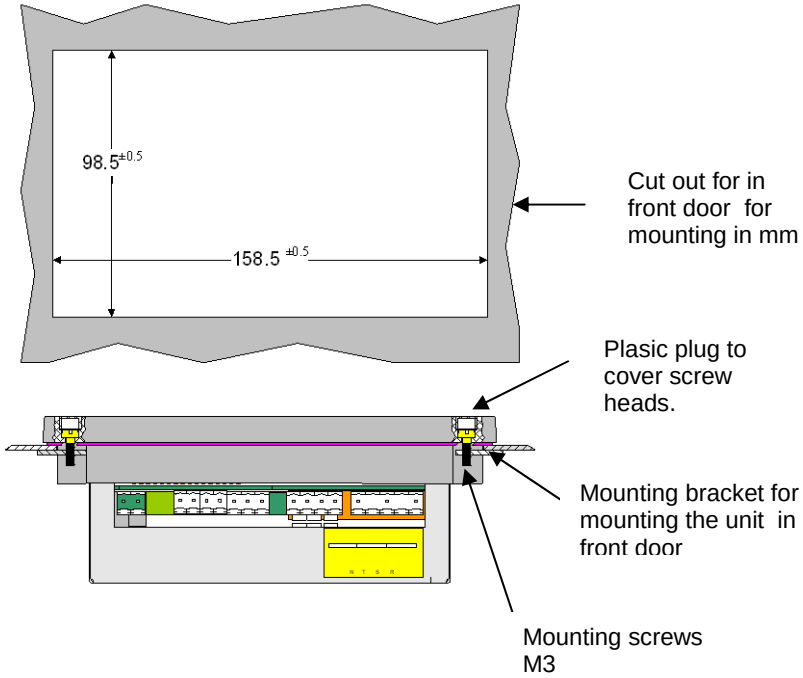



*Figure 2.1 Shows mounting cut out in cabinet front door: 158,5 mm wide and 98,5 mm high.*

# 3 I/O-signals

The PC-200 has o number of in- and outputs which can be or deactivated depending on how the unit is going to be used. Below you will find an over view of all in- and outputs which can be configured.

| I/O No. | | Type | Signal | Comments |
|---|---|---|---|---|
| AI | 1 | Level sensor (For control of pumps) | 4-20 mA | Unit (m, bar, or %) |
| AI | 2 | Analogue In 2 (Free text, flow a.s.o..) | 4-20 mA | Unit (Free text, max 3 characters |
| | | | | |
| I | 1 | Motor current Pump 1 | 0-5A | Good for pump supervision! |
| I | 2 | Motor current Pump 2 | 0-5A | Good for pump supervision! |
| I | 3 | Motor current Pump 3 | 0-5A | Good for pump supervision!! |
| | | | | |
| L | 1 | Phase voltage L1 | 0-400VAC | Good for voltage supervision! |
| L | 2 | Phase voltage L2 | 0-400VAC | Good for voltage supervision! |
| L | 3 | Phase voltage L3 | 0-400VAC | Good for voltage supervision! |
| | | | | |
| DI | 1 | P1 Not in Auto (M-0-A) | NO | Most times in NC position |
| DI | 2 | P1 Fallen motor protector | NO | |
| DI | 3 | P2 Not in Auto (M-0-A) | NO | Most times in NC position |
| DI | 4 | P2 Fallen motor protector | NO | |
| DI | 5 | P3 Not in Auto (M-0-A) | NO | Most times in NC position |
| DI | 6 | P3 Fallen motor protector | NO | |
| DI | 7 | Low level float | NO | Most times in NC position |
| DI | 8 | High level float / Over flow guard | NO | |
| DI | 9 | Ext. Blocking of pumps /over flow guard | NO | |
| DI | 10 | (Person alarm) /over flow guard | NO | |
| | | | | |
| T | 1 | P1 Thermo contact | NC | |
| T | 2 | P2 Thermo contact | NC | |
| T | 3 | P3 Thermo contact | NC | |
| | | | | |
| CI | 1 | Flow / Rain / Energy (pulses) | -- | Pulse input |
| | | | | |
| DO | 1 | Pump 1 (Start/Stop) | NO | Relay output |
| DO | 2 | Pump 2 (Start/Stop) | NO | Relay output |
| DO | 3 | Pump 3 (Start/Stop) | NO | Relay output |
| DO | 4 | Mixer (Start/Stop) | NO | Relay output |
| DO | 5 | Combined alarm (Not acknowledged) | NO | Relay output |
| | | | | |
| DO | 6 | Alarm signal for presence (person alarm) | NO | For alarm horn –Alarm is sent. |
| DO | 7 | Modem Control | NO | Cuts power supply to GSM-modem. |



# 4 Electrical connections

## 4.1 Power supply

The PC-200 supply is 24 VDC, from a stabilised transformer.
If a battery backup is going to be used the battery and PC-200 must be supplied with 27,6 VDC.
The power consumption is maximum 150mA at 24 VDC.
We recommend mounting of a 200mA fuse at 24 VDC.

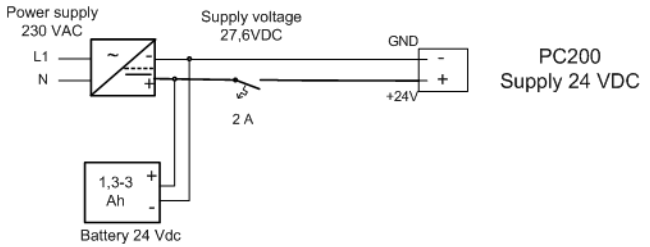



*Figure 4.1 shows a typical connection of a power supply with battery back up , not that the DC power supply is 27,6 VDC to charge the battery..*

## 4.2 Signal connections

Below the connections of all signals to the PC-200 are shown.
The output relays should be supplied with separate power supply of max 250 VAC with a maximum load of 6A.
Digital inputs, counters and analogue inputs use the same power supply as the unit, 24 VDC.
Level sensors are supplied with 24 VDC to the positive + side of the sensor the negative side of the sensor is connected to analogue AI1.