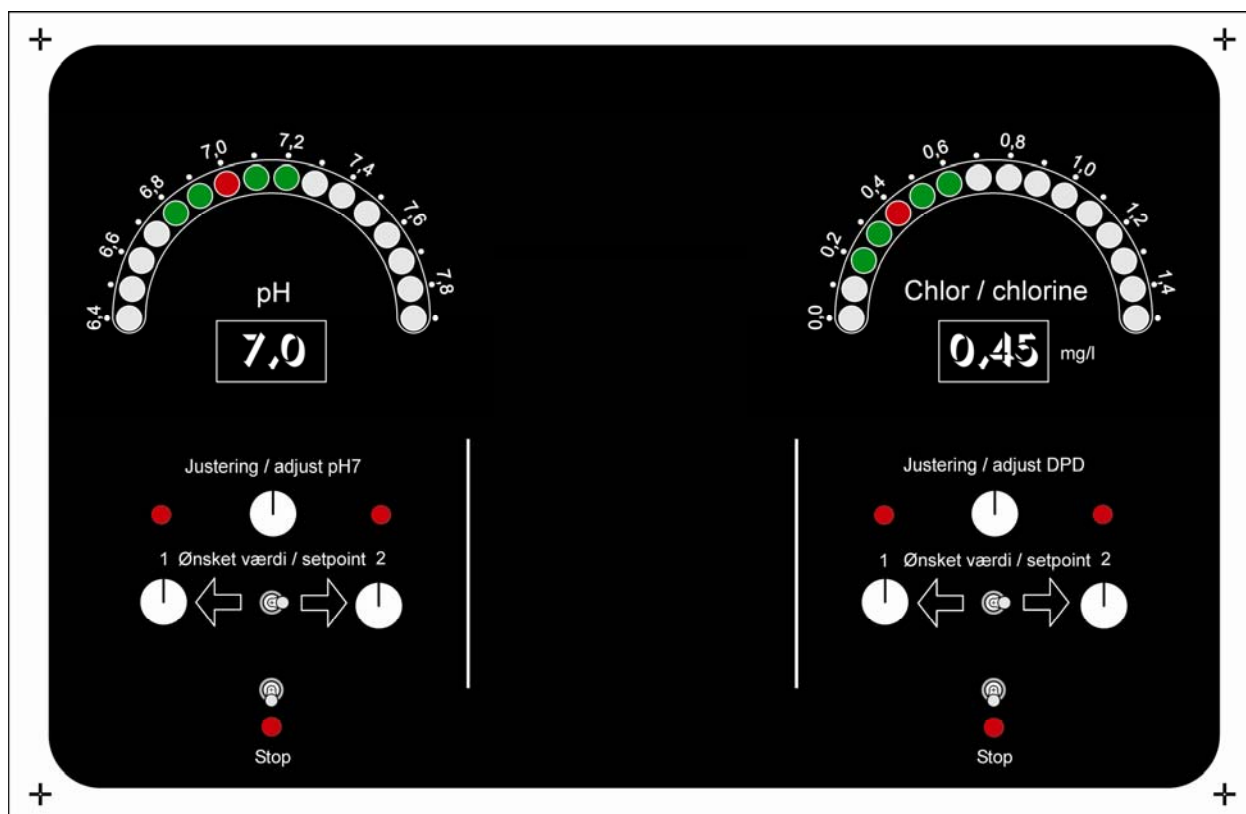


## Welldana® controller Operating instructions



English manual

## **pH-control-unit**

### **1.1 FUNCTION**

This unit measures the pH-value, compares the value obtained with the setpoints and controls the dosing equipment connected to the instrument until a setpoint is reached. The instrument has 2 frequency outputs for pH-plus and pH-minus dosing. As well the instruments has 2 relays for a remote signal when a setpoints is passed.

### **1.2 INSTALLATION**

The instrument measures 300 x 290 x 140 mm (W x H x D) and can be fixed to the wall with three screws.

### **1.3 CONNECTING THE MEASUREMENT CABLE**

The measurement cable connects the pH electrode with the controller unit. The measurement cables must not be installed parallel to power wires, and should also be kept well away from contact-breakers and solenoid valves.

### **1.4 BALANCE ELECTRODE**

The pH electrode has to be connected to the controller. The electrode must be free from any protection and there must not any airbubbles in the glasball. The electrode is then entered into a pH 7 buffer solution and after about 20 seconds the value 7.0 on the digital display can be adjusted with the turn-button "Abgleich pH7".

### **1.5 CONNECTING THE DOSING PUMPS**

Two different types of dosing pumps can be connected to the controller:

1.5.1 Dosing pumps which receive power directly from the controller and which switched on and of through the relay (max 230V 2A) in the controller. For pH-plus dosing the pump has to be connected to the terminals 2and 5. For pH-minus dosing the pump has to be connected to the terminals 2 and 8.

1.5.2 Dosing pumps with electronics for frequency control. These pumps do not receive power from the instrument and they have to be permanently connected to the line. Frequency-controlled pumps are switched with a reed-relay (max 50V, 30 mA). For pH-plus dosing the frequency-controlled pump has to be connected to the terminals 10 and 11. For pH-minus dosing the frequency-controlled pump has to be connected to the terminals 12 and 13.

## 1.6 CONTROLS AND CONNECTION

**DIGITAL DISPLAY:** This shows the pH value of the liquid being measured and the two limits in the range from 0.00 to 14.0. If the measurement cable is not connected or damaged, you could have an overflow in the pH unit. In this case the digital display will be blanked. Check the measurement cable for possible damages.

**LED-CHAIN DISPLAY:** The semicircular LED-chain shows the upper limit, the lower limit and the measurement. The limits are indicated in green color and the value measured is indicated red. If the value measured is outside the limits the red light is flashing with the same frequency as given to the dosing pumps. The range of the LED-chain display is from pH 6,4 to pH 7,9.

**UPPER AND LOWER LIMIT:** If the pH-value is below the lower limit, the LED for the lower limit (1) goes on and the lower limit relay (terminal pH 4/5/6) is switching. If the upper limit is surpassed, the upper limit LED (2) goes on and the upper limit relay (terminal pH 7/8/9) is switching.

**UPPER AND LOWER LIMIT ADJUSTMENT:** To show the limits on the numerical display and on the LED-chain display, the switch between the two turn buttons has to be pushed whether to the left (lower limit) or to the right (upper limit). The limits can be set with the left (lower limit) or the right (upper limit) turn knob for limit adjustment.

### **CAUTION !**

**If the lower limit is set higher than the upper limit and vice versa, the instrument will not work properly.**

**STOP SWITCH:** If this rocker switch is pressed upwards, all contact outputs will be switched off, the red LED for STOP will light up. It is thus possible, for instance, for the electrode to be balanced without the dosing frequency being issued and without the limit-value relay closing.

## 2. 3. Chlorine-control-unit

### 3.1 FUNCTION

This unit measures the free Chlorine, compares the value obtained with the setpoints and controls the dosing equipment connected to the instrument until a setpoint is reached. The instrument has 1 frequency outputs for Chlorine-plus dosing. As well the instrument has 2 relays for a remote signal when a setpoint is passed.

### 3.2 CONNECTING THE MEASUREMENT CABLE

The 4-pole measurement cable connects the chlorine probe with the controller unit. The measurement cables must not be installed parallel to power wires, and should also be kept well away from contact-breakers and solenoid valves.

### 3.3 CHLORINE MEASUREMENT CELL

The Chlorine controller works only with the edo-Chlorine-measurement cell art. no. 20402.

### 3.4 CONNECTING THE DOSING PUMPS

Two different types of dosing pumps can be connected to the controller:

3.4.1 Dosing pumps which receive power directly from the controller and which are switched on and off through the relay (max. 230V 2A) in the controller. For chlorine-plus dosing the pump has to be connected to the terminals 2 and 5 in the Chlorine unit.

3.4.2 Dosing pumps with electronics for frequency control. These pumps do not receive power from the instrument and they have to be permanently connected to the line. Frequency-controlled pumps are switched with a reed-relay (max. 50V, 30 mA). For Chlorine-plus dosing the frequency-controlled pump has to be connected to the terminals 10 and 11 in the chlorine unit.

### 3.5 CONTROLS AND CONNECTION

**DIGITAL DISPLAY:** It shows the content of free chlorine of the liquid being measured and the two limits in the range from 0.00 to 2 mg/l.

**LED-CHAIN DISPLAY:** The semicircular LED-chain shows the upper limit, the lower limit and the measurement. The limits are indicated in green colour and the value measured is indicated red. If the value measured is outside the limits the red light is flashing with the same frequency as given to the dosing pumps. The range of the LED-chain display is from 0.00 to 1,5 mg/l.

**UPPER AND LOWER LIMIT:** If the Chlorine content -value is below the lower limit, the LED for the lower limit (1) goes on and the lower limit relay (terminal redox 4/5/6) is switching. If the upper limit is surpassed, the upper limit LED (2) goes on and the upper limit relay (terminal redox 7/8/9) is switching.

**UPPER AND LOWER LIMIT ADJUSTMENT:** To show the limits on the numerical display and on the LED-chain display, the switch between the two turn buttons has to be pushed weather to the left (lower limit) or to the right (upper limit). The limits can be set with the left (lower limit) or the right (upper limit) turn knob for limit adjustment.

#### **CAUTION !**

**If the lower limit is set higher than the upper limit and vice versa, the instrument will not work properly**

**STOP SWITCH:** If this rocker switch is pressed upwards, all contact outputs will be switched off, the red LED for STOP will light up. It is thus possible, for instance, for the electrode to be balanced without the dosing frequency being issued and without the limit-value relay closing.

## 4. Terminal plan

pH-unit		chlorine-unit	
1	Mains L1 230VAC	1	Mains L1 230VAC. Premounted
2	Mains N	2	Mains N. Premounted
3	Safety contact	3	Safety contact
4	common pH-plus relay L1 230VAV	4	common Chlorine-plus relay L1 230VAC
5	normally open pH-plus relay	5	normally open Chlorine-plus relay
6	normally closed pH-plus relay	6	normally closed Chlorine-plus relay
7	common pH-minus relay L1 230VAC	7	common Chlorine upper limit relay L1 230VAC
8	normally open pH-minus relay	8	normally open Chlorine upper limit relay
9	normally closed pH-minus relay	9	normally closed Chlorine upper limit relay
10	Reed-relay pH-plus. Frequens only	10	Reed-relay Chlorine-plus. Frequens only
11	Reed-relay pH-plus. Frequens only	11	Reed-relay Chlorine-plus. Frequens only
12	Reed-relay pH-minus. Frequens only	12	free
13	Reed-relay pH-minus. Frequens only	13	free
14 +	Signal output 4-20 mA	14 +	Signal output 4-20 mA
15 -	=pH2-12	15 -	= 0-2 mg/l
16	free	16	free
17-18	Niveau control for asid tank	17-18	Niveau control for chlor tank
19-20-21	Flowcontrol for flowcelle	19-20-21	Flowcontrol for flowcelle

