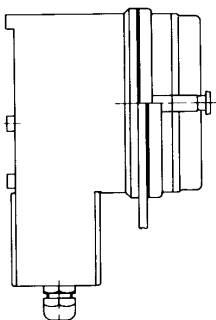
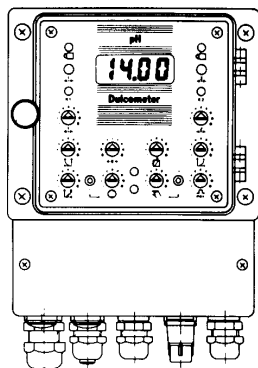


Dulcometer® WS Series Controllers

WS Series Controllers for Process Control

ProMinent Dulcotest sensors measure the process and the controller displays the value on a large LCD screen; control outputs can operate various control devices (e.g. metering pumps) to keep the process within control limits using proportional control; alarm relays are available for fault annunciation and an optional analog output is available for recording the measured value. A control 4-20 mA output is available as an option on the F2K2 model, but alarm relays cannot be used.



Features

- The transmitter is provided with a high-quality differential input circuit with the sample liquid potential as a reference
- 3-1/2 digit LCD readout for displaying measured and set values
- Calibration and setpoint adjustment by potentiometer
- All controls are accessible from the front side
- Power supply 115 V, 60 Hz

Mounting

- **Wall mount:** plastic housing

Dimensions: 6.89"H x 5.67"W x 4.92"D (175 mm x 144 mm x 125 mm)

Weight: approx. 3.16 lbs. (1.43 kg)

Terminal accessibility: front

Protection class: NEMA 4X (IP 65)

- **Panel mount:** housing of chemical-resistant and shock-resistant PPE

Dimensions: 4.72"H x 5.67"W x 3.35"D (120 mm x 144 mm x 85 mm)

Weight: approx. 3.16 lbs. (1.43 kg)

Terminal accessibility: rear

Protection class: NEMA 4X (IP 65)

Control Capabilities

- Modified proportional control (minimum of 10 minutes retention time)
- Setpoint control

Outputs

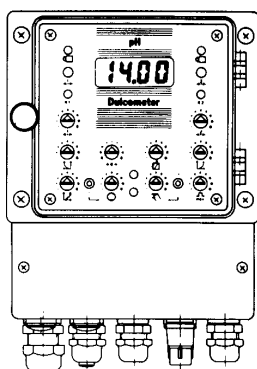
- Pulse train outputs for metering pump(s)
- Relay outputs
- Optional analog 0/4-20 mA output for control or measured value

Measured Variables

- pH
- Redox Potential
- Chlorine (free and total)
- Ozone

Dulcometer® WS Series Controllers

pH



Description

Part No.

Measured Variable: pH

- Measured range: 0 - 14 pH
- Control Range: 0 - 14 pH
- Sensor Input: ProMinent sensors PHE, PHEX, PHEP and PHED by means of an SN6 type connector

Versions:

PHWS 014 F2K2

925001.0

Provided with two proportionally acting pulse train outputs for pacing two solenoid-driven metering pumps (acid and base), with two change-over relay outputs. Contact load 250 V, 3 A. NOTE: Pulse train outputs and relay outputs have common set values. Factory Set Pulse Rate: 100 pulses/minute.

This system is typically applied to the controlled feeding of acid and caustic in two-way pH control systems.

Automatic temperature compensation is included. This requires connection to a Pt 100 platinum resistance thermometer via terminal.

Time monitor: A built-in relay will trip an alarm when measured variable fails to return to an acceptable range within the predetermined (adjustable) time.

PHWS 014 F1K1

925007.7

Provided with one pulse train output for pacing a solenoid-driven metering pump (direction of control switch-selectable to acid or base), and one change-over relay output for one set value. Factory Set Pulse Rate: 100 pulses/minute.

Note: Automatic temperature compensation and time monitor not included.

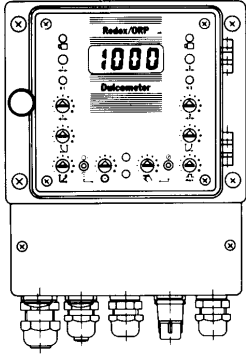
Options for all PHWS models:

- Power Cord, 6 ft. (2 m) 115 VAC 741203.4
- Power Cord, 6 ft. (2 m) 230 VAC 7724015.8
- Option S 01: Power supply 220/240 VAC, 50/60 Hz, 24/42 VAC, 50/60 Hz. Please specify with order 914711.7
- Option WS 02: Standard signal output of measured value: 0/4-20 mA = pH 0 - 14. 0/4 mA switch-selectable on the optional plug-in circuit board; electrically isolated output burden 750 Ohm maximum. Can be factory changed to a control current output for control of up to two devices that use a control 4-20 mA input (F2K2 only). 914932.9

Specify either control current or measured value output on order.

Dulcometer® WS Series Controllers

Redox Potential



Description

Part No.

Measured Variable: Redox Potential

- Measured range: 0-1000 mV
- Control Range: 0-1000 mV
- Sensor Input: ProMinent sensors RHE, RHEX by means of an SN6 type connector

Versions:

RHWS 1000 F2K2

925011.9

Provided with two proportionally acting pulse train outputs for pacing two solenoid-driven metering pumps (oxidant and reducing agent), with two change-over relay outputs. Contact load 250 V, 3 A. NOTE: Pulse train outputs and relay outputs have common set values. Factory Set Pulse Rate: 100 pulses/minute.

The system is provided with a time monitor: A built-in relay will trip an alarm when measured variable fails to return to an acceptable range within the predetermined time (adjustable from 1 minute to 6 hours).

This system is typically applied to the controlled feeding of oxidants and reducing agents.

RHWS 1000 F1K1

925017.6

Provided with one pulse train output for pacing a solenoid-driven metering pump (direction of control switch-selectable), and one change-over relay output for one set value. Factory Set Pulse Rate: 100 pulses/minute.

Note: Automatic temperature compensation and time monitor not included.

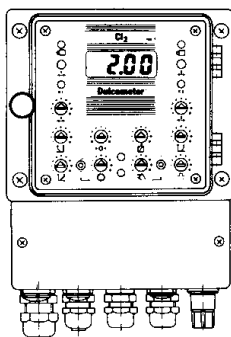
Options for all RHWS models:

- Power Cord, 6 ft. (2 m) 115 VAC 741203.4
- Power Cord, 6 ft. (2 m) 230 VAC 7724015.8
- Option S 01: Power supply 220/240 VAC, 50/60 Hz, 24/42 VAC, 50/60 Hz. Please specify with order 914711.7
- Option WS 02: Standard signal output of measured value: 0/4-20 mA = 0-1000 mV. 0/4 mA switch-selectable on the optional plug-in circuit board; electrically isolated output burden 750 Ohm maximum. Can be factory changed to a control current output for control of up to two devices that use a control 4-20 mA input (F2K2 only). 914932.9

Specify either control current or measured value output on order.

Dulcometer® WS Series Controllers

Chlorine



Description

Part No.

Measured Variable: Chlorine

- Measured range: standard 0-5 ppm
- Control Range: standard 0-2 ppm
- Sensor Input: ProMinent sensors CLE-4P (free chlorine) or CGE2-4P (total chlorine) by means of a 4-pole connector

Versions:

CLWS 02 F1K1

925027.5

Provided with one pulse train output for pacing a solenoid-driven metering pump, and one change-over relay output for one set value. Contact load = 250 V, 3A. Factory Set Pulse Rate: 100 pulses/hour.

CLWS 02 F1K2

925021.8

Provided with a proportional acting pulse train output for pacing a solenoid-driven metering pump, and two change-over relay outputs. The pulse train output and one of the relay outputs have a common set value. Contact load = 250 V, 3A. Factory Set Pulse Rate: 100 pulses/hour.

Time monitor: A built-in relay will trip an alarm when measured variable fails to return to an acceptable range within the predetermined (adjustable) time.

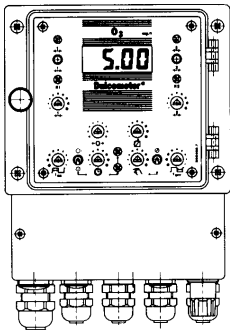
Options for CLWS:

- Power Cord, 6 ft. (2 m) 115 VAC 741203.4
- Power Cord, 6 ft. (2 m) 230 VAC 7724015.8
- Option S 01: Power supply 220/240 VAC, 50/60 Hz, 24/42 VAC, 50/60 Hz. Please specify with order 914711.7
- Option WS 020: Measurement and control range of analyzer 0-20 ppm (CLE) or 0-10 ppm (CGE). NOTE: Measuring range of sensor determines actual upper measuring limit. 914929.5
- Option WS 02: Standard signal output of measured value: 0/4-20 mA = 0-2 ppm of chlorine. 0/4 mA switch-selectable on the optional plug-in circuit board; electrically isolated output burden 750 Ohm maximum. In combination with option WS 020 0/4-20 mA = 0-10 ppm (CLE or CGE). 914932.9
- Option WS 02-2: In combination with option WS 020 0/4-20 mA = 0-20 ppm (CLE) or 0-10 ppm (CGE). Can be factory changed to a control current output for control of up to two devices that use a control 4-20 mA input. 924925.1

Specify either control current or measured value output on order.

Dulcometer® WS Series Controllers

Ozone, Combination



Description

Part No.

Measured Variable: Ozone

- Measured range: 0-3 ppm
- Control Range: 0-2 ppm
- Sensor Input: ProMinent sensor OZE by means of a 4-pole connector

Versions:

OZWS 05 K2

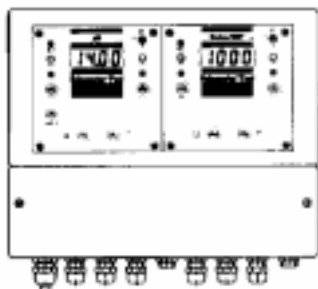
925030.9

Provided with two alarm values, which can be set accurate to the digit, and two change-over relay outputs. Contact load = 250 V, 3A.

Options for OZWS:

- Power Cord, 6 ft. (2 m) 115 VAC 741203.4
- Power Cord, 6 ft. (2 m) 230 VAC 7724015.8
- Option S 01: Power supply 220/240 VAC, 50/60 Hz, 24/42 VAC, 50/60 Hz. Please specify with order 914711.7
- Option WS 02: Standard signal output of measured value: 0/4-20 mA = 0-1 O₃. 0/4 mA switch-selectable on the optional plug-in circuit board; electrically isolated output burden 750 Ohm maximum. 914932.9
- Option WS 02-2: In combination with option WS 02, but 0/4-20 mA = 0-2 ppm O₃. 924925.1

Combination pH and Redox Potential



PRW

924955.8

Combined pH and redox monitor/controller. NEMA 3 plastic housing.
Typical Application: Swimming Pool

Options for PRW:

- Power Cord, 6 ft. (2 m) 115 VAC 741203.4
- Power Cord, 6 ft. (2 m) 230 VAC 7724015.8
- Option S 01: Power supply 220/240 VAC, 50/60 Hz, 24/42 VAC, 50/60 Hz. Please specify with order 914711.7
- Option WS 02: Standard signal output of measured value: 0/4-20 mA = 0-1 O₃. 0/4 mA switch-selectable on the optional plug-in circuit board; electrically isolated output burden 750 Ohm maximum. 914932.9