RP-1200
RESIDUAL CHLORINE/pH
ANALYZER

INSTALLATION & OPERATION
MANUAL

3/23/09

Eagle Microsystems, Inc.
366 Circle of Progress
Pottstown, PA 19464
Phone: 610-323-2250
Fax: 610-323-0114
www.eaglemicrosystems.com

TABLE OF CONTENTS

I. INTRODUCTION

The RP-1200 Residual Analyzer/Controller is an amperometric instrument designed to continuously and simultaneously analyze residual levels of free or total chlorine and pH. Chlorine is measured utilizing an amperometric membrane type electrode assembly.

II. SPECIFICATIONS

Power Supply	115/230 VAC Switch selectable.
Power Consumption	12W
Display	LCD, backlit, 16 characters by 2 lines, 5mm character height, 5x8 character matrix.
Pushbuttons	Four, tactile dome.
Relays	High residual, low residual, high pH and low pH. Mechanical Rating (standard), 5A @ 250VAC
Cell	Gold measuring electrode/silver halogenid-coated reference electrode and stainless steel counter electrode
Temperature	Thermister, 0-45° C.
Analog Output	Isolated, 4 to 20mA, 650 ohm drive. Represents CL_2 residual
Digital Output	RS232 Serial (transmits to remote computer) or serial to analog converter
Instrument Range:	Free – 0.5, 2.0, 5.0, 10.0 & 20.0 ppm Total – 2.0, 5.0, & 10.0 ppm
Sample Flow:	30-40 L/minute: 7.0 psig maximum
Sample Supply:	Continuous. Where sample interruption may be required; provisions must be made to keep the electrodes wet with fresh water.
Analyzer Location:	As close as possible to the sample point to reduce lag time.
Speed of Response:	4 Seconds from sample entry to display indication. 1 minute to 90% of full scale output.
Ambient Temperature Range:	35 degrees to 120 degrees F (2 degrees to 50 degrees C)
Sample Temperature Range:	32 degrees to 139 degrees F (0 degrees to 45 degrees C)

Sample Limitations::	Samples containing high concentrations of metal ions or certain corrosion inhibitors my effect analyzer operation.
Accuracy:	+/- 2% of selected range
pH Range:	4-12 pH
Electronics Enclosure:	NEMA 4X
Reagent Requirements:	Proprietary electrolyte

III. PRINCIPAL OF OPERATION

A. GENERAL

A sample of liquid is delivered to the cell chamber at an approximate rate of 30-40 L/minute. This rate is regulated by adjustment of the sample inlet valve upstream of the sample rotameter. The excess overflows to drain.

The sample then passes over the surface of the cell membrane and a direct current is generated in direct linear proportion to the amount of chemical present in the liquid.

The membrane is kept clean by the scouring action of the sample flowing across the membrane.

This constant cleaning eliminates signal drift and recalibration providing an accurate residual measurement. A thermistor compensates for sample temperature variations.

The residual value is displayed on the LCD display.

B. ELECTROLYTE

A small quantity of electrolyte is contained within the electrode assembly and reacts with the chemical in the sample at the interface between the electrodes and the membrane.

Electrolyte must be replenished periodically. See Probe Instructions.

IV. INSTALLATION

A. WALL PANEL MOUNTING

1. Position the analyzer panel on a wall at eye level and as close as possible to the sample source. Secure with bolts, leveling the analyzer before securing.

B. HYDRAULIC CONNECTIONS

1. Connect the necessary length of drain hose to the drain outlet on the analyzer. Secure with a hose clamp. Route hose to maintain a gravity fed drain (downward slope).

2. Connect one end of the 3/8" sample supply tubing to the source using a suitable connection (customer supplied). Route tubing to the inlet side of the sample flow rotameter.

C. TERMINAL CONNECTIONS

See Wiring Diagram page 12.

NOTE: ALL WIRING MUST COMPLY WITH APPLICABLE LOCAL AND NATIONAL ELECTRICAL CODES.

1. Remove four (4) screws securing instrument cover and lift cover.

2. Connect input power (120 Vac standard) to N,H,G terminals.

3. Connect current output (P01 on TB2) and alarm contacts (K1-K4 on TB1).

NOTE: DO NOT RUN LINE VOLTAGE AND SIGNAL VOLTAGE IN THE SAME CONDUIT.

V. START-UP

Chlorine Sensor

A. Fill sensor with special gel electrolyte. See probe instructions.

B. Start water sample flow at approximately 30-40 L/minute . To drain, water must be flowing out the discharge tube on the flow through assembly.

The sample must be supplied continuously for reliable operation. If the system requires occasional sample cutoff, provisions must be made to keep the electrodes wet to minimize re-stabilization of the electrode.

Sampling from a pressurized source may require a pressure regulating valve to hold the flow constant. Maximum sample line pressure: 0.5 bar (7.0 psig)

If sampling from sewage, a flushing "Y" strainer is necessary to prevent sample line from plugging. Other types of filters are not recommended.

C. Turn the power on to the analyzer.

D. If air bubbles are present in the flow through assembly or feed tubing, remove by squeezing or tapping tubing or disconnecting tubing at the analyzer and flushing momentarily.

E. The analyzer requires a minimum stabilization time of 1 hour.

F. After stabilization, calibration may be required. Instruments are electrically calibrated at the factory, i.e., the 4-20 mA output is calibrated. The sensor must still be calibrated with reference to known residual values.

pH Sensor

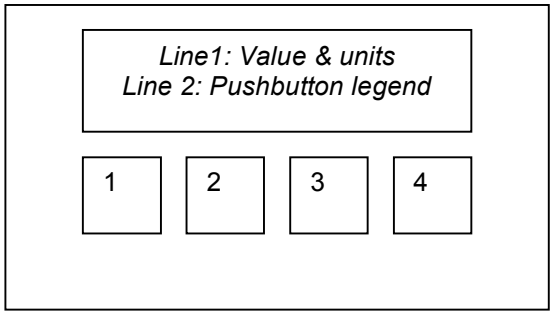
A. Remove the bulb protector boot and immerse the lower end fo the electrode into distilled water or a pH buffer for 30 minutes to hydrate the bulb and/or the reference junction.

B. Standardization –
Two fresh buffer solutions are required (@ 25° C.):
pH 7.0 for initial standardization followed by pH 4.0 or pH 9.22 (choose nearest to anticipated pH of sample) to span the electrode.
NOTE: Be sure to rinse electrode thoroughly between measurements.

C. Install pH electrode in flow through assembly and tighten the compression nut to prevent electrode from backing out under applied sample water pressure.

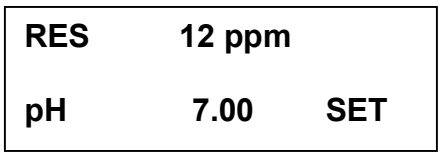
VI. INSTRUMENT SETTINGS

The top line of the LCD display is formatted to show a selected value along with its engineering units, and the second line normally provides function labels for the four pushbuttons located below the display. The pushbuttons do not have any labels, so for the purpose of this document, the pushbuttons will be assigned numbers 1 through 4.



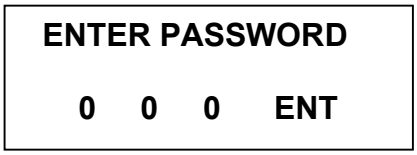
MAIN RUN SCREEN

This screen displays the values of chlorine residual in ppm or mg/l on line 1 and pH on line 2. If the pH electrode is not connected a 50-segment bar-graph representation of the residual 4mA to 20mA output (PO1) can be displayed.



1	*no label*	Displays the sample temperature.
4	SET	The user is prompted to enter a password to enter a programming mode in which one can calibrate, set alarm set-points, and set the 4-20mA output range.

PASSWORD ENTRY SCREEN



RESIDUAL SETUP MENU

From the run screen, press SET and the user will be prompted to enter the password (default is 000). If the entered password is correct, the residual setup (calibration, alarm, & range) menu will be displayed.

1	CAL	Enter calibration menu
2	ALM	Set the high and low residual alarm setpoints
3	PARM	Enter parameter menu
4	ESC	Go back to the main run screen

Press PARM pushbutton to enter Parameter menu. Step through the menu as follows:

Parameter: RES ENABLE – Selects whether or not to enable the residual chlorine probe input.

Press ADJ pushbutton. Use up/down arrow pushbuttons to change selection, or press SET to enter and proceed to next parameter. Press ⇑ to step to the next parameter.

Parameter: RES DP – Selects number of decimal places to the right of the decimal point in the display.

Press ADJ pushbutton. Press ⇑ or ⇓ to move the decimal point, then press SET to enter. Press ⇑ to step to next parameter.

Parameter: RES FS – Selects full scale value of chlorine residual signal (PV1) for 20 mA.

Press ADJ. Press ⇑ or ⇓ to adjust value. Press SET to enter. Press ⇑.

Parameter: RES ZERO – Selects zero value for 4 mA output.

Press ADJ. Press ⇑ or ⇓ to adjust value. Press SET to enter. Press ⇑.

Parameter: INPUT PH – Activates pH input when pH probe is connected.

Press ADJ. Press SET to enter. Press ⇑.

Parameter: pH FS – Selects full scale value of pH signal for 20 mA.

Press ADJ. Press ⇑ or ⇓ to adjust value. Press SET to enter. Press ⇑.

Parameter: pH ZERO – Sets zero value for pH signal for 4 mA.

Press ADJ. Press ⇑ or ⇓ to adjust value. Press SET to enter. Press ⇑.

CALIBRATE MENU

CALIBRATE
IN RES P01 ESC

1	IN	Calibrate pH
2	RES	Calibrate Chlorine Residual
3	P01	Calibrate the 4-20mA output.
4	ESC	First, the operator is prompted to enter a new password and then is returned to the residual setup menu.

CALIBRATE pH

From the residual setup screen, press IN to enter the pH calibration menu.

SET/READ TEMPERATURE

For temperature compensated probes the temperature will simply be displayed in this screen. For non-compensated probes, the temperature can be set by adjustment through the UP/DWN arrow keys. Press SET to accept the temperature or set the entered value and continue to the **pH CALIBRATE** screen. (Pressing ESC will return you to the **CALIBRATE** screen.

TEMP 72.3°F.
UP ↑ DWN ↓ ESC SET

CALIBRATE pH

The pH probe requires a two point calibration. The top line displays the pH value and the mV output of the probe. Using the probe instructions set the lower calibration point by pressing P1 and entering the appropriate value. Do the same for the second calibration point by pressing P2. Pressing RST reverts to the factory default values (P1 = pH4 @+57 mV & P2 = pH10 @ -57 mV). Pressing ESC returns you to the **CALIBRATE** screen.

pH 7.2 - -10 mV
P1 P2 RST ESC

1	P1	Sets lower pH calibration point
2	P2	Sets higher pH calibration point
3	RST	Resets values to factory default
4	ESC	Go back to the calibrate menu.

CALIBRATE ZERO & SPAN FOR PV1 (Chlorine Residual)

Expose chlorine probe to distilled water and allow output to stabilize. Press ZRO to set 0 ppm. Expose the probe to a solution of known chlorine residual (greater than 10% of full scale value) and press SPAN. This will bring up another screen with UP and DWN arrow keys shown. Adjust the ppm value to match the known solution value and press SET to enter. Press ESC to return to the PV1 CALIBRATE screen. Press ESC to return to the CALIBRATE screen.

The residual analog input (PV1) can be "normalized to a 4-20 mA generator connected to the PV1 input terminals. *This will not match with the residual probe calibration.* To adjust the the probe output in this manner:

- Set the mA generator to 4.00 mA and press the pushbutton under the ZERO label to set 0 ppm point. The display should read 0 ppm.
- Set the mA generator to 20.00 mA and press the pushbutton under the SPAN label to set the span maximum point. The display should read the same as the PV1 FS parameter.
- If desired, repeat the above to verify calibration. However, the zero and span points are not interactive – so this step can be skipped.
- Press ESC pushbutton to exit to the calibration menu.

1	ZRO	Sets probe zero value
2	SPAN	Sets probe span
3	no function	
4	ESC	Go back to the Calibrate PV1 menu.

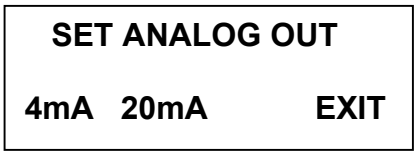
CALIBRATE 4-20 mA OUTPUT

To calibrate the probe output (P01), one must connect either a DMM (mA input) or some other device that can read the P01 current output. The device should have, at least, 0.01 mA precision.

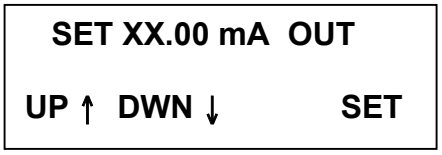
Calibrate as follow:

1. Press the P01 pushbutton to enter the SET ANALOG OUT screen.
2. Press the 4 mA pushbutton and the mA meter should read about 4.00 mA.
3. Use the UP & DWN pushbuttons to set the output to exactly 4.00 MA and press SET when done.
4. Press the 20 mA pushbutton; the mA meter should read about 20.00 mA.
5. Use the UP & DWN pushbuttons to set the output to exactly 20.00 mA and press SET when done.

6. The two points are not interactive, so one should not need to re-adjust each point again. Press EXIT to return to the CALIBRATE menu.



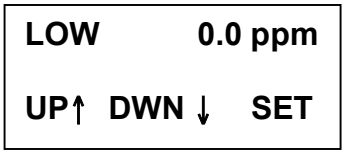
1	4mA	Set 4mA point
2	20mA	Set 20mA point
3	No function	
4	EXIT	Go back to the calibrate menu.

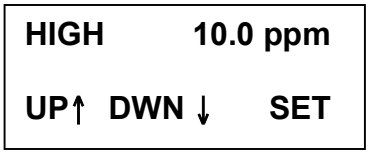


The XX.00 is either 4.00 or 20.00 and does not change when setting the selected point. Observe the current reading from the DMM and use the up and down pushbuttons to set the selected point to 4/20mA.

1	UP	Increase current
2	DWN	Decrease current
3	No function	
4	SET	Store new 4mA or 20mA point

ALARM SETUP





Press ESC to return to the Meter Setup menu.

Press ALM to enter the Alarm Setup menu.

Press pH to adjust pH alarms.

Press L:1 to set up low set point. Press ⇑ or ⇓ to adjust value. Press SET to enter. Press ⇑.

Press H:2 to set up high set point. Press ⇑ or ⇓ to adjust value. Press SET to enter. Press ⇑.

Press ESC to go to the Residual alarm menu.

Press RES to adjust chlorine residual alarms.

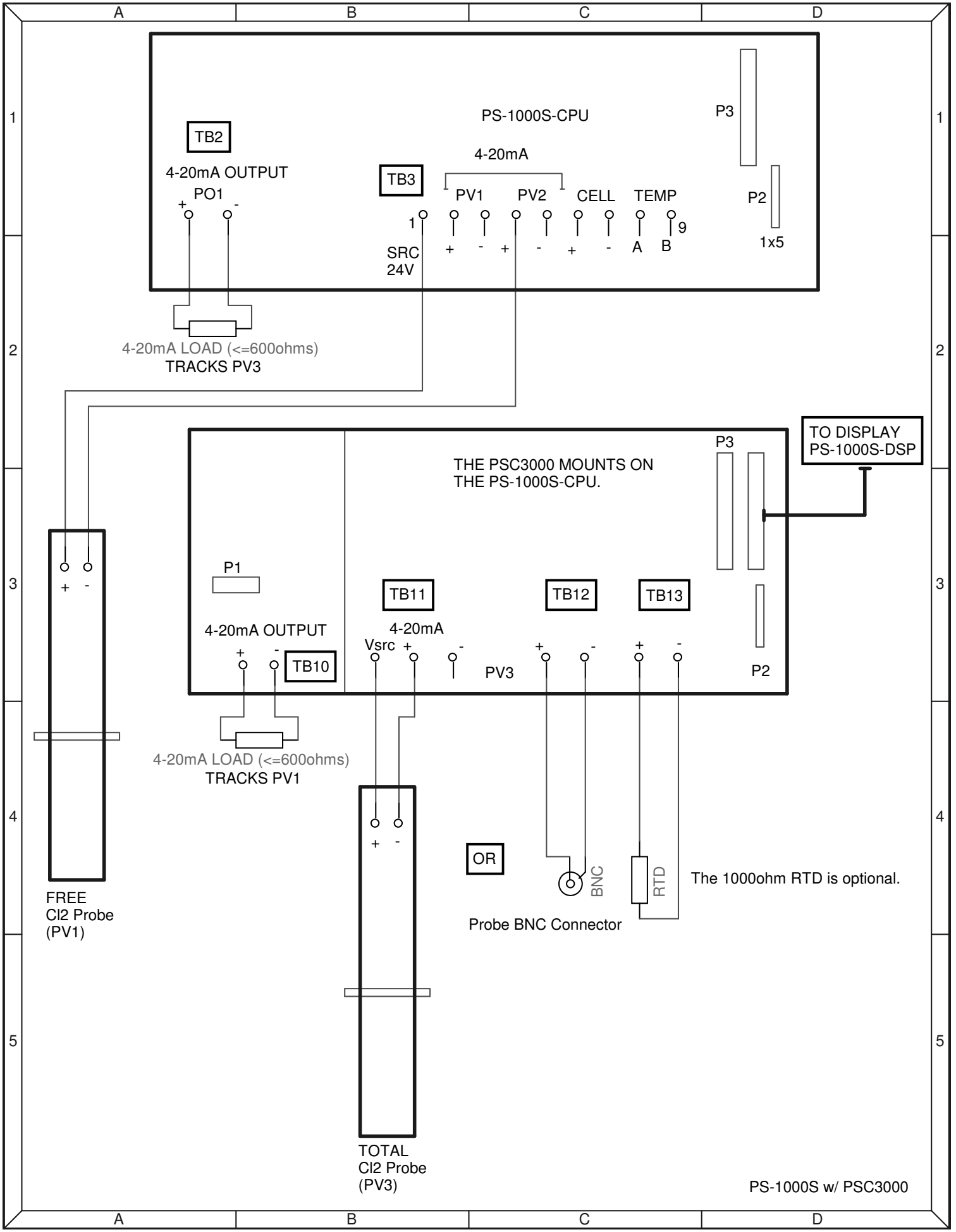
Press L:3 to set up low set point. Press ⇑ or ⇓ to adjust value. Press SET to enter. Press ⇑.

Press H:4 to set up high set point. Press ⇑ or ⇓ to adjust value. Press SET to enter.

Press ESC to return to the instrument setup menu.

VII. FIELD WIRING

See following page 12 for wiring diagram for Model PS-1000S Analyzer Indicator/Controller.


A
B
C
D
1
2
3
4
5
PS-1000S-CPU
TB2
4-20mA OUTPUT
PO1
+
-
TB3
4-20mA
PV1
PV2
CELL
TEMP
1
9
SRC
24V
A
B
P3
P2
1x5
4-20mA LOAD (<=600ohms)
TRACKS PV3
TO DISPLAY
PS-1000S-DSP
THE PSC3000 MOUNTS ON
THE PS-1000S-CPU.
P1
TB11
TB12
TB13
4-20mA OUTPUT
4-20mA
Vsrc
TB10
PV3
FREE
Cl2 Probe
(PV1)
4-20mA LOAD (<=600ohms)
TRACKS PV1
OR
BNC
RTD
The 1000ohm RTD is optional.
Probe BNC Connector
TOTAL
Cl2 Probe
(PV3)
PS-1000S w/ PSC3000

VIII. PROBE INSTRUCTIONS

The chlorine probe CP2.1 is a special sensor to measure free or total chlorine concentration in water.

The probe measures the following chlorine species:
Free Chlorine
Total Chlorine

Where: Free Chlorine + Combined Chlorine = Total Chlorine

The probe has a low dependence of pH value, so it can be used in water with high pH values. Te probe is recommended for potable water applications. However, it can be used for wastewater provided proper filtering be installed to condition the sample and to reduce suspended and dissolved solids to which the probe is exposed.

Warning: Do not touch the electrode finger. It must be kept clean. Do not remove the layer on the electrode finger

1. Set-up

The membrane cp is screwed off the electrode shaft and filled to the top with the electrolyte ECP 1.3/GEL. Holding the electrode shaft vertically, the filled membrane cap is screwed on. It may be necessary to turn the cap counter-clockwise until the thread engages. Then screw the electrode shaft clockwise (by hand) onto the membrane cap. Excess electrolyte will escape through a valve (located above the type marking) in the membrane cap. *Do not close this vent with your finger!* Make sure that the electrolyte, which has overflowed, and adhering to the outside of the probe assembly is washed off with water.

Caution: Electrolyte may spurt from the vent opening.

Important: Is the membrane cap completely screwed to the electrode shaft?

The probe should be operated for approximately one hour prior to performing the first calibration.

Important: When unscrewing the filled membrane cap make sure that the hose ring does not cover the vent above the type marking, so that air can stream through the open vent. Otherwise the membrane will be destroyed.

2. Insertion of the probe into the probe housing

The black O-ring is first inserted into the 1-inch opening followed by the PVC slide ring. The 1-inch PVC screw fitting is then screwed in loosely. The probe is inserted into the prepared probe housing. The probe is fixed in place with the 1-inch PVC screw fitting. Tighten the PVC screw fitting using pliers to insure that the probe cannot move once water pressure is applied to the probe housing.

3. Control of the Probe/Analytics

A balance or checking of the probe is performed using DPD-4 method (or DPD-1 + DPD-3) for total chlorine should be performed regularly depending or the application. A weekly check is recommended, and if necessary, more frequently. The analytically determined value is adjusted in the analyzer as described previously. It is recommended that the electrolyte be replaced every three months.

4. Maintenance

The probe shows too low a value

Caution: The brown coating of the electrode finger must not be sanded.

If a calibration is not possible because the signal from the probe is too low, remove the hose ring on the membrane cap, which closes the vent (above the type marking) so that air is allowed to stream in. Dry the electrode finger with a clean paper towel. Only the tip of the dry electrode finger (working electrode) is now cleaned with the enclosed special abrasive paper. To do this place the special abrasive paper on a paper towel, holding one corner move the tip of the vertically held probe two or three times over the abrasive. The hose ring of the membrane cap is then reinstalled to close the vent opening and the electrolyte refilled. It may be necessary to replace the membrane cap. The electrolyte should be replaced every three months.

5. CP2.1Max where x = measuring range in mg/l chlorine

4-20 mA two-wire current loop (Range is written after type)
For example: CP2.1MA2: 4-20 mA = 0 – 2 mg/l chlorine
Slope calibration is done in the instrument.
Electrical Specifications:
Power supply: minimum voltage 12 Vdc, load resistor maximum 50 Ohms
Maximum voltage 30 Vdc, load resistor 50 until 900 Ohms

6. Technical Data/General Description

- Measuring system: membrane covered potentiostatic 3-electrode system
- Working electrode: Gold
- Counter electrode: Stainless steel
- The exterior housing of the probe consists of stainless steel, PVC and silicon rubber. The probe diameter is 25 mm.
- Zero-point calibration is normally not necessary
- Provided pressure remains constant, the probe can be used up to 0.5 bar. Air bubbles in from of the membrane prevent the disinfectant from passing through the membrane resulting in false readings.
- Measuring range of the probe: See order information
- Response time T_{90} is about 1 minute
- Influence of pH: there is little influence of pH on this probe. Avoid deposition of chalk.
- The recommended temperature range is 5 to 35^{o} C.
- Membrane life is typically one year. However, this can vary considerably depending on level of maintenance and water quality. Heavy contamination of the membrane should be avoided.
- The controller and the probe connected to it must remain in operation continuously. The probe must not be allowed to become dry.
- To store the probe, first unscrew the membrane cap. Rinse the membrane cap and electrode finger with clean water and dry (dust free). Replace the membrane cap loosely onto the electrode shaft. The membrane must not rest against the measuring electrode.
- When placing probe back in service after storage, clean the electrode tip and install a new membrane cap.

IX. TROUBLE SHOOTING – CHLORINE PROBE

TROUBLE: Sensor cannot be calibrated – reading too high

PROBABLE CAUSE:
1. Break-in period too short
2. Membrane or membrane cap damaged
3. Cross-sensitivity to contaminants in the water
4. Short circuit in probe leads
5. Calibration chemicals beyond end of shelf life
6. pH too low

CORRECTIVE ACTION:
1. Allow analyzer to break in for a longer period (1 hour minimum
2. Replace membrane cap
3. Evaluate water chemistry and take remedial measures.
4. Ring out wires and correct error
5, Use fresh calibration standards
6. Adjust pH above 4 (pH4-8 for 0.5 ppm and 20 ppm probes and pH4-12 for 2, 5, & 10 ppm probes)

TROUBLE: Sensor cannot be calibrated – reading too low

PROBABLE CAUSE:
1. Run-in period too short
2. Membrane coated
3. Sample flow through cell too low/low flow alarm
4. Air bubbles on membrane
5. pH value too high
6. Too little or no electrolyte in membrane cap

CORRECTIVE ACTION:
1. Break-in period should be a minimum of 1 hour
2. Remove coating/replace membrane cap/clean working electrode (electrode tip only)
3. Adjust sample flow using rotameter needle valve. Float to be just below line on rotameter tube.
4. Tap cell and probe to remove bubbles; open bubble trap to flush additional sample past membrane.
5. Adjust pH to fall within the proper operating range (pH4-8 for 0.5 ppm and 20 ppm probes and pH4-12 for 2, 5, & 10 ppm probes)

TROUBLE: Instrument reading is erratic

PROBABLE CAUSE:
1. Air bubble on face of membrane
2. Membrane damaged
3. Controller problem

CORRECTIVE ACTION:
1. Tap cell and probe to remove bubbles; open bubble trap to flush additional sample past membrane
2. Replace membrane cap
3. Consult controller manual

TROUBLE: Instrument reading is “zero”

PROBABLE CAUSE:
1. Chlorine residual below probe measuring range
2. Error in probe wiring to instrument
3. Break-in period too short
4. Defective sensor

CORRECTIVE ACTION:
1. Add chlorine to sample and recalibrate
2. Correct wiring
3. Allow probe to operate for approximately 24 hours before attempting to recalibrate
4. Replace sensor with a known good unit.

TROUBLE SHOOTING – pH PROBE

TROUBLE: instrument reads 6.2-6.8 in all buffers

PROBABLE CAUSE:
1. Cracked pH glass
2. Stress crack

CORRECTIVE ACTION:
1. Replace electrode
2. Replace electrode

TROUBLE: Instrument reads 7.00 in all buffers

PROBABLE CAUSE:
1. Bad connection
2. Internal short

CORRECTIVE ACTION:
1. Repair connection
2. Replace electrode

TROUBLE: Buffer reads close to expected value but has slow speed of response

PROBABLE CAUSE:
1. Dirty electrode glass and/or reference junction
2. Temperature too low

CORRECTIVE ACTION:
1. Clean electrode
2. Change location of sensing cell to warmer location (above 32 degrees F.)

TROUBLE: Large offset in buffers

PROBABLE CAUSE:
1. Reference solution contaminated
2. Ground loop

CORRECTIVE ACTION:	1.	Replace reference solution with fresh
	2.	Investigate source of ground loop and provide positive earth ground
TROUBLE:	Short span	
PROBABLE CAUSE:	1.	Dirty pH glass or reference electrode
	2.	Aging electrode
CORRECTIVE ACTION:	1.	Clean electrode
	2.	Replace electrode
TROUBLE:	Unstable or drifting reading	
PROBABLE CAUSE:	1.	Reference dirty or plugged
CORRECTIVE ACTION:	1.	Clean electrode

X. ANALYZER PARTS LIST

(see analyzer diagram on page 19)

Model RP-1000/Chlorine Residual Analyzer &

Model RP-1200 Chlorine Residual/pH Analyzer

Part No.	**Description**
Replacement Chlorine Probes	
452010	0-0.5 PPM FREE CHLORINE
452011	0-2.0 PPM FREE OR TOTAL CHLORINE
425008	0-5.0 PPM FREE OR TOTAL CHLORINE
452012	0-10.0 PPM FREE OR TOTAL CHLORINE
452013	0-20.0 PPM FREE CHLORINE
Flow-through Cell Assembly	
452018	RP-1000 PROBE HOLDER W/FLOW ALARM SENSOR
452022	RP-1200 DUAL PROBE HOLDER W/FLOW ALARM SENSOR
Replacement Membrane Cap for Chlorine Probe	
452019	Model M48 Cap for CP2.1 Probe - 2.0, 5.0 & 10.0 ppm
452025	Model M20 Cap for CP4.1 Probe - 0.5 & 20.0 ppm

Chlorine Probe Electrolyte

452020 ECP1.3/GEL Electrolyte, 100 ml (for 2.0, 5.0, & 10.0)
452028 ECL Electrolyte, 100 ml (for 0.5 & 20.0 range probes)

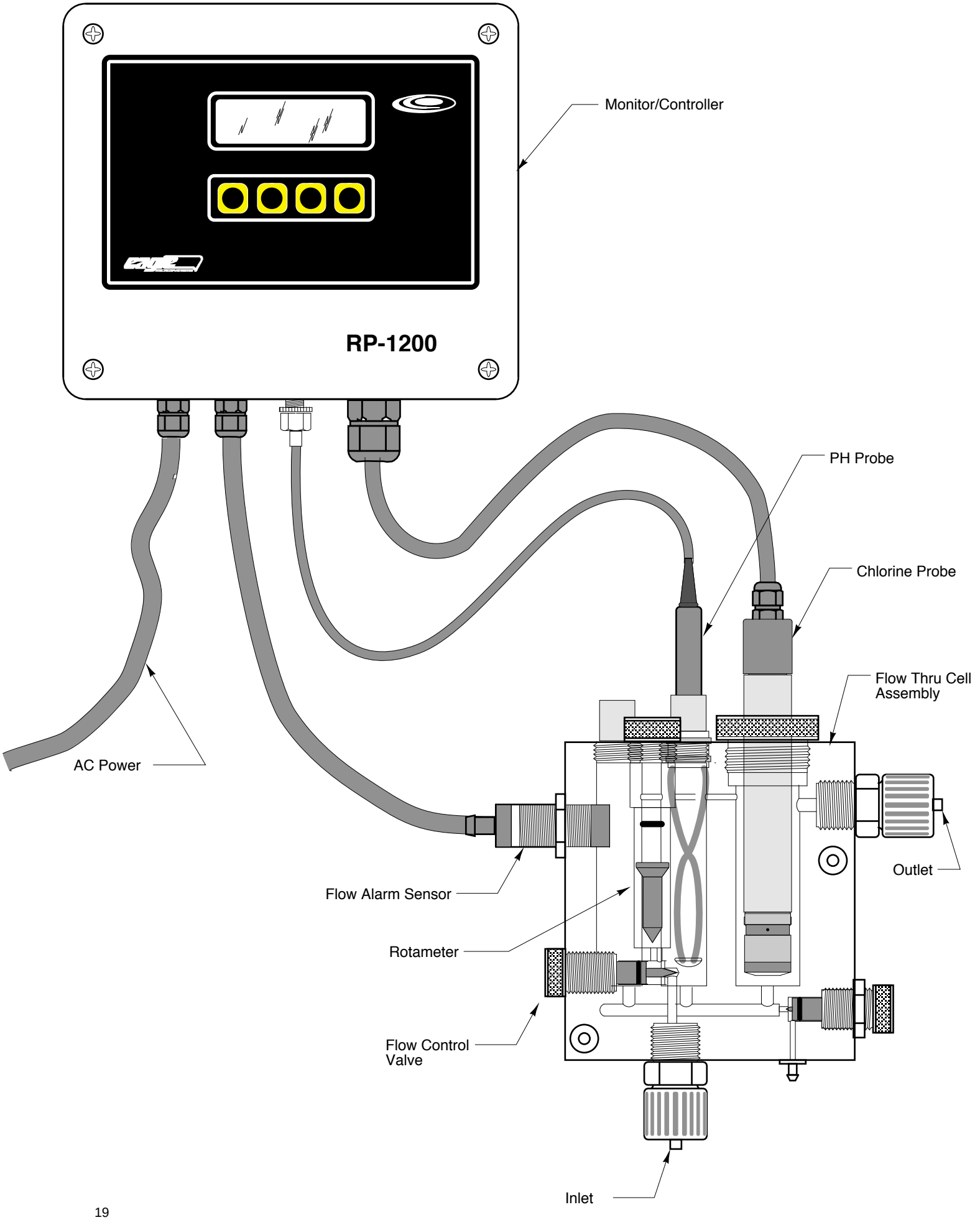
Model RP-1200 Only

pH
Probe

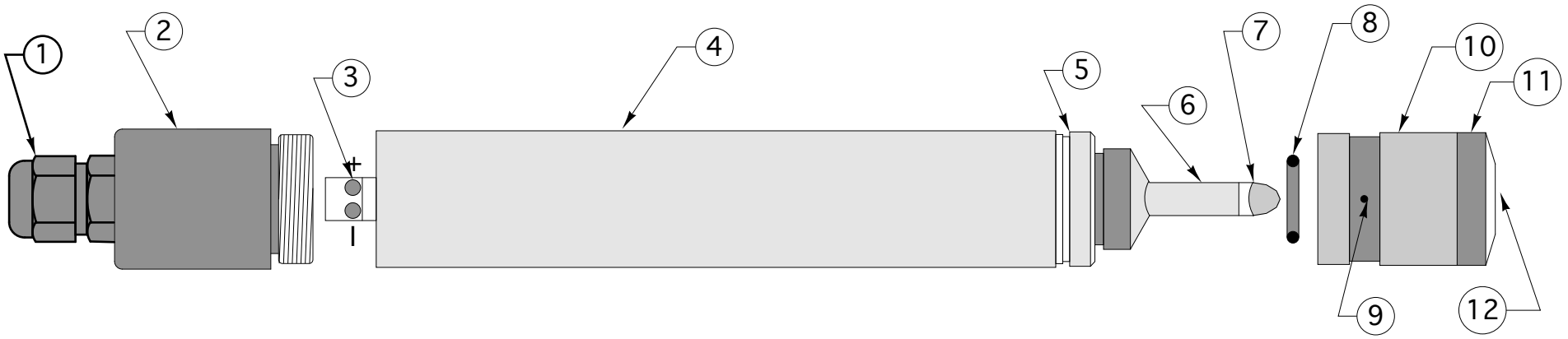
452021 0-12 pH (for use with standard probe holder)
450080 0-12 pH (for use with Prominent probe holder)

Model PS-1000S indicator/Controller Parts

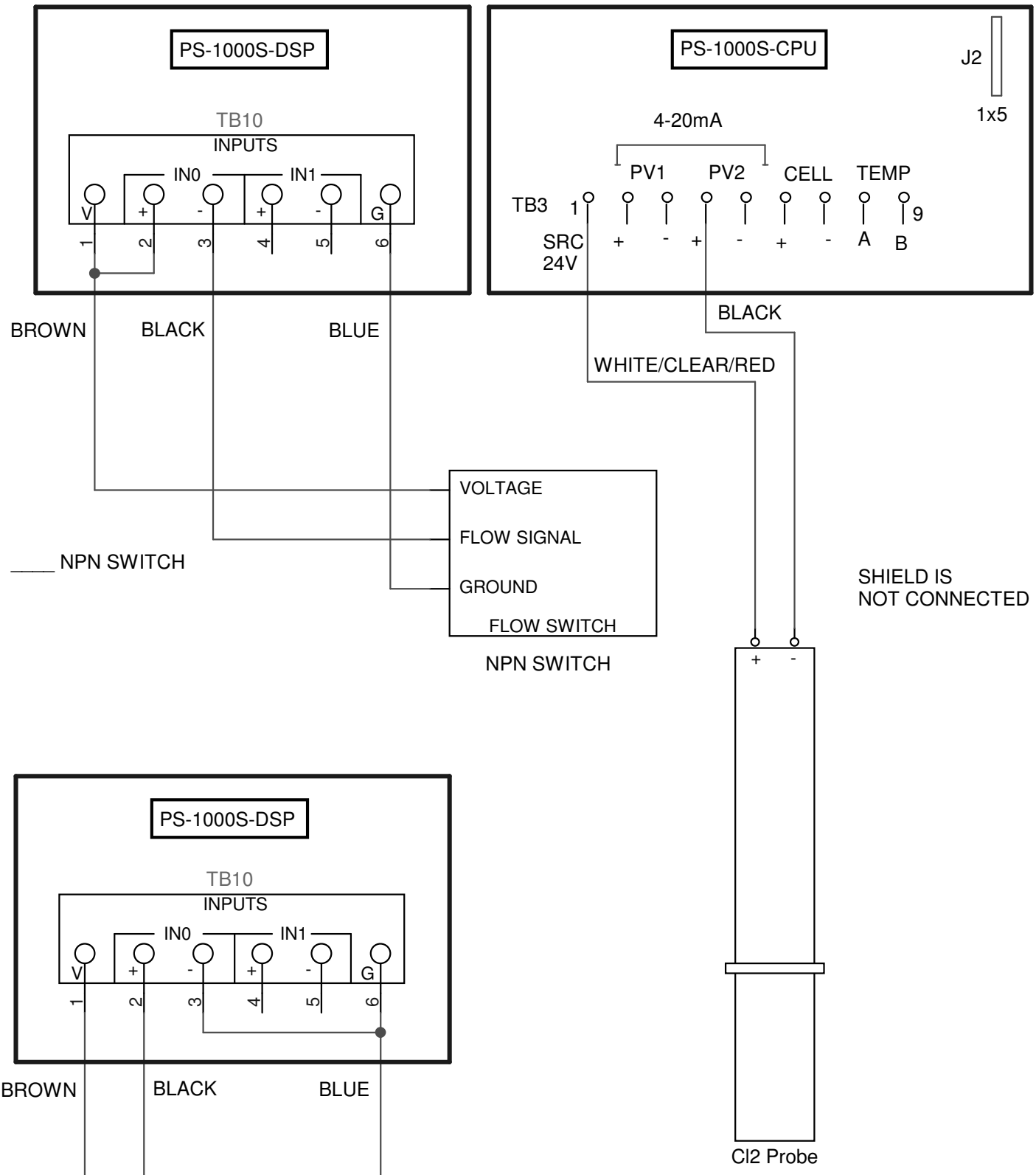
110400 CPU Board Assy
110401 Display Board Assy
110406 Model PSC3000 - Probe Signal Conditioner Assy (pH probe input)

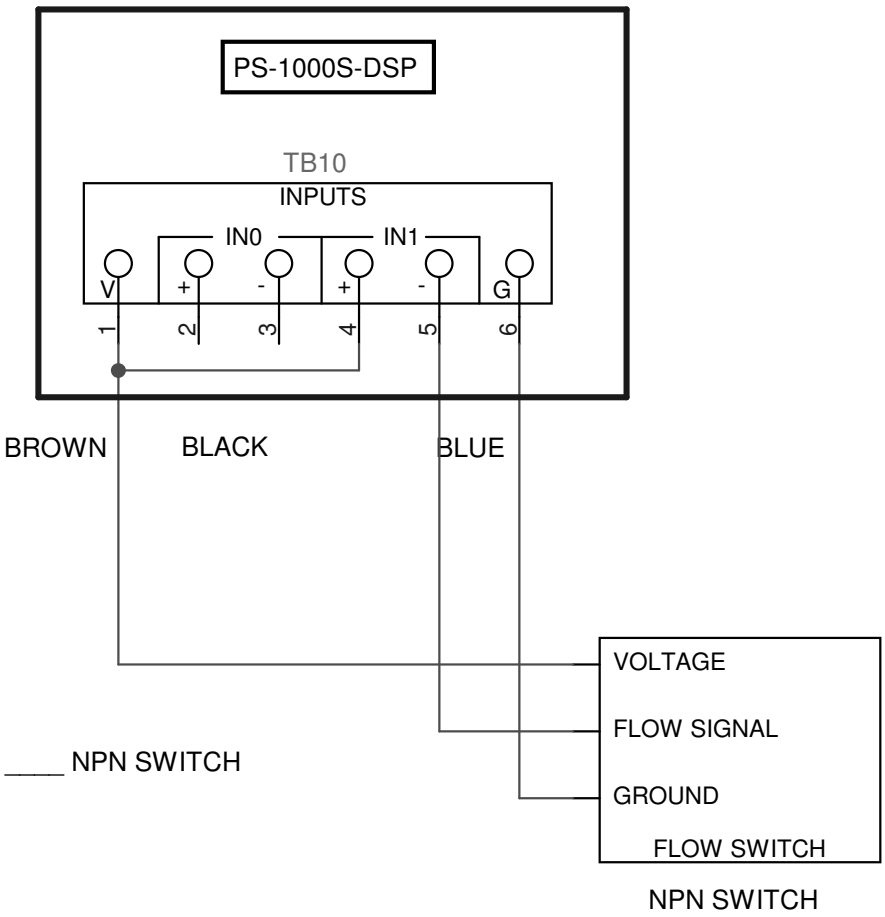

Monitor/Controller
RP-1200
PH Probe
Chlorine Probe
Flow Thru Cell Assembly
AC Power
Outlet
Flow Alarm Sensor
Rotameter
Flow Control Valve
Inlet

ITEM	TITLE
1	Cable Seal
2	Bonnet
3	Terminal Block
4	Electrode Shaft With Amp.
5	Counter Electrode
6	Reference Electrode
7	Working Electrode
8	"O" Ring 14 x 1.8mm
9	Vent
10	Membrane Cap
11	Membrane Disc Holder
12	Membrane Disc



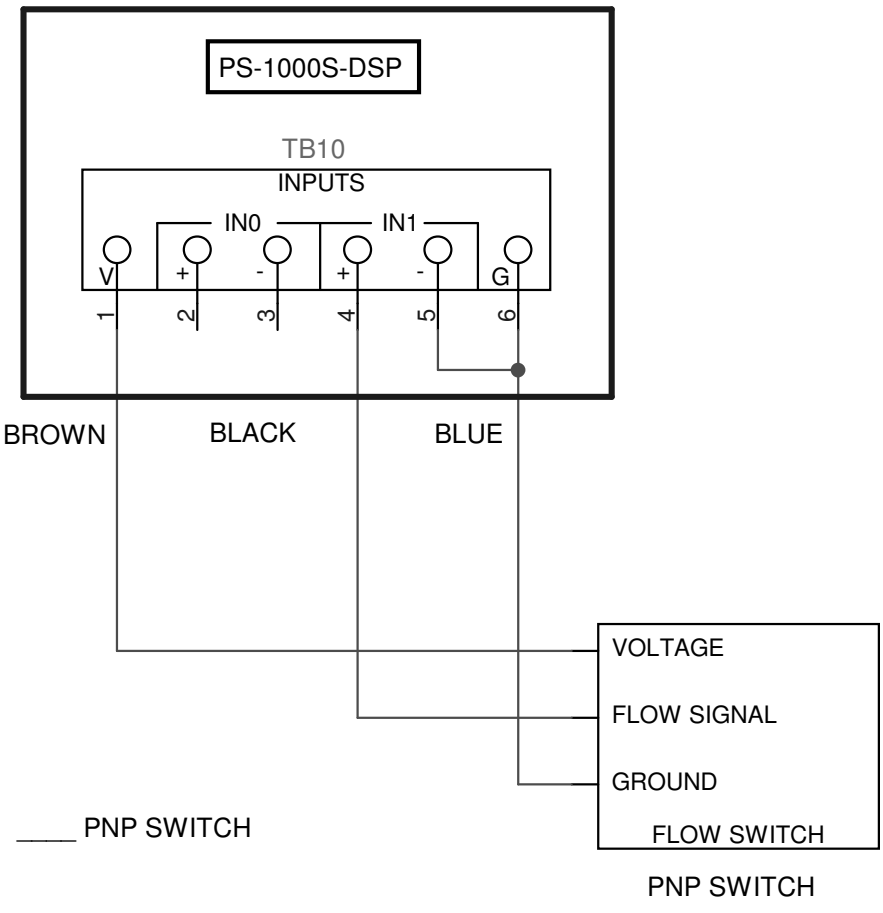
CHLORINE ELECTRODE DIAGRAM


PS-1000S-DSP
TB10
INPUTS
IN0
IN1
V
+
-
+
-
G
1
2
3
4
5
6
PS-1000S-CPU
J2
1x5
4-20mA
PV1
PV2
CELL
TEMP
TB3
1
9
SRC
24V
+
-
+
-
+
-
A
B
BROWN
BLACK
BLUE
BLACK
WHITE/CLEAR/RED
VOLTAGE
FLOW SIGNAL
GROUND
FLOW SWITCH
NPN SWITCH
____ NPN SWITCH
SHIELD IS
NOT CONNECTED
+
-
Cl2 Probe
PS-1000S-DSP
TB10
INPUTS
IN0
IN1
V
+
-
+
-
G
1
2
3
4
5
6
BROWN
BLACK
BLUE
VOLTAGE
FLOW SIGNAL
GROUND
FLOW SWITCH
PNP SWITCH
____ PNP SWITCH
BOARD REVISION (REV):
0644 AND ABOVE
EAGLE MICROSYSTEMS, INC
PROBE & FLOW SWITCH WIRING



SEE PSC3000 WIRING DIAGRAM
FOR PROBE WIRING

____ NPN SWITCH



Cl2 Probe

BOARD REVISION (REV):
0644 AND ABOVE

____ PNP SWITCH

PROBE & FLOW SWITCH WIRING

Notes:

RP-1000/RP-1200 ROUTING TICKET

SO#: _____ DATE: _____

PROGRAM: _____ SERIAL #: _____

VERSION: _____ PCB REV: ☐ 0644 ☐ ____

PROBE (PSC): _____ PROBE S/N: _____

PROBE (PV1): _____ PROBE S/N: _____

APPLICATION		PROGRAMMING	
MODE:		PV1 ENABLE:	
TEMPERATURE:		PV1 DP:	
BUZZER:		PV1 FS:	
SERIAL PORT:		INPUT:	
SERIAL BAUD:		xx FS:	
FLOW SWITCH:		xx ZERO:	
K1:		PROBE DAMP:	
K1 POLARITY:			
K2:			
K2 POLARITY:			
K3:		SP 1:	
K3 POLARITY:		SP 2:	
K4/K6 POLARITY:		SP 3:	
		PASSWORD:	0 0 0

Note: Parameters that do not need to be set, depending on the mode selected, will not be available (leave blank).

HARDWARE INSTALLED OPTIONS

K1, K2, K3 [X] K4 [ ] K5 [ ] K6 [ ]

RS232/20mATx [ ] (PO1) 4-20mA [X] BUZZER [ ] PSC2000 [ ]

PSC3000 [ ]

RS485 [ ] PS-1000-AOUT [ ]

Note: The battery option, if installed, cannot be used for this application.

S1 (V select)	
230V	
115V	

S2 (DP)	
A	
B	

TECH _____