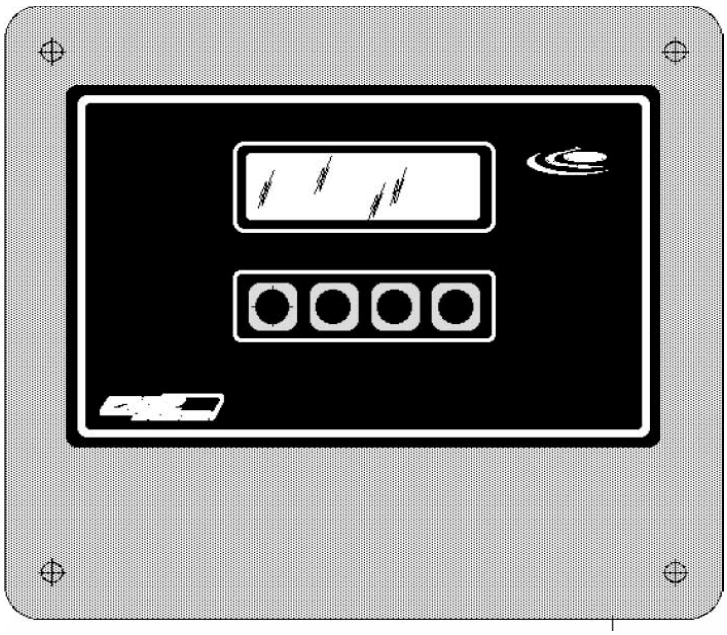
Premier Series Monitor

UPC1000

TECHNICAL REFERENCE
MANUAL



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REVISED:June 4, 2014 ***FIRMWARE VERSION >= 2.95***

PS-1000S SPECIFIATIONS

Power & Environmental

A.C. Power Supply:	115V/230V (+10%/-20%), 50Hz-60Hz, 12W, SWITCH SELETABLE
D.C. Battery:	2 x 8.4V, NiMH
Operating Temperature:	32F to 110F

User Interface

Display:	16 character, 2 line, 5x8 dot-matrix, back-lit LCD.
Pushbuttons:	Four

Analog Inputs (4-20mA)

PV1 & PV2:	4-20mA, Floating (optional)
Input Z:	249 ohms
Voltage source:	23V @ 80mA (used for probes)

Galvanic Cell (CL2 residual analyzer)

Cell Input:	Au & Cu type
Range:	0.1 to 20ppm standard (200ppm optional)
Temperature compensation:	Thermister

High-Z Probe Input (PSC1000, PSC2000, & PSC3000)

Probe Support:	pH, ORP, Fluoride, Ammonia (NH_3) & Cl_2
Voltage input:	+/- 2.2V
Temperature Compensation:	1000 Pt RTD

Analog Outputs

Voltage Compliance:	14V
Drive:	650 ohms or less
Range:	4-20mA
Number:	One is standard

NOTES: Up to two additional analog outputs are furnished by PS-1000-AOUT boards. Also, the PSC3000 contains an additional analog output that represents the probe input.

Digital I/O

Relays:	six, Form A (N.O.) (Four are standard)
Rating:	5A, 250V, Au (plating)/Ag

NOTE: The relays should drive a resistive load. If this is not so, one must use either a MOV or snubber circuit to suppress switching transients.

Inputs: 2, Active/Passive

NOTE: The user must connect a dry (no potential) contact (pushbutton switch or relay contact) to this input. The current that flows through the circuit is 10mA or less.

Serial Interface

Types: RS232 and RS485 (optional)

The UPC1000 is a controller that has three control modes: Flow proportional, Residual/ORP/pH control, and compound loop control. The METER mode doesn't have the controller functions.

To select the instrument as a controller (UPC1000), gas detector (GA-1000), meter, or residual analyzer (RA-1000), do as follows: From the current main operating screen, press SET and enter the password "1?1" and press the ENT pushbutton. Alternatively, if one is in the setup menu, press the right most pushbutton until the password screen is displayed, enter the password "1?1" and press the ENT pushbutton.

Parameter: **MODE**
This sets the instrument to operate as a controller (UPC1000), gas detector (GA-1000) or residual analyzer (RA-1000). Press the ADJ pushbutton to set the choice to CONTROLLER (UPC1000) or METER (RP-1000 with a pH, Fluoride, or ORP probe).

Parameter: **UNIT**
Sets the engineering units (i.e., ppm, mg/l, etc.).

Parameter: **BUZZER**
Enables (ON) or disables (OFF) the audible alarm.

Parameter: **PSC MODULE** (UPC1000 only)
Set to YES if the PSC1000 (with BNC connector) is installed. Note: **The meter mode assumes a PSC' module is installed.**

Parameter: **INPUT ENABLE**
ON: INPUT (RA-1000-DSP-TB10) is used to enable the controller.
OFF: The controller auto/manual control is by the pushbutton assignment in the main operating screen.

NOTES WHEN INPUT ENABLE IS ON: If the contact is energized (MAKE), the controller will run. If the contact is de-energized (BRAKE), the controller will stop and the analog output, PO1 will fall to 4mA (Note: The PO1 continues to display the last calculated output). When the controller is restarted, the previous PO1 output is restored and control resumes. The A/M function is not available when the remote input is enabled. If one changes the manual PO1setting, the output will rise to the user setting until the controller is restarted.

Parameter: **SERIAL PORT**
This parameter turns the continuous transmission to an SI420-16 ON or OFF.

Parameter: **SERIAL BAUD**
This parameter selects the transmission baud rate (default 1200). The choices are 1200, 2400, and 4800.

Parameters: **K1, K2, & K3**
These set the operating mode of the selected relay.

K1, K2, K3	ENERGIZED	DE-ENERGIZED
OFF	NEVER	ALWAYS
LOW	INPUT <= SP	INPUT > SP
LOW /w ACK	INPUT <= SP	INPUT > SP *OR* Acknowledged by USER
HIGH	INPUT >= SP	INPUT < SP
HIGH /w ACK	INPUT >= SP	INPUT < SP *OR* Acknowledged by USER
LATCH L=ON	LOW SP	HIGH SP
LATCH L=OFF	HIGH SP	LOW SP

When one is finished, press the ESC pushbutton to return to the main operating screen.

- K1 & K2 are PV2 (RESIDUAL, ORP, FLR (fluoride) or pH) set points in ppm units.
- K3 is a flow set point in percentage.

Parameters: **K1 POLARITY, K2 POLARITY, K3 POLARITY, K4/K6 POLARITY**
These parameters set the relay polarity.

N/O:	Normally open
N/C	Normally closed

ALARM (ALM) SET POINTS

Up to three, user selectable residual set points can be used. Parameters K1, K2, & K3 in the ADVANCED PARAMETER MENU select each set point's mode of operation.

The pushbutton legend has the format, "x:y," where 'x' indicates a low or high set point (L or H) and 'y' indicates the relay number (1,2 or 3).

The P:x format is a latching or pump application where the relay is energized at one set point and de-energized at another set point.

Examples:
L:1 selects the low-level set point controlling relay 1
H:2 selects the high-level set point controlling relay 2
P:3 selects the low-level & high-level set points controlling relay 3.

ACKNOWLEDGABLE SET POINTS
These are set points where a screen in the main residual screen is displayed that require the operator to decide on one of two choices: ACK or CLEAR.

ACK: The set point relay is de-energized & the buzzer (if enabled) is silenced. The set point alarm will not appear until reset by the residual input going out of the set point's active range.

CLEAR: The set point relay is de-energized & the buzzer (if enabled) is silenced. The set point alarm will appear ten seconds later if the residual input does not go out of the set point's active range.

NON-ACKNOWLEDGABLE SET POINTS
The relay will energize or de-energized based on the set point's mode & value. No screen will be displayed indicating the alarm and the buzzer will not sound.

POWER UP FUNCTIONS

1. Remove power from the controller.
2. Press and hold the pushbutton(s) for the selected function, see table below.
3. Apply power to the controller.

The analog input test will require the power to be cycled (on to off to on) to exit the test mode.

PB1	PB2	PB3	PB4	FUNCTION
X		**X**		Pushbutton, TB10 input, 4-20mA output, and relay cycle test
X	**X**			Analog input test
		X	**X**	Factory default – Resets calibration and setup parameters.

FLOW MODE SETUP

From the main operating screen, press the SET pushbutton and enter the password (default 000). Press ENT to, if a valid password was entered, enter the main setup menu; two choices are shown: CAL and PARM. Press PARM to enter the parameter setup or press ESC to return to the main operating screen after a DOSE and set PO1 (if in manual mode) prompt.

PARAMETER LIST IN FLOW MODE

Parameter: **CTRL**
Sets the control type: Flow proportional (FLOW), Residual control (RESIDUAL), and compound loop (COMPOUND). Press ADJ to set using the UP and DOWN pushbuttons. Press SET when the FLOW selection is made.

Parameter: **PV FAIL>PO1**
If the flow signal is no longer detected (PV1 input <3.3mA), the 4-20mA, analog output PO1 will react per the setting of this parameter.

HOLD	The PO1 signal will hold its position (five seconds before the loss of signal detection
DROP	The PO1 signal will drop to 4mA.

FLOW RUN SCREEN

The flow run screen displays the flow (FL) input (PV1) in percentage and the process output (PO) in percentage.
Pushbutton R/S: Automatic (run) or manual (stop).
Pushbutton SET: Enter setup

```
FL    10.0    [FLW]
PO    10.0% R/S SET
```

When the R/S pushbutton is pressed, the user is prompted to switch the run/stop mode. Answer YES to switch the mode from STOP to RUN or RUN to STOP. After the user switches the mode to STOP, the user is prompted to zero (0%) the PO1output. Answer YES to set the PO1 output to 4mA, or press NO to hold the PO1 output at its current level, which is anything between 4mA and 20mA.

MANUALLY SETTING PO1

To manually set PO1 when the process is NOT in automatic mode (process is stopped), press the SET pushbutton and then press the same pushbutton again to exit the password screen; the PO1 adjustment screen should now be displayed. Use the UP and DOWN pushbuttons to set the desired value of PO1, and, finally, press the SET pushbutton to return to the main operating screen.

Note: PO2 is a repeat of the PO1 signal.

DOSAGE

After one exits the SETUP screen by pressing the ESC pushbutton, the DOSE adjustment screen is displayed. Use the UP and DOWN pushbuttons to set the desired value. After the SET pushbutton is pressed, either the PO1 adjustment screen (manual mode) or the main flow screen (automatic mode) will be displayed

Basic formula: OUT = FLOW x DOSE

RESIDUAL/ORP/pH CONTROL SETUP

From the main operating screen, press the SET pushbutton and enter the password (default 000). Press ENT to, if a valid password was entered, enter the main setup menu; three choices are shown: CAL, ALM and PARM. Press PARM to enter the parameter setup or press ESC to return to the main operating screen after several prompts.

PARAMETER LIST IN RESIDUAL/ORP/pH CONTROL MODE

Parameter: **CTRL**
Sets the control type: Flow proportional (FLOW), RESIDUAL/ORP/pH, and compound loop (COMPOUND). Press ADJ to set using the UP and DOWN pushbuttons. Press SET when the RESIDUAL/ORP/pH selection is made. NOTE: Either RESIDUAL, ORP or pH will be displayed depending on the "PV2 IN TYPE" screen selection.

Parameter: **CTRL OUT**

CTRL OUT setting	OUTPUT INCREASES	OUTPUT DECREASES
CHLOR	RES < SET POINT	RES > SET POINT
DECHLOR	RES > SET POINT	RES < SET POINT

Basic formula: OUT = OUT' + k(SP – RES) Note: k is the **P (GAIN)** parameter value.

Parameter: **P (GAIN)**
Sets the responsiveness to an error calculated by comparing PV2 to the set point value (label: RES SP, ORP SP, or pH SP). Higher values are more responsive/less stable.

Parameter: **D-BAND**
Set in ppm, this sets a band around the setpoint where the controller will not make any more adjustments if the PV2 input is within the +/- (window) range. For example, if SV is 10 and D-BAND is set to 1, the controller will not make any adjustments if the PV2 input is >=9 and <=11.

Parameter: **PV FAIL>PO1**
If the residual/ORP/pH signal is no longer detected (PV2 input <3.3mA), the 4-20mA, analog output PO1 will react per the setting of this parameter.

HOLD	The PO1 signal will hold its position.
DROP	The PO1 signal will drop to 4mA.

Parameter: **LAG FIX**
Sets the time between PV2 samples that are used to, ultimately, adjust the output, PO1 to correct for any PV2 to SP errors.

Parameter: **PV2 IN TYPE**
Selects the PV2 input as RESIDUAL, ORP, FLR (fluoride) or pH. Other labels that are specific to the PV2 input will change accordingly (i.e., CTRL).

Parameter: **RES FS, ORP FS, FLR FS, or pH FS**
Sets the value the display will read when the PV2 input is at 20.00mA.

Parameter: **RES ZERO, ORP ZERO, FLR FS, or pH ZERO**
Sets the value the display will read when the PV2 input is at 4.00mA.

DECIMAL POINT
S2, located on the RA-1000-CPU board, sets the decimal point as follows:

SWITCH, S2	CL2 RESIDUAL	pH	ORP	FLR (Fluoride)
A	0.0	0.0	0	0.0
B	0.00	0.0	0	0.0

RESIDUAL/ORP/pH RUN SCREEN

For the rest of this section, it is assumed that the RESIDUAL input type is selected.
Pushbutton R/S: Automatic (run) or manual (stop).
Pushbutton SET: Enter setup

```
RE     10.0     [RES]
SP     10.0   R/S SET
```

When the R/S pushbutton is pressed, the user is prompted to switch the run/stop mode. Answer YES to switch the mode from STOP to RUN or RUN to STOP. After the user switches the mode to STOP, the user is prompted to zero (0%) the PO1output. Answer YES to set the PO1 output to 4mA, or press NO to hold the PO1 output at its current level, which is anything between 4mA and 20mA.

MANUALLY SETTING PO1
To manually set PO1 when the process is NOT in automatic mode (process is stopped), press the SET pushbutton and then press the same pushbutton again to exit the password screen; the PO1 adjustment screen should now be displayed. Use the UP and DOWN pushbuttons to set the desired value of PO1, and, finally, press the SET pushbutton to return to the main operating screen.

VIEWING PO1 WHILE THE PROCESS IS RUNNING
To view the process output while the process is running, press the left most pushbutton and the dynamic PO1 value is displayed. Press one of the ESC pushbuttons to return to the main operating screen.

SETPOINT
After one exits the SETUP screen by pressing the ESC pushbutton, the set point (i.e., RES SP) adjustment screen is displayed. Use the UP and DOWN pushbuttons to set the desired value. After the SET pushbutton is pressed, either the PO1 adjustment screen (manual mode) or the main compound loop screen (automatic mode) will be displayed

Basic formula: OUT = OUT' + k(SP – RES) Note: k is the **P (GAIN)** parameter value.

COMPOUND LOOP (FLOW+RESIDUAL/ORP/pH) CONTROL MODE SETUP

From the main RUN screen, press the SET pushbutton and enter the password (default 000). Press ENT to, if a valid password was entered, enter the main setup menu; three choices are shown: CAL, ALM and PARM. Press PARM to enter the parameter setup or press ESC to return to the main operating screen after several prompts.

PARAMETER LIST IN COMPOUND LOOP (FLOW+RESIDUAL/ORP/pH) CONTROL MODE

Parameter: **CTRL**
Sets the control type: Flow proportional (FLOW), RESIDUAL/ORP/pH, and compound loop (COMPOUND). Press ADJ to set using the UP and DOWN pushbuttons. Press SET when the COMPOUND selection is made.

Parameter: **CTRL OUT**

CTRL OUT setting	OUTPUT INCREASES	OUTPUT DECREASES
CHLOR	RES < SET POINT	RES > SET POINT
DECHLOR	RES > SET POINT	RES < SET POINT

Compound loop calculations are as follows:

OUT = FLOW x DOSE + BIAS

To calculate BIAS:

BIAS = BIAS` + k(SP - RES)

BIAS` = Last calculated BIAS value.
k = "P (GAIN)" parameter setting.
SP = Residual set point.
RES = Measured residual value on PV2.

Note that the FLOW x DOSE section is calculated in real time. BIAS calculation intervals are controlled by the lag time and D-BAND settings.

Parameter: **P (GAIN)**
Sets the responsiveness to an error calculated by comparing PV2 to the set point (label: RES SP, ORP SP, or pH SP) each update (see **LAG** settings). Higher values are more responsive/less stable.

Parameter: **P (GAIN2)**
Sets the responsiveness to an error calculated by comparing the PV2 residual to the set point and adjusting the DOSE parameter. Higher values are more responsive/less stable. This is the gain set CLC mode when CLC EQU is set to DOSE; one must still set P (GAIN) since it's the gain value used by the residual (or other) only control mode.

Parameter: **CLC EQU** (CLC equation)
ADD: The residual loop adds a corrective offset to the output to attain set point. "ADD" is recommended for most applications.
DOSE: Adjustments are made to the DOSE value to attain set point based on P (GAIN2)

Parameter: **CTRL LIM** (%)
Applies to the CLC-ADD loop – This limits the correction that the residual (closed) loop can apply to the output. It is a +/- window based around the FLOW x DOSE output calculation. If set to 20% and the FLOW x DOSE = 50% output the residual loop can vary the output 30% to 70%.

Note: The residual (closed) only loop has no limits and the dosage calculation CLC loop (CLC-DOSE) also has no limits.

Parameter: **D-BAND**
Set in ppm, this sets a band around the setpoint where the controller will not make any more adjustments if the PV2 input is within the +/- (window) range. For example, if SV is 10 and D-BAND is set to 1, the controller will not make any adjustments if the PV2 input is >=9 and <=11. This parameter does not apply to the flow input. Adjustments will still be made based on FLOW x DOSE in real time.

Parameter: **PV FAIL>PO1**
If the residual & flow signals are no longer detected (PV1 & PV2 inputs are <3.3mA), the 4-20mA, analog output PO1 will react per the setting of this parameter.

HOLD	The PO1 signal will hold its position (five seconds before the loss of signal detection)
DROP	The PO1 signal will drop to 4mA.

Parameter: **LAG**
Choose fixed lag where the time between PV2 samples is fixed or variable lag where the time between samples is dependent on the flow. Note: Adjustments will still be made based on FLOW x DOSE in real time.

Parameter: **LAG FIX**
Sets the time between PV2 samples that are used to, ultimately, adjust the output, PO1 to correct for any PV2 to SP errors.

Parameter: **LAG VAR** (shown only if the LAG selection is set to VARIABLE)
Sets the lag time for the flow "FLOW @ VAR" setting where the time between samples is dependent on the flow input, PV1. For example, if the "LAG VAR" parameter is set to 100s and the FLOW@VAR parameter is set to 50%, a 25% flow would yield a lag time of 200s. Also, a flow of 100% would yield a lag time of 50s. Note: Not all installations can employ this parameter unless the flow verses lag time is inversely linear proportional.

Parameter: **FLOW@VAR** (shown only if the LAG selection is set to VARIABLE)
Sets the flow rate in percentage for the LAG VAR parameter see LAG VAR for more information.

Parameter: **PV2 IN TYPE**
Selects the PV2 input as RESIDUAL, ORP or pH, FLR (fluoride). Other labels that are specific to the PV2 input will change accordingly (i.e., CTRL).

Parameter: **RES FS, ORP FS, FLR FS, or pH FS**
Sets the value the display will read when the PV2 input is at 20.00mA.

Parameter: **RES ZERO, ORP ZERO, FLR ZERO, or pH ZERO**
Sets the value the display will read when the PV2 input is at 4.00mA.

Parameter: **FLOW@VAR** (shown only if the LAG selection is set to VARIABLE)
Sets the flow rate in percentage for the LAG VAR parameter see LAG VAR for more information.

Parameter: **0 FLW** (Zero flow)
ALLOW RES: The residual will control the output when the flow is less than or equal to the RES@FL point; flow no longer is a part of the output control. **This setting must be use with caution. If the flow is lost the output may set the pump to maximum and cause an extreme over-feed condition.**
ZERO OUT: When flow reaches 0%, the output will be forced to zero to stop the feed of Cl_2.

Parameter: **RES@FL** (Residual mode at flow %)
Used in conjunction with the 0 FLW parameter to allow residual only control when the flow drops below the set point. Set FLOW CTRL to zero if this function is being employed. **Any setting other than 0% must be used with caution. If the flow is lost the output may set the pump to maximum and cause an extreme over-feed condition.**

Parameter: **CTL OVRRIDE** (Control override)
NONE, FLOW, or RES - Sets the controller to an alternate control mode while being able to view the other input. This is used temporarily while installing/servicing the controller. It's recommended set to FLOW on initial startup to find a working DOSE value. Then set to NONE to enable residual trim (i.e. CLC mode).

Parameter: **DOSE RST** (Control override)
This sets the initial value of the DOSE after a power failure or restart. An entry of zero disables this parameter.

Parameter: **FLOW CTRL**
Set in percentage (0 to 100%) below which the residual control will be inhibited and only the flow will control the output. Set **RES@FL** to zero if this function is being employed.

Parameter: **RES INH, ORP ZERO, FLR ZERO, or pH ZERO**
This sets the point where the controller will only respond to changes in flow in PV2 units (e.g., ppm). Use of this parameter is not recommended. It has been removed from later versions of the controller software.

DECIMAL POINT
S2, located on the PS-1000-CPU board, sets the decimal point as follows:

SWITCH, S2	CL2 RESIDUAL	pH	ORP	FLR (Fluoride)
A	0.0	0.0	0	0.0
B	0.00	0.0	0	0.0

COMPOUND LOOP RUN SCREEN

For the rest of this section, it is assumed that the RESIDUAL input type is selected.
Pushbutton R/S: Automatic (run) or manual (stop).
Pushbutton SET: Enter setup

```
RE    10.0    [CMP]
SP    10.0  R/S SET
```

When the R/S pushbutton is pressed, the user is prompted to switch the run/stop mode. Answer YES to switch the mode from STOP to RUN or RUN to STOP. After the user switches the mode to STOP, the user is prompted to zero (0%) the PO1output. Answer YES to set the PO1 output to 4mA (0%), or press NO to hold the PO1 output at its current level, which is anything between 4mA and 20mA.

MANUALLY SETTING PO1
To manually set PO1 when the process is NOT in automatic mode (process is stopped), press the SET pushbutton and then press the same pushbutton again to exit the password screen; the PO1 adjustment screen should now be displayed. Use the UP and DOWN pushbuttons to set the desired value of PO1, and, finally, press the SET pushbutton to return to the main operating screen.

VIEWING PO1/PV1 WHILE THE PROCESS IS RUNNING
To view the flow input (PV1) and the process output while the process is running, press the left most pushbutton and the dynamic FLW (PV1) and PO1 values are displayed. Press the ESC pushbutton to return to the main operating screen.

DOSAGE & SETPOINT

If one is exiting the setup mode, before the main compound loop screen is displayed, the user is prompted to first enter the dosage, controller residual/ORP/pH set point and, if the controller is in manual mode, the 4-20mA output, PO1.

To change/view the dose and set point settings from the main operating screen, press the SET pushbutton, enter the password and press the ENT pushbutton; the setup menu is displayed. Press the ESC pushbutton to view/change dose value. Press SET again to view/change the set point (RES SP, ORP SP, or pH SP). Press the SET pushbutton to return to the main operating screen if the controller is in automatic mode. If the controller is in the manual mode, the PO1 value will be displayed and, if needed, changed. Press the SET pushbutton to return to the main operating screen.

Basic formulas: OUT = FLOW x DOSE + BIAS & BIAS = BIAS' + k(SP – RES)
See page 6 for more information.

REVERSIONARY MODE SUMMARY

A loss of a needed PV1/PV2 (RA & CR application) signal will cause the controller to revert to another control mode, see the reversionary modes table below.

LOSS OF INPUT	FLOW	RESIDUAL	COMPOUND LOOP
PV1	Manual	**N/A**	Residual
PV2	**N/A**	Manual	Flow
PV1 & PV2	*N/A*	**N/A**	Manual

Notes:

1. After a signal is restored in the residual/compound loop modes, there is a ten second delay before the reversionary mode is released.
2. After the reversionary mode is released, a five second delay occurs before the closed-loop calculation is performed.
3. A flashing controller mode display, [MAN] indicates a reversionary mode is in operation.

CALIBRATION (ALL MODES)

To calibrate from the main operating screen (flow, residual/ORP/pH, or compound loop), press the SET pushbutton, enter the password (default is 000), and press the CAL pushbutton.
The three selections (other than escape) are as follows:

- PV1: Flow input
- PV2: Residual/ORP/pH input (If PSC' is installed, see below)
- POx: Process output calibration menu. The next menu selects PO1 or PO2 (optional).

For the analog inputs (PV1 & PV2), one must use a 4-20mA generator connected to the input that is to be calibrated.

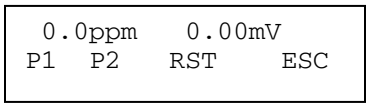
- Set the mA generator to 4.00mA and press the pushbutton under the 4mA label to set the zero mA point. The display should read 4.00mA.
- Set the mA generator to 20.00mA and press the pushbutton under the 20mA label to set the span mA point. The display should read 20.00mA.
- Repeat to verify calibration. However, the zero and span points are not interactive so one can skip this step.
- Press the ESC pushbutton to exit to the calibration menu.

Repeat the above procedure for the second channel.

To calibrate the process output (PO1/PO2), one must connect either a DMM (mA input) or other device that can read the PO1/PO2 current output. The device should have, at least, 0.01mA precision.

1. Press the PO1/PO2 pushbutton to enter the SET ANALOG OUT screen.
2. Press the 4mA pushbutton and the mA meter should read around 4.00mA.
3. Use the UP & DOWN pushbuttons to set the output to exactly 4.00mA and press set when done. This is the zero point.
4. Press the 20mA pushbutton; the mA meter should read around 20.00mA.
5. Use the UP & DOWN pushbuttons to set the output to exactly 20.00mA and press set when done. This is the span point.
6. The two points are not interactive so one should not need to readjust each point again. Press the EXIT pushbutton to go back to the POx selection menu.

CALIBRATION OF THE PSC1000/PSC2000/PSC3000 OPTION



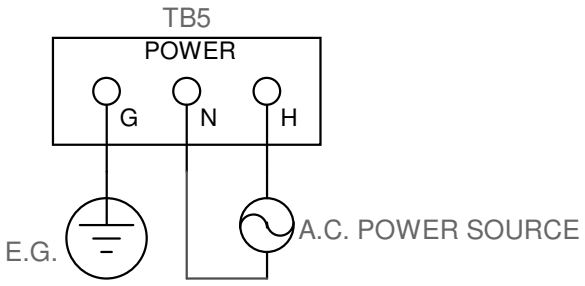
Selecting PV2 (controller) or PV3 (meter) in the calibration menu will display the screen to the right. Pushbuttons P1 and P2 set calibration points 1 and 2, respectively. Pressing RST restores the default calibration values to (P1) 0.2ppm @ 140mV & (P2) 2.0ppm @ 84mV. Pressing ESC backs to the calibration menu.

Calibrate two points following a procedure documented in the probe manufacturer's manual. P1 (point 1) should be lower then P2 (point 2). Do not calibrate from 0.0ppm to 0.1ppm of fluoride, as the probe is quite non-linear below 0.2.

END OF CALIBRATION

PASSWORD

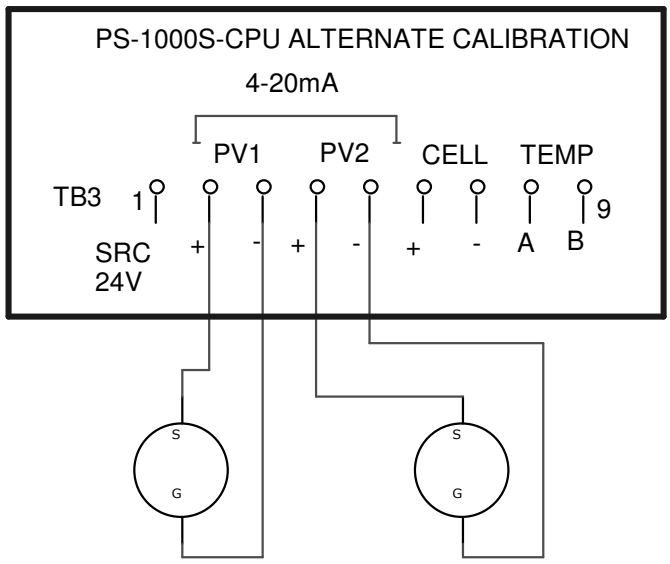
After one exits the CALIBRATION menu, one is first prompted to change the stored password. If one does not want to change the password, press the NO pushbutton. If the YES pushbutton is pressed, the SET new password screen is entered and now one can set the new password.



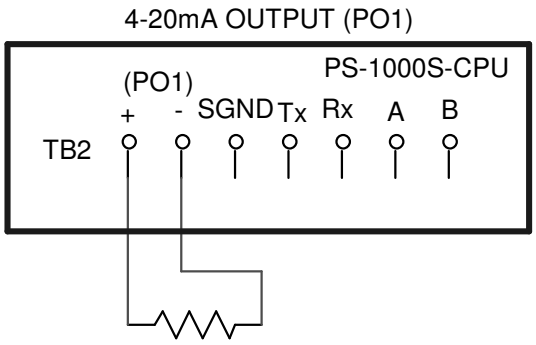
S1 (V.SELECT)
SELECTS 115V OR 230V A.C. POWER

4-20mA SELF POWERED SOURCES
& 4-20 CALIBRATOR WIRING

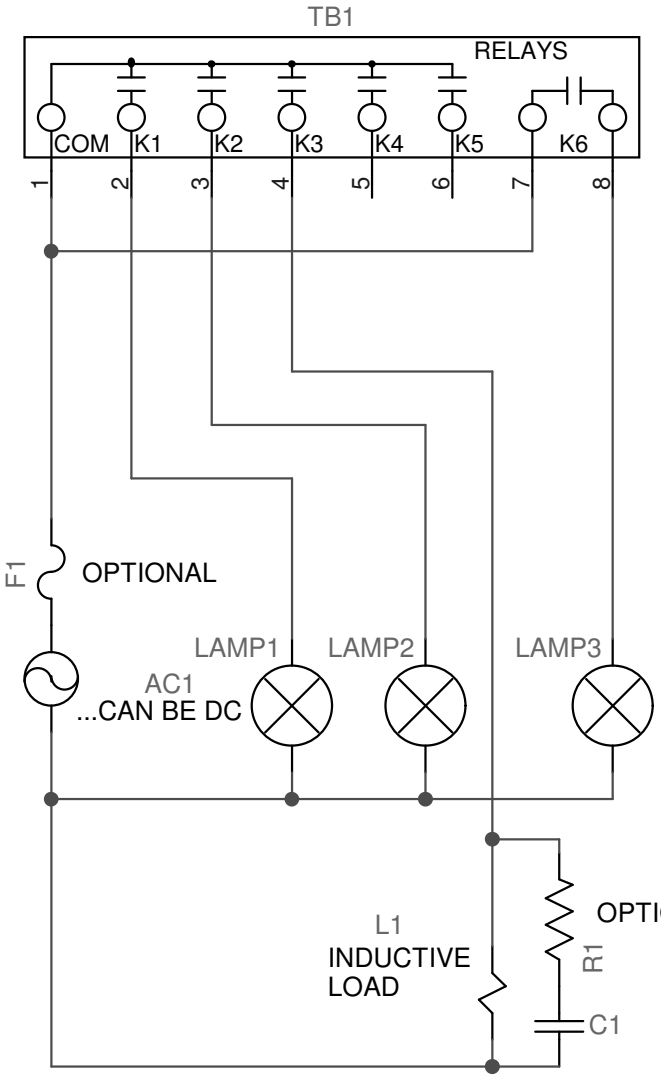
NOTE: PV1 & PV2 share common negative (TB3-3 & 5)
if J1 and J2 both have G selected.

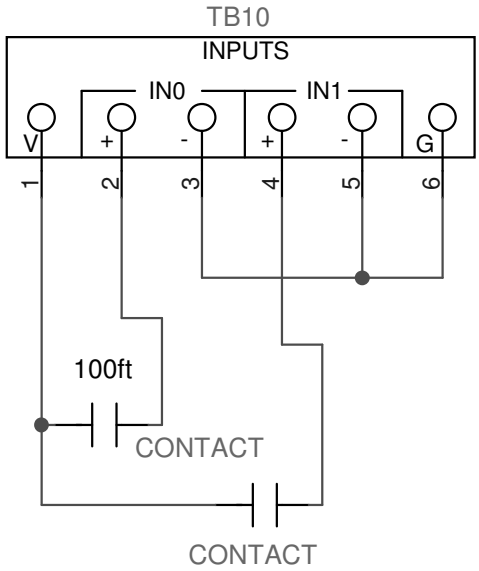


CHANNEL ONE 4-20mA SOURCE CHANNEL TWO 4-20mA SOURCE



CONTROLLER 4-20mA LOAD (VALVE, PUMP, ETC.)
SCADA SYSTEM, CHART RECORDER, ETC.





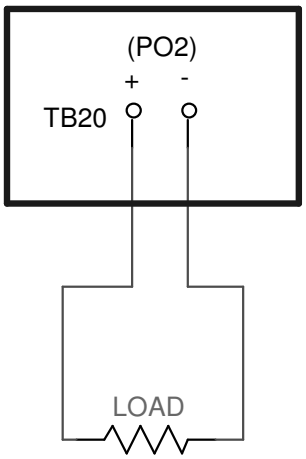
WARNING
THE CONTACT CANNOT
SUPPLY ANY POTENTIAL

BOARD REVISION (REV):
0644 AND ABOVE

EAGLE MICROSYSTEMS, INC
PS-1000S-CPU

PS-1000-AOUT OPTION BOARD

4-20mA OUTPUT (PO2)



CONTROLLER 4-20mA LOAD (VALVE, PUMP, ETC.)
SCADA SYSTEM, CHART RECORDER, ETC.

BOARD REVISION (REV):
0644 AND ABOVE

Notes:

UPC1000 ROUTING TICKET (CONTROLER)

SO#: - - DATE:

Program: PS1000s INST. S/N:

Version: PCB REV: ☐ 0644 ☐ _____

Engineering Setup:	Default values	User Changes
MODE:	CONTROLER	
UNIT:	English	
BUZZER:	OFF	
PSC MODULE	NO	
INPUT EN(able)	OFF	
SERIAL PORT:	OFF	
SERIAL BAUD:	1200	
FLOW SWITCH:	ON	
K1:	LOW w/ ACK	
K1 POLARITY:	N/O	
K2:	HIGH w/ ACK	
K2 POLARITY:	N/O	
K3:	OFF	
K3 POLARITY:	N/O	
K4/K6 POLARITY:	N/O	

User Setup:	Default values	User Changes
PV2 IN TYPE	RES	
RES FS	200.0	
RES Zero	0.0	
CTRL:	COMPOUND	
CTRL OUT:	CHLOR	
P (GAIN):	50%	
CLC EQU:	ADD	
CTRL LIM:	20%	
D-BAND:	0.0ppm	
PV FAIL>PO1:	DROP	
LAG:	FIXED	
LAG FIX:	5s	
LAG VAR:	10s	
FLOW @ VAR:	50.0%	
0 FLW:	ZERO OUT	
RES @ FL:	0.0%	
CTL OVRRIDE:	NONE	
DOSE RST:	0.00	
FLOW CTRL:	5.0%	

Alarm settings	(ALM menu)	
(K1) RES SP 1:	LOW 0.00ppm	
(K2) RES SP 2:	HIGH 0.00ppm	
(K3) RES SP 3:	OFF	

DOSE	1.00	
RES SP	60.0	

Note: Changing "PV2 IN TYPE" and "LAG" parameters will hide or change other settings.

PASSWORD:	0 0 0	

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

Default hardware: K1, K2, K3, K6 (relays), RS232, single 4-20 mA output, 2 contact inputs, two 4-20 inputs, cell input, thermistor input.

INSTALLED HARDWARE OPTIONS

PSC-3000 ☐ PS-1000-AOUT ☐ BUZZER ☐ RS485 ☐

BATTERY ☐ ☐ ☐ ☐

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

A.C. Voltage S1 ☐ 230V ☐ 115V S2 (RES DP) ☐ (0.0) A ☐ (0.00) B Tech