DCM3 Series Controller
Quick Start Guide

ProMinent®

<div style="background:yellow">

CAUTION

*Before attempting calibration or commissioning of the DCM3 control system, water chemistry must be **stable** and within normal operating ranges of 7.2-7.8 pH, Free Chlorine at 1-5 ppm, and Total Alkalinity level at 80-120 ppm.*

</div>

Calibrations

pH Single Point Calibration Example

```
2.04ppm  2.33ppm  ↕
7.44pH      783mV
84.5F      256gpm
STATUS ALARMS SETPNT
```
F1   F2   F3

Press the CAL button, then use the arrow buttons to scroll to pH sensor E, then press OK.
Login with your password, if requested.
Next, take a water test and using the buttons,

```
E:pH Sensor
Enter value
   7.66pH
SAVE       MORE
```
F1   F2   F3

enter the results, one decimal place at a time, followed by the SAVE F1 key. The LED screen will indicate **Sensor Calibrated.** Press NEXT F1 to continue to the next sensor to be calibrated, or press ESC twice to return to the Home screen.

> ***ORP** input is factory calibrated and cannot be re-calibrated in the field.*

Free Chlorine
Single Point Calibration Example

> *NOTE: The Free Chlorine calibration routine is designed to optimize a DPD calibration by remembering the ppm value at the moment the DPD* F1 *button is pressed.*

```
C:Free Chlorine
Sample & press DPD
   2.2ppm
DPD        MORE
```
F1   F2   F3

Press the CAL button, then use the buttons to scroll to C: Free Chlorine, then press OK.
Login with your password, if requested.
When ready, remember to press the DPD F1 button first, to instruct the calibration to

```
C:Free Chlorine
DPD wait: 25sec
   2.2ppm
SAVE       MORE
```
F1   F2   F3

save the sensor reading. A timer is then started on the display for your use. Once the Free Chlorine value is measured, enter the results using the arrow buttons, followed by the SAVE F1 key.

If the calibration is accepted, the LED screen will then indicate **Sensor Calibrated**. Press NEXT F1 to continue to the next sensor to be calibrated, or ESC twice to return to the Home screen.
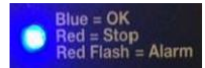
```
C:Free Chlorine
Sensor Calibrated

NEXT
```
F1   F2   F3

Status LED

Steady **Blue** = Normal
Flashing Red = Alarm
Steady Red = An output relay is Forced OFF

Blue = OK
Red = Stop
Red Flash = Alarm

Adjusting Setpoints

pH Setpoint Example:

Set points menu is located in the outputs that control the feeders.
By default, and in our example, the pH feeder is assigned to Relay 1: Acid Feed.
To change the pH set point, press the SETPNT F3 button. Use the buttons to point to the ▶**1:Acid Feed** relay, then press OK.

```
1:Acid Feed
Adjust Setpoint
      7.4pH
DEDBND
```
F1   F2   F3

Login with your password if requested, then press OK.

Use the buttons to change the pH Setpoint, then press OK to save the new setting.

Deadband:

Deadband is the control overlap necessary to keep a feeder from turning on and off too rapidly, sometimes called "chattering".
By default, the pH feeder is assigned a deadband of 0.10 pH. This means the pH must deviate 0.10 pH above the setpoint before the acid feeder will turn on. The default deadband for ORP is 5mV and the Free Chlorine deadband is 0.5 ppm.
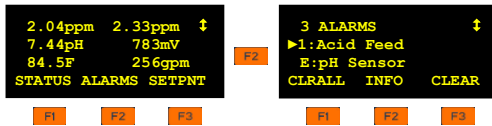
The control deadbands do not normally need to be changed after being set by your ProMinent technician during startup.

Refer to the Operation and Installation manual for more information on the Deadband and its function.
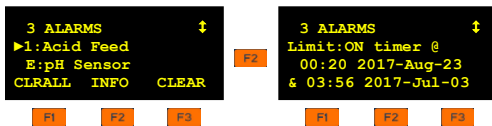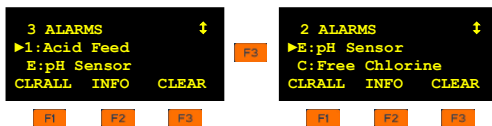
Alarms

Alarm Info and Alarm Clear Example:
NOTE: *All alarms in the DCM3 series controllers are latching alarms by default. Once an alarm is triggered, it must be acknowledged or cleared. Alarm latching can be turned off in the DCM3 I/O Setup menus.*
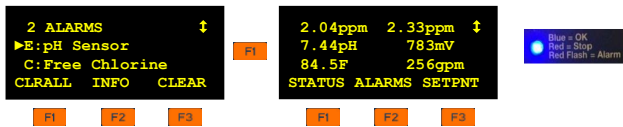
```
2.04ppm  2.33ppm  ↕         3 ALARMS           ↕
7.44pH     783mV      [F2]   ▶1:Acid Feed
84.5F      256gpm           E:pH Sensor
STATUS ALARMS SETPNT        CLRALL  INFO   CLEAR
[F1]   [F2]   [F3]          [F1]   [F2]   [F3]
```

If an alarm is active with the red LED flashing, pressing ALARMS [F2] will show how many alarms there are on the top line, and specific alarms on the 2nd and 3rd lines.

```
3 ALARMS           ↕          3 ALARMS           ↕
▶1:Acid Feed          [F2]    Limit:ON timer @
E:pH Sensor                   00:20 2017-Aug-23
CLRALL  INFO   CLEAR          & 03:56 2017-Jul-03
[F1]   [F2]   [F3]            [F1]   [F2]   [F3]
```

Select the individual alarm using the ▶, then press and **hold** INFO button [F2], and LED screen will show detailed information on each alarm.
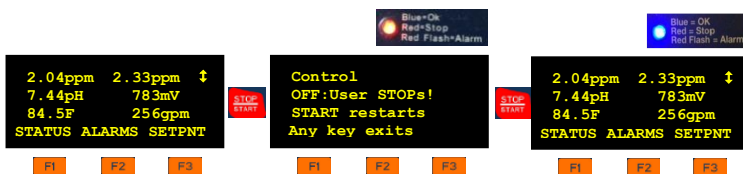
```
3 ALARMS           ↕          2 ALARMS           ↕
▶1:Acid Feed          [F3]    ▶E:pH Sensor
E:pH Sensor                    C:Free Chlorine
CLRALL  INFO   CLEAR          CLRALL  INFO   CLEAR
[F1]   [F2]   [F3]            [F1]   [F2]   [F3]
```

Pressing CLEAR [F3] will clear the selected alarm

```
2 ALARMS           ↕          2.04ppm  2.33ppm  ↕
▶E:pH Sensor          [F1]    7.44pH     783mV
 C:Free Chlorine              84.5F      256gpm
CLRALL  INFO   CLEAR          STATUS ALARMS SETPNT
[F1]   [F2]   [F3]            [F1]   [F2]   [F3]
```
Blue = OK
Red = Stop
Red Flash = Alarm

CLRALL [F1] will clear all alarms, extinguish the flashing red ALARM LED, light the blue OK LED, and return to the Home screen.

START / STOP key

A quick way to force <u>all</u> chemical feed relays to the OFF position is to press the [STOP/START] button. The status LED will change to a steady **RED** as will all the active control output LEDs. To resume normal control on all outputs, press [STOP/START] again. A steady **BLUE** status LED indicates normal operation with no alarms, and a flashing **RED** LED indicates normal opereration with an active alarm.

```
                          Blue=Ok
                          Red=Stop
                          Red Flash=Alarm
2.04ppm  2.33ppm  ↕         Control            ↕         2.04ppm  2.33ppm  ↕
7.44pH     783mV   [STOP     OFF:User STOPs!    [STOP     7.44pH     783mV
84.5F      256gpm  START]    START restarts     START]    84.5F      256gpm
STATUS ALARMS SETPNT        Any key exits                STATUS ALARMS SETPNT
[F1]   [F2]   [F3]          [F1]   [F2]   [F3]            [F1]   [F2]   [F3]
```
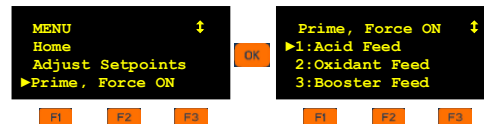
Feeder Prime/Force OFF

Temporarily forcing a feeder ON, we call "Priming" because that is the most frequent use of this function- to prime a chemical feeder. The relays can also be forced to STOP (i.e., during troubleshooting) or then be "UNSTOPPED" to be returned to normal operation from this menu.

```
2.04ppm  2.33ppm  ↕               MENU               ↕
7.44pH     783mV   [MENU][▼]      Home
84.5F      256gpm                 Adjust Setpoints
STATUS ALARMS SETPNT              ▶Prime, Force ON
[F1]   [F2]   [F3]                [F1]   [F2]   [F3]  [OK]
```

To Prime or "Force ON" a relay:
From the Home screen, press [MENU] then [▼] to select Prime, Force ON then press [OK].

```
MENU               ↕           Prime, Force ON    ↕
Home                  [OK]     ▶1:Acid Feed
Adjust Setpoints              2:Oxidant Feed
▶Prime, Force ON             3:Booster Feed
[F1]   [F2]   [F3]           [F1]   [F2]   [F3]
```

Enter an operator level password or higher if required, then press [OK].

> ***NOTE:*** *For safety, if the feeder selected is in a timeout alarm, or the flow switch or START/STOP button has stopped chemical feed, you will not be able to force the feeder ON (Prime) until these conditions are changed.*

Select the feeder to Prime or STOP, then press [OK].

```
Prime, Force ON  ↕          Prime, Force ON  ↕
1:Acid Feed         [F3]    1:Acid Feed
   00:05:00                    00:04:59
STOP       START            STOP       CANCEL
[F1]   [F2]   [F3]          [F1]   [F2]   [F3]  [OK]
```

> ***CAUTION:*** *Forcing a feeder on for an extended period can be hazardous.*

The default time on the Prime duration is 5 minutes. Change the Prime timer duration, if desired, using the arrow keys, then press START [F3] to begin priming the pump.

Pressing [F3] CANCEL again, cancels the Prime and returns the relay to normal control by the sensor.

Pressing STOP [F1] not only STOPs the Prime, but also forces the feeder OFF, until you UNSTOP the feeder.