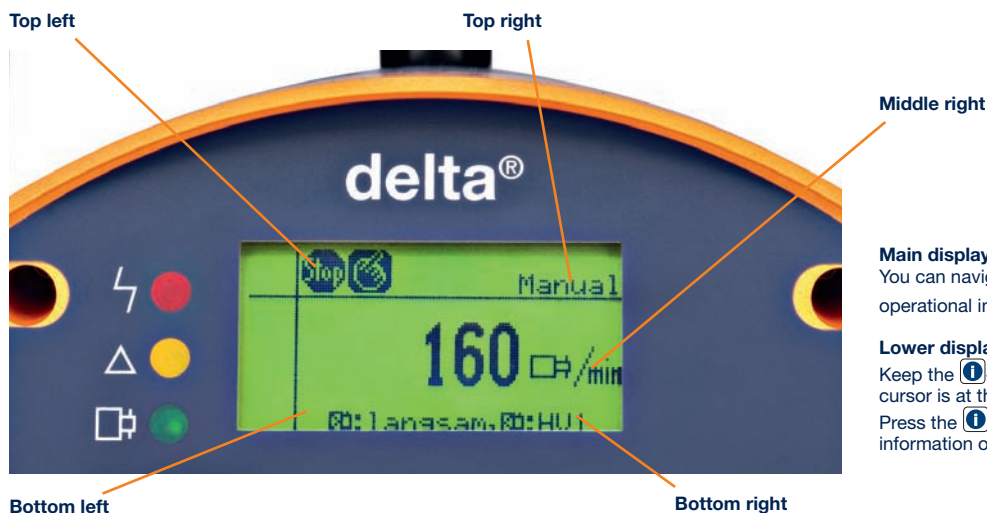


delta® with optoDrive – quick guide

ProMinent®



Main display - middle right

You can navigate between operational information with the **I**-Key.

Lower display - bottom right

Keep the **I**-key pressed until the cursor is at the bottom; then release it. Press the **I**-key to view additional information on the respective operating mode.

General display symbols

The delta pump has numerous display symbols. These can change depending on the operating mode of the pump the devices connected and the configuration of the pump.

Top left

- Pump in adjustment mode.
- Navigate with the I-key using indicators on the main display or the display at the bottom right
- Value changed in main display-Display geändert

Bottom left

- Warning, two-stage level switch indicates low fluid level in the storage tank
- Warning, flow control input, permissible number of defective strokes overshoot
- Warning, diaphragm break control indicates a break
- Warning, air in dosing head
- Warning, pump detects low feed pressure
- Warning, pump detects high feed pressure
- Display input pulses in "Contact" mode.
- Memory function activated in "Contact" or "Batch" mode
- In "Analog" mode, displays input settings of 4..20mA
- In "Analog" mode, displays input settings of 0..20mA
- Flow control is installed and monitoring starts
- Displays the progressive position of the diaphragm during slow feed and a stroke rate lower than 60 strokes per minute
- Fault, information on main display, middle right

Top right top display

- Pump stopped manually by
- Pause function, pump was stopped by open contact between brown and black wire of the universal control cable; pump continues to operate after contact is closed
- Auxiliary rate activated; a closed contact between the grey and black wire of the universal control cable activates this function
- Pump in "Manual" operating mode
- Pump in "Contact" operating mode
- Pump in "Batch" operating mode
- Pump in "Analog" operating mode

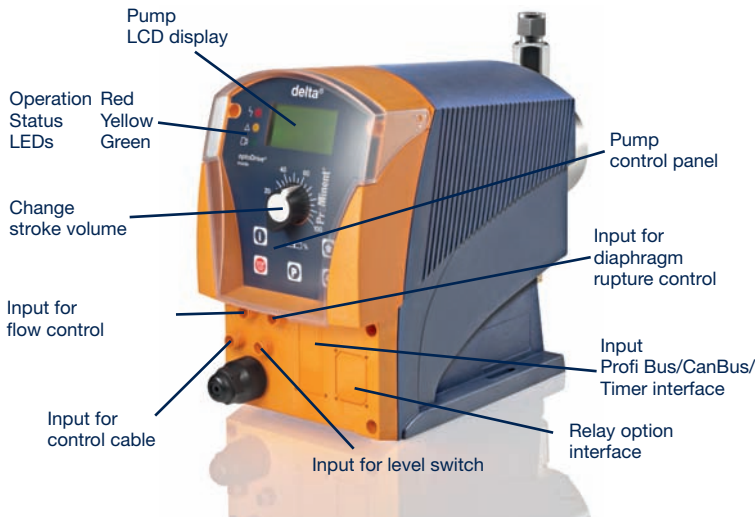
Middle right main display

- Fault, two-stage level switch indicates low fluid level in the storage tank. The pump stops
- Fault, flow control input, permissible number of defective strokes overshoot. The pump stops
- Fault, diaphragm control indicates a break. The pump stops
- Fault, air in the dosing head. The pump stops
- Fault, pump detects low feed pressure. The pump stops
- Fault, pump detects high feed pressure (blocked/closed) valve. The pump stops
- Fault, no input of 4.20mA or lower than 3.7mA. The pump stops
- Display pump speed in strokes per minute
- Display pump speed in strokes per hour
- Pump in "Contact" operating mode

Bottom right bottom display

- Additional operating information is displayed here.

delta® with optoDrive® - quick guide





Pump control panel: Key functions



Keep P-key pressed for 2 seconds to switch to the programming menu or change a setting or a value in the programming menu with the P-key



Navigate through the operating indicators on the top level; to view the indicators on a lower menu level, keep the -key pressed and move the cursor to the bottom. Now click as usual through the displays with the -key.



Increases value / up / back to adjustment mode







Lowers value / down



Stop pump / start pump






“Manual” operating mode

Operating mode “Manual” and the maximum stroke rate a (200 SPM = strokes per minute) are preset on pump delivery.










- Change stroke rate of pump with the  or  arrow keys.
- You can view the operating indicators with the -key: e.g. strokes per minute or per hour in the “main” display. The “bottom right” indicator on the display either indicates the strokes per minute or per hour, the number of strokes, the stroke length %, or settings of the suction and pressure speed
- Start or stop the pump with the -key

“Analog” operating mode (optional)

Settings for Analog mode (120 ohm load)

- Keep the -key pressed until the “main menu” appears on the display and the cursor points to the mode. Press the -key to confirm and move the cursor with the  arrow key to Analog.
- Press the -key to put the pump into “Analog” mode.
- The pump is in analog operating mode.
- If the red LED lights and  appears on the display then either the pump is receiving no analog signal or the signal is lower than 3.7mA. (pump operates in a range between 4-20mA)

Settings for control at 4 - 20 mA (or 0-20 mA)

- Keep the -key pressed until the “main menu” appears on the display.
- Move the cursor to the “Settings” item with the  arrow key. Then press the -key.
- Move the cursor to the “Analog” item with the  or  arrow key. Then press the -key.
- Move the cursor to the “4..20mA” or “0..20mA” with the  or  arrow keys. Then press the -key.







The display on the right can be programmed so that the current mA signal of the pump is displayed there. Select the curve* to provide an individual response to an mA input signal.

**For detailed information, refer to operating instructions.

“Contact” operating mode













Pulse input by universal control cable. The delta pump has a standard multiplier/divisor function.

Set “Contact” operating mode

- Keep the -key pressed until the “main menu” appears on the display. The cursor should point to „Mode“. Press the -key to confirm.
- Move the cursor to the “Contact” operating mode with arrow keys  or . Press the -key to put the pump into “Contact” mode. Symbol  should now appear on the bottom left of the display and “Contact” on the top right.

Set multiplier/divisor

(within a range from 0.01 to 100.00)










- Keep the -key pressed until the “main menu” appears on the display. The cursor should point to „Mode“.
- Move the cursor to the “Settings” item with the  arrow key. Then press the -key. Move the cursor to the “Contact” item with the  arrow key. Then press the -key. Once the cursor points to “Memory”, confirm with the -key or use arrow keys  or  to switch the Memory function on** or off. Then press the -key. Adjust the factor with arrow keys  or .
- Press the -key to return to pump operation. (this means, enter 02.50 for multiplier 2.5 and 00.50 for divisor 2).

** Switching on the Memory function increases the stroke rate when the pulse input is faster than the pump speed.












Programming instructions and description of functions

Calibration


For calibration, connect the pump to a calibration bar or use a measuring cylinder. **Set the unit (litres or US gallons)**

- Keep the -key pressed until the “main menu” appears on the display.
- Move the cursor to the “Settings” item with the  arrow key. Then press the -key.
- Using arrow key , move the cursor to the “System” menu item. Then press the -key.
- Move the cursor to “Unit”. Then press the -key.
- User arrow key  or , to set the measuring unit to “litres” or “US” gallons. Press the -key to select.

Calibrate

- Move the cursor to the “Settings” item with the  arrow key. Then press the -key.
- Using the , move the cursor to “Calibrate”. Then press the -key.
- Using the , move the cursor to “Start Calib.”.
- Press the -key to start calibrating. The pumps starts and the number of strokes is counted. It is recommended to run the calibration for approx. 1 minute or for 200 strokes.
- Press the -key to stop calibrating. Determine the pump volume (enter as follows: 50 ml = 0.050 litres)*.
- Change the displayed volume to the set pump volumes using the  or  arrow keys.
- Press the -key to accept this value for the pump.
- Keep the -key pressed until the “main menu” appears on the display.

Calibration is now completed.








You can display the pump output in litres/hour with the -key in the main menu. Navigate down one menu level to view the total feed volumes.

You can set the concentration for the pump when calibrating. This means, you can indicate the water flow rate, the chemical proportion and the chemical density. As soon as you have made these settings, the pump additionally indicates “ppm” or “%” C (for % concentration).

Concentration











Prerequisite for this function is that the pump has been calibrated. It is then ready for operating modes Manual, Batch, Contact and Analog.

Set and activate function:

- Keep the -key pressed until the “main menu” appears on the display.
- Using the , move the cursor to “Settings”. Press the -key.
- Using the , move the cursor to “Concentration”. Press the -key.
- Using the , move the cursor to “On”. Press the -key.

Carry out special settings from here, depending on the operating mode.

“Manual” operating mode

- Press the -key. The set the water flow rate with arrow keys  or  (even flow rate required).
- Press the -key Then set the chemical proportion with the  or  arrow key.
- Press the -key. Then use arrow key  or  to set the chemical density.
- Press the -key to return to operation. Use the start inhibitor to stop the pump when there is no water flow. (Pause input)

“Batch” operating mode


First indicate the volume in litres (l) and then set the chemical proportion and the chemical density.

“Contact” operating mode

First enter the volume/contact from the water counter and then set the chemical proportion and the chemical density.

“Analog” operating mode

First enter a flow rate (m³) at 20mA and then set the chemical proportion and the chemical density.









In each operating mode, it is assumed that first the flow rate and the water volume are indicated. Using the -key you can set the indication of rpm on the main display or of %C on the display on the bottom right.

Programming instructions and description of functions

Auxiliary rate

A universal control cable must be connected to the pump. The pump feeds with the preset stroke rate (auxiliary rate) when the grey and the black wire are closed.


















Set auxiliary rate





- Keep the -key pressed until the “main menu” appears on the display.
- Move the cursor to the “Settings” item with the  arrow key. Then press the -key.
- Move the cursor to the “Auxiliar” item with the  arrow key. Then press the -key.
- Use arrow keys  or  to set the auxiliary rate.
- Press the -key to return to pump operation.

You can now enter a value between 0 and 200. The maximum value is reduced for the “straight” or “HV” settings.







Flow control

Connect a Flow Control to the pump for this function (optional accessory). In this configuration, you can set when a fault is displayed for the consecutive number of metering strokes with too low stroke volume.

- Keep the -key pressed until the “main menu” appears on the display.
- Using the x arrow key , move the cursor to “Settings”. Press the -key.
- Using arrow key , move the cursor to “Flow”. Press the -key.
- Using arrow key , move the cursor to “On”. Press the -key.
- Press . Then set the “Tolerance” with arrow key  or  (set number of consecutive metering strokes with a stroke volume that is too low before a fault is displayed).
- Set the auxiliary rate with the -key or select “On” or “Off” with arrow keys  bzw. .
- Off = flow control is ignored when auxiliary rate is switched on.
On = the pump controls the flow when the auxiliary rate is switched on
- Press  to set the pump reaction to a lower/no flow rate. Move the cursor to “Warning” or “Fault” with the  or  arrow key. Press the -key to return to pump operation.

Warning	 display left, pump continues with operation,  YELLOW LED lights
Fault	 main display, pump stops,  RED LED lights

Priming

- Press the  or  arrow key simultaneously.
-  appears on the top left of the display and  on the top right.
- The pump feeds at maximum stroke rate as long as the arrow keys  or  are pressed.

Universal control cable - purchased separately

Length	Part no.
2 metres	1001300
5 metres	1001301
10 metres	1001302
50 metres	1032811
Diaphragm control	1027416

There is a complete list of all delta display symbols in the delta operating instructions as well as information on the air-lock function and the self-bleeding option.

ProMinent recommends that the pump user read the operating instructions of the pump. This quick reference guide is only an addition to the main documents of your delta metering pump® with optoDrive®.

Programming instructions and description of functions

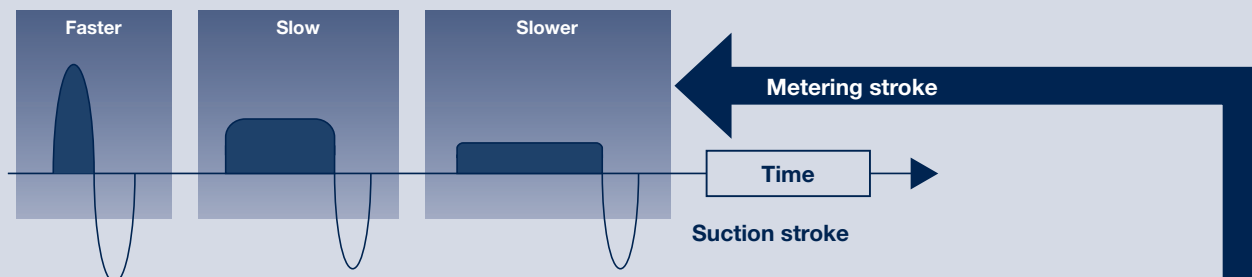
Main menu > Settings > Metering

The “Metering” menu allows you to set the speed of suction and feed metering and functions of the pump control.

Set-up

Fast The pump feeds with a pulsed pump output

Slow The metering stroke time increases as the stroke rate is lowered. At less than 60 strokes per minute, a visual indication of the stroke progress is shown on the bottom left of the display.



Set-up

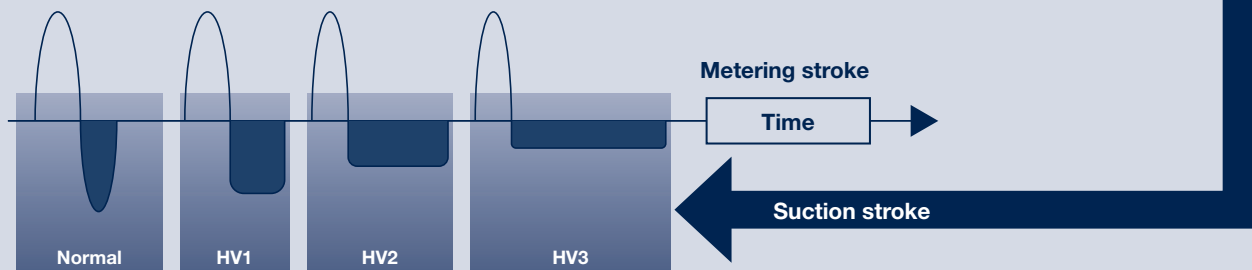
Normal Normal suction stroke - 200 strokes/min max.

HV1 Slow suction stroke time - 160 strokes/min max.

HV2 Slower suction stroke time - 120 strokes/min max.

HV3 Slowest suction stroke time - 80 strokes/min max.

Select settings Normal, HV1, HV2, or HV3 to control the suction stroke speed.



Suction and metering strokes at same volumes, variable duration of suction and metering stroke

This prevents cavitation, recommended for gassing media and media with high viscosity.

Set-up

Intelligent Functions are activated, incl. air lock, negative pressure, overpressure and compensation.

Straight Functions for air locking, low pressure and compensation are hereby deactivated and the maximum speed is limited to 160 strokes/min.

Pressure Reduces the maximum nominal pressure of the pump; standard (default) setting as indicated in the documentation. For additional information on dosing head sizes and settings, refer to the complete documentation.





Compensation Back-pressure fluctuations are compensated; exact metering is achieved.

Programming instructions and description of functions

Main menu > Settings > Metering





Air lock

The pump reacts as per the settings on detecting air in the dosing head.

None	No reaction or display
Warning	 Symbol on bottom left of display, pump continues with operation,  YELLOW LED lights up
Fault	 Symbol on main display. Pump stops,  RED LED lights up





No pressure

Detection for low metering pressure of pump. This might indicate a burst metering line, etc.
The pump reacts as per the setting.

None	No reaction or display
Warning	 Symbol on bottom left of display, pump continues with operation,  YELLOW LED lights up
Fault	 symbol on main display. The pump stops,  RED LED lights up









High pressure


Detection for a higher pump metering pressure than expected. This could indicate a blocked metering line, etc. or a closed valve. The pump reacts as per the setting.

Warning	 Symbol on bottom left of display, pump continues with operation,  YELLOW LED lights up
Fault	 symbol on main display. The pump stops,  RED LED lights up ••




Relay option

The relay function can be set if it is installed.

- Keep the -key pressed until the “main menu” appears on the display.
- Move the cursor to the “Settings” menu item with the  arrow key. Press the -key. Using the  arrow key, move the cursor to the “Relay” menu item.
- Confirm with the -key. Relay 1 is displayed is a single relay is used.
- Select  or  with the arrow key. Press the -key to confirm.

Fault	Only switches on a fault
Warning	Switches on warning
Warning + Fault	Switches on a warning or fault
Pulse	Relay opens / closes on each pump stroke
Warning + Fault + Stop	Switches on a warning or fault or pressed  -key

Operation can be set to “NO” or “NC” when selecting the above relay functions.

- Select with arrow keys  or . Press the -key to complete relay programming.

