

## CLINICIAN QUICK GUIDE FOR UNDERSTANDING TITRATION

This reference will help you understand the Titration features of the Curlin Medical Infusion Pumps. For more detailed information, please refer to the User's Manual issued with the pump.

The Titration features in the Curlin Medical pumps are used in the Continuous and PCA therapy modes. They enable the clinician programming the pump to enter a prescription that allows the patient or caregiver to adjust, within certain prescribed limits, the amount of fluid or number of boluses delivered to the patient to achieve certain results.

If the Titration feature is used for a Continuous therapy, the maximum rate of the fluid delivery can be programmed. For a PCA therapy, the maximum rate, time limits on increasing the rate, the number and interval of bolus doses can be programmed. With this feature, each therapy can be started at a lower rate (lower # of boluses) and the patient or caregiver can adjust the therapy as needed, safely, within prescribed limits (The PCA menus are shown below).

1. At the "Titrate" field in the initial pre-prescription menu the default setting of OFF will be highlighted and blinking. Press the NO key to change the setting from OFF to ON and then press the YES key.

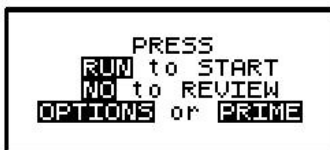
The screenshot shows a two-part menu. The top part contains the following text: UNITS: m9, CONCEN: 0.0 mg/ml, ADMINRT: IV, and LOADDOSE: 0.0 mg. The bottom part contains: Titrate: OFF (with 'OFF' highlighted and blinking) and NEXT? YES.

2. A screen will display and prompt you for the titration parameters.

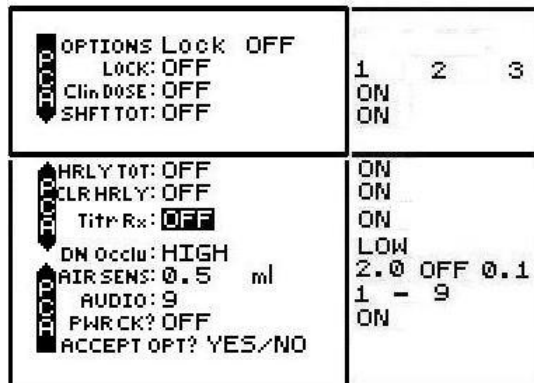
The screenshot shows a two-part menu. The top part is titled 'TITRATE LIMITS' and contains: MxRATE: 0.0 ml/hr, ΔRATE: 0.0 ml, and ΔTIME: 0:00 HH:MM. The bottom part contains: MaxBOLS: 0.0 ml, MinINT: 0 MIN, #BOLS/hr: 0, and ACCEPT? YES/NO (with 'YES/NO' highlighted).

- MxRATE (Maximum Rate) limits: The minimum rate is 0, and the maximum rate must be equal to or less than 50 ml/hr in Intravenous, 25 ml/hr in Epidural and 5 ml/hr in Subcutaneous. When the correct maximum titration rate is entered, press YES and the cursor will move to the next field.
- ΔRate (Delta Rate): Some prescriptions include incremental levels or *delta* limitations (e.g., "Do not raise the rate more than 1 ml in 12 hours"). If the prescription has these components, use the ΔRate field and the Δ Time field to enter those limits. Example: Enter the incremental titration amount level of 1 ml on this field, and press YES to move to the next field.
- ΔTime (Delta Time): Enter the incremental or delta time limit. (Example: Enter 12:00 hours.) If there are no incremental or delta level components to the prescription, leave these fields (ΔRate and ΔTime) set at their default settings of "0" and press YES to move to the next field.
- Max BOLS (Maximum Bolus Dose): Use this field to set the upper limit of the Bolus or Patient Demand dose. If there is no bolus dose, enter "0". If a value is given for the Maximum Bolus Dose, use the numeric keys to enter it on this field, press the YES key to accept, and move to the next field. The value entered for this field must be equal to or less than 50 ml in Intravenous, 25 ml in Epidural and 5 ml in Subcutaneous.
- MinINT (Minimum Bolus Interval): Use this field to set the minimum amount of time (minutes) allowed between bolus doses. After the correct number of minutes has been entered, press the YES key to accept, and move to the next field.
- #BOLS/hr (Number of Boluses allowed per hour): Use this field to enter the maximum bolus/hr. When correct, press the YES key to accept, and move to the next field.
- ACCEPT? When these fields are correct, press YES at the "Accept?" field.

- Press YES at NEXT? And continue entering the rest of the prescription as prompted. When the prescription is complete, the following screen will display:



- Press the RUN key to start the infusion.
- While the pump is running, press the green OPTIONS key on the keypad. The Options Menu will display a selection to allow you to titrate the prescription. This is displayed on the Options Menu as "Titr Rx".



- Use the blue DOWN ARROW key to move the cursor to this field:
- Press the NO key to change the Titration feature from OFF to ON and then press the YES key. A secondary menu will appear:



- The values currently in use will display in these fields. If a change is allowed at this time, you will be able to increase or decrease the values within the pre-set limits for each field. If you attempt to enter a value that exceeds the pre-set limits or if the pre-set time limit has not yet been reached, an "ALERT" message will appear.
- Use the numeric keys to enter the new rate, bolus, bolus interval or number of bolus per hour. Each field must be accepted by pressing the YES key.
- When new values are entered that fall within the pre-set Titration Limits, each time you press the YES key, the cursor will continue to advance to the "ACCEPT?" field. Press the YES key again and the display will return to the Options Menu. Press the YES key at each remaining field of the Options Menu. When you press YES at the "ACCEPT OPT?" field, the display will return to the running screen, the new rate will be displayed and, if changed, the new bolus times and numbers will be in effect.