Dilushaker III Digital – Quick Guide
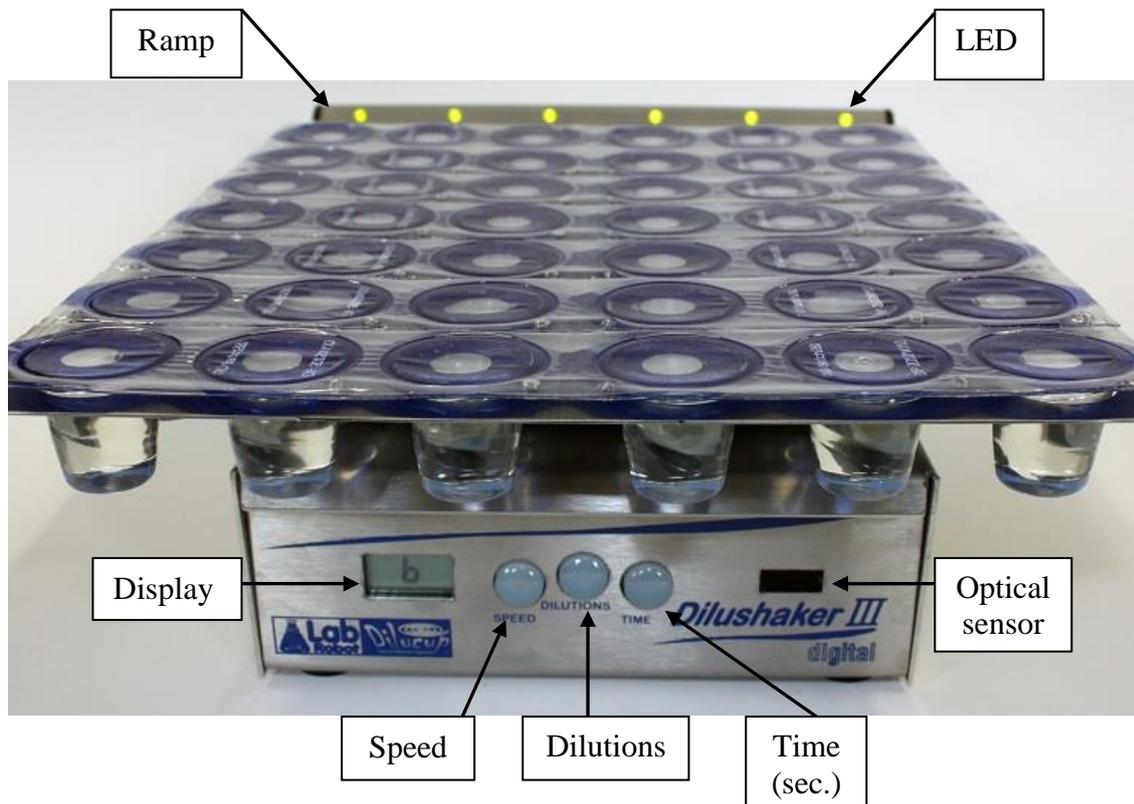### *New Edition Valid from May 2014*
for all Dilushaker III models with or without ramp

Article nr: 40DS42PRXT:

Article nr: 40DS21PRXT:

Introduction:

The Dilushaker III digital equipped with a 3 or 6 LED ramp is the most advanced of all the shakers developed by LabRobot to be used in combination with Dilucup.

Steered by an optical sensor, the Dilushaker III digital allows an easy adjustment of both rotation speed and shaking time. The LEDs located on a ramp at the back of the tray assist the manipulator during the dilution process by showing which cup (row) is to be processed.

Instruction for use

Turning on/off the Dilushaker

To turn on/off the Dilushaker, use the ON/OFF switch located on the right side of the back panel of the device.

Setting the direction of the LEDs

The software used in the Dilushaker allows the device to be used by left-handed and right-handed persons without any need for compromise.

To perform dilutions from left to right, press the SPEED button while turning on the device.
To perform dilutions from right to left, press the TIME button while turning on the device.

Turning on/off the LEDs

The latest generation of software used in the Dilushaker allows the device to be used with or without the ramp of LEDs. To switch on/off the ramp, press quickly and simultaneously the DILUTIONS and TIME buttons. Note that the ramp is systematically reset when you switch it on.

Important: The status of the ramp (on or off) is memorized every time you turn off the Dilushaker by using the ON/OFF switch.

Adjustment of the number of dilution steps.

1. Turn on the Dilushaker and the ramp (if necessary). A number of LEDs corresponding to the number of dilution steps initially programmed lights for two seconds before the first LED starts to flash. NB: If the number of dilution steps initially programmed is higher than the number of LEDs on the ramp all the LEDs will light first for two seconds and the number of LEDs needed to complete the programmed number of dilution steps will then light for two additional seconds before the first LED starts to flash.

   i.e. If eight dilution steps were initially programmed the visible sequence will be the following:

   → On a device with 6 LEDS
   - 6 LEDs on for 2 seconds,
   - 2 LEDs on for 2 seconds,
   - The 1st LED starts flashing.

   → On a device with 3 LEDS
   - 3 LEDs on for 2 seconds,
   - 3 LEDs on for 2 seconds,
   - 2 LEDs on for 2 seconds,
   - The 1st LED starts flashing.

2. Adjust the number of dilution steps to the requested one by pressing the DILUTIONS button for more than three seconds (in order to activate the adjustment mode) and pressing it then shortly as many times as required to set the appropriate number. The number of dilution steps can be adjusted from one to twelve. The number of LEDs lighting during this process and the number shown on the display correspond to the number of programmed steps.

   i.e. If you want to set five dilution steps when eight steps were initially programmed you need, after having activated the adjustment mode, to press the DILUTIONS button again nine successive times. The number of steps shown on the display will be successively 8 → 9 → 10 → 11 → 12 → 1 → 2 → 3 → 4 → 5.

   Note that the ramp was mainly developed for users having to process series of samples with a constant number of dilution steps. If your number of dilution

steps varies with almost every sample, you can use the ramp anyway but we recommend you to set only one dilution step with the DILUTIONS button. In such a case only one LED will be flashing, always indicating the cup (row) to be filled with 1 mL.

3. When the first LED starts flashing the device is ready.
    - A flashing LED means: "Distribute 1 mL into this cup/row"
    - A lighted but non flashing LED means: "Collect 1 mL from this cup/row"

When you start a series of dilutions, only one LED flashes because the first 1 mL is to be taken from your initial sample (vial or stomacher bag) and "0" is shown on the display. For every following step, you should always have two LEDs on, one permanently on (the one corresponding to the cup you are going to pipette 1 mL from) and a second flashing (the one you are going to release the mL into). The progression of the LEDs is steered by the optical sensor (or a foot switch). Every time the sensor is activated the Dilushaker understands that you have performed a dilution. The number shown on the display is the number of steps actually performed.

If, by mistake, you activated the sensor before having performed a dilution, you can correct it by pressing quickly and simultaneously the SPEED and TIME buttons. The lights will move one step backward on the ramp. Note that this function does not work once you reached the final dilution step of your series.

When the serial dilution is completed, the number of LEDs corresponding to the number of performed steps lights for two seconds in order to inform you that you have finalized your series (not valid when only one dilution step is programmed). The first cup/row immediately located after the last one you have used, starts then to flash showing that this cup/row is waiting for the next sample.

You can always revert to the starting position (first cup/row on the left or the right) by pressing quickly the DILUTIONS button.

With the latest version of software, you are allowed to change the number of dilution steps between two samples (even within a sample), without affecting the position of the flashing LED on the ramp. In this case, make sure that you press the DILUTIONS button long enough in order to activate the adjustment mode. Otherwise you will just revert to the starting position as mentioned above.

Adjustment of the rotation speed.

When pressing the SPEED button for less than one second, the display shows the rotation speed initially programmed. If necessary, adjust the rotation speed by pressing the SPEED button for more than three seconds (in order to activate the adjustment mode) and pressing it then shortly as many times as required to set the appropriate speed. The speed is shown on the display during the adjustment and can be selected between 1, 2 and 3. Actual speeds assessed before the release of the device from QC can be found on the QC certificate of the device. In adjustment mode, every additional press on the SPEED button will change the speed value.

i.e. If you want to set speed 1 (around 400 rpm) when speed 2 (around 500 rpm) was initially programmed you need, after having activated the adjustment mode, to press the SPEED button again two successive times. The speed shown on the display will be successively 2 → 3 → 1.

Note: We recommend a standard rotation speed of 1 or 2.

Adjustment of the shaking time.

When pressing the TIME button for less than one second, the display shows the time in seconds initially programmed. If necessary, adjust the shaking time by pressing the TIME button for more than three seconds (in order to activate the adjustment mode) and pressing it then shortly as many times as required to set the appropriate value. The time is shown on the display during the adjustment and can be set from one to fifteen seconds. In adjustment mode, every additional press on the TIME button will increment the time value by one second.

i.e. If you want to set a time of three seconds when five seconds were initially programmed you need, after having activated the adjustment mode, to press the TIME button again fourteen successive times. The time shown on the display will be successively 5 → 6 → 7 → 8 → 9 → 10 → 11 → 12 → 13 → 14 → 15 → **-** → 1 → 2 → 3.

A permanent shaking mode is possible ("**-**" shown on the display) but is not compatible with the use of the ramp.

Note: We recommend a standard shaking time from 3 to 7 seconds.

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