**BRIGHTSPEC**

**Smart devices, professional solutions**

## bPAD-VR Firmware Update 1.2.4

**Applicable to devices:**

bPAD-VR units with firmware 1.2.0, 1.1.3 and earlier (production year 2013), but not for devices produced after July 2014.

**Description of the changes:**

1. The time constant of the analog output has been made programmable, with response times ranging from 0.1 to 20 seconds in 14 steps. This makes the instrument more versatile and adaptable to different HPLC setups.

2. Consequently, the digital filter has been totally redesigned. The new $5^{th}$-order variable-response filter produces an analog output signal with smoother transitions, making it easier to integrate with commercial analysis software that relies on smooth Gaussian-like peak shapes (the 'spiky' appearance of the output signal produced by the old firmware prevented some chromatographs to find and integrate peaks in automatic mode). The filter precision has been increased as well in order to guarantee a resolution of 17 ppm or better.

3. The new firmware now compensates for a DAC zero error which was observed in some units and caused low-count signal fluctuations to disappear under the baseline.

4. The output voltage range values have been expanded from 100 to 50000 cps at full scale in 8 steps to 50 to 60000 cps in 29 steps. The idea now is to have a signal reduction of at most 30% when switching from one scale to the next so the dynamic range of the instrument could be better utilized (going from 10000 to 50000 cps in the previous firmware, for example, was a 5x jump which resulted in a signal reduction of 80%, bringing in some cases the useful signal peaks very close to the noise floor).

**How to apply the update:**

Both the bPAD-VR firmware and the bPAD Control Program must be updated in order to make use of the new features.
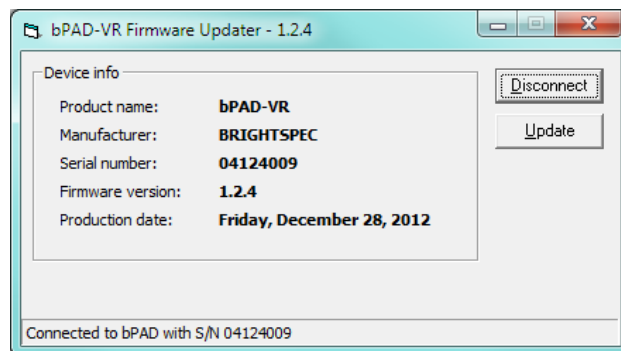
**Updating the bPAD-VR firmware:**

It is recommended that you connect first to the device with the bPAD Control Panel and write down all your settings, since the update process will erase them and you will need to restore them manually afterwards.

The application that will update the bPAD-VR firmware to the new version can be downloaded directly from the BrightSpec NV/SA web site (surf to http://www.brightspec.be and then select the Downloads page). The direct link to the package is:

http://91.183.85.173/brightspec/downloads/bPAD_FWUpdate_1.2.4.zip

To use it:

1. Make sure the bPAD Control Panel is not running.

2. Install the application (unzip the package and run setup.exe), preferably on the same machine that already has the bPAD Control Program so you do not have to install the USB drivers again.

3. Run the application.

4. Connect the bPAD-VR to be reprogrammed to the PC via the USB cable as usual.

5. Click on the 'Connect' button of the application. The device information will be displayed (note version 1.1.3 or 1.2.0 of the firmware).

6. Click on the 'Update' button. The reprogramming takes at most 5 seconds. When it finishes, check that the Firmware Version now shows '1.2.4' (see screenshot below).

7. Click on the 'Disconnect' button.

8. Uninstall the application, as there is no more use for it.



> ❗ If for some reason the firmware updating application fails and leaves the bPAD-VR in unresponsive state, do not panic; simply try running the application again and it should work. You may have to enter manually the serial number of the unit in that case.

**Updating the bPAD Control Program:**

The new bPAD Control Program application is also available from the Downloads page of the BrightSpec NV/SA web site. The direct link to the installation package is:

http://91.183.85.173/brightspec/downloads/bPAD_CP.zip

The new version of the application has an additional drop-down box in the 'Analog Output' group (see screenshot below), which allows to select the response time of the analog signal when the output is set to 'CPS level' mode. The drop-down box will be disabled if the bPAD-VR is still using the old firmware.
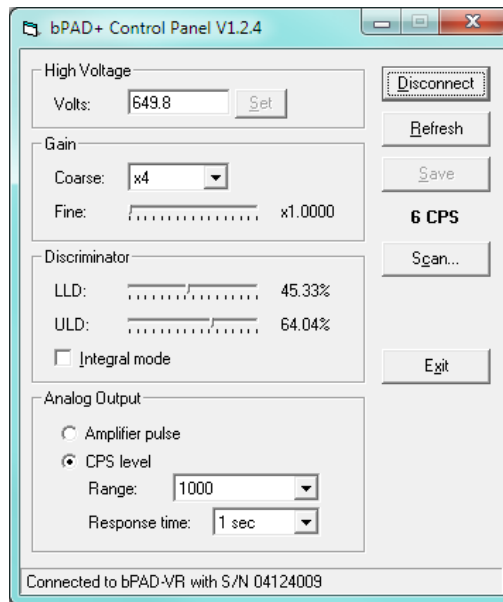


The 'Range' drop-down will now show a larger selection of values (29 vs. 8 in the old version). Again, if a device with the old firmware is connected, the control will show only the reduced set of values.