

# Tech Alert

## Upgrading from the mp6-OEM-V1 to mp6-OEM-V2

### Introduction

Increase of pump performance of the mp6 micropump is always one of the tasks of the engineering department of Bartels Mikrotechnik GmbH. With the arrival of a new piezo-driver chip on the market we are now able to provide you with an upgraded version of the mp6-OEM.

This Tech Alert is intended to highlight differences and providing customer guidance and support for the transition from mp6-OEM-V1 to mp6-OEM-V2.

The package and pinout of the new mp6-OEM-V2 are identical to that of the mp6-OEM-V1.

Although the mp6-OEM-V2 was designed to replace the mp6-OEM-V1, there are some performance differences between the two parts. Complete and more detailed information for the mp6-OEM-V2 will be updated in our mp6 manual.

A comparison of selected specifications (typical values)

Parameter	mp6-OEM-V1	mp6-OEM-V2	Units	Comment
supply voltage	2.5 - 5.5	2.5 - 5.5	V	absolute maximum rating
average current	30	30	mA	at 5 V supply
dimension	20.32 x 10.16	20.32 x 10.16	mm <sup>2</sup>	
amplitude	85 - 235	85 - <b>270</b>	V <sub>pp</sub>	at 5 V supply
frequency	1 - 300	1 - 300	Hz	

## Change of pump performance

The new version of the mp6-OEM allows driving all micropumps (mp6, mp6-AIR, mp6-pp).

Due to the increase of max amplitude it is now possible to reach the same performance (pressure and flow rate) as with the mp-x controller.

Comparison of pressure and flow rate between mp6-OEM-V1, mp6-OEM-V2 and mp-x

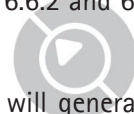
Frequency: 100 Hz				
Signal	Amplitude [Vpp]	Flow [ $\mu$ L/min]	Pressure [mBar]	Current [mA]
mp6-OEM-V1	235	6380	524	30
mp6-OEM-V2	235	6310	530	30
mp6-OEM-V2	250	6630	563	30
mp6-OEM-V2	270	6800	582	30
mp-x SRS	250	6629	589	-
mp-x Sinus	250	5777	542	-
mp-x Rectangle	250	7210	671	-

## Replacing the mp6-OEM-V1 with mp6-OEM-V2

When replacing the former mp6-OEM by the new version, the following topics have to be considered:

- If the mp6-OEM is set to max performance in your application (see chapter 6.6.1 in the mp6 manual)...
  - ...then the mp6-OEM will now run with the new max amplitude (270 Vpp).
  - ...then you will experience an increase in max pressure and max flow rate.
- If the amplitude of the mp6-OEM is controlled by external components (see chapter 6.6.2 and 6.6.3 in the mp6 manual)...
  - ...then there is no change in performance as the new version of the mp6-OEM will generate the same amplitude as the former one.

Note: The amplitude can be raised further than before.



## How to distinguish the former from the new version of the mp6-OEM

As the schematic is almost the same on both mp6-OEMs, the easiest way to distinguish the former from the new mp6-OEM is by identifying the change on the bottom side of the circuit board:

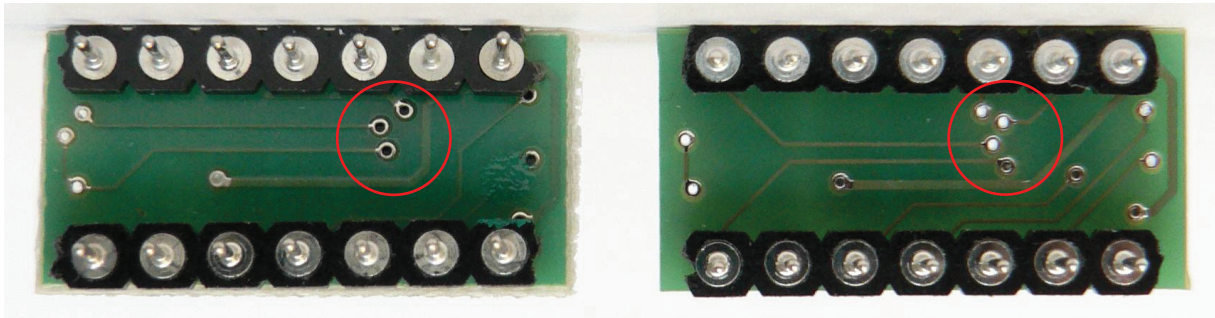


Fig. 1: mp6-OEM-V1  
A group of three vias.

Fig. 2: mp6-OEM-V2  
A group of four vias.

On the left image (Fig. 1) you see the bottom side of the mp6-OEM-V1 with only 3 vias (only 3 holes at the location marked by the red circle). On the right image (Fig. 2) you see the bottom side of the new mp6-OEM-V2 with 4 vias (4 holes at the location marked by the red circle).

There are also some other differences between the two mp6-OEM versions in the images shown here.

### Availability

Starting in May 2014, orders of mp6-OEM will be delivered with the new design and specs (mp6-OEM-V2).

