mtpOD: firmware and holder update report

Firmware was updated in order to improve data acquisition when the system is used with low volumes of fermentation broth. The basis on improvement is the timing of the measurements according to the accelerations of the shaking incubator.

Holder of the microtiter plates of the mtpOD was redesigned in order to move the sensors closer to the edge of the wells of the mtp plates, increasing the maximum volume of the fermentation broth over the sensor

The system was tested with 48 and 24 deep well plates.

Attention! In case of the 24 deep well plates only the sensor at the top of proives reliable data when used with the redesigned excentric holder. The values of the two sensors are not comparable.

Assesment results

The sensitivity of the system is given in the following scale:

1	Poor
2	Basic
3	Acceptable
4	Good
5	Excellent

48 well performance

Old firmware, old holder

Fill (mL) / freq (rpm)	0.25	0.5	0.75	1	1.5	2	3	4
100	3	4	4	4	4	5	5	5
160	3	4	4	4	4	5	5	5
220	2	4	4	4	4	5	5	5
300	1	3	3	3	4	5	5	5

New firmware, new holder

Fill (mL) / freq (rpm)	0.25	0.5	0.75	1	1.5	2	3	4
100	4	5	5	5	5	5	5	5
160	4	5	5	5	5	5	5	5
220	4	5	5	5	5	5	5	5
300	3	5	5	5	5	5	5	5

New firmware, new holder

Fill (mL) / freq (rpm)	0.25	0.5	0.75	1	1.5	2	3	4
100	5	5	5	5	5	5	5	5
160	5	5	5	5	5	5	5	5
220	5	5	5	5	5	5	5	5
300	5	5	5	5	5	5	5	5

24 well performance

Old firmware, old holder

Fill (mL) / freq (rpm)	0.25	0.5	0.75	1	1.5	2	3	4
100	1	2	3	4	5	5	5	5
160	1	1	2	4	5	5	5	5
220	1	1	2	3	4	5	5	5
300	1	1	1	1	3	4	4	5

New firmware, new holder

Fill (mL) / freq (rpm)	0.25	0.5	0.75	1	1.5	2	3	4
100	1	3	4	4	5	5	5	5
160	1	3	4	4	5	5	5	5
220	1	3	4	4	5	5	5	5
300	1	1	2	3	5	5	5	5

New firmware, new holder

Fill (mL) / freq (rpm)	0.25	0.5	0.75	1	1.5	2	3	4
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160	4	5	5	5	5	5	5	5
220	4	5	5	5	5	5	5	5
300	4	5	5	5	5	5	5	5