

Maintenance work that needs to be performed prior to **every run** by the user

System Component		Maintenance Steps
Monitoring system	Sensor cables	Optical check of cable and plugs
Monitoring system	pH sensors	Check electrolyte & diaphragm Calibrate sensors → Read DASGIP FAQ on „ How to calibrate a pH probe? “: http://www.dasgip.com/faq/35/#faq
Monitoring system	DO sensors	Check membrane Clean electrodes Exchange electrolyte Calibrate sensors → Read DASGIP FAQ on „ What calibration parameters do you recommend for a DO probe? “: http://www.dasgip.com/faq/36/#faq
Monitoring system	OD Sensors	Inspect sensor tip Calibrate sensor offset
Monitoring system	Temperature sensors	Check sensor tip
Monitoring system	Level/Antifoam sensors	Check sensor tip
Monitoring system	Redox sensors	Check electrolyte & diaphragm Calibrate sensors
Gassing system	Rotameter / RX2/4	Optical check of Rotameter

Maintenance work that needs to be performed at regular intervals by the user

System Component		Maintenance Steps	Interval
Control system	UPS	Unload and reload UPS accumulator Check runtime	Twice a year
Control system	Process computer	Create backup of current database to external device → Read DASGIP user information on „ How to create Backup with DGC3 and DGC4 “: http://www.dasgip.com/media/content/pages/faq/DASGIP_FAQ_Technical_Questions_Database_Backup_DGC3_DGC4.pdf (please copy the link and add it to your browser)	Monthly
Gassing system	Rotameter / RX2/4	Check tightness of rotameter Check gassing tubes	Monthly
Gassing system	Gassing module MX4/4 / MX4/1 / MF4	Check gassing tubes	Monthly
Off gas system	Off gas analyzer GA4	Calibrate gas sensors → See User Manual GA4, chapter 5.5 for details	One-point-calibration: monthly Two-point-calibration: every 3 months
Feeding system	Multi pump module / feedlines	Check feedlines for mechanical damages Check feedlines for leaks Exchange maprene pump tubes Recalibrate pumps	Monthly up to annually (depending on usage of feedlines and required precision)
Monitoring system	Temperature sensors	Calibrate sensors	Annually

Maintenance work that should be performed by a DASGIP technician **once per year***

System Component		Maintenance Steps
Control system	Process computer	Check harddisk Check process computer setup
All modules	All modules	Inspect module with DTP-Insight Exchange of internal battery (if needed) Firmware update
Monitoring system	Sensor module / cables	Check pH/DO/Redox/Level amplifier electronic Check sensor cables for damages
Monitoring system	OD sensor module	Check OD sensor cables Check temperature measurement
Feeding system	Multi pump module MP8 / MP4	Check pump drives / pump heads
Gassing system	Gassing module MX4/4	Check inline gas filter cartridges Calibrate and adjust flow and pressure sensors
Gassing system	Gassing module MX4/1 / MF4	Check inline gas filter cartridges Calibrate flow sensors Check external pressure sensors
Gassing system	Gassing module MX4/4	Exchange inline gas filter cartridges Calibrate flow and pressure sensors
Off gas system	Off gas analyzer GA4	Calibrate and adjust flow and gas sensors Exchange gas sensor units (if needed)
Temperature and agitation control system	Bioblock / Tempblock Heating blankets Stir plates / overhead drives	Check heating blankets / heating elements of bioblock Check cooling system Check stir plates& overhead drives and agitation controller

* Of course the DASGIP maintenance service also includes all maintenance steps mentioned before to be done by the user.