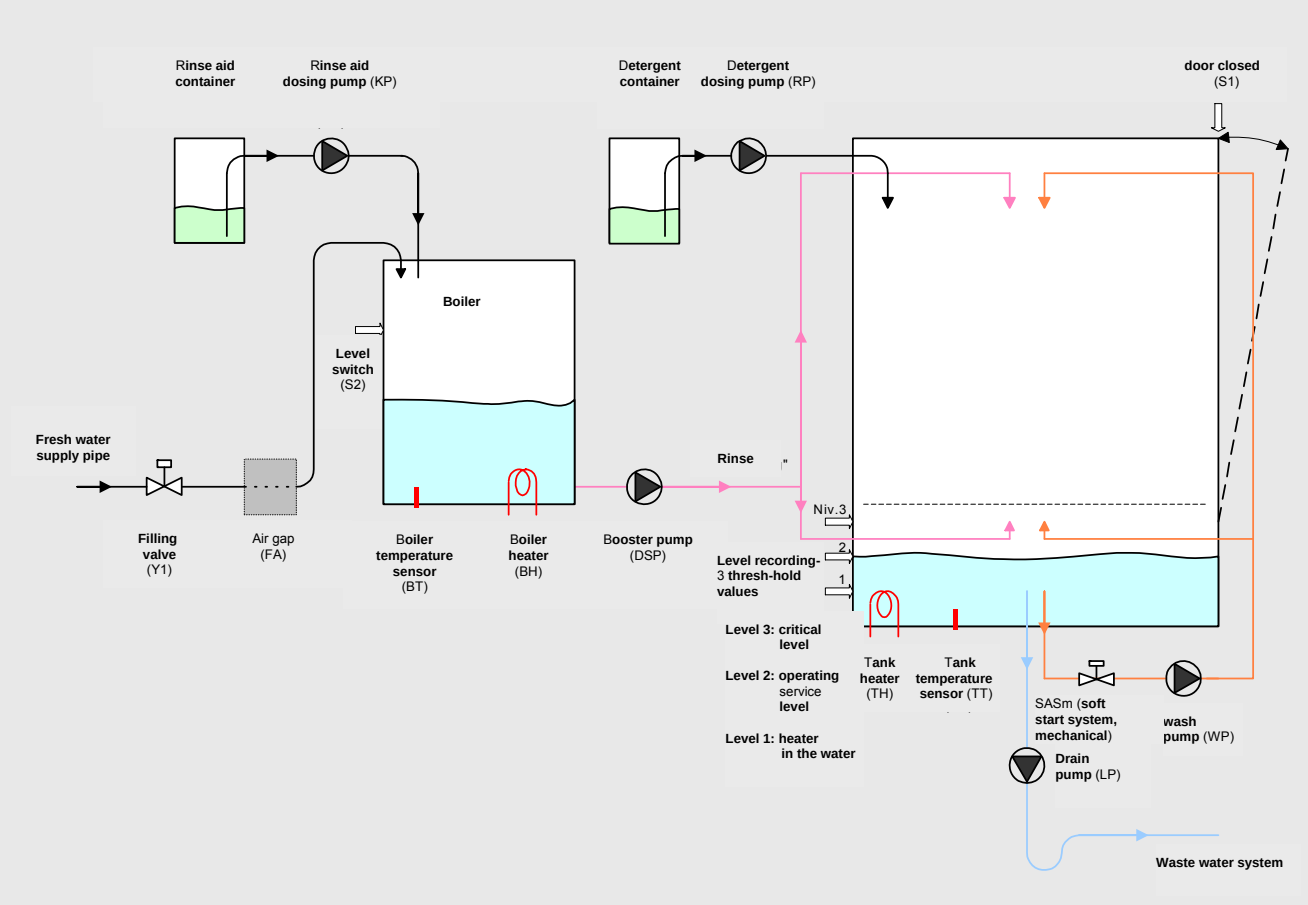
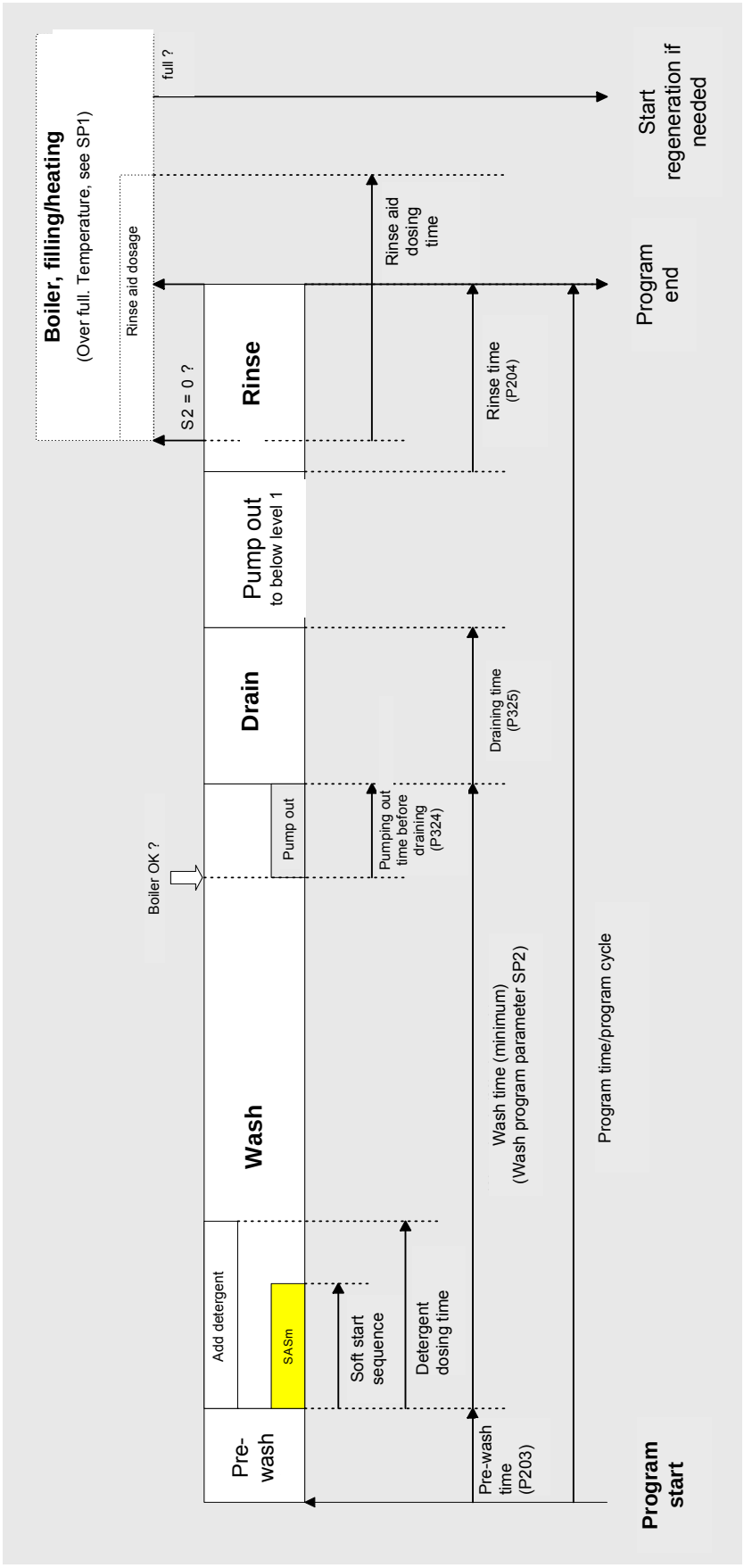
MIKE 2 Modular control system

1. Simplified construction of the GK machine



2. Program sequence - GK machine



Monitoring

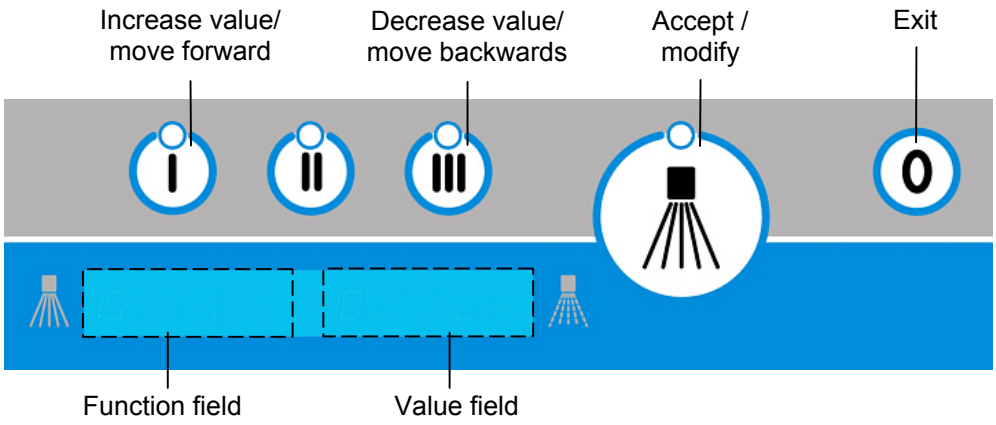
- Extension of wash time P 331
- Maximum filling time at initial filling of boiler P308
- Maximum filling time of boiler P309
- Water pressure monitoring P319
- Minimum boiler temperature increase P310
- Minimum tank temperature increase P314
- Maximum number of boiler fillings until level 1 is reached (filling/heating) P315
- Maximum number of rinse cycles P316
- Maximum time to drop below safety level (level 3) P317
- Maximum pumping out time P318
- Monitoring of boiler level switch S2 1 ->0 P332
- Monitoring of tank level limit P339

Detergent dosing time in seconds: t= 0,06* (P105*P320*P204)/ P322

Rinse aid dosing time in seconds: t= 0,06* (P104*P320*P204)/ P321

3. *MIKE 2* Electronic controls

3.1 Using the keyboard for programming



Access codes for various user-levels have been defined. Once the complete code has been entered, the code entered is compared with the internal code table. Depending on the code entered, the corresponding user level will be accessed. Two access codes are available for each user level; the first is for restricted access, i.e. no modification of parameters is possible (viewing mode), and the second gives access to the entire range of functions (viewing and modification).

For control programming, the power supply must be available but the machine must be completely switched off (no LED must be illuminated).

3.2 Code-input:

View service data:	CODE 10000
Modify service data:	CODE 10001
View configuration data:	CODE 20000
Modify configuration data:	CODE 20022
View dosing technology:	CODE 40000
Modify dosing technology:	CODE 40044

Code entry

To get into the code entry mode, you should keep the key “0” pressed (for around 3 seconds) until you see

on the display unit.

By pressing the key “0” once again you can leave the programming area at any time.

The digit to be modified will flash.

Press the “I” key to increase the value/code indicated on the display unit, or press the “III” key to decrease it, or press the “accept” key to save it. The next value will then flash and will be the only one visible.

If your entry is incorrect you will exit the code entry procedure and the information code 122 will be displayed.

If you enter all the digits correctly you will arrive at the chosen level of either service, configuration or machine data.

3.3 Tree diagram

Service level — All users, Washing

⇩ Code-entry

- **Service level**
  - 1-1 Parameter P101 ... P120
  - 1-2 Rinse aid inlet ventilation
  - 1-3 Detergent inlet ventilation
  - 1-4 Start regeneration
  - 1-5 Resetting the partial desalination display

  or
- **Configuration level**
  - 2-1 Parameter P201 ... P240
  - 2-2 View inputs
  - 2-3 View/control outputs

  or
- **Machine data level**
  - 3-1 Parameter P301 ... P350
  - 3-2 Wash programs 1 ... 50
- **Dosing technology level** — 4-1 Parameter for dosing the rinsing agent and detergent

3.4 Service level

The list of service parameters can be found on this level (parameter numbers 1xx). Here you can view these or modify them, or you can also call up the ventilation of the rinse and wash hoses.

On the service level, you will first see the display below

This corresponds to viewing / modifying parameters.

This corresponds to rinse aid inlet ventilation.

This corresponds to detergent inlet ventilation.

Press the “I” key to move forwards, press the “III” key to move backwards, or press the key “accept” to make a selection. You are now at the current level.

You can leave this level by pressing the “0” key.

View/modify parameters

Confirm

the indication by pressing the "accept" key.

The first parameter will now be displayed with a value.

Press the “I” key to go forwards and the “III” key to go backwards, until the parameter you require is displayed.

Press the “accept” key to confirm the parameter modification. The value will flash. Use the “I” key to increase the value, or the “III” key to decrease the value, and the “accept” key to save.

You can leave this level by pressing the “0” key.

Ventilating the rinse aid inlet

Confirm by pressing the “accept” key.

The dosage pump will now be activated and the remaining running time will be indicated.

By pressing the “0” key, you can leave this level. The ventilation will be interrupted.

Ventilating the detergent inlet

Confirm by pressing the “accept” key.

The dosage pump will now be activated and the remaining running time will be indicated.

You can leave this level by pressing the “0” key. The ventilation will be turned off.

Should the ventilation process be insufficient, repeat the process.

3.5 Configuration level

You can find the list of configuration parameters on this level (parameter numbers 2xx). Here you can view these and modify them. You can also call up the status of the inputs and outputs, or set the outputs for testing.

On the service level, you will first see the display below:

This corresponds to the viewing/modifying parameters.

This corresponds to viewing the status of inputs.

This corresponds to viewing and setting the status of outputs.

Press the “I” key to move forwards or the “III” key to move backwards or the “accept” key to make a selection. You are now at the current level.

Press the “0” key to leave this level.

Viewing / modifying parameters: (depending on the code entered))

Confirm

this display by pressing the “accept” key.

The first parameter will now be displayed with a value.

Press the “I” key to move forwards or press the “III” key to move backwards, until the parameter you require is displayed.

Confirm the parameter to be modified by pressing the “accept” key. The value will flash. Press the “I” key to increase the value, the “III” key to decrease the value, and the “accept” to save the value.

You can leave this level by pressing the “0” key.

Viewing input status

Confirm this display

by pressing the “accept” key.

The first input will now be displayed, with the status

.

Press the “I” key to move forwards and the “III” key to move backwards, until you reach the input you require.

Display: input set

Display: input not set

By pressing the “0” key, you can leave this level.

Assignment details for the inputs are given on the assignment list for each machine.

Viewing / modifying output status (according to code entered)

Confirm

this display by pressing the “accept” key.

Viewing:

The first output will now be shown, with status

Press the “I” key to move forwards or press the “III” key to move backwards, until the output you require is displayed.

Modifying:

Press the “accept” key to confirm the modification of the output, the value will flash. Press the “I” key to modify the value and press the “accept” key to save it.

The output is now set.

You can leave this level by pressing the “0” key.

Viewing / modifying dosing technology level

By entering code 40000 (read only) or 40044 (read / enter), the user can access the new 4th parameter level summarizing all the dosing technology parameters:

104, P105, P218, P219, P224, P225, P321, P322, P326, P327.

Assignment details for the outputs are given on the assignment list for each machine.

Assignment list
View inputs / control outputs (example FV 40.2)

Indication		Input / output / other	Conditions	BMK	Plug
Left	Right				
In 1	0/1	Door closed	none	S1	XA6
In 2	0/1	Boiler level	none	S2	
In 3	0/1	Leak water switch floor	none	S3	
In 4	0/1	not occupied	none		
In 5	0/1	Initial position wash arm	none	S5	
In 6	0/1	not occupied	none		
In 7	0/1	not occupied	none		
In 8	0/1	not occupied	none		
In 9	0/1	Rinse aid empty	none		XA4
In 10	0/1	Detergent empty	none		
In 11	0/1	Leak water switch dosing unit	none		
In 12	0/1	not occupied	none		
In 13	0/1	Threshold tank level 1	none		
In 14	0/1	Threshold tank level 2	none		
In 15	0/1	Threshold tank level 3	none		
In 16	0/1	Tank level 4 (option)	none		
In 17	0 .. 255	Without function	none		
In 18	0 .. 255	Without function	none		
In 19	xxx	Boiler temperature in °C or °F	none		XA5
In 20	xxx	Tank temperature in °C or °F	none		
In 21	xxx	Tank level (unit 1 mm)	none		XA10
In 22	0 .. 255	Option: analog conductance	none		XA5
Ou 1	0/1	Wash pump	No leak water	M1	XA1
Ou 2	0/1	Booster pump	No leak water	M2	
Ou 3	0/1	Wash water pump	No leak water	M5	
Ou 4	0/1	Rinse aid - dosage pump	No leak water	M3	XA2
Ou 5	0/1	Detergent - dosage pump	No leak water	M4	
Ou 6	0/1	Operation indicator	No leak water		

Indication		Input / output / other	Conditions	BMK	Plug
Left	Right				
Ou 7	0/1	Filling valve	No leak water	Y1	XA3
Ou 8	0/1	SASm soft starter system	No leak water	Y2	
Ou 9	0/1	Boiler heating	No leak water	K1	
Ou 10	0/1	Tank heating	No leak water, no boiler heating active	K2	
Ou 11	0/1	Without function	none		
Ou 12	0/1	Without function	none		

Leak water switch condition: Leak water switch must not have operated.
Heating condition: Tank / boiler heating are inter-locked (boiler priority)
Tank heating only occurs when boiler heating deactivated.

Parameter list

Par. No.	Configuration options	Use as	Value range	Unit	Factory setting	Remarks
101	Wash program key 1	Parameter	1 .. 50	-	1	Assign wash program number to key 1; assignment adjustable
102	Wash program key 2	Parameter	1 .. 50	-	3	Assign wash program number to key 2; assignment adjustable
103	Wash program key 3	Parameter	1 .. 50	-	4	Assign wash program number to key 3; assignment adjustable
104	Rinse aid dosage	Parameter	0,10 .. 1,00	ml/litre water	0.2	Value can be read from the rinse aid container label (dependant on water quality)
105	Detergent dosage	Parameter	0,1...20,0	ml/litre water	2.0	Value can be read from the detergent container label (dependant on the hardness of the water)
106	Hardness degree	Parameter	0 .. 50	°dH	0	Depending on the booster pump running time and the hardness of the water (table), **regeneration** will be started. (Number of wash cycles until regeneration becomes necessary again)
107	Switch beep on / off	Parameter	0/1	-	1	Switch acoustic ready message on / off by beep
108	Modus “Clear” display	Parameter	0/1	-		“Clear” display 0: via INFO 420 1: display of special characters
109	Partial / full desalination	Parameter	0,1,2	-		Partial / full desalination available?

Par. No.	Configuration options	Use as	Value range	Unit	Factory setting	Remarks
	available?					0: no 1: Partial desalination (TE) 2: full desalination (VE)
110	Hardness litres per cartridge type	Parameter	0 .. 250	1000 L		When the cartridge's capacity is reached (hardness litres/degree of hardness), "Replace Cartridge" will be displayed (INFO 725) (only in the case of TE)
111	Total running time display	Display	5 digits	hrs.		Running time, query only
112	Total number of wash cycles	Display	5 digits	-		Wash cycles / loads, query only
113	Total number of wash cycles since last reset	Display	5 digits	-		Wash cycles / loads, resetting possible
114	Serial number	Display	8 digits	-		Factory settings can be called up
115	Condition Remaining cartridge capacity	Indication	0 .. 100	%		Only for partial / full desalination: TE: indication in %, VE: 100 = OK; 0 = replace
119	Allow IR communication	Parameter	0/1	-	1	It is possible to block communication via IR interface (0)
120	Load factory setting service parameters	Parameter	0/1	-	0	Active only upon power supply reset ON/OFF. **Important!** All changes to service parameters will be reversed. Power supply reset must be carried out within 5 minutes, otherwise factory settings will not be loaded. Without power supply reset, the information 123 will be displayed.
201	Machine model	Parameter	1 ... 4	-	2	1: FV40.2 2: FV130.2 / FV250.2 3: DV80.2 4: DV120.2 / DV125.2 **Important!** Only assignment list and machine sequences are changed - no parameters changed.
202	Tank target temperature	Parameter	10 ... 80 (50 .. 176)	°C/°F	60	Standard for all the wash programs on one appliance! Output dependent on definition
203	Initial rinse time	Parameter	0 ... 8	s.	0	See initial rinse process step
204	Final rinse time	Parameter	4 ... 30	s.	7	Duration of booster pump activation (running time

Par. No.	Configuration options	Use as	Value range	Unit	Factory setting	Remarks
						limited by P306!!)
205	Operating status display	Parameter	0 ... 8	-	1	Definition of the information which is to be switched via the potential-free contact (see KD), e.g.: 0 – no information 1 – F/H, ready for washing/ washing or pumping out 2 – F/H, washing or ready for washing 3 – F/H (Filling/Heating) 4 – Ready for washing 5 – Washing 6 – Pumping out 7 – Error 8 – Not status machine OFF and Draining 9 – Reserve 10 - Not status Machine OFF
206	Boiler temperature display	Display variant	0/1	-	1	Temperature output definition 0 - nothing 1 - actual value when filling/ heating, ready for washing, washing
207	Tank temperature display	Display variant	0/1	-	1	Temperature output definition 0 - nothing 1 - actual value when filling/ heating, ready for washing, washing
208	Allow emergency programs	Parameter	0/1	-	0	Release emergency programs in event of heater failures
209	Release target value of increased boiler temperature	Parameter	0/1	-	0	Shorten the time until boiler heating starts by temporarily increasing the target value
210	Temperature display in ° Fahrenheit ?	Parameter	0/1	-	0	Standard (0) : °C Option (1) : °F Conversion : F = 9/5 * C + 32 or C = 5/9 * (F –32)
211	Fine adjustment Rinse time	Parameter	0,0..0,9	Sek.	0,0..0,9	Figures after the decimal point in P204
212	Leakage dosing unit	Parameter	0/1	-	1	Activate monitoring
213	Leakage floor pan	Parameter	0/1	-	1	Activate monitoring
214	Automatic hood opening available	Parameter	0/1	-	-	0 - off 1 – function activated
215	Wash pressure reduction via valve	Parameter	0/1	-	0	After the end of the SASm sequence the wash pressure should be continuously reduced during the washing

Par. No.	Configuration options	Use as	Value range	Unit	Factory setting	Remarks
						process (-> valve)
216	Tank heating & washing simultaneously	Parameter	0/1	-	1	In case of a higher wash performance
217	Both heaters simultaneously ?	Parameter	0/1	-	0	Allow heating of boiler and tank simultaneously? -> may be necessary to check power supply
218	Shortage of rinse aid	Parameter	0/1		0	Monitoring Display
219	Shortage of detergent	Parameter	0/1		0	Monitoring Display
223	Optimized boiler filling time	Parameter	0/1	-	0	Start boiler filling while rinsing is still active
224	Rinse aid pump (KP) activation mode	Parameter	0 .. 4	-	1	Definition activation of KP: 0 – KP = 0; do not activate; 1 – KP; activate according to calculated running time 2 – KP = booster pump; activated as booster pump; 3 – KP = wash pump; activate as wash pump 4 = free
225	Detergent pump (RP) activation mode	Parameter	0 .. 4	-	1	Definition activation of KP: 0 – RP = 0; do not activate; 1 – RP; activate according to calculated running time 2 –RP = booster pump; activated as booster pump; 3 – RP = wash pump; activate as wash pump 4 – Option – detergent pump using negative pressure dosing.
226	Hood start available?	Parameter	0/1	-	0	Allow hood start
228	Water softening available?	Parameter	0/1	-	0	Water softening ?
230	Input/output PCB model with code 1	Parameter	0 .. 3	-	1	Determination of extended I/O configuration 0 : not available
231	Input/output PCB model with code 2	Parameter	0 .. 3	-	0	Determination of extended I/O configuration 0 : not available
236	Input/output PCB model with code 7	Parameter	0 .. 3	-	0	Determination of extended I/O configuration 0 : not available
240	Load factory settings for configuration data	Parameter	0/1	-	0	Only effective upon power supply reset ON/OFF. **Important !** All service parameter

Par. No.	Configuration options	Use as	Value range	Unit	Factory setting	Remarks
						changes are reset. Power supply reset must be done within 5 minutes otherwise the factory settings will not be loaded. If power supply not reset, 123 will be displayed. For parameters 1xx and 2xx.

3.6 Machine data level

Par. No.	Machine constant	For use as	Value range	Unit	Remarks
301	Offset boiler temperature measurement	Adjustment	-5 …+5	K	Allow offset
302	ΔT boiler heater (switch off early)	Parameter	0 ... 10	K	Post-heating compensation (temperature increase after boiler heating switched off)
303	Offset boiler temperature for the initial filling after switching on	Parameter	0 ... 30	K	Boiler temperature during the initial filling equal to tank target value plus this offset
304	Delay boiler heating (during filling start)	Parameter	0 … 50	sec.	Activation delay to the heater during boiler filling/heating
305	Overfill boiler	Parameter	0 ... 10	sec.	Extend the filling of the boiler after the boiler level signal has been reached
306	Maximum final rinse time	Parameter	0 ... 30	sec.	Maximum booster pump running time (rinse) (limit of P204)
307	Boiler heating hysteresis	Parameter	0 ... 3	K	Use two-position controller
308	Maximum boiler filling time for first filling	Fault Parameter	0 ... 600	sec.	Monitor initial filling of boiler (if the boiler was completely emptied before switching on)
309	Maximum boiler filling time	Parameter	0 ... 600	sec.	Monitor boiler filling (S2 must operate)
310	Boiler temperature increases when heating is ON	Fault Parameter	0 … 50	K/ Min.	If boiler heating = ON : check that the actual value increases. First check after 4 minutes, then at intervals of one minute)
311	Offset tank temperature interrogation	Adjustment	-5 …+5	K	Allow adjustment
312	ΔT tank heating (switched off early)	Parameter	0 ... 10	K	Post-heating compensation (temperature increase after boiler heating switched off)
313	Tank heating hysteresis	Parameter	0 ... 3	K	Use two-position controller
314	Tank temperature increases when heating is ON	Fault monitoring	0,0 … 5,0	K/ min	If boiler heating = ON: check that the actual value increases. First check

Par. No.	Machine constant	For use as	Value range	Unit	Remarks
					after 5 minutes, then at intervals of 1 minute)
315	Maximum filling cycles	Fault monitoring	1 ... 50	-	Alternative for maximum tank filling time. Only on filling/heating
316	Maximum number of final rinse cycles (for final rinse)	Fault monitoring	0 ... 10	-	X cycles up to occurrence of fault (level 2 reached)
317	Maximum time to drop below tank safety level	Fault monitoring	1 ... 150	sec	If tank level 3 reached: -> drain pump ON: maximum permissible time until water drops below safety level.
318	Maximum time to pump out to below level 1	Fault monitoring	1 ... 150	sec	After the draining time the drain pump is activated until water level is below level 1.
319	Check water pressure	Fault monitoring	1 … 25	10 sec	If boiler level S2 is not reached within this period, heating must first be activated with S2 = 1.
320	Booster pump output	Parameter	10 .. 200	l/min	Calculation of fresh water supply for dosing quantity of detergent and rinse agent pump.
321	Rinse agent pump output	Parameter	0.1 ...10	l/h	Rinse agent pump. Output definition.
322	Detergent pump output	Parameter	0.1 ...20	l/h	Detergent pump. Output definition.
323	Detergent output per impulse	Parameter	0,1 ... 10	ml	Necessary for calculating the dosing of the detergent using the Hall sensor
324	Drain pump running time before the end of the wash time	Parameter	0 ... 20	sec	Drain pump ON with prior interrogation whether wash time is extended
325	Draining pause	Parameter	1 ... 20	sec	Delay time between washing and pumping out.
326	Rinse agent pipe vent time	Parameter	0 ... 255	sec	Activate rinse agent pump temporarily to remove air from pipe.
327	Detergent pipe vent time	Parameter	0 ... 100	sec	Activate detergent pump temporarily to remove air from pipe.
328	Delay wash arm movement	Parameter	0 ... 60	sec	Delay time between start of washing and start of wash arm rotation
329	Extend wash arm movement by comparison with the wash pump	Parameter	0 ... 60	sec	The contents of the wash arm should be removed as much as possible
330	Delay time before program end	Parameter	0.0 .. 10.0	sec	Delay time between the end of final rinse and program end

Par. No.	Machine constant	For use as	Value range	Unit	Remarks
331	Monitor wash time extension	Fault monitoring	0 ... 500	sec	Wash phase is delayed as the boiler is not ready (level and temperature) Emergency program but no part is faulty (e.g. caused by EW) Maximum time 5 minutes or when parameter reached
332	Monitoring boiler level switch	Fault monitoring	1 ... 10	sec	1-> 0 change at S2 must be recognised within this time if booster pump =1
333	Hardness litres of resin solution	Parameter	1000 .. 5000	-	Hardness litres of resin solution (see regeneration)
334	Operating time EW-Y5	Parameter	0 .. 50	sec.	Running time EW-Y5 at initial and second filling of boiler after regeneration
335	Threshold tank level 1	Parameter	1 .. 150	2 mm	Tank level 1
336	Threshold tank level 2	Parameter	1 .. 150	2 mm	Tank level 2
337	Threshold tank level 3	Parameter	1 .. 150	2 mm	Tank level 3
338	Threshold tank level 4	Parameter	1 .. 150	2 mm	Tank level 4 (reserve)
339	Tank level maximum value	Fault	1 .. 150	2 mm	Limit value monitoring
349	Tank temperature “ready for operation” tolerance	Parameter	0 .. 10	K	Tolerance for reaching of “ready for operation” status prematurely (If the tank temperature is under the target temperature and within this tolerance range and if tank level 2 has already been reached when starting filling/heating, there will be an immediate change to “ready for operation” status)
350	Load factory settings for machine data?	Parameter	0/1	-	Possible to load factory settings. Power OFF/ON necessary. For parameters 1xx, 2xx, 3xx
352	Delay time to start automatic hood opening	Parameter	0, 1 … 5	sec.	Delay time
355	Fade-out time for the motor current, hood drive	Parameter	0,1 ... 5	Sek. sec.	Time up to the evaluation of Imax hood drive, ERR 309

3.7 Wash program structure

Sequence no.	Designation Parameter	Value range	Unit	Necessary memory	Observation
1.	TARGET VALUE Boiler temperature	10 .. 92	°C	1 byte	Exception : **First** machine filling - see parameter machine data (offset) and parameter configuration data (target value tank temperature)
2.	TARGET VALUE Wash time	10 ... 1200	sec.	2 bytes	Actual wash time; phase between pre-rinse and draining
3.	TARGET VALUE Wash pressure reduction	0 ... 3	-	1 byte	If P215 = 1: Carry out pressure reduction via valve Y3 DV120.2: 0: Ou11 = 0; Ou12 = 0; 1: Ou11 = 1; Ou12 = 0; 2: Ou11 = 0; Ou12 = 1; 3: Ou11 = 1; Ou12 = 1

3.8 Error messages, information

Group	ERR. No.	INFO No.	Description	Possible cause
0	System			
	001		Plug-in EEPROM - fault	EEPROM not available / incorrectly plugged in / defective Empty or incorrect EEPROM Replace EEPROM with correct parameter set Plugs to the CPU painted over
	002		Internal EEPROM	EEPROM defective, change I/O PCB
	003		System error software (operating state)	Software / EMC problem Short-circuit (moisture) on the sensor touch panel connection
	005		RAM test input/output, internal message	Change input/output PCB
	006		ROM test input/output, internal message	Change input/output PCB
	007		PROG test input/output, internal message	Change input/output PCB
	009		Undefined wash program	Outside range of values (1 .. 50)
	010		Undefined temperature (wash program)	Incorrect wash program
	011		Undefined wash time (wash program)	Set standard wash program
	012		Machine model not defined	Incorrect value in parameter P201
	013		Boiler heating target value too high at filling time	Sum of parameters P202 + P303 above maximum value Reduce P202

Group	ERR. No.	INFO No.	Description	Possible cause
	014		Boiler heating wash target value too high	Set wash parameter 1 again Incorrect data transmitted from the PC Excessive variation in temperature of feed water. Check temperature of feed water Eprom Version 3.0 or 3.0A
	015		Tank heating target value too high	Incorrect data transmitted from the PC Set P202 again
1	General			
	111		Floor pan leakage	S3, P213 Leak inside the machine Pump sump / motor / etc. Defective leak water switch Repair fault, remove water
	112		Dosing unit leakage	Input 11, P212 Dosage pump leak Hose defective / kinked Defective dosage pump Defective measurement electrodes
	113		Connection error conductance conductance 3	Defective interpretation conductance input 3 Defective cable Defective I/O PCB
	114		Connection error conductance conductance 4	Defective interpretation conductance input 4 with galvanic separation Defective cable Defective I/O PCB
	115		Connection error conductance conductance 4	Defective interpretation conductance input 4 without galvanic separation Defective cable Defective I/O PCB
	116		Connection error analog conductance	Defective interpretation conductance input 4 analog conductance (option) Defective cable Defective I/O PCB
		120	Emergency program error reaction active Limited washing possible	Err 202,205,210,211,302,304,310,311 No boiler / tank heating No fresh water supply Check system
		121	Door not closed	Check connection S1 Switch lever not fixed Change micro-switch Check micro-switch adjustment Replacing a defective I/O circuit board
		122	Incorrect password entered No password / no authorization	Enter code again

Group	ERR. No.	INFO No.	Description	Possible cause
		123	Factory set parameters activated	P120, P240 To re-set back to factory settings and parameters, switch power supply ON/OFF within 5 minutes. After this parameters will be rejected and factory parameters will be restored. Info 123 will disappear.
		124	Emergency strategy EEPROM problems active	Emergency EEPROM program No EEPROM / empty EEPROM Incorrect data in plug-in EEPROM Plug in a new EEPROM with correct set of parameters.
		125	EEPROM is not complete (3 wash programs)	EEPROM was empty!
		128	LowBat (hardware option)	
		129	Error real-time clock (hardware option)	
2	Boiler			
	201		Level not reached at the correct time during initial filling	S2 Fresh water supply inadequate (water faucet closed) Aquastop hose kinked Inlet strainer soiled Aquastop defective Boiler switch defective
	202		Level not reached at correct time during filling)	S2 Fresh water supply inadequate (water faucet closed) Aquastop hose kinked Inlet strainer soiled Aquastop defective Boiler switch defective
	203		No change detected by the level switch when draining	S2 Booster pump defective Booster pump plug connector loose Start capacitor defective Plug connector loose Boiler level switch defective No boost pump signal to – from I/O PCB No “boiler full” signal from I/O PCB Check booster pump / S2 with manual control

Group	ERR. No.	INFO No.	Description	Possible cause
	204		After rinse time ends, still no change detected by level switch	P204, S2 Booster pump defective Booster pump plug connector loose Start capacitor defective Plug connector loose Boiler level switch defective No boost pump signal to – from I/O PCB No “boiler full” signal from I/O PCB Check booster pump / S2 with manual control
	205		Temperature increase (Boiler) not reached	Boiler heating defective / heating element thermal fuse Temperature sensor defective, incorrect installation position Boiler contactor defective, circuit breaker activated No signal from input/output PCB. If an energy optimizing device is fitted, check if it is connected or switched on.
	206		Increase in wash time	Boiler not ready for rinsing at right time (Boiler level / boiler temperature) Boiler heating defective / heating element Thermal fuse Temperature sensor defective Boiler contactor defective, circuit breaker activated No signal from input/output PCB Eprom Version 3.0 or 3.0A
	210		Temperature sensor (Boiler) short circuit	Check sensor cable (plug contacts) Replace sensor Attach sensor correctly
	211		Temperature sensor (Boiler) interruption	Check sensor cable (plug contacts) Replace sensor Attach sensor correctly
	212		Actual boiler temperature too high (safety)	> 95 °C ? Contactor contacts sticking Incorrect sensor / defective sensor Check probe / lead (contact plug Mike II XA5)
3	Tank			
	301		When filling tank, level 1 not reached (number of cycles exceeded) Tank level evaluation defective	Booster pump output too low Rinse jets soiled Air trap soiled Booster pump rotor defective Condensate in level pipe Hose kinked / loose / not watertight

Group	ERR. No.	INFO No.	Description	Possible cause
	302		Tank draining: level does not fall below level 1 (pumping out)	Wash water pump output too low Wash water pump soiled / defective Outlet hose kinked / blocked Rotor loose Wash water pump plug connector loose Start capacitor defective Tank level analysis disrupted Aquastop not closing completely No signal from input/output PCB
	303		Level does not fall under level 3 after a period (drain pump ON)	Wash water pump output too low Wash water pump soiled / defective Outlet hose kinked / blocked Rotor loose Wash water pump plug connector loose Start capacitor defective Tank level analysis disrupted Aquastop not closing completely No signal from input/output PCB
	304		Temperature increase (Tank) not reached	Tank heating defective / thermal fuse Heating element Temperature sensor defective, installed in incorrect position Tank contactor defective, installed in incorrect position, circuit breaker activated. If an energy optimizing device is fitted, check if it is connected or switched on.
	305		Boiler content is insufficient for rinsing (level 2 not reached)	Level switch defective Plug connector loose Filter covering sieve soiled Filter soiled Ventilation valve soiled or defective Booster pump output too low Rinse jets soiled Air trap soiled Booster pump rotor defective Condensate in level pipe Hose kinked / loose / not watertight
	306		Maximum level exceeded, tank level evaluation disrupted	Ventilation valve soiled Check tank level Air trap level sensor / check hose
	307		Tank level sensor defective (short circuit)	Connection plug loose Sensor defective Replace input/output PCB Output voltage < = 0.4 volt
	308		Error, hood drive	Motor defective. Limit switch wrongly set.
	309		Error in hood drive. Maximum current exceeded. Cmax.	Hood jammed, spindle jammed, motor jammed

Group	ERR. No.	INFO No.	Description	Possible cause
	310		Temperature sensor (Tank) short circuit	Check sensor cable (plug contacts) Replace sensor Attach sensor correctly
	311		Temperature sensor (Tank) interruption	Check sensor cable (plug contacts) Replace sensor Attach sensor correctly
	312		Actual tank temperature too high (security)	> 85 °C ? Contacts of contactor sticking Incorrect sensor / defective sensor Check probe / lead (contact plug Mike II XA5)
		320	Initial position (of rotating system) not detected	P221, P222, E5 Switch lever loose Initial position contactor does not turn Start capacitator defective Check micro-switch adjustment Plug connector loose Motor for rotating system defective
		321	Still at initial position (rotating system) (Wash arm motor is running) No signal change	P221, P222, E5 Continuous signal from micro-switch (short circuit on cable) See also 320
		322	Level 1 not achieved after draining time	Screen blocked Container filled with water Foam generation
		323	Hood drive active	Possible for hood drive to be active also when switched off.
		324	Hood opening after blockage	Basket under self-closing hood. Front parts under self-closing hood. Info remains until next time button pressed.
		325	Wash water pump activated after safety level has been reached.	Wash water pump activated after safety level reached. Message can remain when machine OFF.
4	**Rinse agent dosage**			
	401		Evaluation of shortage of rinse agent defective (Conductance 1)	Conductance input 1 (I/O PCB) Check plug and I/O PCB
		420	Shortage of rinse agent reported in the "ready for washing" state	P218 Check container dosing

Group	ERR. No.	INFO No.	Description	Possible cause
5	**Detergent dosage**			
	501		Connection error conductance 2 (LW2) (detergent)	LW2 (input/output PCB)
		520	Shortage of detergent reported in the "ready for washing" state	P219 Check container dosing
		521	Error in pressure dosing	Container empty, dosing unit blocked, impulses insufficient when valve dosing activated.
		522	Error in pressure dosing	Impulses available while valve dosing is not piloted. Valve is defective
7	**Regeneration**			
	701		Switch S4	Y1, S4 Stop tap closed Y1 defective, S4 defective
	702		The EW intermediate reservoir does not empty(S4) (Y1=0; DSP2=1)	DSP2 defective / overheated; the relevant valves EW-Y2, EW-Y3, EW-Y4 or EW-Y5 are not open S4 defective Check by-pass cable with choke
		720	Regeneration is running	
		721	Regeneration impossible, no salt	S5 Add salt Check reed switch for salt solution container
		722	Add salt	S5 Add salt Check reed switch for salt solution container
		725	Replacing the cartridge	Cartridge exhausted. Check P 109

Group	ERR. No.	INFO No.	Description	Possible cause
9	CAN communication			
	901		Error bus node code 1	Communication cable not plugged in / defective DIP switch S100 wrongly coded - see wiring diagram Short circuit in configuration e.g. level switch poles incorrect Check, remove short-circuit / plug
	902		Error bus node code 2	see Err 901
	903		Error bus node code 3	see Err 901
	904		Error bus node code 4	see. Err 901
	905		Error bus node code. 5	see. Err 901
	906		Error bus node code 6	see Err 901
	907		Error bus node code 7	see Err 901 2. Power supply (EW) defective
	909		Undefined bus nodes detected	P230-236 incorrect input/output components
	910		Undefined input/output model	P230-236=0
	911		Input/output model not compatible code 1	P230 code on I/O PCB incorrectly defined
	912		Input/output model not compatible code 2	P231 code on I/O PCB incorrectly defined
	913		Input/output model not compatible code 3	P232 code on I/O PCB incorrectly defined
	914		Input/output model not compatible code 4	P233 code on I/O PCB incorrectly defined
	915		Input/output model not compatible code 5	P234 code on I/O PCB incorrectly defined
	916		Input/output model not compatible code 6	P235 code on I/O PCB incorrectly defined
	917		Input/output model not compatible code 7	P236 code on I/O PCB incorrectly defined