MIKE 2 Modular control system

1. Simplified construction of the GK machine
2. Program sequence - GK machine

- Boiler, filling/heating
  (Overfull, temperature, see SP1)

- Voranspülen
- Waschen
- Abtropfen
- Abpumpen
- Nachspülen

- Boiler Füllen/Heizen
  (Überfüllen P305; Temp. siehe SP1)

- Programmstart
- Pre-wash time (P203)
- Detergent dosing time

- Rinse
- Pump out to below level 1
- Rinse aid dosing time

- Drain
- Pump out
- Pump out time before draining (P324)
- Draining time (P325)
- Drain

- Wash
  - Wash time
  - Wash time (minimum)
  - (Wash program parameter SP2)

- Program start end
- Reiniger zudosieren

- Programmende
- Reiniger-dosierzeit
- Reiniger-dosierzeit

- Monitoring
- Boiler OK?

- S2 = 0 ?
- Program end

- Start regeneration if needed

- Eventuell
- Regenerierung starten

- Sanftanlaufsequenz
- Abpumpzeit vor Abtropfen (P324)

- Monitoring
- Boiler OK ?
- S2 = 0 ?
- Voll ?
- Monitoring

- 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 P307
  - Pump out time
  - Maximum pumping out time P318
  - Monitoring of boiler level switch S2 1 -> 0 P332
  - Monitoring of tank level limit P339

- Monitoring
  - Detergent dosing time in seconds: 
    \[ t = 0.06 \times \frac{P105 \times P320 \times P204}{P322} \]

- Monitoring
  - Rinse aid dosing time in seconds: 
    \[ t = 0.06 \times \frac{P104 \times P320 \times P204}{P321} \]
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

![Code 1- - - ](image)

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

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

**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

![Display 1-1](image1)

This corresponds to viewing / modifying parameters.

![Display 1-2](image2)

This corresponds to rinse aid inlet ventilation.

![Display 1-3](image3)

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

![Display 1-1](image4)

the indication by pressing the "accept" key.

The first parameter will now be displayed with a value.

![Display PI01](image5)

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

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

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

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

**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

<table>
<thead>
<tr>
<th>Par. No.</th>
<th>Configuration options</th>
<th>Use as</th>
<th>Value range</th>
<th>Unit</th>
<th>Factory setting</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Wash program key 1</td>
<td>Parameter</td>
<td>1 .. 50</td>
<td>-</td>
<td></td>
<td>Assign wash program number to key 1; assignment adjustable</td>
</tr>
<tr>
<td>102</td>
<td>Wash program key 2</td>
<td>Parameter</td>
<td>1 .. 50</td>
<td>-</td>
<td></td>
<td>Assign wash program number to key 2; assignment adjustable</td>
</tr>
<tr>
<td>103</td>
<td>Wash program key 3</td>
<td>Parameter</td>
<td>1 .. 50</td>
<td>-</td>
<td></td>
<td>Assign wash program number to key 3; assignment adjustable</td>
</tr>
<tr>
<td>104</td>
<td>Rinse aid dosage</td>
<td>Parameter</td>
<td>0,10 .. 1,00</td>
<td>ml/litre water</td>
<td>0.2</td>
<td>Value can be read from the rinse aid container label (dependant on water quality)</td>
</tr>
<tr>
<td>105</td>
<td>Detergent dosage</td>
<td>Parameter</td>
<td>0,1...20,0</td>
<td>ml/litre water</td>
<td>2.0</td>
<td>Value can be read from the detergent container label (dependant on the hardness of the water)</td>
</tr>
<tr>
<td>106</td>
<td>Hardness degree</td>
<td>Parameter</td>
<td>0 .. 50</td>
<td>°dH</td>
<td>0</td>
<td>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)</td>
</tr>
<tr>
<td>107</td>
<td>Switch beep on / off</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>1</td>
<td>Switch acoustic ready message on / off by beep</td>
</tr>
<tr>
<td>108</td>
<td>Modus “Clear” display</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td></td>
<td>“Clear” display 0: via INFO 420 1: display of special characters</td>
</tr>
<tr>
<td>109</td>
<td>Partial / full desalination</td>
<td>Parameter</td>
<td>0,1,2</td>
<td>-</td>
<td></td>
<td>Partial / full desalination available?</td>
</tr>
</tbody>
</table>
### Error messages and troubleshooting

<table>
<thead>
<tr>
<th>Par. No.</th>
<th>Configuration options</th>
<th>Use as</th>
<th>Value range</th>
<th>Unit</th>
<th>Factory setting</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>available?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>110</td>
<td>Hardness litres per cartridge type</td>
<td>Parameter</td>
<td>0 .. 250</td>
<td>1000 L</td>
<td>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)</td>
<td></td>
</tr>
<tr>
<td>111</td>
<td>Total running time display</td>
<td>Display</td>
<td>5 digits</td>
<td>hrs.</td>
<td>Running time, query only</td>
<td></td>
</tr>
<tr>
<td>112</td>
<td>Total number of wash cycles</td>
<td>Display</td>
<td>5 digits</td>
<td>-</td>
<td>Wash cycles / loads, query only</td>
<td></td>
</tr>
<tr>
<td>113</td>
<td>Total number of wash cycles since last reset</td>
<td>Display</td>
<td>5 digits</td>
<td>-</td>
<td>Wash cycles / loads, resetting possible</td>
<td></td>
</tr>
<tr>
<td>114</td>
<td>Serial number</td>
<td>Display</td>
<td>8 digits</td>
<td>-</td>
<td>Factory settings can be called up</td>
<td></td>
</tr>
<tr>
<td>115</td>
<td>Condition Remaining cartridge capacity</td>
<td>Indication</td>
<td>0 .. 100</td>
<td>%</td>
<td>Only for partial / full desalination: TE: indication in %, VE: 100 = OK; 0 = replace</td>
<td></td>
</tr>
<tr>
<td>119</td>
<td>Allow IR communication</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>1</td>
<td>It is possible to block communication via IR interface (0)</td>
</tr>
<tr>
<td>120</td>
<td>Load factory setting service parameters</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>0</td>
<td>Active only upon power supply reset ON/OFF. <strong>Important!</strong> 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.</td>
</tr>
<tr>
<td>201</td>
<td>Machine model</td>
<td>Parameter</td>
<td>1 ... 4</td>
<td>-</td>
<td>2</td>
<td>1: FV40.2 2: FV130.2 / FV250.2 3: DV80.2 4: DV120.2 / DV125.2 <strong>Important!</strong> Only assignment list and machine sequences are changed - no parameters changed.</td>
</tr>
<tr>
<td>202</td>
<td>Tank target temperature</td>
<td>Parameter</td>
<td>10 .. 80 (50 .. 176)</td>
<td>°C/°F</td>
<td>60</td>
<td>Standard for all the wash programs on one appliance! Output dependent on definition</td>
</tr>
<tr>
<td>203</td>
<td>Initial rinse time</td>
<td>Parameter</td>
<td>0 ... 8</td>
<td>s.</td>
<td>0</td>
<td>See initial rinse process step</td>
</tr>
<tr>
<td>204</td>
<td>Final rinse time</td>
<td>Parameter</td>
<td>4 ... 30</td>
<td>s.</td>
<td>7</td>
<td>Duration of booster pump activation (running time</td>
</tr>
</tbody>
</table>
## Error messages and troubleshooting

### Configuration options

<table>
<thead>
<tr>
<th>Par. No.</th>
<th>Configuration options</th>
<th>Use as</th>
<th>Value range</th>
<th>Unit</th>
<th>Factory setting</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>205</td>
<td>Operating status display</td>
<td>Parameter</td>
<td>0 ... 8</td>
<td>-</td>
<td>1</td>
<td>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 limited by P306!!</td>
</tr>
<tr>
<td>206</td>
<td>Boiler temperature display</td>
<td>Display variant</td>
<td>0/1</td>
<td>-</td>
<td>1</td>
<td>Temperature output definition 0 - nothing 1 - actual value when filling/heating, ready for washing, washing</td>
</tr>
<tr>
<td>207</td>
<td>Tank temperature display</td>
<td>Display variant</td>
<td>0/1</td>
<td>-</td>
<td>1</td>
<td>Temperature output definition 0 - nothing 1 - actual value when filling/heating, ready for washing, washing</td>
</tr>
<tr>
<td>208</td>
<td>Allow emergency programs</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>0</td>
<td>Release emergency programs in event of heater failures</td>
</tr>
<tr>
<td>209</td>
<td>Release target value of increased boiler temperature</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>0</td>
<td>Shorten the time until boiler heating starts by temporarily increasing the target value</td>
</tr>
<tr>
<td>210</td>
<td>Temperature display in ° Fahrenheit?</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>0</td>
<td>Standard (0) : °C Option (1) : °F Conversion : F = 9/5 * C + 32 or C = 5/9 * (F –32)</td>
</tr>
<tr>
<td>211</td>
<td>Fine adjustment Rinse time</td>
<td>Parameter</td>
<td>0,0..0,9</td>
<td>Sek.</td>
<td>0,0..0,9</td>
<td>Figures after the decimal point in P204</td>
</tr>
<tr>
<td>212</td>
<td>Leakage dosing unit</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>1</td>
<td>Activate monitoring</td>
</tr>
<tr>
<td>213</td>
<td>Leakage floor pan</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>1</td>
<td>Activate monitoring</td>
</tr>
<tr>
<td>214</td>
<td>Automatic hood opening available</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>-</td>
<td>0 - off 1 – function activated</td>
</tr>
<tr>
<td>215</td>
<td>Wash pressure reduction via valve</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>0</td>
<td>After the end of the SASm sequence the wash pressure should be continuously reduced during the washing</td>
</tr>
<tr>
<td>Par. No.</td>
<td>Configuration options</td>
<td>Use as</td>
<td>Value range</td>
<td>Unit</td>
<td>Factory setting</td>
<td>Remarks</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------------------------</td>
<td>--------</td>
<td>-------------</td>
<td>------</td>
<td>----------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>216</td>
<td>Tank heating &amp; washing simultaneously</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>1</td>
<td>In case of a higher wash performance</td>
</tr>
<tr>
<td>217</td>
<td>Both heaters simultaneously ?</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>0</td>
<td>Allow heating of boiler and tank simultaneously? -&gt; may be necessary to check power supply</td>
</tr>
<tr>
<td>218</td>
<td>Shortage of rinse aid</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>0</td>
<td>Monitoring Display</td>
</tr>
<tr>
<td>219</td>
<td>Shortage of detergent</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>0</td>
<td>Monitoring Display</td>
</tr>
<tr>
<td>223</td>
<td>Optimized boiler filling time</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>0</td>
<td>Start boiler filling while rinsing is still active</td>
</tr>
<tr>
<td>224</td>
<td>Rinse aid pump (KP) activation mode</td>
<td>Parameter</td>
<td>0 .. 4</td>
<td>-</td>
<td>1</td>
<td>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</td>
</tr>
<tr>
<td>225</td>
<td>Detergent pump (RP) activation mode</td>
<td>Parameter</td>
<td>0 .. 4</td>
<td>-</td>
<td>1</td>
<td>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.</td>
</tr>
<tr>
<td>226</td>
<td>Hood start available?</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>0</td>
<td>Allow hood start</td>
</tr>
<tr>
<td>228</td>
<td>Water softening available?</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>0</td>
<td>Water softening ?</td>
</tr>
<tr>
<td>230</td>
<td>Input/output PCB model with code 1</td>
<td>Parameter</td>
<td>0 .. 3</td>
<td>-</td>
<td>1</td>
<td>Determination of extended I/O configuration 0 : not available</td>
</tr>
<tr>
<td>231</td>
<td>Input/output PCB model with code 2</td>
<td>Parameter</td>
<td>0 .. 3</td>
<td>-</td>
<td>0</td>
<td>Determination of extended I/O configuration 0 : not available</td>
</tr>
<tr>
<td>236</td>
<td>Input/output PCB model with code 7</td>
<td>Parameter</td>
<td>0 .. 3</td>
<td>-</td>
<td>0</td>
<td>Determination of extended I/O configuration 0 : not available</td>
</tr>
<tr>
<td>240</td>
<td>Load factory settings for configuration data</td>
<td>Parameter</td>
<td>0/1</td>
<td>-</td>
<td>0</td>
<td>Only effective upon power supply reset ON/OFF. Important ! All service parameter</td>
</tr>
</tbody>
</table>
### 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

<table>
<thead>
<tr>
<th>Par. No.</th>
<th>Machine constant</th>
<th>For use as</th>
<th>Value range</th>
<th>Unit</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
<td>Offset boiler temperature measurement</td>
<td>Adjustment</td>
<td>-5 …+5 K</td>
<td></td>
<td>Allow offset</td>
</tr>
<tr>
<td>302</td>
<td>ΔT boiler heater (switch off early )</td>
<td>Parameter</td>
<td>0 ... 10 K</td>
<td></td>
<td>Post-heating compensation (temperature increase after boiler heating switched off)</td>
</tr>
<tr>
<td>303</td>
<td>Offset boiler temperature for the initial filling after switching on</td>
<td>Parameter</td>
<td>0 ... 30 K</td>
<td></td>
<td>Boiler temperature during the initial filling equal to tank target value plus this offset</td>
</tr>
<tr>
<td>304</td>
<td>Delay boiler heating (during filling start)</td>
<td>Parameter</td>
<td>0 ... 50 sec.</td>
<td></td>
<td>Activation delay to the heater during boiler filling/heating</td>
</tr>
<tr>
<td>305</td>
<td>Overfill boiler</td>
<td>Parameter</td>
<td>0 ... 10 sec.</td>
<td></td>
<td>Extend the filling of the boiler after the boiler level signal has been reached</td>
</tr>
<tr>
<td>306</td>
<td>Maximum final rinse time</td>
<td>Parameter</td>
<td>0 ... 30 sec.</td>
<td></td>
<td>Maximum booster pump running time (rinse) (limit of P204)</td>
</tr>
<tr>
<td>307</td>
<td>Boiler heating hysteresis</td>
<td>Parameter</td>
<td>0 ... 3 K</td>
<td></td>
<td>Use two-position controller</td>
</tr>
<tr>
<td>308</td>
<td>Maximum boiler filling time for first filling</td>
<td>Fault Parameter</td>
<td>0 ... 600 sec.</td>
<td></td>
<td>Monitor initial filling of boiler (if the boiler was completely emptied before switching on)</td>
</tr>
<tr>
<td>309</td>
<td>Maximum boiler filling time</td>
<td>Parameter</td>
<td>0 ... 600 sec.</td>
<td></td>
<td>Monitor boiler filling (S2 must operate)</td>
</tr>
<tr>
<td>310</td>
<td>Boiler temperature increases when heating is ON</td>
<td>Fault Parameter</td>
<td>0 ... 50 K/Min.</td>
<td></td>
<td>If boiler heating = ON : check that the actual value increases. First check after 4 minutes, then at intervals of one minute)</td>
</tr>
<tr>
<td>311</td>
<td>Offset tank temperature interrogation</td>
<td>Adjustment</td>
<td>-5 …+5 K</td>
<td></td>
<td>Allow adjustment</td>
</tr>
<tr>
<td>312</td>
<td>ΔT tank heating (switched off early)</td>
<td>Parameter</td>
<td>0 ... 10 K</td>
<td></td>
<td>Post-heating compensation (temperature increase after boiler heating switched off)</td>
</tr>
<tr>
<td>313</td>
<td>Tank heating hysteresis</td>
<td>Parameter</td>
<td>0 ... 3 K</td>
<td></td>
<td>Use two-position controller</td>
</tr>
<tr>
<td>314</td>
<td>Tank temperature increases when heating is ON</td>
<td>Fault monitoring</td>
<td>0,0 ... 5,0 K/ min</td>
<td></td>
<td>If boiler heating = ON: check that the actual value increases. First check</td>
</tr>
<tr>
<td>Par. No.</td>
<td>Machine constant</td>
<td>For use as</td>
<td>Value range</td>
<td>Unit</td>
<td>Remarks</td>
</tr>
<tr>
<td>---------</td>
<td>------------------</td>
<td>------------</td>
<td>-------------</td>
<td>------</td>
<td>---------</td>
</tr>
<tr>
<td>315</td>
<td>Maximum filling cycles</td>
<td>Fault monitoring</td>
<td>1 ... 50</td>
<td>-</td>
<td>after 5 minutes, then at intervals of 1 minute) Alternative for maximum tank filling time. Only on filling/heating</td>
</tr>
<tr>
<td>316</td>
<td>Maximum number of final rinse cycles (for final rinse)</td>
<td>Fault monitoring</td>
<td>0 ... 10</td>
<td>-</td>
<td>X cycles up to occurrence of fault (level 2 reached)</td>
</tr>
<tr>
<td>317</td>
<td>Maximum time to drop below tank safety level</td>
<td>Fault monitoring</td>
<td>1 ... 150</td>
<td>sec</td>
<td>If tank level 3 reached: -&gt; drain pump ON: maximum permissible time until water drops below safety level.</td>
</tr>
<tr>
<td>318</td>
<td>Maximum time to pump out to below level 1</td>
<td>Fault monitoring</td>
<td>1 ... 150</td>
<td>sec</td>
<td>After the draining time the drain pump is activated until water level is below level 1.</td>
</tr>
<tr>
<td>319</td>
<td>Check water pressure</td>
<td>Fault monitoring</td>
<td>1 ... 25</td>
<td>10 sec</td>
<td>If boiler level S2 is not reached within this period, heating must first be activated with S2 = 1.</td>
</tr>
<tr>
<td>320</td>
<td>Booster pump output</td>
<td>Parameter</td>
<td>10 .. 200</td>
<td>l/min</td>
<td>Calculation of fresh water supply for dosing quantity of detergent and rinse agent pump.</td>
</tr>
<tr>
<td>321</td>
<td>Rinse agent pump output</td>
<td>Parameter</td>
<td>0.1 ...10</td>
<td>l/h</td>
<td>Rinse agent pump. Output definition.</td>
</tr>
<tr>
<td>322</td>
<td>Detergent pump output</td>
<td>Parameter</td>
<td>0.1 ..20</td>
<td>l/h</td>
<td>Detergent pump. Output definition.</td>
</tr>
<tr>
<td>323</td>
<td>Detergent output per impulse</td>
<td>Parameter</td>
<td>0.1 ... 10</td>
<td>ml</td>
<td>Necessary for calculating the dosing of the detergent using the Hall sensor</td>
</tr>
<tr>
<td>324</td>
<td>Drain pump running time before the end of the wash time</td>
<td>Parameter</td>
<td>0 ... 20</td>
<td>sec</td>
<td>Drain pump ON with prior interrogation whether wash time is extended</td>
</tr>
<tr>
<td>325</td>
<td>Draining pause</td>
<td>Parameter</td>
<td>1 ... 20</td>
<td>sec</td>
<td>Delay time between washing and pumping out.</td>
</tr>
<tr>
<td>326</td>
<td>Rinse agent pipe vent time</td>
<td>Parameter</td>
<td>0 ... 255</td>
<td>sec</td>
<td>Activate rinse agent pump temporarily to remove air from pipe.</td>
</tr>
<tr>
<td>327</td>
<td>Detergent pipe vent time</td>
<td>Parameter</td>
<td>0 ... 100</td>
<td>sec</td>
<td>Activate detergent pump temporarily to remove air from pipe.</td>
</tr>
<tr>
<td>328</td>
<td>Delay wash arm movement</td>
<td>Parameter</td>
<td>0 ... 60</td>
<td>sec</td>
<td>Delay time between start of washing and start of wash arm rotation</td>
</tr>
<tr>
<td>329</td>
<td>Extend wash arm movement by comparison with the wash pump</td>
<td>Parameter</td>
<td>0 ... 60</td>
<td>sec</td>
<td>The contents of the wash arm should be removed as much as possible</td>
</tr>
<tr>
<td>330</td>
<td>Delay time before program end</td>
<td>Parameter</td>
<td>0.0 .. 10.0</td>
<td>sec</td>
<td>Delay time between the end of final rinse and program end</td>
</tr>
<tr>
<td>Par. No.</td>
<td>Machine constant</td>
<td>For use as</td>
<td>Value range</td>
<td>Unit</td>
<td>Remarks</td>
</tr>
<tr>
<td>---------</td>
<td>------------------</td>
<td>------------</td>
<td>-------------</td>
<td>------</td>
<td>---------</td>
</tr>
<tr>
<td>331</td>
<td>Monitor wash time extension</td>
<td>Fault monitoring</td>
<td>0 ... 500 sec</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td>332</td>
<td>Monitoring boiler level switch</td>
<td>Fault monitoring</td>
<td>1 ... 10 sec</td>
<td>1-&gt; 0 change at S2 must be recognised within this time if booster pump =1</td>
<td></td>
</tr>
<tr>
<td>333</td>
<td>Hardness litres of resin solution</td>
<td>Parameter</td>
<td>1000 .. 5000</td>
<td>-</td>
<td>Hardness litres of resin solution (see regeneration)</td>
</tr>
<tr>
<td>334</td>
<td>Operating time EW-Y5</td>
<td>Parameter</td>
<td>0 .. 50 sec.</td>
<td>Running time EW-Y5 at initial and second filling of boiler after regeneration</td>
<td></td>
</tr>
<tr>
<td>335</td>
<td>Threshold tank level 1</td>
<td>Parameter</td>
<td>1 .. 150 2 mm</td>
<td>Tank level 1</td>
<td></td>
</tr>
<tr>
<td>336</td>
<td>Threshold tank level 2</td>
<td>Parameter</td>
<td>1 .. 150 2 mm</td>
<td>Tank level 2</td>
<td></td>
</tr>
<tr>
<td>337</td>
<td>Threshold tank level 3</td>
<td>Parameter</td>
<td>1 .. 150 2 mm</td>
<td>Tank level 3</td>
<td></td>
</tr>
<tr>
<td>338</td>
<td>Threshold tank level 4</td>
<td>Parameter</td>
<td>1 .. 150 2 mm</td>
<td>Tank level 4 (reserve)</td>
<td></td>
</tr>
<tr>
<td>339</td>
<td>Tank level maximum value</td>
<td>Fault</td>
<td>1 .. 150 2 mm</td>
<td>Limit value monitoring</td>
<td></td>
</tr>
<tr>
<td>349</td>
<td>Tank temperature “ready for operation” tolerance</td>
<td>Parameter</td>
<td>0 .. 10 K</td>
<td>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)</td>
<td></td>
</tr>
<tr>
<td>350</td>
<td>Load factory settings for machine data?</td>
<td>Parameter</td>
<td>0/1</td>
<td>Possible to load factory settings. Power OFF/ON necessary. For parameters 1xx, 2xx, 3xx</td>
<td></td>
</tr>
<tr>
<td>352</td>
<td>Delay time to start automatic hood opening</td>
<td>Parameter</td>
<td>0, 1 ... 5 sec.</td>
<td>Delay time</td>
<td></td>
</tr>
<tr>
<td>355</td>
<td>Fade-out time for the motor current, hood drive</td>
<td>Parameter</td>
<td>0,1 ... 5 Sek. sec.</td>
<td>Time up to the evaluation of Imax hood drive, ERR 309</td>
<td></td>
</tr>
</tbody>
</table>
3.7 Wash program structure

<table>
<thead>
<tr>
<th>Sequence no.</th>
<th>Designation Parameter</th>
<th>Value range</th>
<th>Unit</th>
<th>Necessary memory</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>TARGET VALUE Boiler temperature</td>
<td>10 .. 92 °C</td>
<td>°C</td>
<td>1 byte</td>
<td>Exception: <strong>First</strong> machine filling - see parameter machine data (offset) and parameter configuration data (target value tank temperature)</td>
</tr>
<tr>
<td>2.</td>
<td>TARGET VALUE Wash time</td>
<td>10 ... 1200 sec.</td>
<td>2 bytes</td>
<td>Actual wash time; phase between pre-rinse and draining</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>TARGET VALUE Wash pressure reduction</td>
<td>0 ... 3 -</td>
<td>-</td>
<td>1 byte</td>
<td>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</td>
</tr>
</tbody>
</table>

3.8 Error messages, information

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

<table>
<thead>
<tr>
<th>Group</th>
<th>ERR. No.</th>
<th>INFO No.</th>
<th>Description</th>
<th>Possible cause</th>
</tr>
</thead>
</table>
| 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

<table>
<thead>
<tr>
<th>Group</th>
<th>ERR. No.</th>
<th>INFO No.</th>
<th>Description</th>
<th>Possible cause</th>
</tr>
</thead>
</table>
| 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            | Enter code again |

No password / no authorization
## Error messages and troubleshooting

<table>
<thead>
<tr>
<th>Group</th>
<th>ERR. No.</th>
<th>INFO No.</th>
<th>Description</th>
<th>Possible cause</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>123</td>
<td></td>
<td>Factory set parameters activated</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>124</td>
<td></td>
<td>Emergency strategy EEPROM problems active</td>
<td>Emergency EEPROM program No EEPROM / empty EEPROM Incorrect data in plug-in EEPROM Plug in a new EEPROM with correct set of parameters.</td>
</tr>
<tr>
<td></td>
<td>125</td>
<td></td>
<td>EEPROM is not complete (3 wash programs)</td>
<td>EEPROM was empty!</td>
</tr>
<tr>
<td></td>
<td>128</td>
<td></td>
<td>LowBat (hardware option)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>129</td>
<td></td>
<td>Error real-time clock (hardware option)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>Boiler</td>
<td></td>
</tr>
<tr>
<td></td>
<td>201</td>
<td></td>
<td>Level not reached at the correct time during initial filling</td>
<td>S2 Fresh water supply inadequate (water faucet closed) Aquastop hose kinked Inlet strainer soiled Aquastop defective Boiler switch defective</td>
</tr>
<tr>
<td></td>
<td>202</td>
<td></td>
<td>Level not reached at correct time during filling</td>
<td>S2 Fresh water supply inadequate (water faucet closed) Aquastop hose kinked Inlet strainer soiled Aquastop defective Boiler switch defective</td>
</tr>
<tr>
<td></td>
<td>203</td>
<td></td>
<td>No change detected by the level switch when draining</td>
<td>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</td>
</tr>
<tr>
<td>Group</td>
<td>ERR. No.</td>
<td>INFO No.</td>
<td>Description</td>
<td>Possible cause</td>
</tr>
<tr>
<td>-------</td>
<td>----------</td>
<td>----------</td>
<td>--------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
|       | 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     | 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 |
<table>
<thead>
<tr>
<th>Group</th>
<th>ERR. No.</th>
<th>INFO No.</th>
<th>Description</th>
<th>Possible cause</th>
</tr>
</thead>
</table>
| 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  
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  
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 \( \leq 0.4 \) volt |
| 308   |          |          | Error, hood drive | Motor defective. Limit switch wrongly set. |
### Error messages and troubleshooting

<table>
<thead>
<tr>
<th>Group</th>
<th>ERR. No.</th>
<th>INFO No.</th>
<th>Description</th>
<th>Possible cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>310</td>
<td>Temperature sensor (Tank) short circuit</td>
<td>Check sensor cable (plug contacts) Replace sensor Attach sensor correctly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>311</td>
<td>Temperature sensor (Tank) interruption</td>
<td>Check sensor cable (plug contacts) Replace sensor Attach sensor correctly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>312</td>
<td>Actual tank temperature too high (security)</td>
<td>&gt; 85 °C? Contacts of contactor sticking Incorrect sensor / defective sensor Check probe / lead (contact plug Mike II XA5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>320</td>
<td>Initial position (of rotating system) not detected</td>
<td>P221, P222, E5 Switch lever loose Initial position contactor does not turn Start capacitor defective Check micro-switch adjustment Plug connector loose Motor for rotating system defective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>321</td>
<td>Still at initial position (rotating system) (Wash arm motor is running) No signal change</td>
<td>P221, P222, E5 Continuous signal from micro-switch (short circuit on cable) See also 320</td>
<td></td>
<td></td>
</tr>
<tr>
<td>322</td>
<td>Level 1 not achieved after draining time</td>
<td>Screen blocked Container filled with water Foam generation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>323</td>
<td>Hood drive active</td>
<td>Possible for hood drive to be active also when switched off.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>324</td>
<td>Hood opening after blockage</td>
<td>Basket under self-closing hood Front parts under self-closing hood Info remains until next time button pressed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>325</td>
<td>Wash water pump activated after safety level has been reached.</td>
<td>Wash water pump activated after safety level reached Message can remain when machine OFF.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Rinse agent dosage

<table>
<thead>
<tr>
<th>Group</th>
<th>ERR. No.</th>
<th>INFO No.</th>
<th>Description</th>
<th>Possible cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>401</td>
<td>Evaluation of shortage of rinse agent defective (Conductance 1)</td>
<td>Conductance input 1 (I/O PCB) Check plug and I/O PCB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>420</td>
<td>Shortage of rinse agent reported in the “ready for washing” state</td>
<td>P218 Check container dosing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>ERR. No.</td>
<td>INFO No.</td>
<td>Description</td>
<td>Possible cause</td>
</tr>
<tr>
<td>-------</td>
<td>----------</td>
<td>----------</td>
<td>-------------</td>
<td>----------------</td>
</tr>
<tr>
<td>5</td>
<td>501</td>
<td></td>
<td>Connection error conductance 2 (LW2) (detergent)</td>
<td>LW2 (input/output PCB)</td>
</tr>
<tr>
<td></td>
<td>520</td>
<td></td>
<td>Shortage of detergent reported in the &quot;ready for washing&quot; state</td>
<td>P219 Check container dosing</td>
</tr>
<tr>
<td></td>
<td>521</td>
<td></td>
<td>Error in pressure dosing</td>
<td>Container empty, dosing unit blocked, impulses insufficient when valve dosing activated.</td>
</tr>
<tr>
<td></td>
<td>522</td>
<td></td>
<td>Error in pressure dosing</td>
<td>Impulses available while valve dosing is not piloted. Valve is defective</td>
</tr>
<tr>
<td>7</td>
<td>701</td>
<td></td>
<td>Switch S4</td>
<td>Y1, S4 Stop tap closed Y1 defective, S4 defective</td>
</tr>
<tr>
<td></td>
<td>702</td>
<td></td>
<td>The EW intermediate reservoir does not empty (Y1=0; DSP2=1)</td>
<td>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</td>
</tr>
<tr>
<td></td>
<td>720</td>
<td></td>
<td>Regeneration is running</td>
<td></td>
</tr>
<tr>
<td></td>
<td>721</td>
<td></td>
<td>Regeneration impossible, no salt</td>
<td>S5 Add salt Check reed switch for salt solution container</td>
</tr>
<tr>
<td></td>
<td>722</td>
<td></td>
<td>Add salt</td>
<td>S5 Add salt Check reed switch for salt solution container</td>
</tr>
<tr>
<td></td>
<td>725</td>
<td></td>
<td>Replacing the cartridge</td>
<td>Cartridge exhausted. Check P 109</td>
</tr>
<tr>
<td>Group</td>
<td>ERR. No.</td>
<td>INFO No.</td>
<td>Description</td>
<td>Possible cause</td>
</tr>
<tr>
<td>-------</td>
<td>---------</td>
<td>---------</td>
<td>-------------</td>
<td>----------------</td>
</tr>
</tbody>
</table>
| 9     | 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 |