

## APPENDIX: VERSION HISTORY

### Version 1.0 (2016)

- Initial release

#### BUGFIXES

- Various minor corrections in manuals
- Backflush reminder volume can be set with 0.1l granularity

### Version 1.1 (2017)

- Display content can be rotated
- OLED brightness limit can be removed
- Analog noise displayed in info menu
- Preinfusion and flood phase can be excluded from dosing and shot timer

#### BUGFIXES

- Backflush volume counter in info menu didn't increment
- Output limit in disabled R&S profiles was not disregarded

### Version 1.2 (2017)

- Improved pressure profiling: Finer-grained settings; integral cycle time configurable
- Integral and proportional terms of pressure control

output reported to Status Monitor

### Version 1.3 (2018)

- Serial menu commands to set energy saver mod (MCE, MCE and MCa)
- Setpoints directly after flood phase increased to flood pressure, if lower
- Improved autotuning accuracy (deadband to guard against sensor noise)
- Independent protection limits for PID1 and PID2
- Shot timer is displayed for a few seconds after shots (configurable)

#### BUGFIXES

- Setting boiler protection time to “-” didn't turn protection off

### Version 1.4 (2018)

- Option in pressure sensor menu to choose if 3-way grouphead valve is installed before or after sensor
- Pressure profiling improvements
  - Related menus reorganized
  - Presets for preinfusion and shot separated
  - Flow compensation in pump properties
  - Relative pressure setpoints for preinfusion profiles
  - Transition from flood to shot and from PI to shot is

automatically improved (drops to zero eliminated)

- Ramp & Soak:
  - New state "Cold start"
  - Feed forward can be set independently of PID configuration
- More reset-to-defaults menu items (in Ramp & Soak menu, in pump properties menu, in pump control menu)
- Pins 2 to 4 of ENC header can be used as contacts if no encoder is installed
- Flow rate displayed during shots (Q=...)
- Autostart for warm-up program if temperature is below a user-defined limit
- Restarting a program stops it, except dosing programs (restarting doubles volume)

## BUGFIXES

- TSIC sensors with label "IST18 TO1C" didn't work reliably (100us bits instead of 125us bits)
- User-defined end-actions for shot parts of pressure profiles (e.g. "sustain pressure") were not ignored if the shot part was disabled.
- Serial Menu:
  - Commands related to PID settings caused erroneous behavior if PID was disabled

- Non-interactive commands did end ECO mode and standby – they shouldn't<sup>1</sup>

## Version 1.5 (2018)

- Support for OLED displays with SH1106 controller
- XML files for Status Monitor 2.x

## BUGFIXES

- Turning PID2 off didn't end transmission of data to serial interface
- Flood pressure setting was not ignored if user had no pressure sensor

## Version 1.6 (2019)

- 16bit timer used for phase control to achieve improved pump power control resolution with 60hz mains power
- Tutorial "Pressure control loop tuning" added
- An error message is displayed if backflushing was aborted to to lack of pressurization
- New preinfusion profile "CHAMBER"

## BUGFIXES

- First item in pressure presets was not accessible

1 If you have previously relied on that behavior, use the new MCA command to wake the firmware from ECO mode or standby.

## Version 1.7 (2020)

- Support for Bluetooth LE as of its PCB revision 2.0
- Support for dosing by weight with “Skale 2”
- Battery level of “Skale 2” displayed in info menu
- Quick BLE re-connect attempt if connection is lost
- Valve test in ‘Run’ menu
- Cause of last MCU reset recorded in info menu
- Automatic Wifi reset after power on
- Configurable smoothing filter in scale menu
- "Factory settings restored" alert

### BUGFIXES

- Less packet loss if two TSic sensors are installed
- “Pump pwr” values in ml/min were not displayed

## Version 1.8 (2020)

- Support for display modules with two buttons
- Putting weight on scale wakes display up
- More forgiving if pressure profiling setup is not optimal (wider proportional range)
- Using OK/CANCEL in menu does not stop warm-up program

### BUGFIXES

- Weight not displayed if scale was turned on, off and on again

## Version 1.9 (2020)

- Barista light switch in root menu
- Pressure profiles can override temperature setpoints
- Pressure test improved (finer-grained)
- More shortcuts in menu
- More pressure profiles
- Vent option for warm-up program

### BUGFIXES

- The MCR command (sensor data packet request) only worked if reporting was turned on
- Pressure profile setpoints after 25.0s were ignored (only in firmware 1.9 rc1)

## Version 2.0 (2021)

- Support for Felicita Arc scale
- Configurable display title in display menu
- Three user setpoints added to PID menu which can be assigned to menu shortcuts
- Safety limit in ramp & soak profiles
- Command to dump setup in serial menu (MCu)
- User-saved tare in scale menu
- Offset correction for pressure sensors

## BUGFIXES

- MCu command didn't dump settings under Input→Configure menu

## Version 2.1 (2022)

- Support for Eureka Precisa scale
- 'Stop early' added to scale menu
- Flow rates can be displayed as ml/s or ml/min
- Brew ratio calculator added to dose menu
- Café Allongé pressure profile preset
- LED wiring function WAND
- Automatic flow meter calibration with wireless scale
- Warm-up programs waits for PID to reach setpoint before flushing begins (optional)

## BUGFIXES

- Pressure band didn't include user-defined offset
- MCu command (print setup) didn't dump relevant data if dose method was "by weight" or "by volume"
- Phase plots appeared even if pressure profiling was not possible due to missing SNS signal
- Wrong buzzer sound played when aborting programs

## Version 2.2 (2022)

- Filter option in Pump→Control menu

- Pressure profile resizing
- Doses can have associated pressure profiles
- Cup detection
- Left/right encoder rotation can be configure independently, for example rotate left into list of doses, rotate right into menu
- Fast start option in warm-up program's settings

## BUGFIXES

- Cup's pressure profile was not activated if cup's dose was undefined

## Version 2.3 (2023)

- Sensor calibration program for thermocouples (for users of afe16/24 thermocouple interface)
- Mcc command to remotely execute functions (p.229)
- Option to skip from preinfusion to shot when the first drop is detected (p.128)
- After dosing, the pressure profile used before dosing is restored if dosing changed it
- Venting duration during warm-up program configurable
- Configurable weight limit for drop-ends-PI function
- Increased range for integral constant in pump control
- Support for Digmesa nano flow meters
- Serial output speed doubled (requires Status Monitor 3)

## BUGFIXES

- Kc and I values in pump control menu were wrongly formatted (**see errata, p.105**)
- Phase values in “leva!-64C3F8DB.xml” file had wrong unit (percent instead of degree)

### **Version 3.0 (2023)**

- Flow rate tracking (p.162)
- STANDBY action (p.229)

## BUGFIXES

- Small rounding errors in pressure profile resizing code

### **Version 3.1 (2024)**

- Temperature limits in descale setup (p.194)
- User is notified if dose temporarily changes pressure profile
- Support for Status Monitor 4.0

## BUGFIXES

- Descale program didn't start after reaching intended temperature (in FW 3.0)

### **Version 3.2 (2024)**

- DiFluid Microbalance TI scale supported

## BUGFIXES

- A pressure profile ending at 0bar combined with flow tracking did turn valve off at end of profile