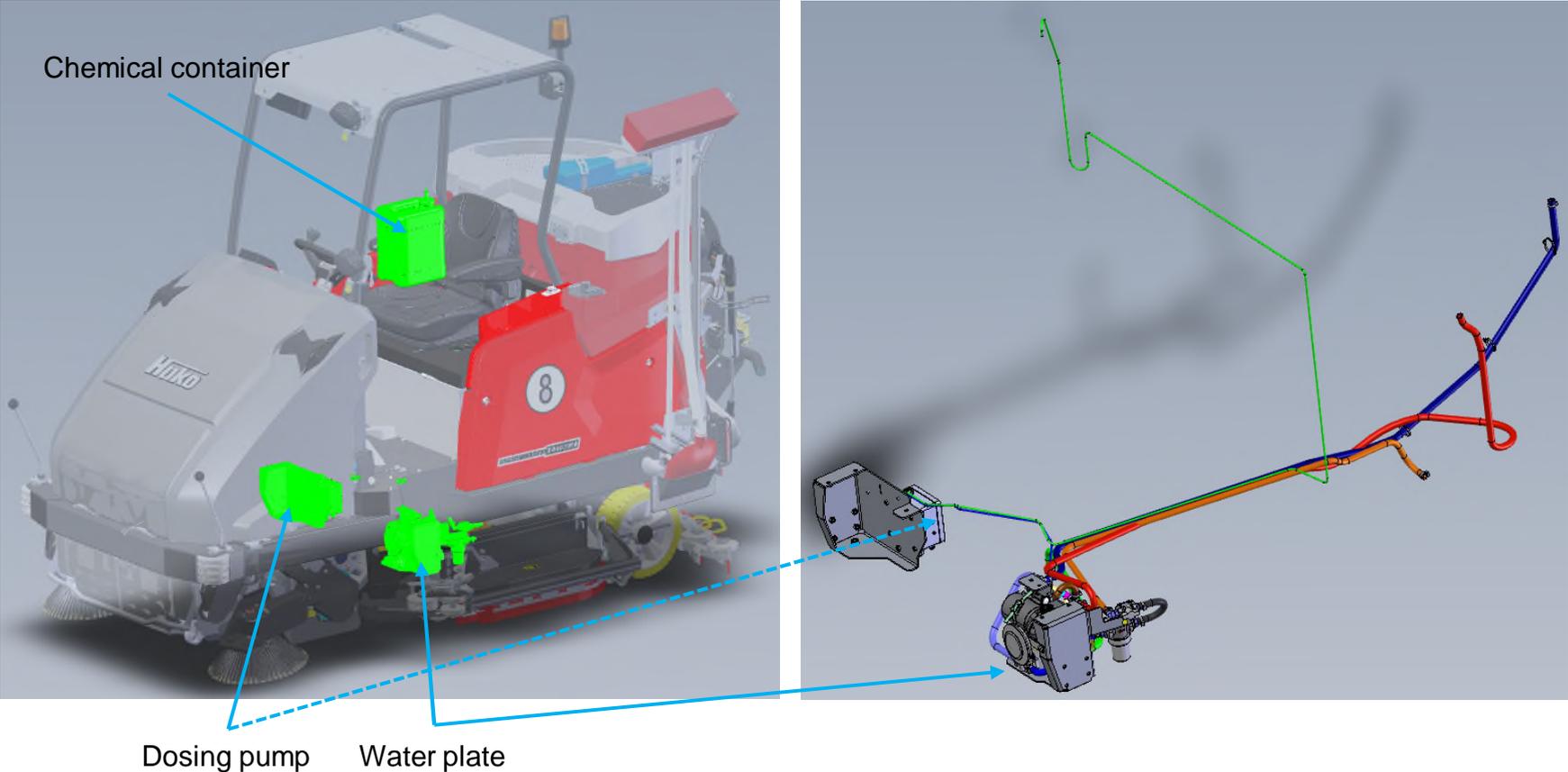# 6.3.1 Solution and waste water system

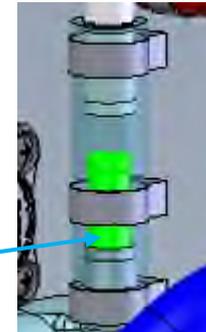**Water system cpl.**

Chemical container

Dosing pump   Water plate

Water plate

Hose to spray tool

Hose from water tank

outlet
Water pump
M8
inlet

Cut off cock

Flow meter B18

Filter
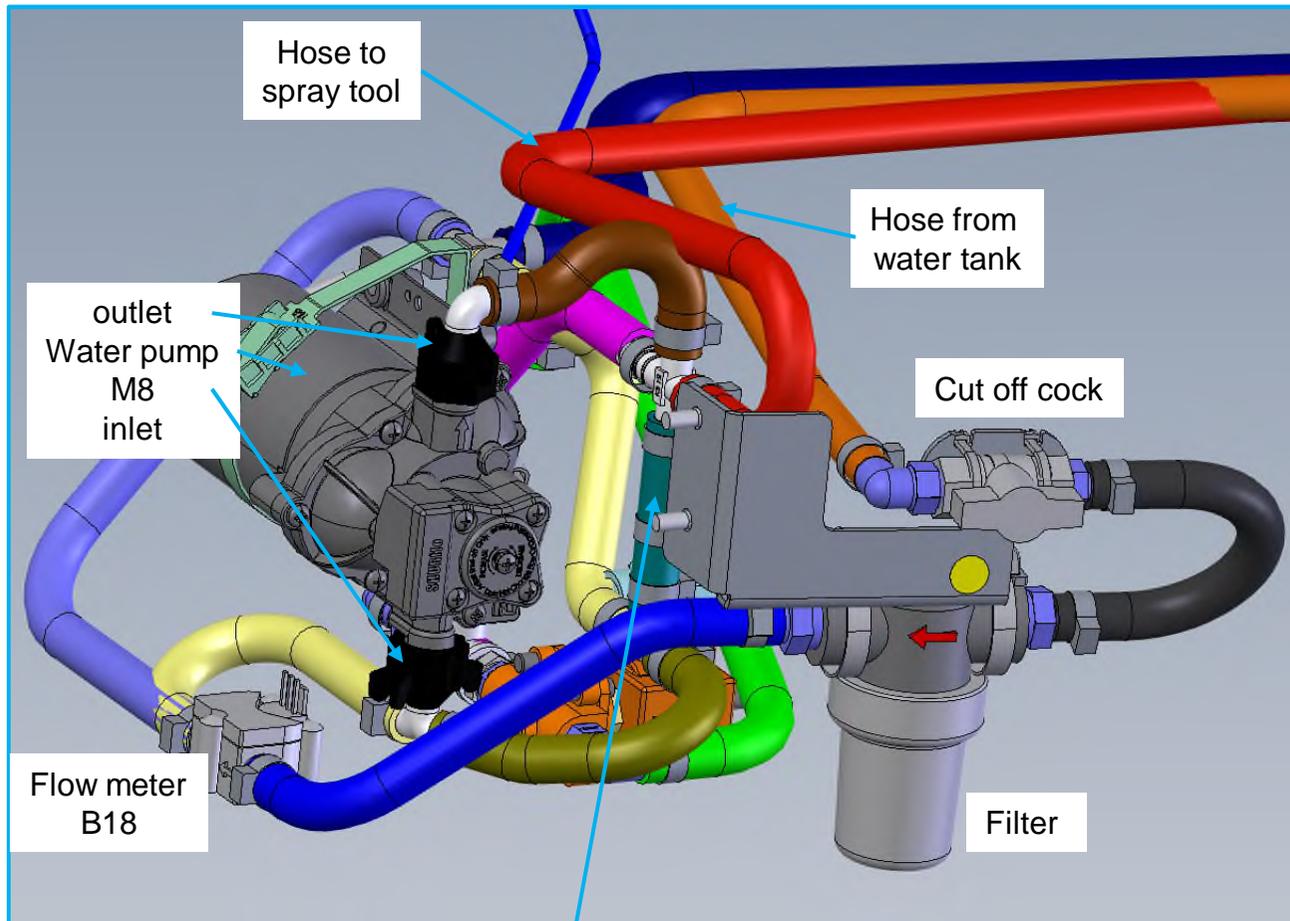
Pressure releave valve (inside hose)

Water plate

Hose to spray tool

Hose from water tank

Hose from Chemical pump

Hose HD Cleaner

Flow control, Y1

Hose to brush deck
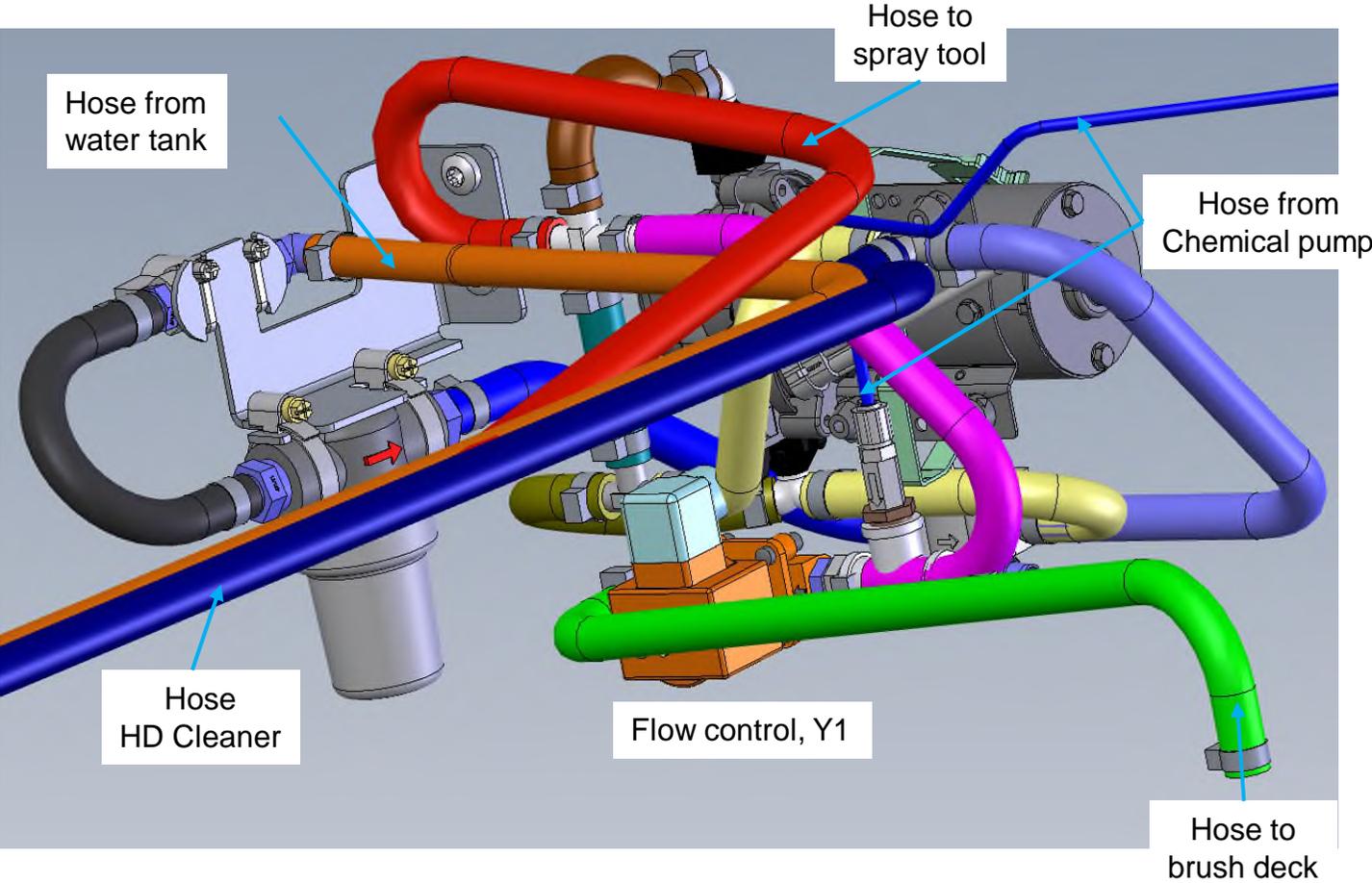
Components Water plate

Three-chamber diaphragm pump
Non-return valve (directional)
Permanent magnet DC motor 36V
Self priming
Diaphragm and seals: Santoprene
Duty cycle: continuously

Water pump
M8

Pressure	Flow volume	Current consumption
open	12,4l/min	2,0A
0,7bar	12,0l/min	2,1A
1,4bar	11,3l/min	2,5A
2,1bar	10,4l/min	2,9A
2,8bar	9,5l/min	3,2A
3,5bar	8,5l/min	3,5A

Filter mesh: 0,53mm
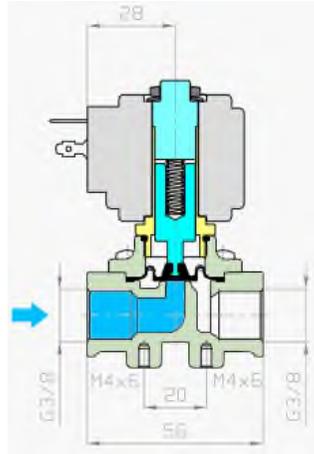
Water filter

Components Water plate

Flow control valve
Y1

Flow rate (1bar): 14l/min
Pessure control area: 0-2,5bar
Power: 24V / 12W

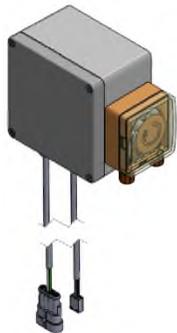| Stecker PIN	Pot	auf
1	Sig.	◊
2	- Pot.	⊦
3	* Pot.	+

Impulse per liter: 165
Metering range: 1,4l/min – 18l/min
Drop in pressure: max. 0,5bar
Power: 24V; < 8mA

Flow-meter
B18

Öffnungsdruck: 1,25bar

Druckbegrenzungsventil

Chemical dosing system

Flow rate: 3 - 400ml/min
Mix ratio: 0,33% – 5%
Max. back pressure: 2bar
Power: 36V ; 12W

The control of the dosing pump can report errors to the main control A1 via the CAN bus. These are shown in the display as error message **4.2.1.4** In the event of an error, additional information is displayed in the event log (see table below)

Chemical dosing system

Display in ERROR_DETAIL	description
1	no connection, A10 not "ON"
2	from 65°C housing temp. reduction of max. delivery rate to 250 ml/min
4	>400ms no motor turning even "ON", new attempt every 5s
8	Speed sensor failure
10	Motor current >1,5A
6	from 65°C housing temp. reduction of max. delivery rate to 250ml/min and >400ms no motor rotation even "ON", new attempt every 5s
A	from 65°C housing temp. reduction of max. delivery rate to 250ml/min and failure of the speed sensor
12	from 65°C housing temp. reduction of max. delivery rate to 250ml/min and Motor current >1,5A
C	>400ms no motor turning even "ON", new attempt every 5s and failure of the speed sensor
14	>400ms no motor turning even "ON", new attempt every 5s and Motor current >1,5A
18	Failure of speed sensor and motor current >1.5A

Flex wall tank level monitoring

Two differential pressure sensors are used for solution and waste water to determine the fill levels. These measure the current fill levels and of course the limit states empty and full. With the help of a flow sensor at the solution extraction, the actual filling levels are determined/calculated during the cleaning. In order to determine the fill level in a waste water tank with a pressure sensor, it must be ensured that no dirt can damage the sensor or clog the supply line. The problem here, however, is that the absolute negative pressure in the container fluctuates due to the effects of cleaning, which means that the air in the measuring tube is compressed differently. The result is that the water penetrates differently into the measuring tube and, with a vertical measuring tube at the same water level, different differential pressure measurement results are obtained. For this reason, a correspondingly large, almost horizontal section was provided in the measuring pipe (see picture), which allows the air to be compressed, but does not cause any significant change in the distance between the surface of the water column in the pipe and the water surface in the tank and at the same time causes the water to flow out again the pipe.
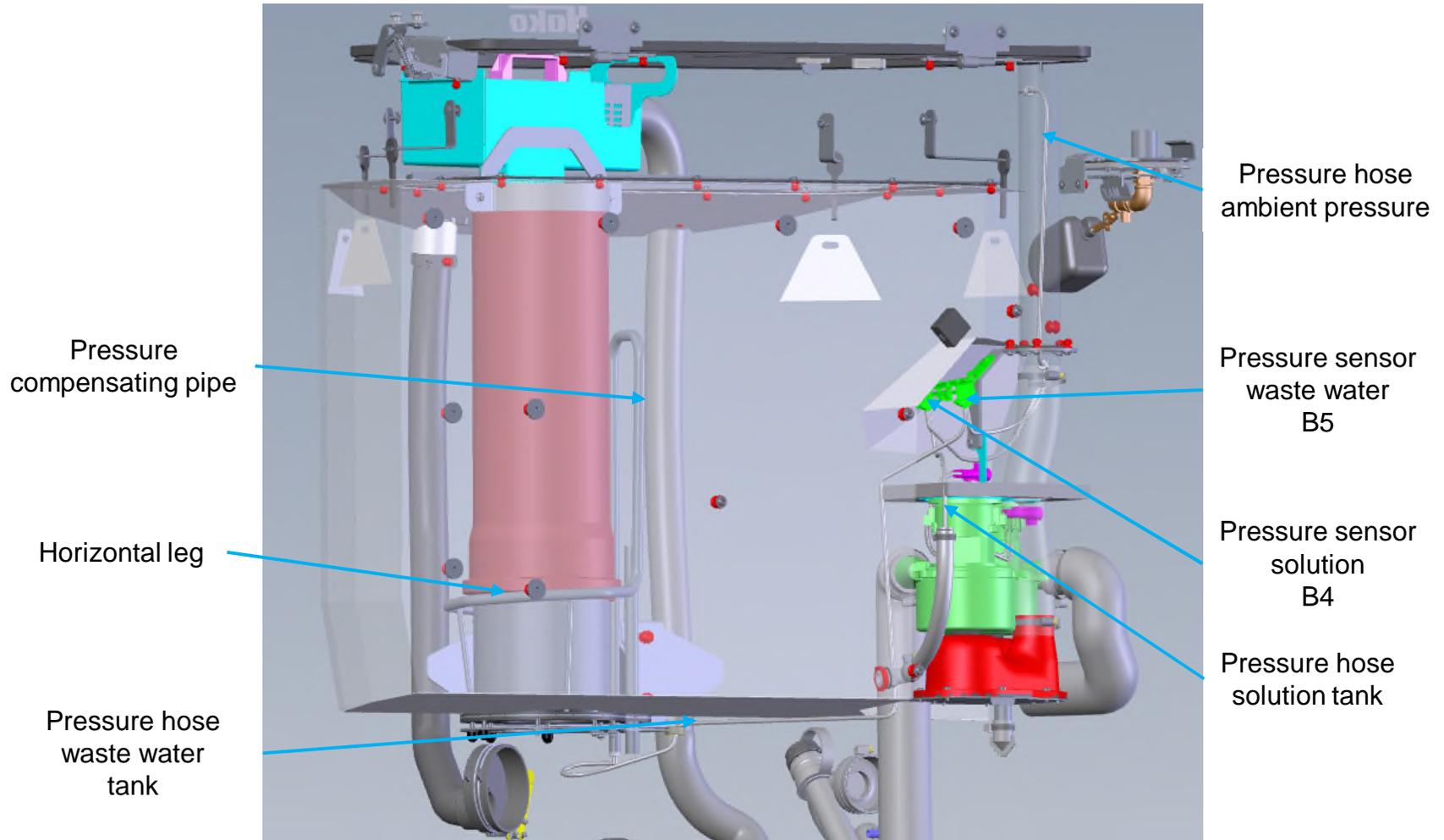
The voltage readings at both sensors must be between 0.16V and 0.63V when the tank is empty (Tolerance range of the sensor at 0 bar differential pressure, corresponds to an empty tank).

When solution tank is full, the solution sensor must output a voltage value between 1.31V and 1.78V. The waste water sensor should also output a voltage value between 1.31V and 1.78V at the turbine switch-off point.

Connector ambient pressure

Connector Tank pressure

PIN3
GND from A1
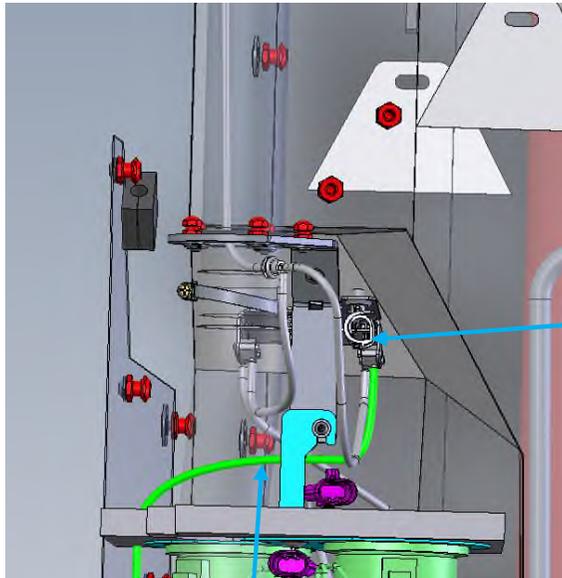
PIN1
Signal
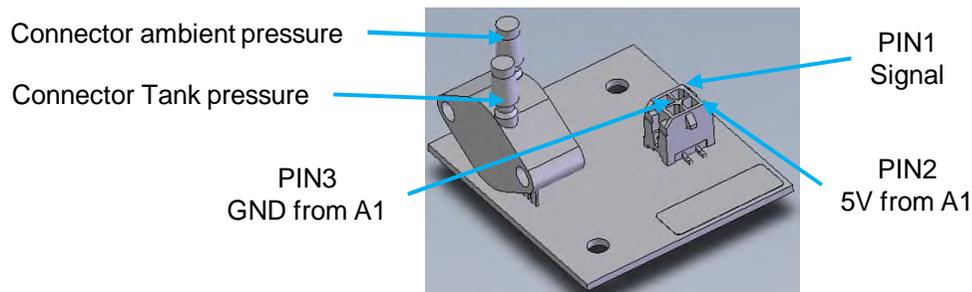
PIN2
5V from A1

If there is no connection (hose) to the tank and the environment, a voltage of 5.00V must be applied between PIN2 and PIN3. With a functioning sensor, this results in a voltage between PIN1 and PIN3 of 0.16V to 0.63V.
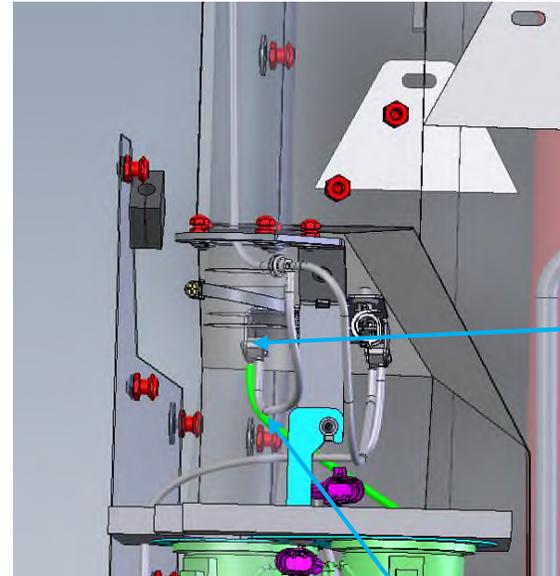
Flex wall tank level monitoring

Pressure hose ambient pressure

Pressure compensating pipe

Pressure sensor waste water B5

Horizontal leg

Pressure sensor solution B4

Pressure hose solution tank

Pressure hose waste water tank
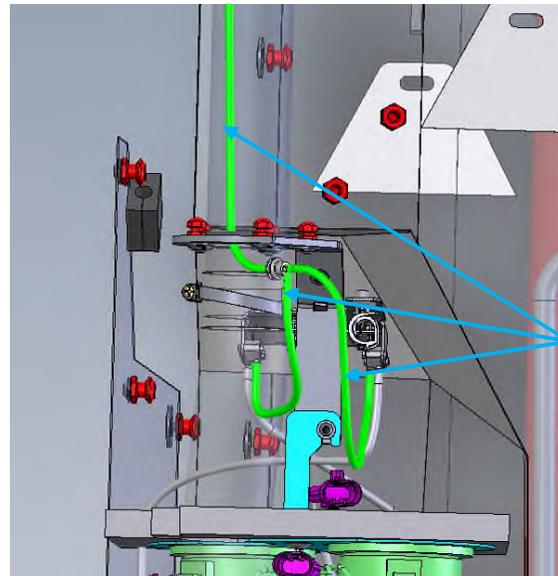
Flex wall tank level monitoring

Pressure
sensor solution
B4

Pressure sensor
waste water
B5

Pressure hose
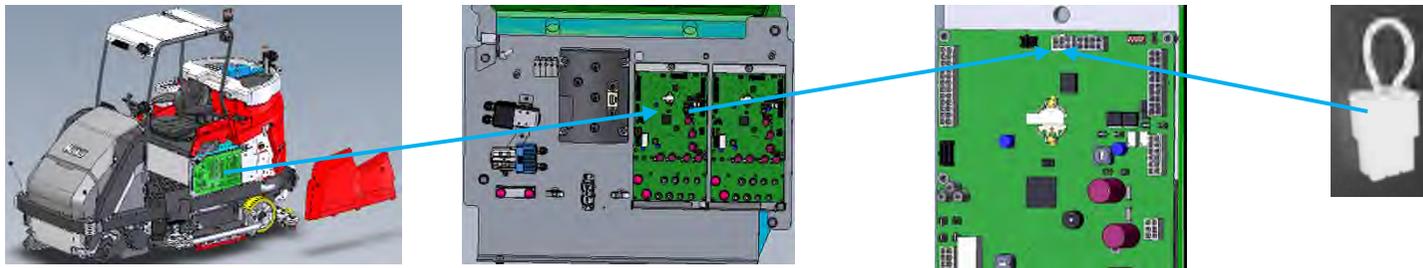solution tank

Pressure hose
waste water
tank

Pressure hoses
ambient pressure

Calibration pressure sensor

If one of the sensors is exchanged, a calibration must be carried out.
1) Empty solution and waste water tank completly.
2) Connect diagnostic connector 03006790 to connector X20, at board A1
3) Switch on the machine with the key switch
4) Carry out calibration in the display menu
5) Pull out the diagnostic connector again

1.)

4.)

 Calibration successful   Calibration unsuccessful