Presscon Horti B.V.
Veilingweg 25-27A
2675 BR Honselersdijk
+31 (0)174 64 82 92
info@presscon.nl
www.presscon.nl

# ELC system

## General Explanation

| | | |
|---|---|---|
| Type | : | ELC System |
| Date | : | 28-01-2021 |
| Version / Revision | : | Version 1.0 Revision00 |
| Status | : | Accepted |
| Compagny | : | PRESSCON |
| Location | : | Honselersdijk |

## ELC system

### Explanation
The ELC system has been developed to link two self-contained heating systems. With the ELC system it is possible to move heat from tank X to tank Y or from Y to X. (see tank X and Y on the drawing). ELC stands for equal level control and is a control function that is integrated into the Presscon expansion system. Tank x and y both have 1 system of which 1 performs the ELC function.

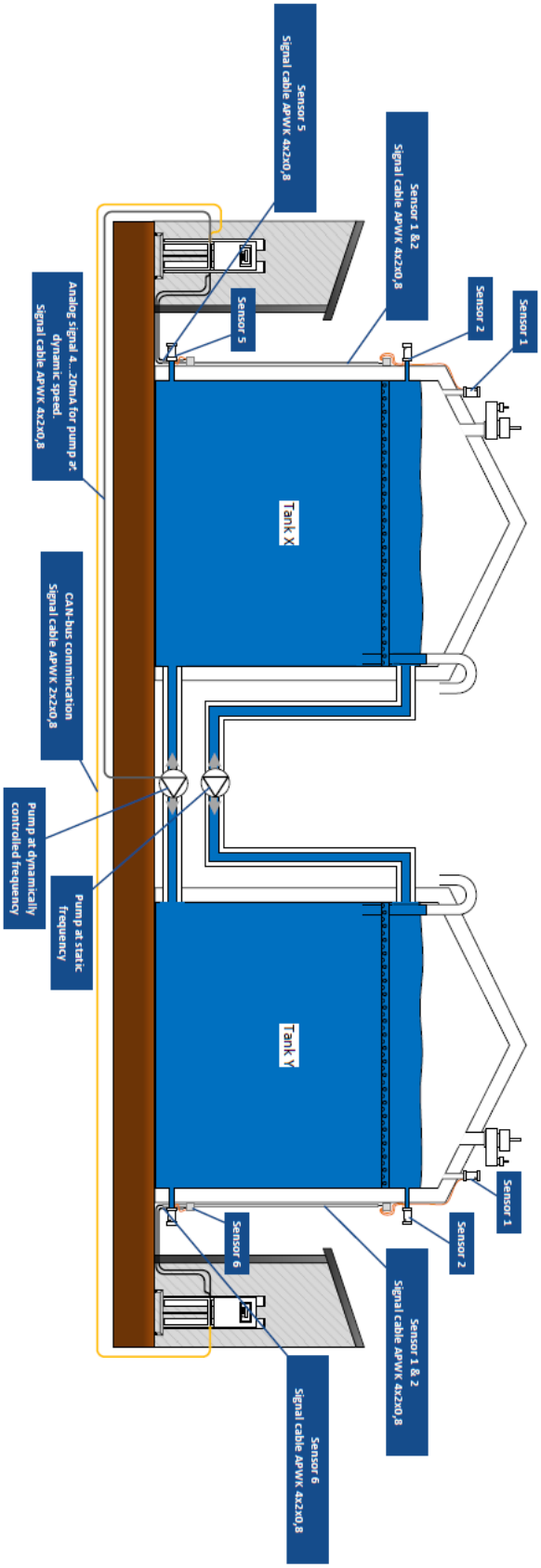
### Operation
The supply pump is controlled by, for example, a horticultural computer, valves or any pressure control mounted on the supply pump.
The supply pump must be at a fixed maximum value, for example 40 or 45Hz. As soon as the supply pump is active, the return pump must be started by means of a start contact on the frequency controller.
At that moment, the return pump will run at a speed controlled by the ELC system. Using a 4-20mA signal.
The return pump moves more water than the supply pump[1]. This is because the specific mass of the water decreases as the water warms. The return pump is therefore frequency controlled and can therefore run slower or faster than the supply pump. In this way, the mass of the water in each tank is controlled[2].
By means of valves, the system can also steer the direction of the water.

### Example
If the pressure of the water column in the control tank[3] 15 mbar is lower than in reference tank, the analogue output sends out 4 mA. Then the return pump runs slowly.

If the pressure of the water column in the control tank is 20 mbar higher than in the reference tank, the analogue output emits 20 mA. Then the return pump runs up to 50Hz.

The system regulates purely on pressure difference and not at water level. It is therefore possible that the water level in tank X is higher than in tank Y. The greater the temperature difference between tank X and Y, the greater the level difference.

[1] Based on two pumps with the same capacity and speeds
[2] This is not possible and the level deviates too much. You won't get the level under control..
[3] The control tank is the tank where the return pump pumps the water back into it.


Sensor 5
Signal cable APWK 4x2x0,8
Sensor 1 & 2
Signal cable APWK 4x2x0,8
Sensor 2
Sensor 1
Sensor 5
Analog signal 4...20mA for pump at dynamic speed
Signal cable APWK 4x2x0,8
Tank X
CAN-bus communication
Signal cable APWK 2x2x0,8
Pump at dynamically controlled frequency
Pump at static frequency
Tank Y
Sensor 1
Sensor 2
Sensor 6
Sensor 1 & 2
Signal cable APWK 4x2x0,8
Sensor 6
Signal cable APWK 4x2x0,8