HCC/S 2.x.x.1
Double Pump Mode

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Introduction

This document explains the “Double pump” function in HCC/S devices. It will also show you the possible and required settings options for the function in the ETS programming software.

Objectives of the document

- Cover the basics of double pump mode
- Explain the settings options
- Provide information to help you commission pumps using ETS and connect them to the electrical power source.

Content

Basics

In heating/cooling systems, a medium is pumped through pipes in order to heat/cool the corresponding heaters/coolers.

If the pumps used for this purpose fail, the whole system breaks down (heat/cold build-up at generator).

To ensure redundancy on the pumps, the HCC/S offers a double pump mode, where two pumps are installed in one system. If one fails, the other can take over.

To ensure that the load on the pumps is evenly distributed, and to prevent them from being damaged by long periods of inactivity, you can operate them alternately week-to-week. The pumps automatically switch over on the set day (in the ETS parameters).

![Fig. 1 Schematic diagram](image1)

![Fig. 2 Connection diagram](image2)
Note that in double pump mode, the software and hardware of the two channels (A&B) are bundled. This means that the temperature inputs and the channel B valve output have no effect. The binary inputs are still available.

When using two pumps, there is only one heating/cooling circuit and therefore also only one controller.

**ETS settings**

For the first step, go to the “General” parameters and enable double pump mode.

<table>
<thead>
<tr>
<th>General</th>
<th>Channel bundling for double pumps</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
</table>

Fig. 3 ETS general parameters

Select “Yes” to bundle channels A and B. You will now find the parameters for both pumps in channel A.

**To operate the pumps, you have two options**

1. Define a master and a slave pump. The pumps will automatically switch over in the event that one fails. In any other scenario, a group object is required in order to switch them.

<table>
<thead>
<tr>
<th>Channel A</th>
<th>Operating mode pump channel A</th>
<th>Main pump</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operating mode pump channel B</td>
<td>Backup pump</td>
</tr>
</tbody>
</table>

**OR**

<table>
<thead>
<tr>
<th>Channel A</th>
<th>Operating mode pump channel A</th>
<th>Backup pump</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operating mode pump channel B</td>
<td>Main pump</td>
</tr>
</tbody>
</table>

**Communication object for switching between the active pumps**

| Channel A - Pump | Master/slide changeover | 1 bit | C | W | - |

Fig. 4 ETS Pump parameters + switching object
2. Select the “Change weekly” function so that the pumps will switch roles every week and will therefore be subject to even loads. You can set any date and time you wish for the switch-over point. This also prevents either pump from seizing up from lack of use. If one pump fails, the other will automatically start.

**Important:**
With this option, the HCC/S needs to receive the current time on the corresponding group object at least once a day in order to ensure that the switchover happens at the right time. If you switch the pumps over manually using an object, this does not affect automatic switching on the set weekday.

![ETS pump parameters](image1)

![ETS communication objects](image2)

**References to other documents**
- FAQ Home and Building Automation
- Engineering Guide Database

**Summary**
The double pump function is a very useful feature that sets up redundancy in an HVAC system. This document takes you through the set-up process for this in simple steps, explaining the options available on the HCC/S.