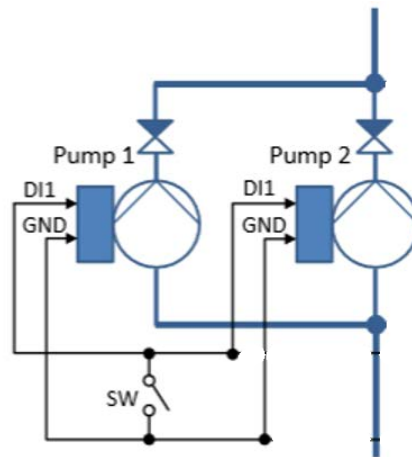


Electrical Connections for Multi Pump

Remove the jumper (terminals 2 & 6), because we will use the digital input 1 as an external start-stop.

Terminal	Function
2	Digital Input 1
6	Ground

The multi pump system is to be controlled by an external start/stop switch as shown below:



The Digital Input 1 (terminal #2) terminals are to be wired together.

The Ground (terminal #6) terminals are to be wired together. (Must be #6 on both pumps)

The Switch (SW) is to be placed across these two wires.

The external switch (SW) will start the complete system, no matter which pump has the master role.

The digital input 1 on both of the pumps in the system is to be set to "Ext stop". The factory setting of digital input 1 is "Ext stop".

The switch (SW) is to be closed for the pumps to run.

Connect the AYB terminals of pump number 1 to the AYB terminals of pump number 2.

Use a screened cable between the GENibus terminals. Connect the screen of the cable to the frame.



Multi Pump Function

The multi pump function enables the control of two pumps connected in parallel without the use of external controllers.

The pumps in a multi pump system communicate with each other via the wireless GENlair connection or via the wired GENI connection.

Three different multi pump functions are available:

- Alternating operation, time
- Alternating operation, energy
- Back-up operation

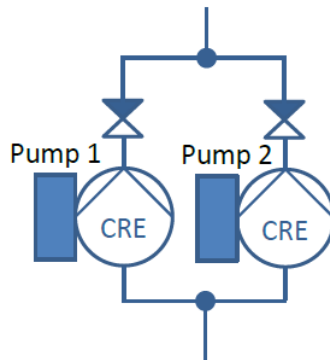
Alternating operation functions as a duty/standby operating mode with only one pump in operation at a time.

Alternating operation is possible with two pumps of the same size, type, and connected in parallel.

Any pump can function as the master pump and take over the master pump function if the master pump should fail. This is only possible if each pump is configured with a discharge pressure sensor.

Installation - Confirm

Each pump requires a non-return valve in series with the pump.



Ensure the pumps are correctly installed in the system with non-return valves.

Enable the Multi Pump Function

The main purpose of the multi pump function is to ensure an even amount of running hours and to ensure that the standby pump takes over if the running pump stops due to an alarm.

The operating pump can be altered based on time or load. The time based alternation takes place when the duty pump has been running for 24 hours. The load based alternation takes place when the duty pump has consumed 20kWh.

Prepare the second pump.

Electrical Connections

Run the start-up guide / Assisted pump setup

Set Units; Display brightness / Blank display

Prime the pump

Give the second pump the pump number “2” using the graphical control panel

Home menu

Settings menu

Communication OK

Pump number OK

OK (change to Pump 2) OK

Home menu

Give the first pump the pump number “1” using the graphical control panel

Home menu

Settings menu

Communication OK

Pump number OK

OK (change to Pump 1) OK

Home menu

Go to the “setup of the multi-pump system” using pump number 1.

Home menu

Assist

Setup of the multi-pump system OK

>

Wired GENIbus OK > (Select the communication channel)

>

Alternating operation, energy OK > (Select the multi-pump function)

OK (Search for other pumps)

OK > (Pump 2 winks)

> (See * below)

OK (Confirm the setting)

* The pump changeover will be made automatically when the difference in energy consumption of the two pump is equal to the daily energy consumption of one pump running at the rated performance

Below is the graphical control panel displays for the two pumps.

Pump 1



Pump 2

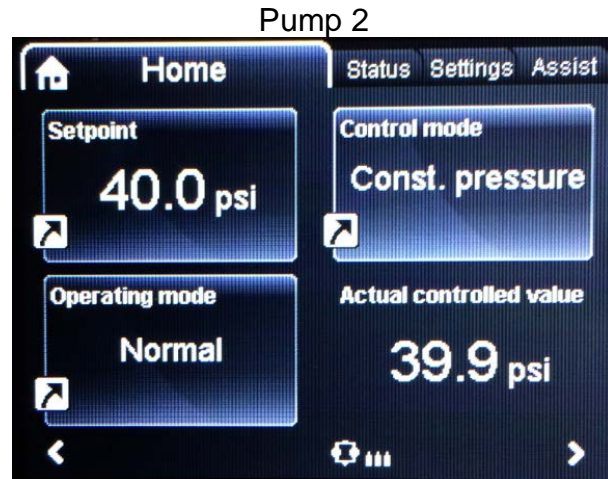
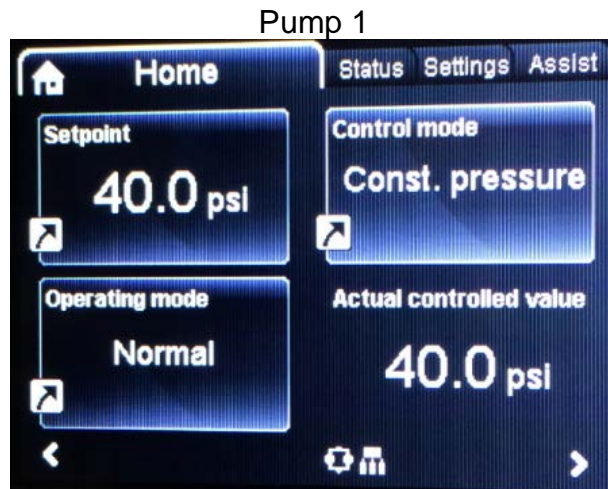


The symbol at the end of the white arrow indicates master pump.
The symbol at the end of the yellow arrow indicates slave pump.
The symbol at the end of the red arrows indicates the pumps are turned off by the start stop button.

Operate the pumps in the multi-pump mode by pressing the start stop button on pump one and then press the start stop button on pump 2.

Pump 1 operates, and pump 2 is in standby mode.

The graphical displays of pump 1 and pump 2 look as follows:



If alternating operation – time is chosen, the operating pump must run continually for 24 hours before the standby pump is switched on. If the pump is switched off in the 24 hour period, the 24 hour clock restarts.

Deactivate the multi-pump function.

Go to the setup of the multi-pump system using the master pump. (Pump 1)

Home menu

Assist

Setup of the multi-pump system OK

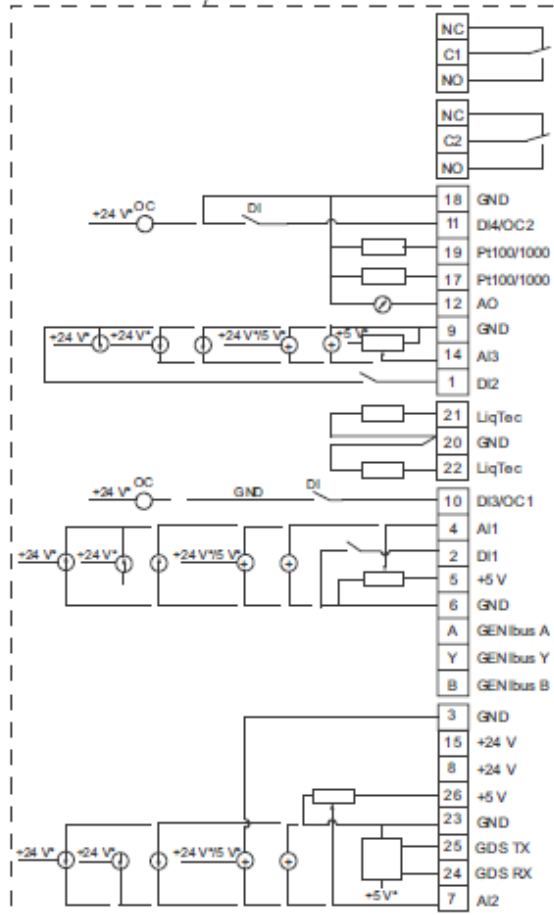
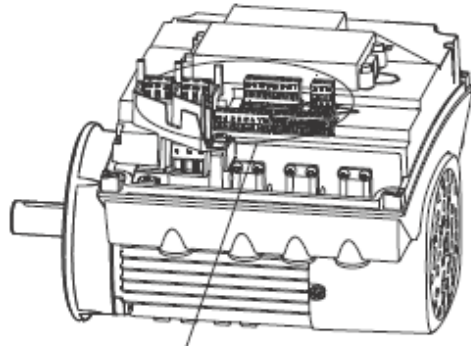
>

OK > (Deactivates)

OK

The graphical displays of pump 1 and pump 2 look as follows:





TM05 3509 3512

* If you use an external supply source, there must be a connection to GND.

Fig. 8 Connection terminals, CRE, CRIE, CRNE, CRKE, SPKE, MTRTE and CME pumps

Start/Stop: DI1 (2) Ground (6) (jumper from factory)
 Pressure sensor: AI1 (4) Blue 24V (8) Brown
 Pressure switch: DI3 (10) Ground (6)
 Float switch: DI4 (11) Ground (18)
 External analog signal input: AI2 (7) Ground (23)

Terminal	Type	Function
NC	Normally closed contact	Signal relay 1 (LIVE or PELV)
C1	Common	
NO	Normally open contact	
NC	Normally closed contact	Signal relay 2 (PELV only)
C2	Common	
NO	Normally open contact	
18	GND	Ground
11	DI4/OC2	Digital input/output, configurable. Open collector: Max. 24 V resistive or inductive.
19	Pt100/1000	Pt100/1000 sensor input
17	Pt100/1000	Pt100/1000 sensor input
12	AO	Analog output: 0-20 mA / 4-20 mA 0-10 V
9	GND	Ground
14	AI3	Analog input: 0-20 mA / 4-20 mA 0-10 V
1	DI2	Digital input, configurable
21	LiqTec sensor input 1	LiqTec sensor input (white conductor)
20	GND	Ground (brown and black conductors)
22	LiqTec sensor input 2	LiqTec sensor input (blue conductor)
10	DI3/OC1	Digital input/output, configurable. Open collector: Max. 24 V resistive or inductive.
4	AI1	Analog input: 0-20 mA / 4-20 mA 0.5 - 3.5 V / 0-5 V / 0-10 V
2	DI1	Digital input, configurable
5	+5 V	Supply to potentiometer and sensor
6	GND	Ground
A	GENibus, A	GENibus, A (+)
Y	GENibus, Y	GENibus, GND
B	GENibus, B	GENibus, B (-)
3	GND	Ground
15	+24 V	Supply
8	+24 V	Supply
26	+5 V	Supply to potentiometer and sensor
23	GND	Ground
25	GDS TX	Grundfos Digital Sensor output
24	GDS RX	Grundfos Digital Sensor input
7	AI2	Analog input: 0-20 mA / 4-20 mA 0.5 - 3.5 V / 0-5 V / 0-10 V