EN600 main pump and auxiliary pump water supply scheme

EN600 main pump and auxiliary pump water supply application

Working principle：1 set of main pump and 1 set of auxiliary pump, main pump long-time running. Auxiliary pump will be put into use and run on power frequency when water pressure is not enough, auxiliary pump will not work when water pressure is so high. Main pump is controlled by variable frequency, auxiliary pump only work on power frequency.

Pressure in pipe<setting pressure, main pump speed up, if pressure still not enough when frequency reach to 50Hz, Y1 will output signal after 15s which been set, then auxiliary pump will work on power frequency.

Pressure in pipe=setting pressure, maintain current working status, water supply will not change.

Pressure in pipe>setting pressure, main pump speed down, frequency of main pump will drop to setting frequency when water supply excessive, Y1 will not output signal, and auxiliary pump will stop.

Hardware requirement: 1 piece of pressure sensor, 1 set of frequency inverter, 1 piece of auxiliary relay, 1 piece of AC contactor, 1 piece of thermal relay

Running process: The pressure sensor is installed in the water supply pipe network, the pressure value is converted into 0~10V signal (or 4 to 20 mA) and transferred to the frequency inverter. Pump motor speed is regulated by PID operation. When the main pump can't supply sufficient water in 50HZ, terminal Y1 of frequency inverter will output signal to start the auxiliary pump. When water supply excessive, the main pump speed will drop, if the pump speed is as low as the setup lower limit value, Y1 will stop output and disconnect the auxiliary pump.

Wiring method：R, S, T connected with power line; U, V, W, connected with main pump motor line; X1-COM is connected with start and stop switch; terminal +10V, AI1, GND is connected with pressure gauge feedback line; terminal Y1 is connected with auxiliary relay KA0; AC contactor KM0 is connected with auxiliary pump motor in power frequency.

The wiring diagram is as follows:
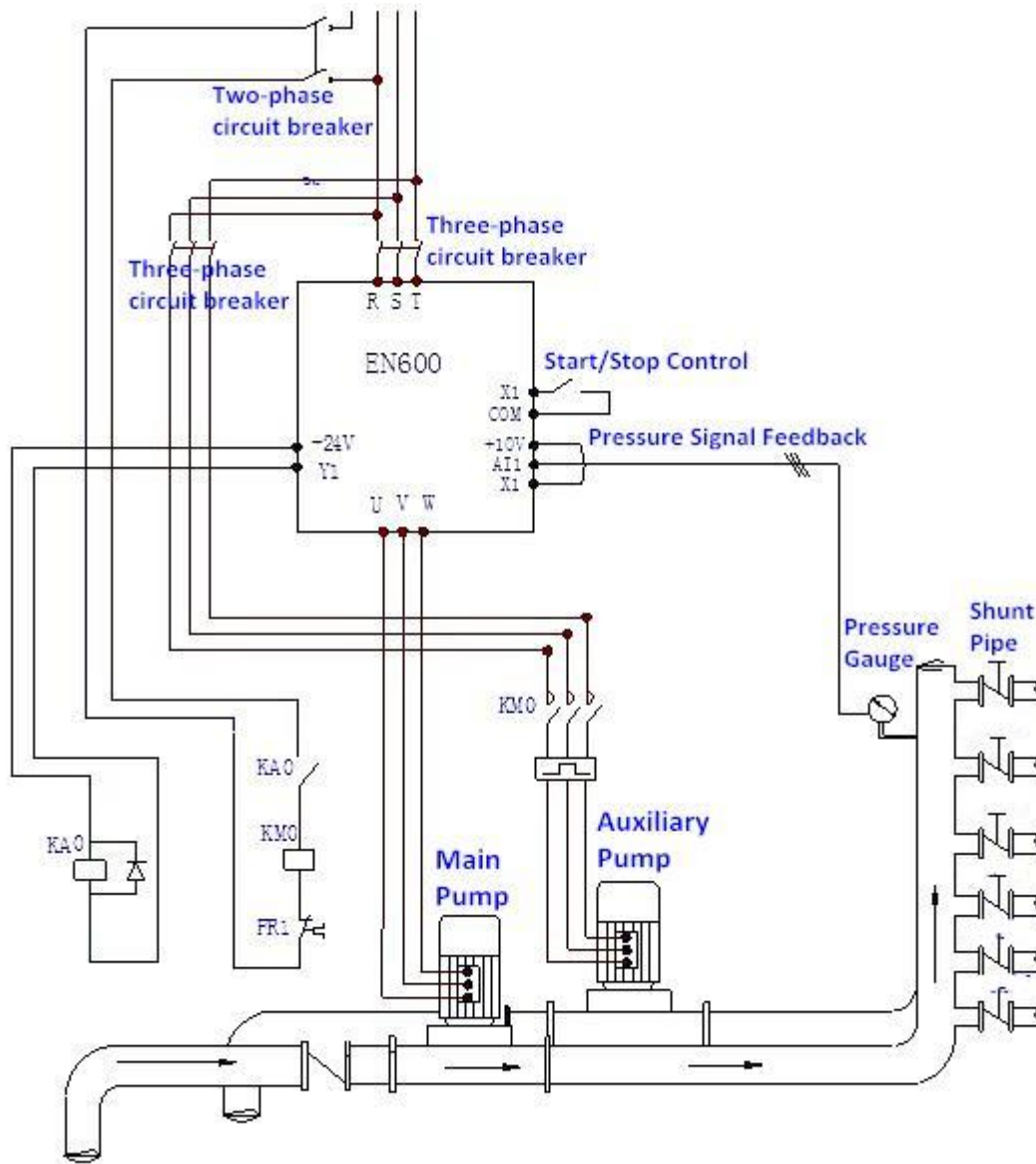
Parameter setting：

1、Basic parameter settings: acceleration and deceleration time, external terminal settings

Function code	Setting value	Explanation
F00.00	2	Senior list mode
F00.23	1	P type
F01.15	1	Terminal run command control
F01.17	300	Acceleration time
F01.18	300	Deceleration time

2、PID closed-loop parameter settings: F11 group PID function will automatically takes effect after setting F12.00=1

Function code	Setting value	Explanation
F12.00	1	One drive two mode
F12.01	0.5（According to actual needs）	Target pressure setting
F12.02	30（According to actual needs）	Sleep frequency < (F09.06-F09.07)
F12.03	0.4（According to actual needs）	Awake pressure threshold
F12.06	1（According to actual pressure gauge range）	Pressure gauge range
F09.00	13	Frequency level detect signal

		FDT1
F09.06	50	FDT1 level
F09.07	15	FDT1 lag
F09.25	15	Y1 output closed delay time

3、(Optional) Double display of setting pressure and actual pressure：double display keyboard EN-LED2, LCD keyboard EN-LCD1/EN-LCD2 could display the set pressure and actual pressure simultaneously.

Function code	Setting value	Explanation
F00.01	36	Setting pressure value display
F00.25	37	Feedback pressure value display

Matters needing attention：

1、Set terminal Y1 of the main pump frequency inverter to control the start and stop of the auxiliary pump；

2、When the frequency of frequency inverter rise to 50HZ, Y1 output after the set delay time. When frequency drop to 35HZ, Y1 stop output；

3、Y1 stop output frequency value need to be set greater than frequency inverter sleep frequency value, otherwise it will lead to two pumps stop at the same time.