

Application case of EcoDriveCN variable speed drive for multi-pump constant pressure water supply

Field application:

22KW EcoDriveCN E5-PA variable speed drive for multi-pump constant pressure water supply

2 pumps: each pump is 22KW

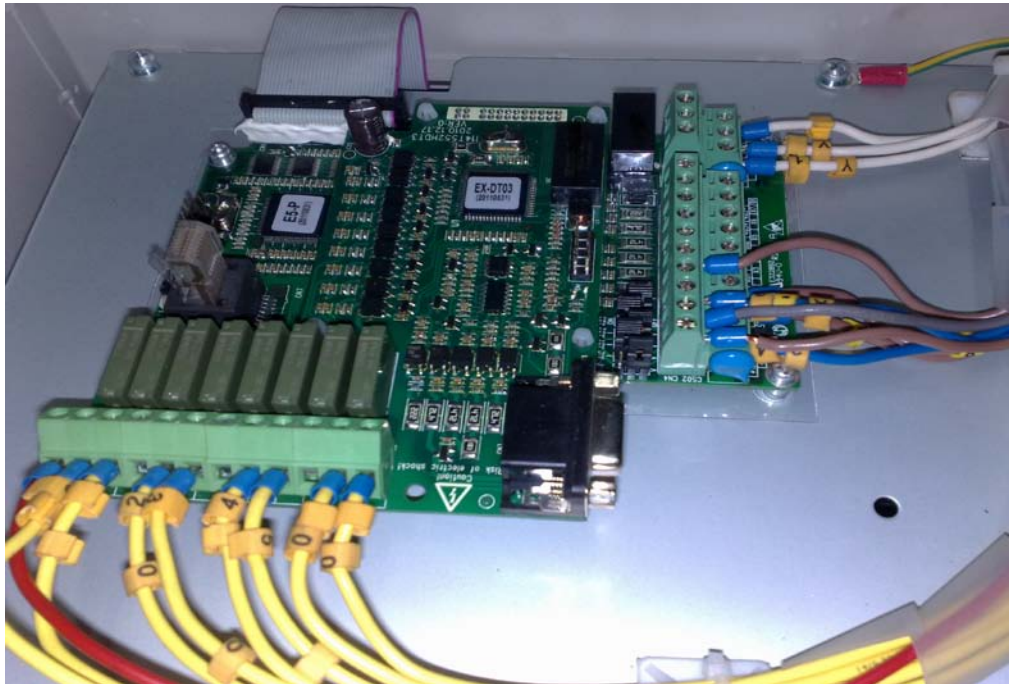
Pressure gauge: 0 ~ 3.0 Bar

Requirement of the application of multi-pump constant pressure water supply system:

1. One EcoDriveCN 22KW VSD drives (the expansion card DT03 is used) two pumps. The power of each pump is 22kw.
2. 2 pumps switch automatically each hour.
3. If one pump is damaged, switch to the other one manually.
4. External signal: failure, running, over-pressure, under-pressure, alarm output of VSD, etc.
5. Liquid level detection of intake sump is needed.
6. Ultra under-pressure detection is needed. Alarm when the pressure is 0.5 Bar or less.
7. Constant pressure for water supply system is 2.5 Bar.
8. The max pressure (over-pressure): 3.0 Bar.
9. The alarm pressure (under-pressure): 0.5 Bar

Remark: 1 bar = 0.1 MPa

Physical diagram of 22kw EcoDriveCN VSD (inverters, VFD, variable speed drives, variable frequency drives, AC drives):



Parameters setting of 22kw EcoDriveCN VSD (VFD) for constant pressure water supply:

Number	Function	Parameter	Description
1	P0.03	1	PID process closed loop control
2	P0.06	1	Terminal start-stop
3	P7.08	200	AO2 output offset %
4	P9.01 ~ P9.04		Motor parameters: according to the exact motor
Water supply mode selection			
4	H0.00	3	Expansion card: DT03
5	H0.01	1	Normal water supply mode
6	H0.02	2	2 pumps
Multi-function input/output terminals definition			
7	H0.03	02	X1 terminal of VSD running
8	H0.15	32	RA1/K1 terminal for pump #1 variable frequency control
9	H0.16	33	RA2/K2 terminal for pump #1 power frequency control
10	H0.17	34	RA3/K3 terminal for pump #2 variable frequency control
11	H0.18	35	K4 terminal for pump #2 power frequency control
12	H0.19	41	K5 terminal for over-pressure indicator
13	H0.20	42	K6 terminal for under-pressure indicator
14	H0.21	0	K7 terminal for VSD running indicator
15	H0.23	14	RA/RC terminal for VSD failure output

Professional manufacturer of vector control frequency inverter (variable speed drive, VSD, variable frequency drives, VFD, AC drive), servo system, motor soft starter...

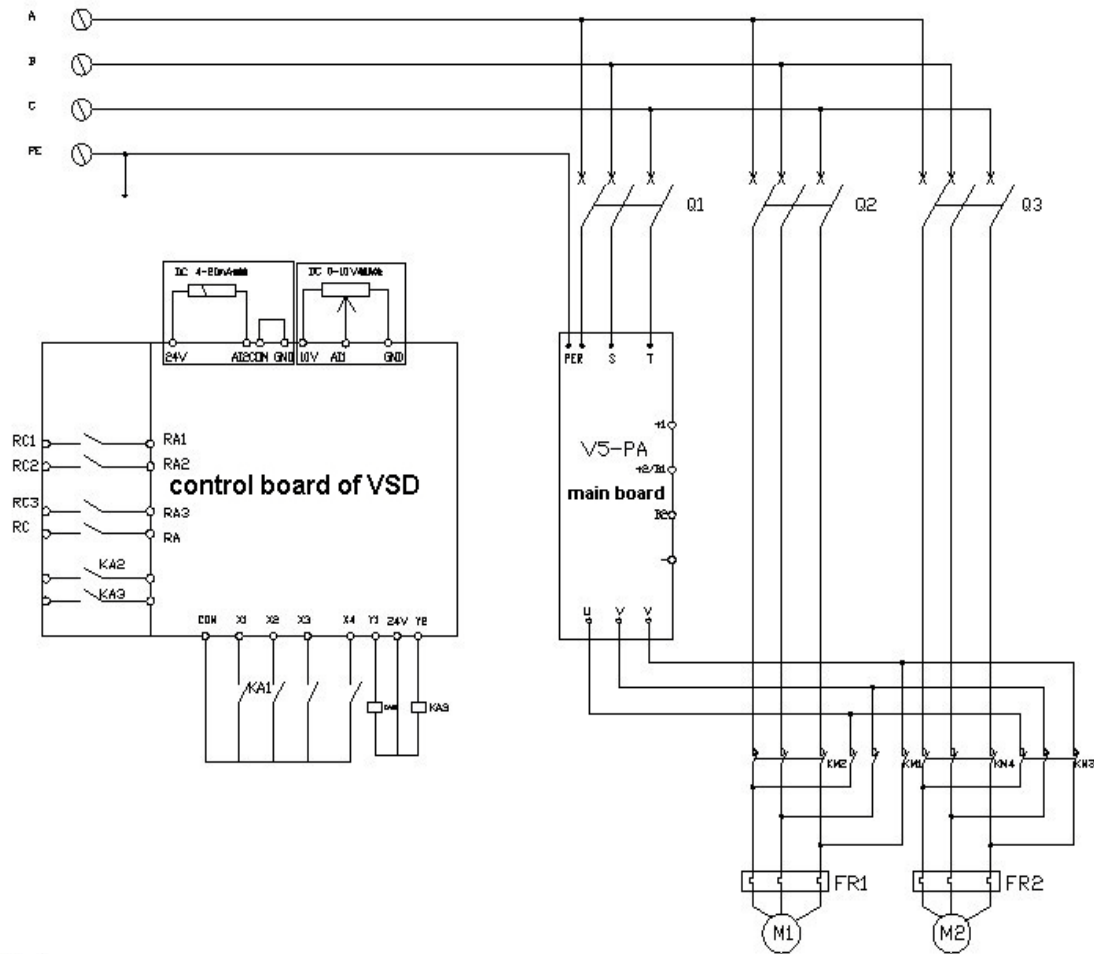


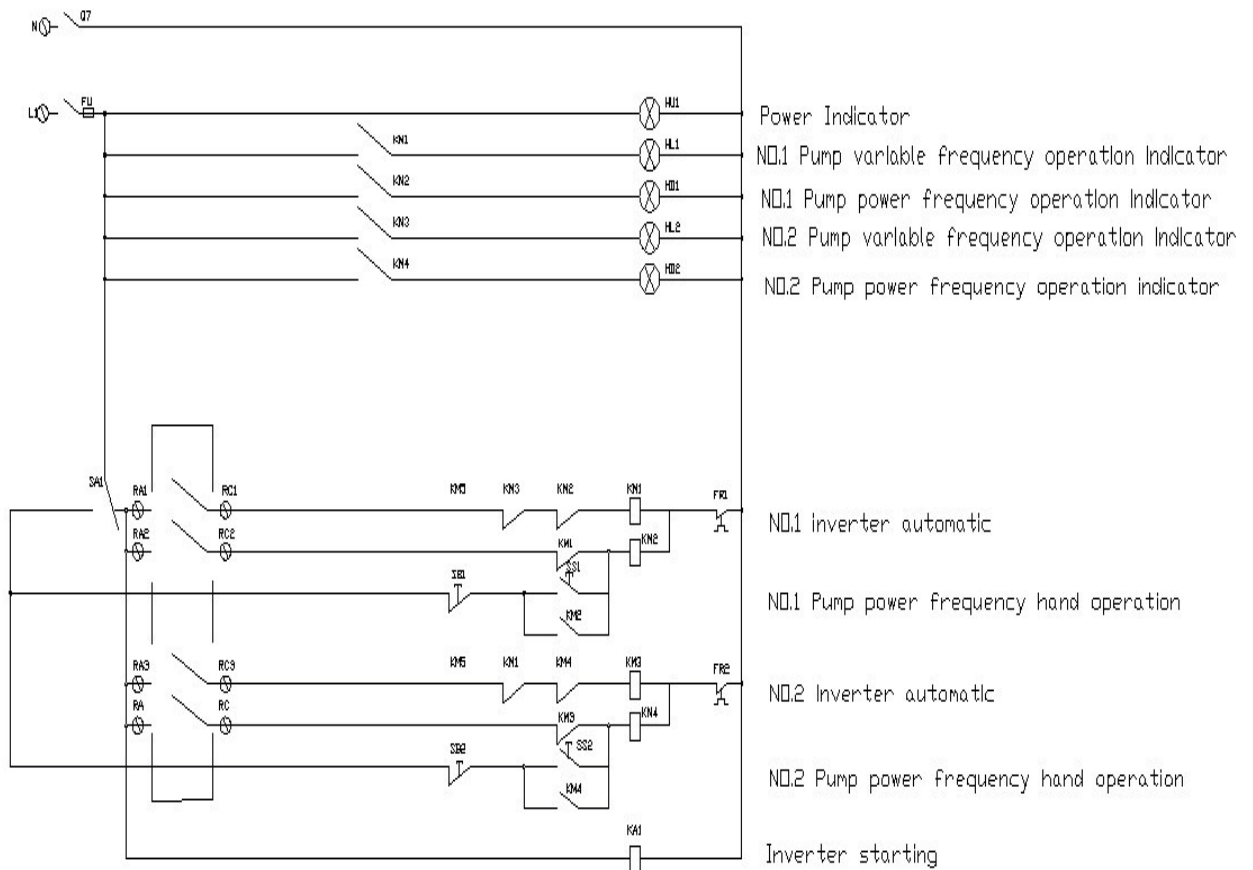
Closed loop PID control			
16	H0.28	25	Digital pressure setting (%), according to H0.35
17	H0.34	0.0	The pressure of min analog of feedback sensor (MPa)
18	H0.35	1.0	The pressure of max analog of feedback sensor (MPa)
19	H0.36	0.0	The min analog input of feedback sensor (V)
20	H0.37	10	The max analog input of feedback sensor (V)
21	H0.38 ~ H0.44		PID control parameters, adjust according the situation or choose the default setting
Basic parameters of water supply function			
22	H1.00	1	The first pump is #1
23	H1.08	60	Timing rotation time (minute): 24 hours
24	H1.11	30	Over-pressure control pressure setting, according to H0.35
25	H1.14	5	Under-pressure control pressure setting, according to H0.35

Remark: Please set the motor parameters, PID parameters, given and feedback tunnel according to the reality and real wiring.

And set the correct sensor range and others. If you need other functions, just set according to the manual.

Wiring diagram of 22kw **EcoDriveCN** VFD (VSD drive) to drive two pumps for constant pressure water supply:





Remark: [E5-P light duty/variable torque VSD](#), can drive only one pump.

[EcoDriveCN E5-PA](#) light duty/variable torque VSD for multi-pump constant pressure water supply, to drive 1 ~ 5 pumps.

Applications of [EcoDriveCN E5-H](#) variable speed drives:

conveyor belt, [sewage disposal \(water water treatment\) in municipal engineering](#), [water supply in civil engineering](#), water boosting for high rise buildings, [cooling water circulation pumps](#), fire fighting system, air compressor, [extruder machines](#), [plastic extrusion machinery](#), fan and pump, blower, [exhaust fan](#), [ventilator](#), sprinkler and irrigation system, plastic injection molding machine, [central air conditioning](#), sugar industry ([separation of sugar](#), [retrofitting of sugar crushing machine](#)), food and beverage industry, [mine exhaust fan](#), [induced draft \(ID\) fan](#), [dusting fan in iron and steel works](#), metals industry, mining industry, paper and forest products industry, petroleum and chemical industry, wood processing, [HVAC \(heating, ventilating and air conditioning\)](#), etc.

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Simple introduction of company:

V&T Technologies Co., Ltd. is manufacturing [variable speed drive \(frequency inverter\), servo drive, motor soft starter, inverter, and other power electronics.](#)

The variable speed drives (frequency inverters) are used for [motor control, motion control, energy saving and process control: plastic injection moulding machine, machine tools, air compressor, constant pressure water supply, civil engineering, conveyor belt, sewage disposal \(wastewater treatment\), extruder \(extrusion machine\), fan and pump, HVAC, food and beverage industry, oil, mining industry, sugar industry, industrial washing machine, etc.](#)

[As the leading and professional factory with optimum drives, we are competing with Siemens, ABB, Danfoss in the world.](#)

From 200VAC to 1140VAC, power rating is from 0.4KW to more than 3MW (1/2hp to more than 4000hp).