



● User Manual Safety Precautions

- ▲ Forbid any operation with power on, The power must be off for at least 10minutes before wiring and inspection, or it would cause electric shock.
- ▲ The main circuit terminal must be wired to the power cable tightly to avoid damage on the device due to loose connection.
- ▲ Do not leave any foreign object inside the drive, such as wire fragments, soldering tin, metal, etc, which would cause electric short circuit to burn out the drive.
- ▲ Do not install capacitor or surge current absorber (piezoresistor) at output side which can cause burn out of the drive.
- ▲ We are responsible for the repair and maintenance of our product according to the product quality regulation policy and not responsible for any problems of motor or the negative impact on users due to motor fault



● LCD Touch Screen



● Quick Adjustment Of Parameters Setting

1.Parameters setting for multi-pump control mode Connect S+ to S+ and S- to S- in parallel from one drive to another before setting parameters .	
(1)Master pump1 setting:	The local address is set 1, slave pump is set 2 in 2 pumps system. Slave pump is set 2 in 3 pumps system, Slave pump is set 3 in 4 pumps system, slave pump is set 4 in 5 pumps system. slave pump is set 5 in 6 pumps system.
(2)Two master pump setting:	Pump2 (standby master): start/stop sel.is set 2, freq.input is set 2, the local address is set 2. Pump3(slave):start/stop sel.is set 2, freq.input is set 2, the local address is set 3 Pump4(slave): start/stop sel.is set 2, freq.input is set 2, the local address is set 4 Pump5(slave): start/stop sel.is set 2, freq.input is set 2, the local address is set 5
(3)One master pump setting method:	pump2 must be connected to sensor when it is set as standby master . Pump2 (slave): start/stop sel.is set 2, freq.input is set 2, the local address is set 3. Pump3(slave):start/stop sel.is set 2, freq.input is set 2, the local address is set 4 Pump4(slave): start/stop sel.is set 2, freq.input is set 2, the local address is set 5 Pump5(slave): start/stop sel.is set 2, freq.input is set 2, the local address is set 6
Double Master pump alternation (pump1 and pump2 must be connected to sensor respectively) 1.The master pump is shifted from pump1 to pump2 under the following circumstances: a: Comm. signal is off between pump1 and pump2 b:pump1's sensor at fault protection status c:pump1 is damaged. 2.Pump2 works as master pump all the time until the above a.b.c. are solved and pump1 will act as master pump again after switching off and on. 3.The master pump shifted to pump2 only in the running when pump1 signal is off. If power is off and on again, pump2 must receive signal of pump1 to determine whether it works as master pump or not. Note: In the one master pump system, if pump1 had problems such as phase loss, overvoltage, undervoltage protection, the other slave pumps work normally.	
Terminal Name	Description
DI1, DI2, DI3	Digital input 24V GND Input voltage: 9~30V, input resistance: 10KΩ
V	Analog input, voltage : 0~10V, input resistance: 6.8KΩ
C, C1	Analog input, current: 4~20mA, input resistance: 500Ω
10V	10V supply, output current:0-100mA
GND	Zero reference level for 5V, 10V, 24V
MO	Open contact, common terminal: GND, Input:0-24V ,0-50mA
24V	Power supply
5V	Power supply
T/A, T/B, T/C T/A1, T/B1, T/C1	For 4-22KW Relay output: T/A, T/C Open, T/A, T/B Closed, T/A1, T/C1 Open, T/A1, T/B1 Closed, Contact capacity: AC250V/3A, DC30V/1A
T/A, T/B, T/C	For 1,5 - 3kW Relay output :T/A ,T/B open, T/B, T/C constant closed Contact capacity: AC250V/3A, DC30V/1A
S+, S-	For multi-pump control
485+, 485-	External signal terminal
A01	Analog Output, 0-10V ,GND

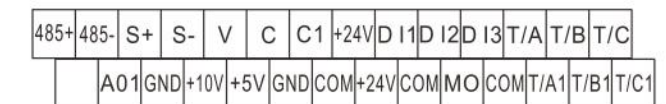
● Fault And Trouble Shooting

Fault Type	Possible Reasons	Solutions
O/P SCC	1.Output short circuit or connected to ground 2.Overload	1.Inspect wirings 2.Contact factory
Accel OC	1.Short acceleration time 2.High Torque boost or V/F curve is not applicable	1.Increase acceleration time 2.Lower torque boost Increase volt. Adjust V/F curve
Decel OC	Short deceleration time	ncrease
Run OC	Load sharply change	Reduce load fluctuation
SW OC	The same as E-01, E-02, E-03	The same as E-01, E-02, E-03
internal fault	Hardware problems	Contact factory
GND fault	1.Drive or motor output is connected to ground 2.Drive input connected to output	1.Inspect wiring 2.Inspect motor aging problems.
Accel OV	1.High input voltage 2.Frequently switch on and off	Inspect the power and voltage
Decel OV	1.Short decel. time 2.Abnormal input volt.	1.Increase decel. time 2.Inspect power voltage 3.Reinstall brake resistor
Run OV	1.Abnormal input volt. 2.Feedback energy	1.Inspect power 2.Reinstall brake resistor
Underload prot	1. Drive output virtual wiring 2. No load	1.Inspect wiring 2.Inspect load
Drive OL	1.Heavy load 2.Short acceleration time 3.High torch increase or V/F curve not applicable 4.Low Grid voltage	1.Reduce load or replace with higher power drive 2. Increase accel. time 3.Lower torque, Increase voltage, adjust V/F curve. 4.Inspect grid voltage
Motor OL	1.Too big load 2.Too short acceleration time 3.Protection value is too small 4.Torch increases too high or V/F curve not applicable	1.Reduce load or use big power drive 2.Increase acceleration time 3.Increase overload protection value 4.Lower torque, Increase voltage to adjust V/F curve.
Current detection fault	1.Damage of detecting device or circuit fault 2.Auxiliary power problems	Contact factory
low volt. run	1.Abnormal input voltage 2.Big load in power grid	1.Inspect power voltage 2.Detach electricity supply
Open terminal	External devices fault, input signal exist	Inspect the signal and related devices
Closed terminal	External devices fault, input signal exist	Inspect the signal and its related devices
Drive overheat	1.Dust 2.High enviro. temp. 3.Fan damaged	1.Clean up air duct 2.Lower carrier frequency 3.Displace fan
I/P phase loss	1.Input voltage phase loss 2.Input voltage is too low	1.Check input wires connection 2.Check grid phase loss
O/P phase loss	Bad connection of drive to motor	Inspect wiring
Storage faults	Hardware fault	Contact factory
Running time reached set time	Running time reaches set time	Contact factory
Sensor fault	1.PID signal is off 2.sensor is broken 3.Sensor setting problem	1.Check feedback channel 2.Check sensor has fault or not. 3.check if the feedback signal complies with setting
Comm. fault	Data sending or receiving is wrong	1.Check wiring 2.Contact manufacturer
Interfer fault	Improper operation caused by the surrounding EMI	Use absorption circuit to eliminate the surrounding interference

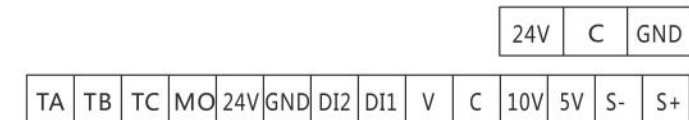
● Common Alarm Codes And Solutions

Alarm Description	Possible reasons	Solutions
Low flow prot.	1.low inlet flow. 2.Drive's power is bigger than that of pump. Water pressure below 0.5bar. 3.Low water press. set too high.	1.Increase inlet flow. 2.Low flow detect mode is set 2 3.lower the low press. protection value
H.P. prot.	1.Actual pressure exceeds 15bar 2.Sensor malfunction, the readout exceeds 15bar.	1.Actual pressure exceeds 15bar 2.Sensor malfunction, the readout exceeds 15bar.
L.P. prot.	1.Pressure below 0.5bar 2.Pressure below 0.5bar while pump rotates reversely. 3.Water consumption is bigger than outlet flow. 4.Low pressure alarm set too high	1.remove the air in the pump. 2.Adjust rotation direction. 3.Increase the inlet flow 4.Replace with bigger size pump or reduce water consumption. 5.Lower the alarm set value
low cur. prot.	1.Incoming water shortage. 2.Drive's power is bigger than that of pump. 3.Low water detecting current is set high	1.Increase incoming water 2.low flow detect mode set 2 3.Decrease low water protection current

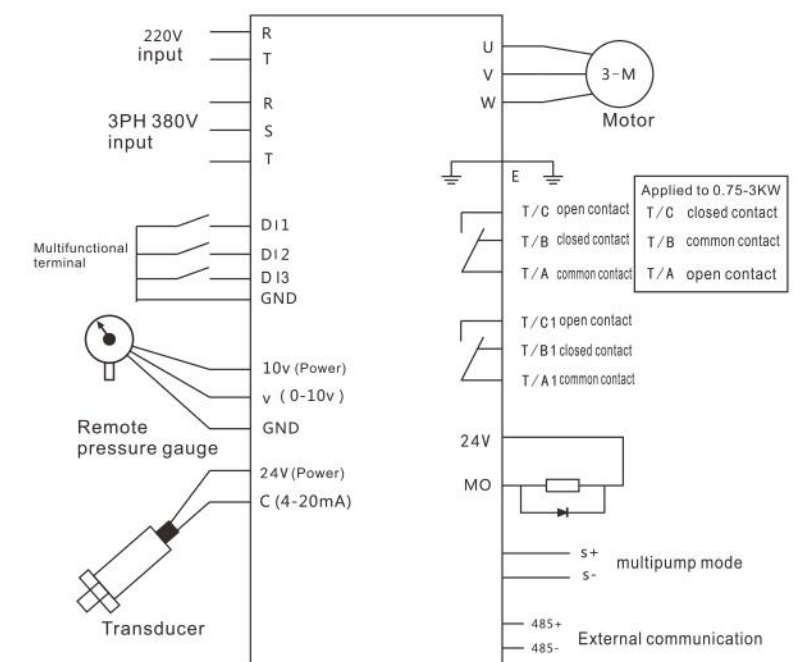
Applied to 4-22KW



Applied to 1,5 - 3kW



Wiring Diagram



Min :0.0 Max :60.0

7	8	9	+/-
4	5	6	Clr
1	2	3	ESC
.	0	Back	Enter

IMF Constant Pressure Control System
2016-12-30 12:18:18

Setting Pressure | Current Pressure | 50.00 Hz
3.0 bar | 3.0 bar | RUN

MENU RUN STOP/RESET

Status display

STOP
Sleep
ALARM
TRIP

Press. Group Pump Group
Comm. Group I/O Group
Monitoring Group Trip History
Timing Group System Group

Home

Item No	Function	Set Range	Default
1	Set Press.	0.0-60.0 Bar	3.0 Bar
2	Start Press.	0-U0-00 Bar	2.4 Bar
3	Sensor Type	0:(0-10V) 1:(4-20mA) 5:(4-20mA)	1
4	Sensor Range	0.0-60.0 Bar	10.0 Bar
5	Press. correct	0-2.000	1.000
6	Leakage factor	0: OFF 0.0-100	1.5
7	Sleep detect time	3-6000S	30S
8	L.P. detect mode	0: OFF 1: by current 2: by press. 3: by current and press. 4: terminal	2
9	Press. deviation	0-10.0	0.5
10	Sleep Option	0: OFF 1: ON	1
11	Sleep Freq.	0.00Hz-100Hz	30.00 Hz
12	Anti-freezing / rust	0: OFF 1: ON	1
13	Sensor off value	0.0-100.0%	5.0
14	Sensor off time	0.0-3000.0 S	10.0
15	L.P.detect value	0-200.0 Bar	0.5 Bar
16	L.P.detect freq.	00.00-99.99 Hz	45.00 Hz
17	L.P.detect delay	0.1-999.9 S	50.0 S
18	L.P. detect Cur.	Depends on model	A
19	H.P. alarm	0-200.0 Bar	15.0 Bar
20	H.P. detect time	0.1-200.0 S	3.0 S
21	L.P. alarm	0.0-60.0 Bar	0 Bar
22	L.P. detect time	0.1-6000.0 S	60.0 S
23	Antifreezing cycle	3-60000 Min	1500 Min
24	Antifreezing time	0-6000 S	10 S
25	Antifreezing freq.	00.00-99.99 Hz	30.00 Hz
26	Sleep Delay	0.1-200.0 S	1.0 S
27	Kp1	0.0-50.0	3.0
28	Integral Time 1	0.1-100.0 S	1.0 S
29	Kp2	0.0-50.0	3.0
30	Integral Time 2	0.1-100.0 S	2.0 S
31	PID change deviation	0-100 %	50%
32	Alarm reset times	0-1000	200
33	Alarm reset time	0-60000 Min	10 Min
34	Alarm reset Option	0: OFF 1: ON	111

Item No	Function	Set Range	Default
1	Com.adress	1,2 for master ; 3-5 for slave	1
2	Alternation time	0-60000 Min	480 Min
3	Slave Qty	0-4	0
4	Multi-pump control	0: Master/slave control 1: Simultaneous control	0
5	Pump adding delay	0.1-600.0 S	1.0 S
6	Pump reducing delay	0.1-600.0 S	0.1 S
7	Standby pump delay	0.1-600.0 S	5.0 S
8	Baud rate for Comm	5:9600 6:19200 7:38400	6
9	External address	0-247	1
10	External baud rate	5:9600 6:19200 7:38400	5

Monitoring Group
Actual press.
Running freq
Running current
Bus Voltage
Temp.
Running time
Power-on time
V voltage
C current
DI status
C1 voltage

Timing work program

First stage Timing OFF Status Stop
Second stage Timing OFF Status Stop
Third stage Timing OFF Status Stop
Fourth stage Timing OFF Status Stop
Fifth stage Timing OFF Status Stop

Menu Home Setting

Timing Value

First stage status not allowed

Start 00 H 00 M 00 S
Stop 00 H 00 M 00 S
Pressure 00.0 Bar

Menu Check Next Page 1

Timing Value

Second stage status not allowed

Start 00 H 00 M 00 S
Stop 00 H 00 M 00 S
Pressure 00.0 Bar

Menu Check Next Page 2

Timing Value

Third stage status not allowed

Start 00 H 00 M 00 S
Stop 00 H 00 M 00 S
Pressure 00.0 Bar

Menu Check Next Page 3

Timing Value

Fourth Stage not allowed

Start 00 H 00 M 00 S
Stop 00 H 00 M 00 S
Pressure 00.0 Bar

Menu Check Next Page 4

Item No	Function	Set Range	Default
1	Initialization	0-9999	0
2	Motor Rated Power	1-1000 KW	Decided by motor
3	Motor Rated Speed	1-10000 rpm	Decided by motor
4	Motor Rated Voltage	1-800 V	Decided by motor
5	Decided by motor	0.1-1000.0 A	Decided by motor
6	Rotation Direction	0: Forward 1: Reverse 2: not allowed	0
7	Stop Method	0: Stop by deceleration 1: Natural Stop	0
8	Low Voltage Protection	70.0-100.0 %	100.00%
9	Start and Stop command	0: Keypad 1: Terminal 2: Communication	2
10	Frequency given	0: U0-14 1: PID 2: Com. (slave Com. 2) 3: external control (0-10V) 4: external control (4-20mA) 5: C1 (4-20mA)	1
11	Acceleration Time	0.1-6000.0 S	4.0 S
12	Deceleration time	0.1-6000.0 S	4.0 S
13	Max. Frequency	5.00-200 Hz	50.00 Hz
14	Upper limit Frequency	5.00-200 Hz	50.00 Hz
15	Lower limit Frequency	5.00-200 Hz	0.0 Hz
16	Hand input frequency	0.00-200 Hz	50.00 Hz
17	Carrier Frequency	1-12	depends on model
18	Output Phase loss Protection	0: OFF 1: ON	1
19	Motor Overload Gain Protection	20.0-1000.0 %	100.0%
20	Torque Boost	0-20 %	depends on model
21	GND short circuit protection	0: OFF 1: ON	1
22	Overcurrent Stall Gain	0-100.0 S	20 S
23	Overcurrent stall current	100.0-200.0 %	160.0%
24	Overvoltage stall Voltage Prot.	110-145 %	130%
25	Auto-start option	0: not allowed 1: start when power is on	0
26	Auto-start delay when power is on	0-100.0 S	10.0 S
27	Fault Reset times	0-20	3
28	Fault Reset Time	0.1-100.0 S	10.0 S
29	Quick reducing current	0:OFF 1: ON	1
30	Input phase loss prot	0:OFF 1: ON	1

Item No	Function	Set Range	Default
1	Min.V	0.00-10.00	0.00
2	Min.V Freq.	0.0-100.0%	0.0%
3	Max.V	0.00-10.00	10.00
4	Max.V Freq	0.00-100.0 %	100.0%
5	V Filter Time	0.01-10.00 S	0.05
6	Min.C	0.00-20.00	4.00
7	Min.C Freq.	0.0-100.0%	0.0%
8	Max.C	0.00-20.00	20.00
9	Max.C Freq	0.0-100.0%	100.0%
10	C Filter Time	0.01-10.00 S	0.05s
11	Di1 Option	0: Disabled 1: Forward 2: Reverse 3: Fault input 4: Hasle stop 5: Reset 6: PID closed 7: Keypad command 8: Terminal command 9: Com. command 10: Fault Input is constantly closed 11: Water shortage	1
12	Di2 Option		0
13	Di3 Option		11
14	Mo Output	0: Disabled 1: Run Status 2: fault 3: FDT1 4: FDT2 5: Run at 0 freq. 6: Lower limit freq. run 7: Upper limit freq. run 8: Standby 9: Sleep 10: Temp. Arrival	1
15	Relay(TA, TB, TC)		2
16	Relay(TA1, TB1, TC1)		1
17	Di1 valid delay	0.0-3600.0 S	0.0 S
18	Di1 invalid delay	0.0-3600.0 S	0.0 S
19	Di2 valid delay	0.0-3600.0 S	0.0 S
20	Di2 invalid delay	0.0-3600.0 S	0.0 S
21	Di3 valid delay	0.0-3600.0 S	0.0 S
22	Di3 invalid delay	0.0-3600.0 S	0.0 S
23	MO output delay	0.0-3600.0 S	0.0 S
24	Relay Delay	0.0-3600.0 S	0.0 S
25	Relay1 Delay	0.0-3600.0 S	0.0 S

Trip History
Third time fault type (recent)
Temp.on fault
Freq.on fault
Current on fault
Bus vol.on fault
Fault time
Press.on fault
Second time fault type
First time fault type

System Group Setting

Set Passcode Set time
Screen Slaver Cancel

Date: Year Month Day
2020 7 14

Time: H M S
16 19 55

Week 0

Enter Cancel