

Dual-inverter Wire Drawing Machine CHV130 series Frequency inverter Operation manual



Notice:

Please use this manual together with “CHV Series Close Loop Vector Control Inverter Operation manual”.

Chapter 1 Parameter Setting

Function of CHV130 series frequency inverter special for dual-inverter wire drawing machine. The following parameters are special for CHV130 series; other parameter setting is same with that of CHV100 series.

Function Code	Name	Description	Setting range	Factory Setting	Modify
P0 Group: Basic Function					
P0.00	Wire drawing machine type	0: Dual-inverter wire drawing machine 1~5: Reserved	0~5	0	●
P0.01	Speed control mode	0: Sensorless vector control 1: Vector control With PG 2: V/F control	0~2	0	⊙
P0.02	Run command source	0: Keypad (LED off) 1: Terminal (LED flickering) 2: Communication (LED on)	0~2	0	⊙
P0.03	Frequency A command source	0: Keypad 1: AI1 2: AI2 3: AI3 4: AI4 5: HDI1 6: HDI2 7: PID 8: Communication	0~8	0	⊙
P0.04	Frequency B command source	1: AI1 2: AI2 3: AI3 4: AI4 5: HDI1 6: HDI2 7: PID 8: Communication	1~8	1	⊙
P5 Group: Input Terminals					
P5.01	Input selection	0~0x3FF Notice: 0: always-open input 1: always-close input	0~0x3FF	0x000	⊙
P5.02	S1 Terminal function	0: Invalid 1: Forward 2: Reverse 3: 3-wire control	0~55	1	⊙
P5.03	S2 Terminal function	4: Jog forward 5: Jog reverse 6: Coast to stop	0~55	4	⊙
P5.04	S3 Terminal function	7: Reset fault 8: Pause running	0~55	7	⊙

Function Code	Name	Description	Setting range	Factory Setting	Modify
P5.05	S4 Terminal function	9: External fault input 10: Reserved	0~55	0	⊙
P5.06	S5 Terminal function	11: Reserved 12: Reserved 13: Switch between A and B	0~55	0	⊙
P5.07	HDI1 terminal function	14: Switch between A and A+B	0~55	0	⊙
P5.08	HDI2 terminal function	15: Switch between B and A+B 16: Reserved	0~55	0	⊙
P5.09	S6 Terminal function	17: Reserved 18: Reserved 19: Reserved	0~55	0	⊙
P5.10	S7 Terminal function	20: Reserved 21: ACC/DEC time selection 1 22: ACC/DEC time selection 2 23: Reserved 24: Reserved	0~55	0	⊙
P5.11	S8 Terminal function	25: Pause PID 26: Pause traverse operation 27: Reset traverse operation 28: Reset counter 29: Reset length 30: ACC/DEC ramp hold 31: Disable torque control 32: Winding diameter reset 33: Broken-line fault input 34: Reserved 35: Original winding diameter selection 36~55: Reversed	0~55	0	⊙
P6 Group: Output Terminals					
P6.01	Y1 output selection	0: NO output	0~40	1	○
P6.02	Y2 output selection	1: Run forward 2: Run reverse 3: Fault output	0~40	0	○
P6.03	HDO ON-OFF output selection	4: Motor overload 5: Inverter overload 6: FDT reached	0~40	0	○
P6.04	Relay 1 output selection	7: Frequency reached 8: Zero speed running	0~40	3	○
P6.05	Relay 2 output selection	9: Preset count value reached	0~40	0	○

Function Code	Name	Description	Setting range	Factory Setting	Modify
P6.06	Relay 3 output selection	10: Specified count value reached 11: Length reached 12: Reserved 13: Running time reached 14: Upper frequency limit reached 15: Lower frequency limit reached 16: Ready 17: Reserved 18: Reserved 19: Motor running 20: Stop pulse output 21: Brake 22: Line-broken warning 23~40: Reserved	0~40	0	○
P7 Group: Display Interface					
P7.01	Parameter copy	0: Invalid 1: Upload parameters to LCD 2: Download parameters from LCD	0~2	0	◎
P7.02	QUICK/JOG function selection	0: Quick debugging mode 1: FDW/REV switching 2: Jog 3: Reserved	0~3	0	◎
P7.03	STOP/RST function selection	0: Valid when keypad control (P0.01=0) 1: Valid when keypad or terminal control (P0.01=0 or 1) 2: Valid when keypad or communication control (P0.01=0 or 2) 3: Always valid	0~3	0	○
P7.04	Keypad display selection	0: Preferential to external keypad 1: Both display, only external key valid. 2: Both display, only local key valid. 3: Both display and key valid.	0~3	0	○

Function Code	Name	Description	Setting range	Factory Setting	Modify
P7.05	Running status display selection 1	0~0xFFFF <u>BIT0: Running frequency</u> <u>BIT1: Reference frequency</u> <u>BIT2: DC bus voltage</u> <u>BIT3: Output voltage</u> <u>BIT4: Output current</u> <u>BIT5: Rotation speed</u> <u>BIT6: Output power</u> <u>BIT7: Output torque</u> <u>BIT8: PID preset</u> <u>BIT9: PID feedback</u> <u>BIT10: Input terminal status</u> <u>BIT11: Output terminal status</u> <u>BIT12: AI1</u> <u>BIT13: AI2</u> <u>BIT14: AI3</u> <u>BIT15: AI4</u>	0~0xFFFF	0x339F	○
P7.06	Running status display selection 2	BIT0: HDI1 BIT1: HDI2 <u>BIT2: Setting length</u> <u>BIT3: Actual length</u> <u>BIT4: Actual counter value</u> <u>BIT5: Running line speed</u> <u>BIT6: Actual winding diameter value</u> BIT7~BIT15: Reserved	0~0xFFFF	0x006C	○
P7.07	Stop status display selection	1~0xFFFF <u>BIT0: Reference frequency</u> <u>BIT1: DC bus voltage</u> <u>BIT2: Input terminal status</u> <u>BIT3: Output terminal status</u> <u>BIT4: PID preset</u> <u>BIT5: PID feedback</u> <u>BIT6: AI1</u> <u>BIT7: AI2</u> <u>BIT8: AI3</u> <u>BIT9: AI4</u> <u>BIT10: HDI1</u> <u>BIT11: HDI2</u> <u>BIT12: Setting length</u> <u>BIT13: Actual length</u> BIT14: Reserved BIT15: Reserved	1~0xFFFF	0x30FF	○
P8 Group: Enhanced Function					
P8.19	Preset length	1~650.00Km	1~650.00	100.00Km	○
P8.20	Actual length	0~650.00Km	0~650.00	0.00Km	○

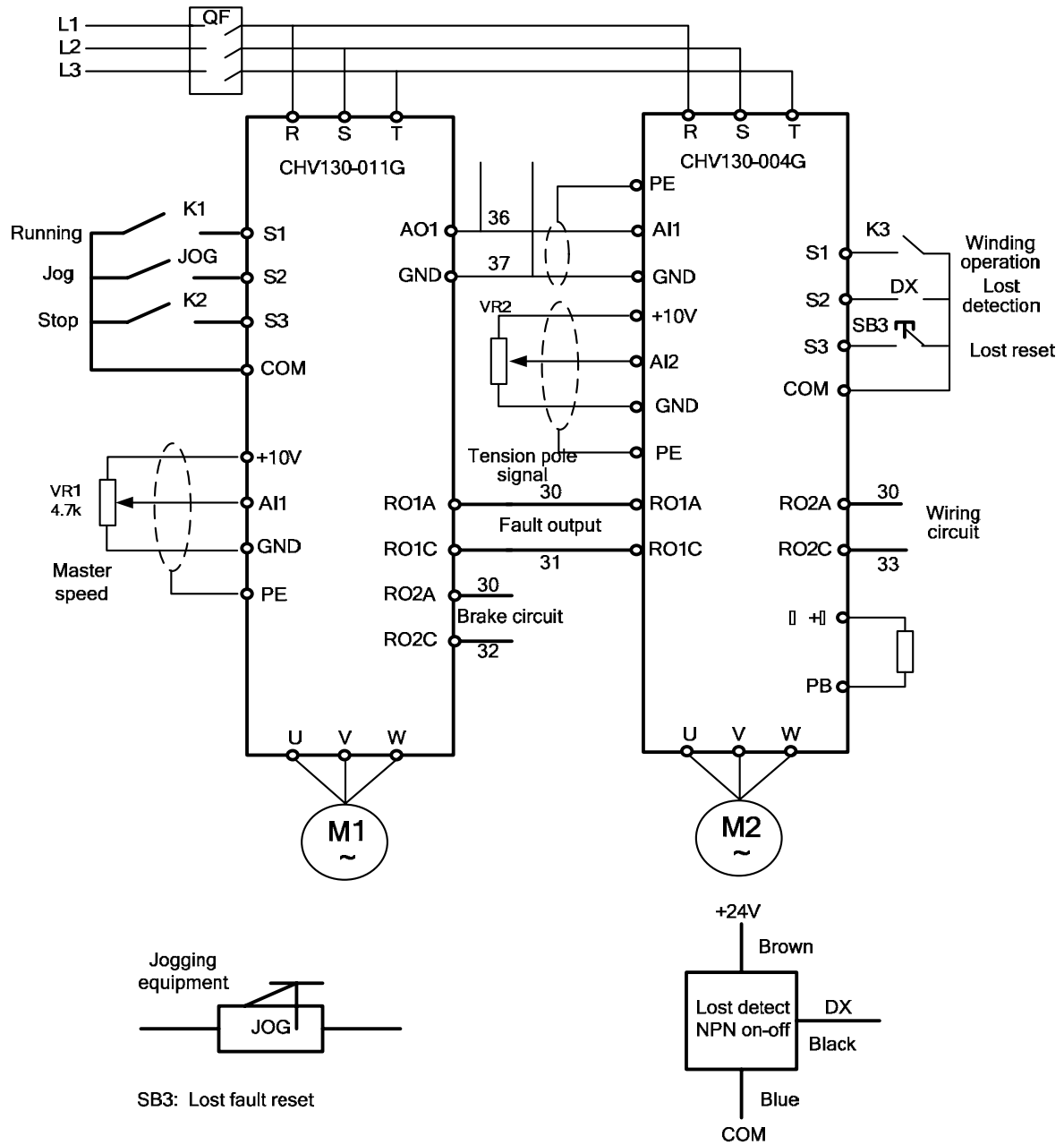
Function Code	Name	Description	Setting range	Factory Setting	Modify
P8.21	Number of pulse per 10 m	0.1~6500.0	0.1~6500.0	100.0	○
P8.22	Preset count value	1~65535	1~65535	1000	○
P8.23	Specified count value	1~65535	1~65535	1000	○
P9 Group: PID control					
P9.00	PID preset source selection	0: keypad (P9.01) 1: AI1 2: AI2 3: AI3 4: AI4 5: HDI1 6: HDI2 7: Communication 8: Reserved	0~8	0	○
P9.01	Keypad PID preset	0.0%~100.0%	0.0~100.0	0.0%	○
P9.02	PID feedback source selection	0: AI1 1: AI2 2: AI3 3: AI4 4: AI1-AI2 5: AI3-AI4 6: HDI1 7: HDI2 8: HDI1-HDI2 9: Communication	0~9	0	○
P9.03	PID output characteristics	0: Positive 1: Negative	0~1	0	○
P9.04	Proportional gain (Kp1)	0.00~100.00	0.00~100.00	0.05	○
P9.05	Integral time (Ti1)	0.01~100.00s	0.01~100.00	0.30s	○
P9.06	Differential time (Td1)	0.00~10.00s	0.00~10.00	0.00s	○
P9.07	Proportional gain (Kp2)	0.00~100.00	0.00~100.00	0.30	○
P9.08	Integral time (Ti1)	0.01~100.00s	0.01~100.00	0.10s	○
P9.09	Differential time (Td1)	0.00~10.00s	0.00~10.00	0.00s	○
P9.10	PID parameter reference selection	0: PID parameter 1 1: According to linear speed 2: According to running frequency 3: According to winding diameter	0~3	0	○
P9.11	Sampling cycle (T)	0.01~100.00s	0.01~100.00	0.50s	○
P9.12	Bias limit	0.0~100.0%	0.0~100.0	0.0%	○

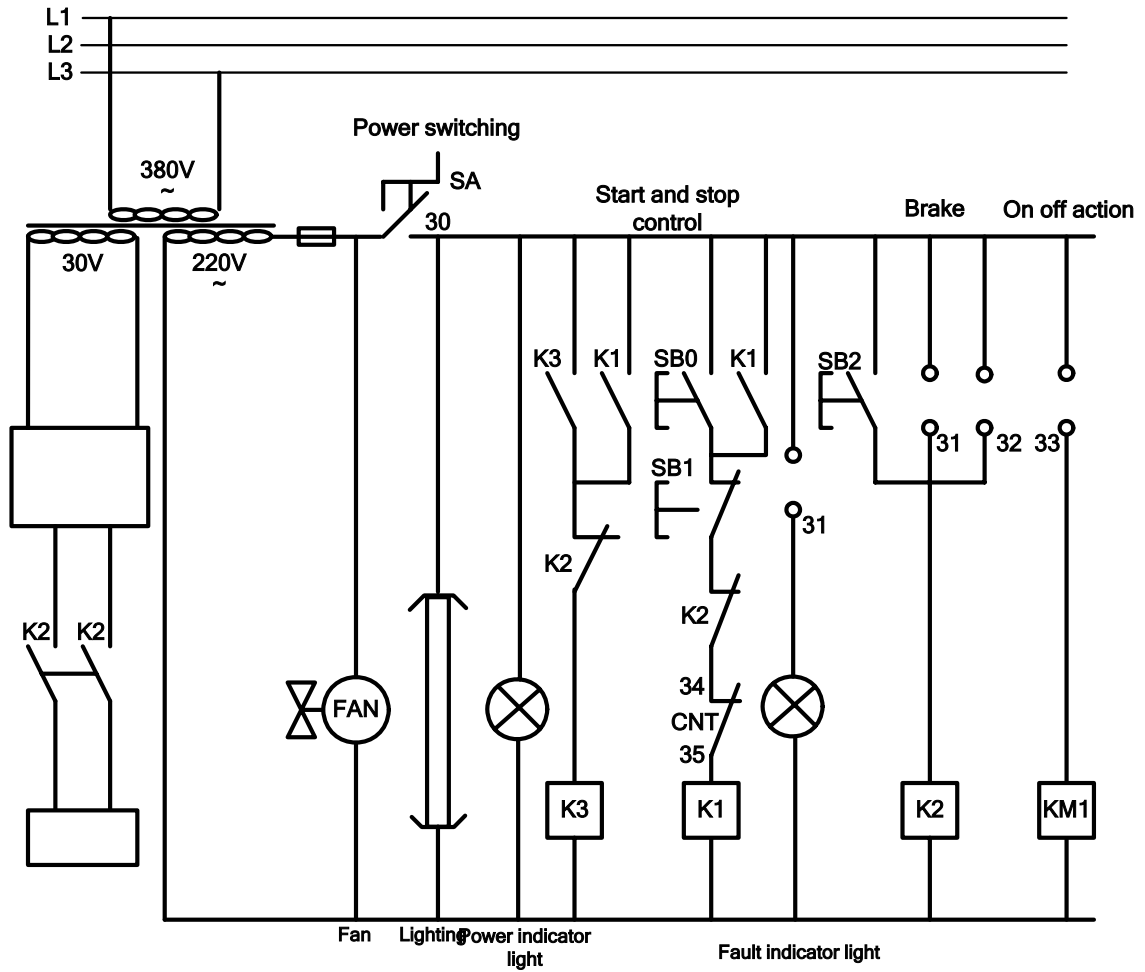
Function Code	Name	Description	Setting range	Factory Setting	Modify
P9.13	PID output filter time	0.00~10.00s	0.00~10.00	0.00	○
P9.14	PID threshold of upper limit	0.0~100.0%	0.0~100.0	20.0%	○
P9.15	gain	-50.0%~50.0%	-50.0%~50.0%	0.0%	○
PA Group: Special parameters					
PA.00	Lost detecting method	0: No detect 1: On-off detect 2: Feedback detect	0~2	1	○
PA.01	Minimum running frequency of detection	0.00~30.00HZ	0.00~30.00	1.00HZ	○
PA.02	Delay time of on-off detecting	0.0~100.0s	0.0~100.0	3.0s	○
PA.03	Feedback lost detecting value	0.0~100.0%	0.0~100.0	0.0%	○
PA.04	Feedback lost detecting time	0.0~100.0s	0.0~100.0	3.0s	○
PA.05	Output frequency of decelerating to stop	0.00~50.00HZ	0.00~50.00	1.00HZ	○
PA.06	Durative time of stop signal	0.1~50.0s	0.1~50.0	3.0s	○
PA.07	Parameter setting selection	0: Default 1: Standard master parameter 2: Standard winding parameter	0~2	0	○
PA.08	FDT detection output selection	0: Invalid when jog 1: Valid when jog	0~1	0	○
PA.09	Reserved				○
PA.10	Length reaching selection	0: No action, Master machine decelerate to stop 1: Action	0~1	0	○
PA.11	Time of length reaching selection	0.0~20.0s	0.0~20.0	1.0s	○
PA.12	Upper frequency limit selection	0: Keypad 1: AI1 2: AI2 3: AI3 4: AI4 5: HDI 1 6: HDI 2 7: communication	0~7	0	○
PA.13	Linear speed display mode selection	0: Refer to synchronized speed of master (for master display) 1: Refer to external input signal (for winding display)	0~1	0	○

Function Code	Name	Description	Setting range	Factory Setting	Modify
PA.14	Linear speed parameter	0.001~10.000	0.001~10.000	1.000	○
PA.15	Linear speed input source	0:No input 1: AI1 setting 2: AI2 setting 3: AI3 setting 4: AI4 setting 5: HDI1 setting 6: HDI2 setting 7: Communication	0~7	1	○
PA.16	Maximum speed	0.1~6000.0m/Min	0.1~6000.0	2000.0m/Min	○
PA.17	Minimum linear speed	0.1~P8.26	0.1~P8.26	0.0m/Min	○
PA.18	Transmission ratio	0.01~400.00	0.01~400.00	1.00	○
PA.19	External diameter of winding	1~5000mm	1~5000	1000mm	○
PA.20	Internal diameter 1 of winding	1~3000mm	1~3000	200mm	○
PA.21	Internal diameter 1 of winding	1~3000mm	1~3000	150mm	○
PA.22	Winding diameter filter time	0.0~200.0s	0.0~200.0	5.0s	○

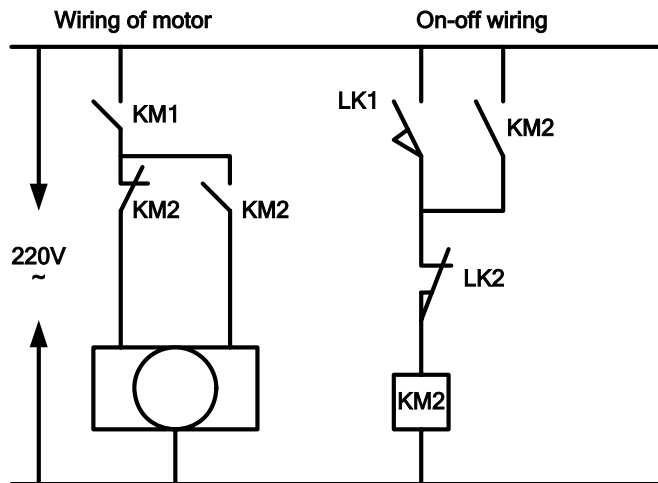
Chapter 2 Wiring diagram

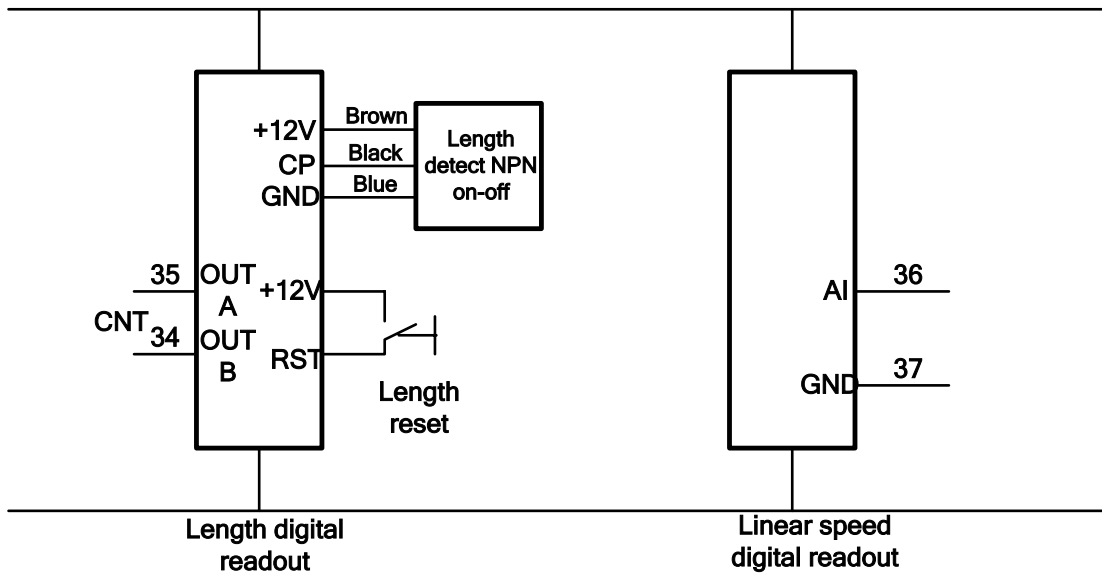
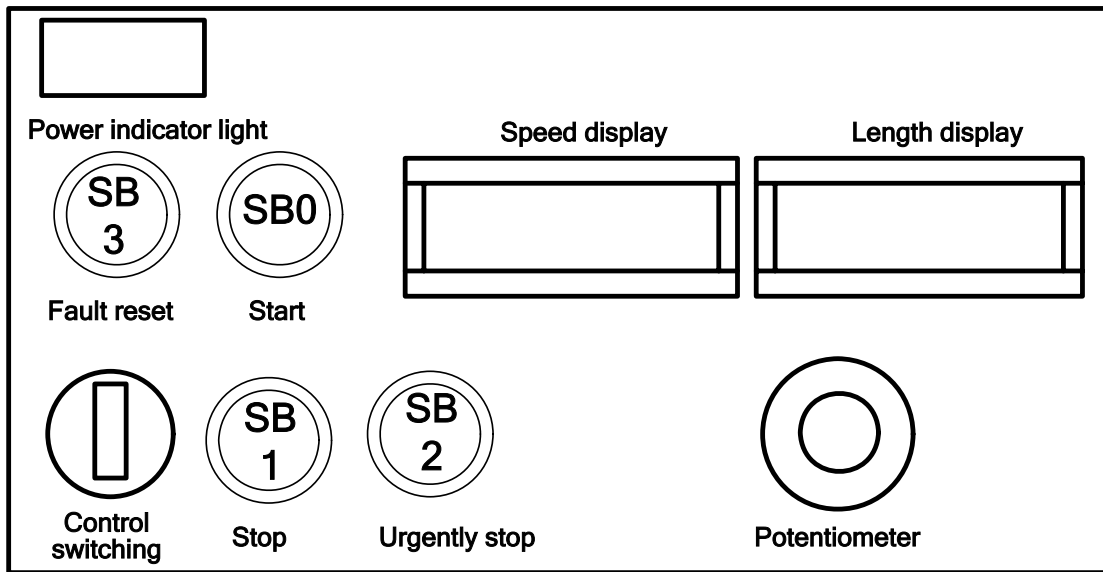
1. Control wiring diagram of inverter without digital readout



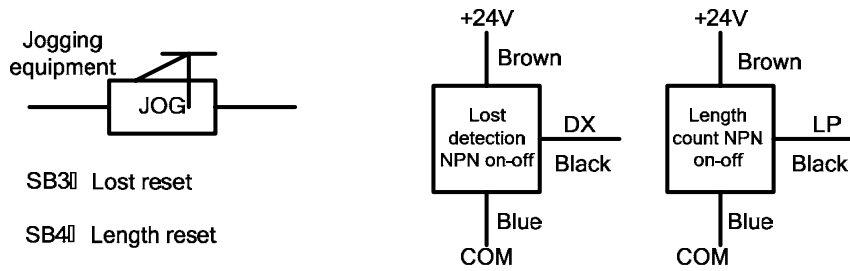
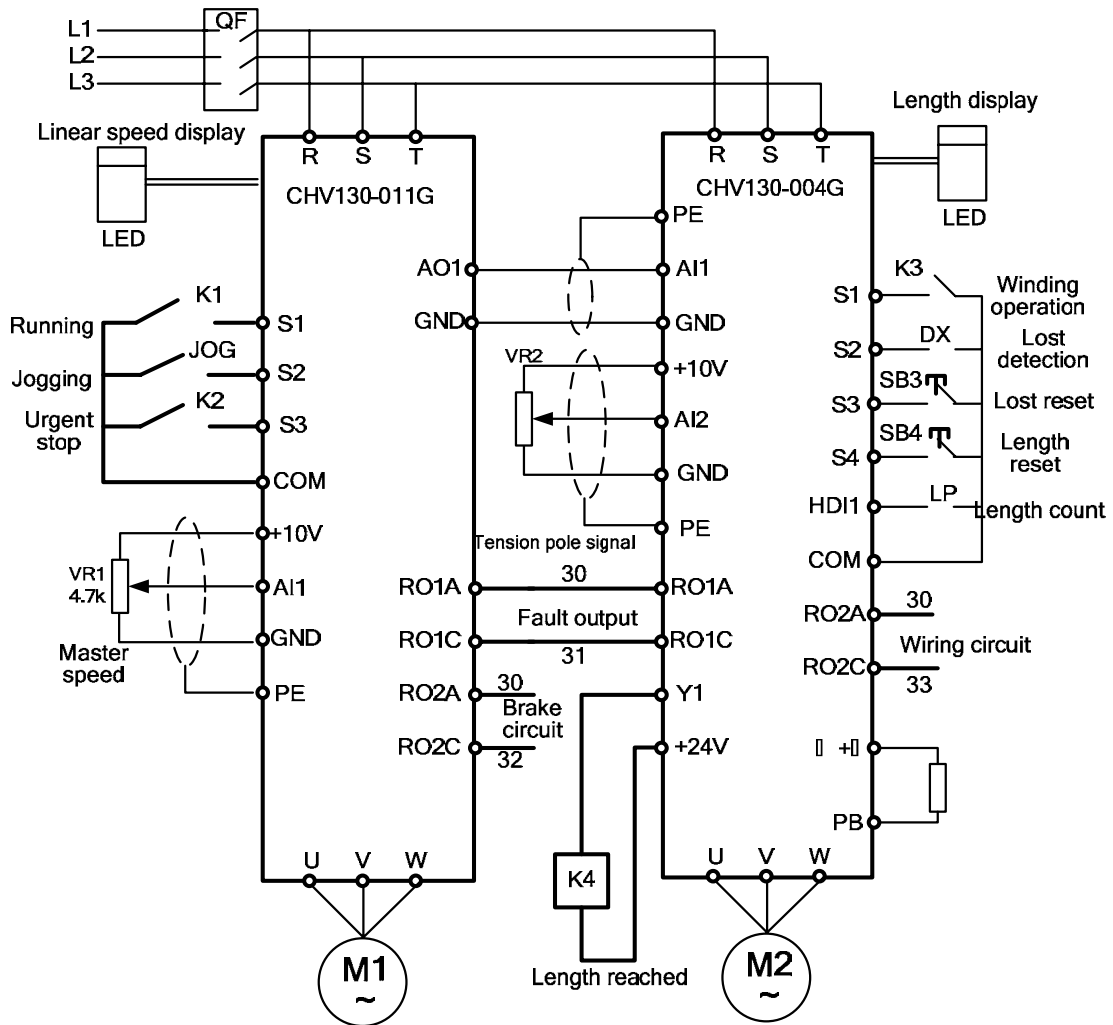


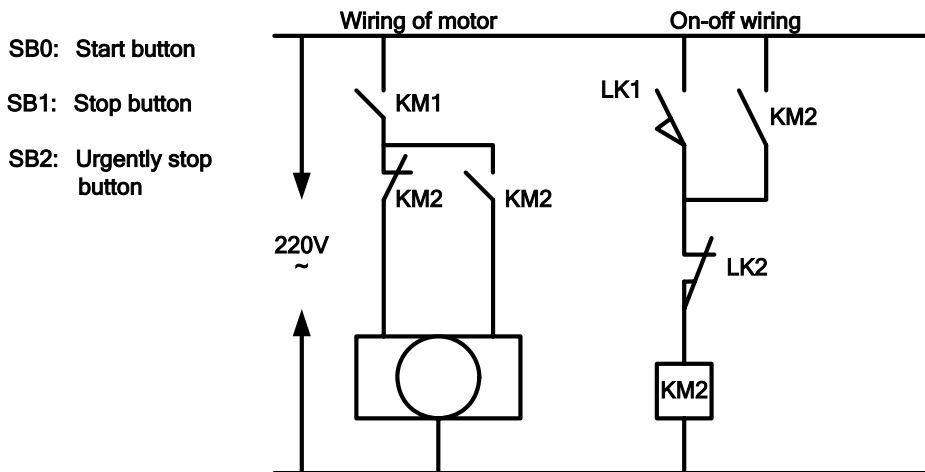
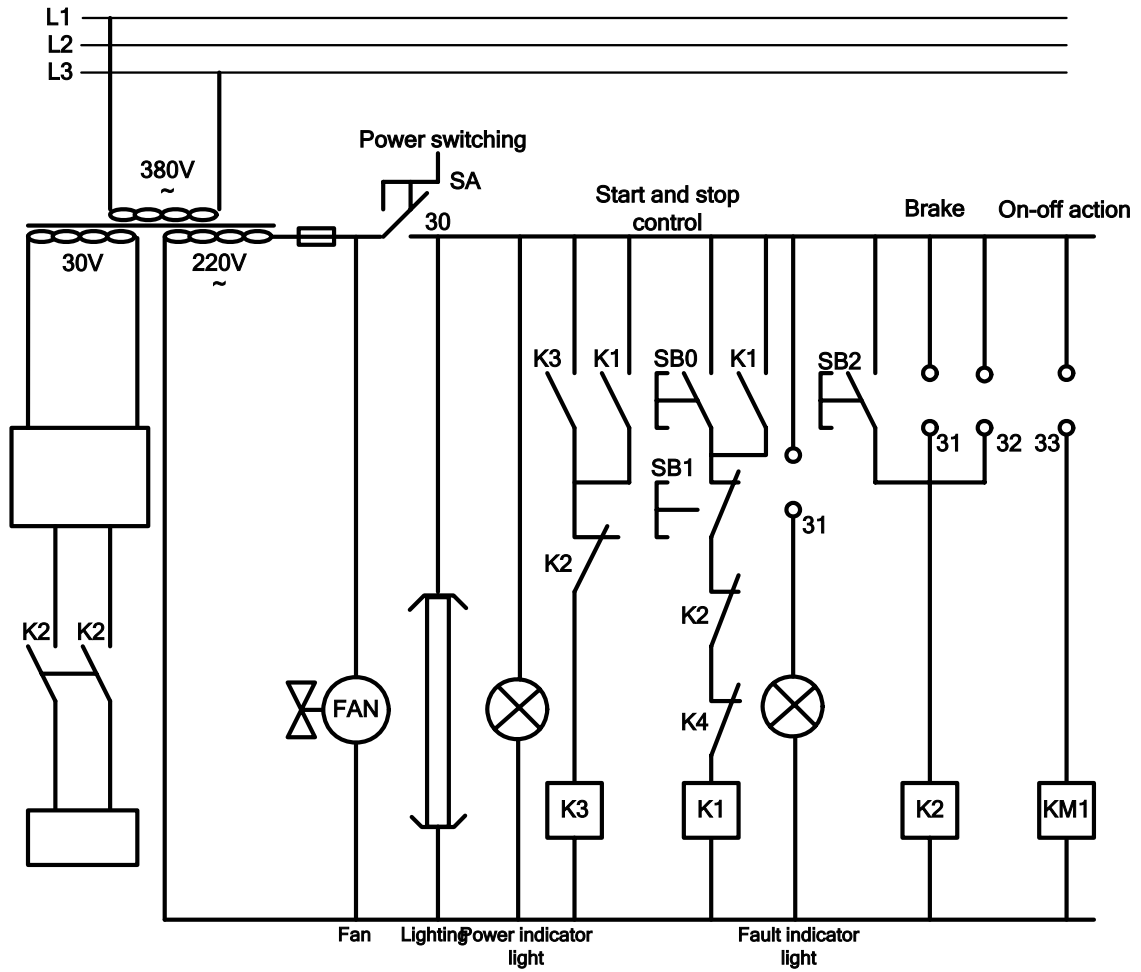
- SB0: Start button
- SB1: Stop button
- SB2: Urgently stop button

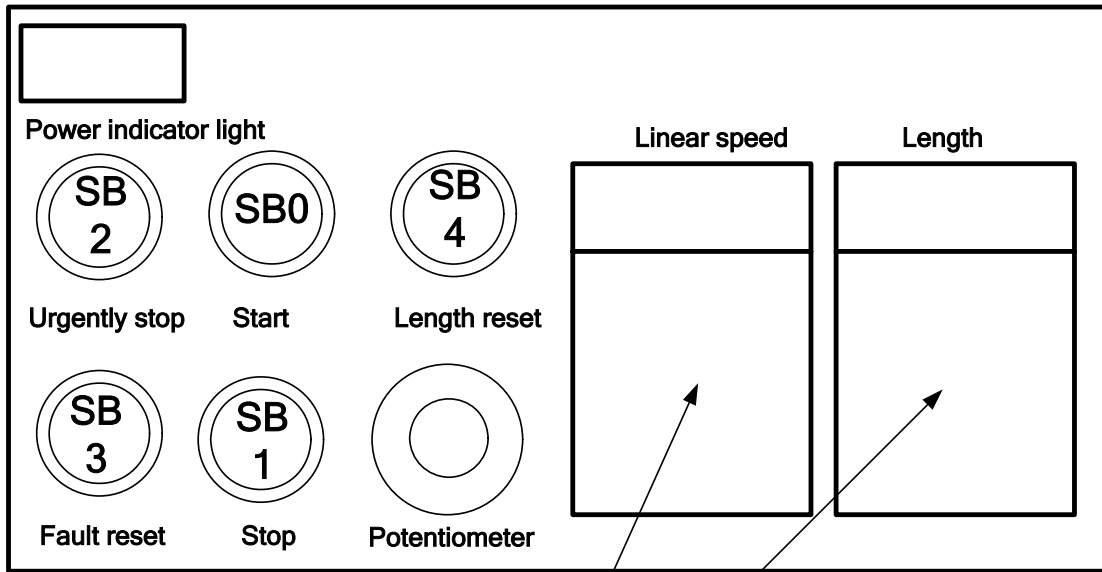




2. Control wiring diagram of inverter with digital readout







External keypad of inverter

Chapter 3

Reference parameters setting of CHV130 series frequency

inverter:

1. Parameters setting without digital readout (just for reference):

Master Motor Inverter parameter (CHV130-011G-4):

- (1) P0.01=0; Sensorless vector control
- (2) P0.02=1; Terminal (LED flickering)
- (3) P0.03=1; AI1
- (4) P0.07=70.00; Maximum frequency 70Hz
- (5) P0.08=70.00; Upper frequency limit 70Hz
- (6) P0.11=80.00; Acceleration time 0 (80s) (According to the actual situation)
- (7) P0.12=80.00; Deceleration time 0 (80s) (According to the actual situation)
- (8) P5.02=1; S1 is the forward terminal
- (9) P5.03=4; S2 is the forward jog terminal
- (10) P5.04=6; S3 is Coast to stop
- (11) P5.05=7; S4 is reset fault (According to the actual situation)
- (12) P5.16=0.0%; According to the actual situation
- (13) P5.19=1.00S; According to the actual situation
- (14) P6.04=3; Relay 1 output is fault output
- (15) P6.05=21; Relay 2 output is brake
- (16) PA.05=4.00Hz ; Output frequency of decelerating to stop, According to the actual situation
- (17) PA.06=5.0s; Output time of brake, According to the actual situation

Winding inverter parameters (CHV130-004G):

- (1) P0.01=0; Sensorless vector control
- (2) P0.02=1; Terminal (LED flickering)
- (3) P0.03=1; AI1
- (4) P0.04=7; PID, Assistant frequency setting
- (5) P0.06=2; A+B
- (6) P0.07=70.00; Maximum frequency 70Hz
- (7) P0.08=70.00; Upper frequency limit 70Hz
- (8) P1.08=1; Coast to stop
- (9) P0.11=0.50; Acceleration time 0 (0.50s) (According to the actual situation)
- (10) P0.12=0.50; Deceleration time 0 (0.50s) (According to the actual situation)

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- (11) P5.02=1; S1 is forward terminal
 - (12) P5.03=33; S2 is the lost fault input
 - (13) P5.04=7; S3 is fault reset
 - (14) P5.15 , P5.16 ; According to the actual situation (these two parameters will influence the dragging speed of pole).

If need the dragging speed to be lower, you can set P5.15 to be bigger than 0, P5.16 to be 0. Then more big P5.15, more low of drag speed will be. But please notice that P5.15 should be no bigger than 1.00.

On the contrary, need the drag speed to be higher, can set P5.15 to be 0, P5.16 to be bigger than 0. Then more big P5.16, more high of drag speed will be. But please notice that P5.16 should be no bigger than 5%.

- (15) P5.19=0.5s; According to the actual situation
- (16) P5.20=1.9V; According to the actual situation (The relative voltage of the lowest position of pole)
- (17) P5.22=8.1V; According to the actual situation (The relative voltage of the highest position of pole)
- (18) P5.24=0.02s; According to the actual situation (Filter time of pole feedback)
- (19) P6.04=3; Relay output RO1is fault output
- (20) P6.05=6; Relay output RO2is FDT output (control wiring motor)
- (21) P8.25=2.00Hz;
- (22) P8.26=0.0%;
- (23) P9.01=50.0%; PID preset (the feedback value when the pole is at the middle position is the fiducially)
- (24) P9.02=1; AI2 is the feedback
- (25) P9.04=0.05; According to the actual situation, 0.05~0.08
- (26) P9.05=25.00; According to the actual situation, 15.00~40.00
- (27) P9.07; According to the actual situation, factory setting
- (28) P9.08; According to the actual situation, factory setting
- (29) P9.10; According to the actual situation, factory setting
- (30) P9.11=0.01;
- (31) P9.14=25%; According to the actual situation, 25%~80%.
If winding is not better, can set this parameter to be bigger
- (32) PA.00=1; Lost detection method, on-off detect PA.01=10.00Hz;
- (33) PA.02=0s; Delay time of lost detection
- (34) PA.18; According to the actual situation, normally no need set
- (35) PA.19; According to the actual situation, normally no need set
- (36) PA.20; According to the actual situation, normally no need set
- (37) PA.22; According to the actual situation, normally no need set

2. Parameters setting with digital readout (just for reference):

Master Motor Inverter parameter (CHV130-011G-4):

- (18) P0.01=0; Sensorless vector control
- (19) P0.02=1; Terminal (LED flickering)
- (20) P0.03=1; AI1
- (21) P0.07=70.00; Maximum frequency 70Hz
- (22) P0.08=70.00; Upper frequency limit 70Hz
- (23) P0.11=80.00; Acceleration time 0 (80s) (According to the actual situation)
- (24) P0.12=80.00; Deceleration time 0 (80s) (According to the actual situation)
- (25) P5.02=1; S1 is the forward terminal
- (26) P5.03=4; S2 is the forward jog terminal
- (27) P5.04=6; S3 is Coast to stop
- (28) P5.05=7; S4 is reset fault (According to the actual situation)
- (29) P5.16=0.0%; According to the actual situation
- (30) P5.19=1.00S; According to the actual situation
- (31) P6.04=3; Relay 1 output is fault output
- (32) P6.05=21; Relay 2 output is brake
- (33) PA.05=4.00Hz ; Output frequency of decelerating to stop, According to the actual situation
- (34) PA.06=5.0s; Output time of brake, According to the actual situation
- (35) PA.13=0; Refer to synchronized speed of master
- (36) PA.14; Set the value according to the actual situation

Notice: The display interface has to be switched to **actual linear speed**, can be shifted by **SHIFT**.

Winding inverter parameters (CHV130-004G):

- (1) P0.01=0; Sensorless vector control
- (2) P0.02=1; Terminal (LED flickering)
- (3) P0.03=1; AI1
- (4) P0.04=7; PID, Assistant frequency setting
- (5) P0.06=2; A+B
- (6) P0.07=70.00; Maximum frequency 70Hz
- (7) P0.08=70.00; Upper frequency limit 70Hz
- (8) P1.08=1; Coast to stop
- (9) P0.11=0.50; Acceleration time 0 (0.50s) (According to the actual situation)
- (10) P0.12=0.50; Deceleration time 0 (0.50s) (According to the actual situation)
- (11) P5.02=1; S1 is forward terminal

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- (12) P5.03=33; S2 is the lost fault input
 - (13) P5.04=7; S3 is fault reset
 - (14) P5.05=29; S4 is length reset
 - (15) P5.15 , P5.16 ; According to the actual situation (these two parameters will influence the dragging speed of pole).

If need the dragging speed to be lower, you can set P5.15 to be bigger than 0, P5.16 to be 0. Then more big P5.15, more low of drag speed will be. But please notice that P5.15 should be no bigger than 1.00.

On the contrary, need the drag speed to be higher, can set P5.15 to be 0, P5.16 to be bigger than 0. Then more big P5.16, more high of drag speed will be. But please notice that P5.16 should be no bigger than 5%.

- (16) P5.19=0.5s; According to the actual situation
- (17) P5.20=1.9V; According to the actual situation (The relative voltage of the lowest position of pole)
- (18) P5.22=8.1V; According to the actual situation (The relative voltage of the highest position of pole)
- (19) P5.24=0.02s; According to the actual situation (Filter time of pole feedback)
- (20) P5.35=2; Length input (HDI1 is length high speed pulse input)
- (21) P6.01=11; Length reached (Valid when PA.10=1)
- (22) P6.04=3; Relay output RO1is fault output
- (23) P6.05=6; Relay output RO2is FDT output (control wiring motor)
- (24) P8.19=20000; According to the actual situation (the unit is 10m, the maximum value is 650Km)
- (25) P8.21=80; According to the actual situation (the unit is pulse value of every 10m)
- (26) P8.25=2.00Hz;
- (27) P8.26=0.0%;
- (28) P9.01=50.0%; PID preset (the feedback value when the pole is at the middle position is the fiducially)
- (29) P9.02=1; AI2 is the feedback
- (30) P9.04=0.05; According to the actual situation, 0.05~0.08
- (31) P9.05=25.00; According to the actual situation, 15.00~40.00
- (32) P9.07; According to the actual situation, factory setting
- (33) P9.08; According to the actual situation, factory setting
- (34) P9.10; According to the actual situation, factory setting
- (35) P9.11=0.01;
- (36) P9.14=25%; According to the actual situation, 25%~80%.
If winding is not better, can set this parameter to be bigger
- (37) PA.00=1; Lost detection method, on-off detect
- (38) PA.01=10.00Hz;
- (39) PA.02=0s; Delay time of lost detection
- (40) PA.10=0; When length reached, motor will coast to stop, and the

length reached output will be invalid, delay time of reached will be also invalid.

When set to be 1, length reached is valid; the output time will be valid

(41) PA.11=3 s; According to the actual situation (valid when PA.10=1)

(42) PA.18; According to the actual situation, normally no need set

(43) PA.19; According to the actual situation, normally no need set

(44) PA.20; According to the actual situation, normally no need set

(45) PA.22; According to the actual situation, normally no need set

Notice: The display interface has to be switched to **actual linear speed**, can be shifted by **SHIFT**.