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".

SHENZHEN INVT ELECTRIC CO., LTD.

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 4: Jog forward 5: Jog reverse 6: Coast to stop 7: Reset fault 8: Pause running	0~55	1	◎
P5.03	S2 Terminal function		0~55	4	◎
P5.04	S3 Terminal function		0~55	7	◎

Function Code	Name	Description	Setting range	Factory Setting	Modify
P5.05	S4 Terminal function	9: External fault input ***10: Reserved*** ***11: Reserved*** ***12: Reserved*** 13:Switch between A and B 14: Switch between A and A+B 15: Switch between B and A+B ***16: Reserved*** ***17: Reserved*** ***18: Reserved*** ***19: Reserved*** ***20: Reserved*** 21: ACC/DEC time selection 1 22: ACC/DEC time selection 2 ***23: Reserved*** ***24: Reserved*** 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	◎
P5.06	S5 Terminal function		0~55	0	◎
P5.07	HDI1 terminal function		0~55	0	◎
P5.08	HDI2 terminal function		0~55	0	◎
P5.09	S6 Terminal function		0~55	0	◎
P5.10	S7 Terminal function		0~55	0	◎
P5.11	S8 Terminal function		0~55	0	◎
P6 Group: Output Terminals					
P6.01	Y1 output selection	0: NO output 1: Run forward 2: Run reverse 3: Fault output 4: Motor overload 5: Inverter overload 6: FDT reached 7: Frequency reached 8: Zero speed running 9: Preset count value reached	0~40	1	○
P6.02	Y2 output selection		0~40	0	○
P6.03	HDO ON-OFF output selection		0~40	0	○
P6.04	Relay 1 output selection		0~40	3	○
P6.05	Relay 2 output selection		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 BIT0: Running frequency BIT1: Reference frequency BIT2: DC bus voltage BIT3: Output voltage BIT4: Output current BIT5: Rotation speed BIT6: Output power BIT7: Output torque BIT8: PID preset BIT9: PID feedback BIT10: Input terminal status BIT11: Output terminal status BIT12: AI1 BIT13: AI2 BIT14: AI3 BIT15: AI4	0~0xFFFF	0x339F	○
P7.06	Running status display selection 2	BIT0: HDI1 BIT1: HDI2 BIT2: Setting length BIT3: Actual length BIT4: Actual counter value BIT5: Running line speed BIT6: Actual winding diameter value BIT7~BIT15: Reserved	0~0xFFFF	0x006C	○
P7.07	Stop status display selection	1~0xFFFF BIT0: Reference frequency BIT1: DC bus voltage BIT2: Input terminal status BIT3: Output terminal status BIT4: PID preset BIT5: PID feedback BIT6: AI1 BIT7: AI2 BIT8: AI3 BIT9: AI4 BIT10: HDI1 BIT11: HDI2 BIT12: Setting length BIT13: Actual length 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	○

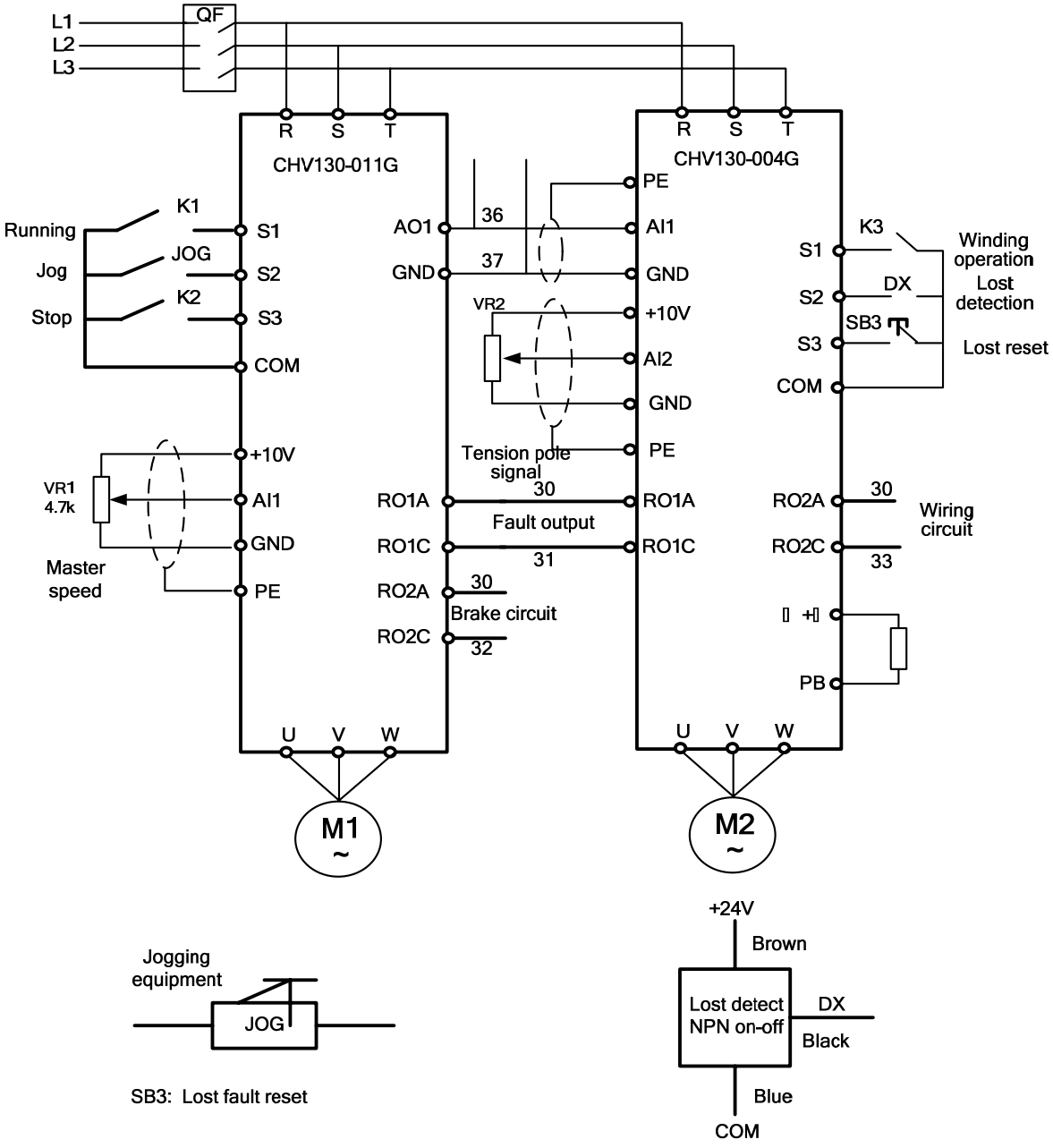
Function Code	Name	Description	Setting range	Factory Setting	Modify
P8.21	Number of pulse per 10 m	0.1~6500.0	0.1~6500.0	100.0	○
P8.22	Preset count value	1~65535	1~65535	1000	○
P8.23	Specified count value	1~65535	1~65535	1000	○
P9 Group: PID control					
P9.00	PID preset source selection	0: keypad (P9.01) 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%	○

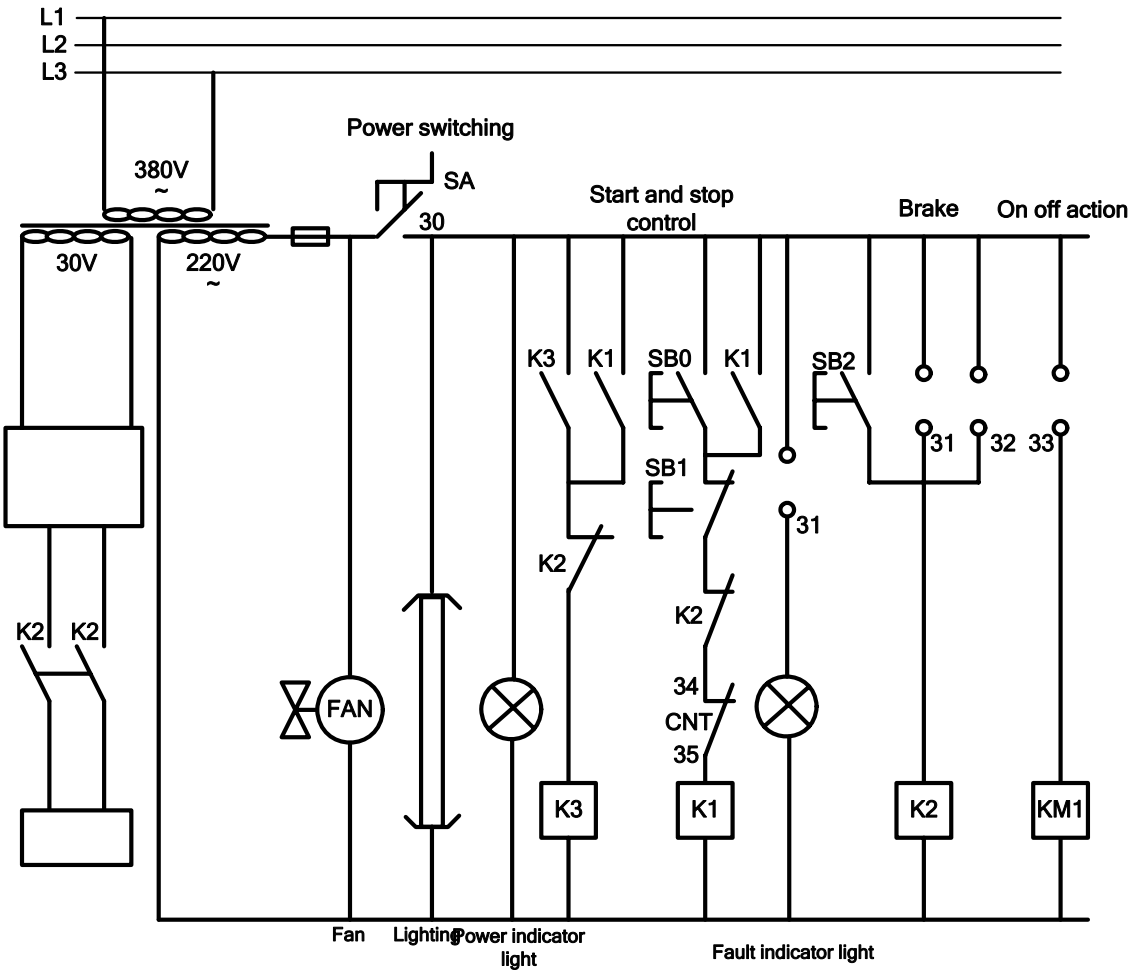
Function Code	Name	Description	Setting range	Factory Setting	Modify
P9.13	PID output filter time	0.00~10.00s	0.00~10.00	0.00	○
P9.14	PID threshold of upper limit	0.0~100.0%	0.0~100.0	20.0%	○
P9.15	gain	-50.0%~50.0%	-50.0%~50.0%	0.0%	○
PA Group: Special parameters					
PA.00	Lost detecting method	0: No 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

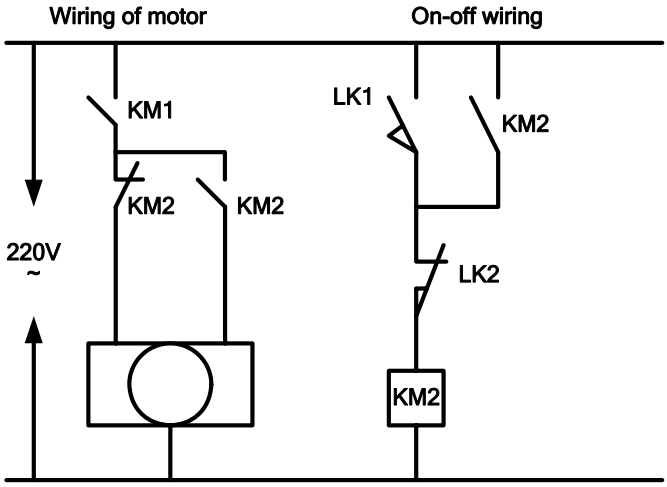


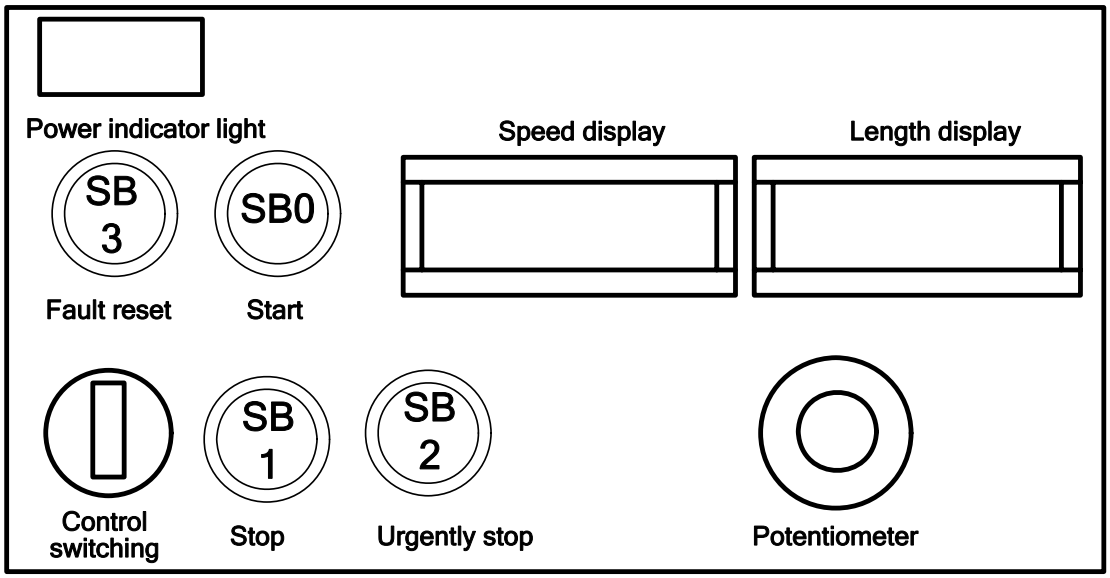


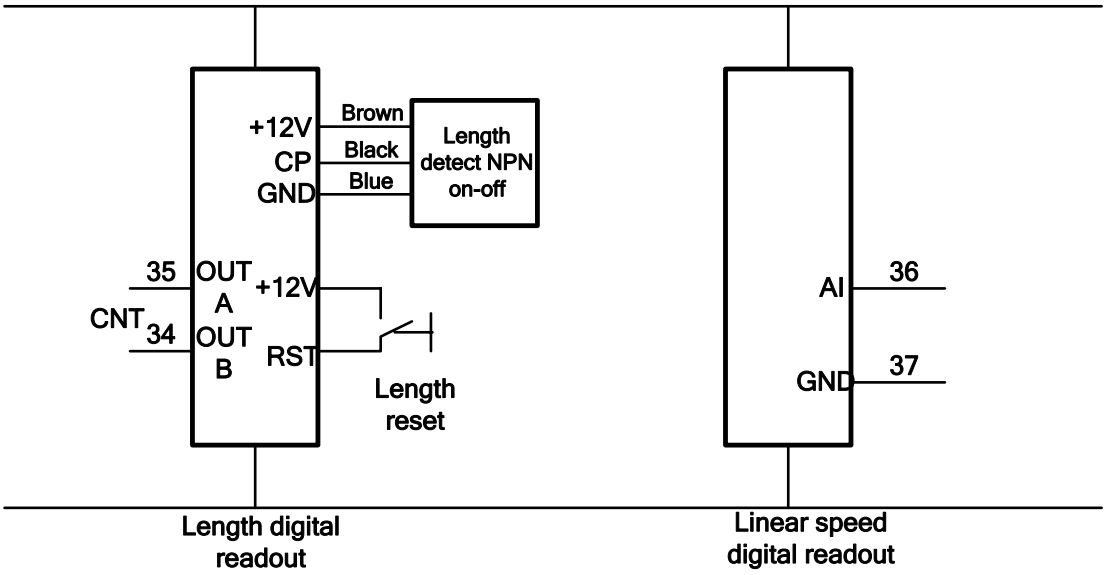
SB0: Start button

SB1: Stop button

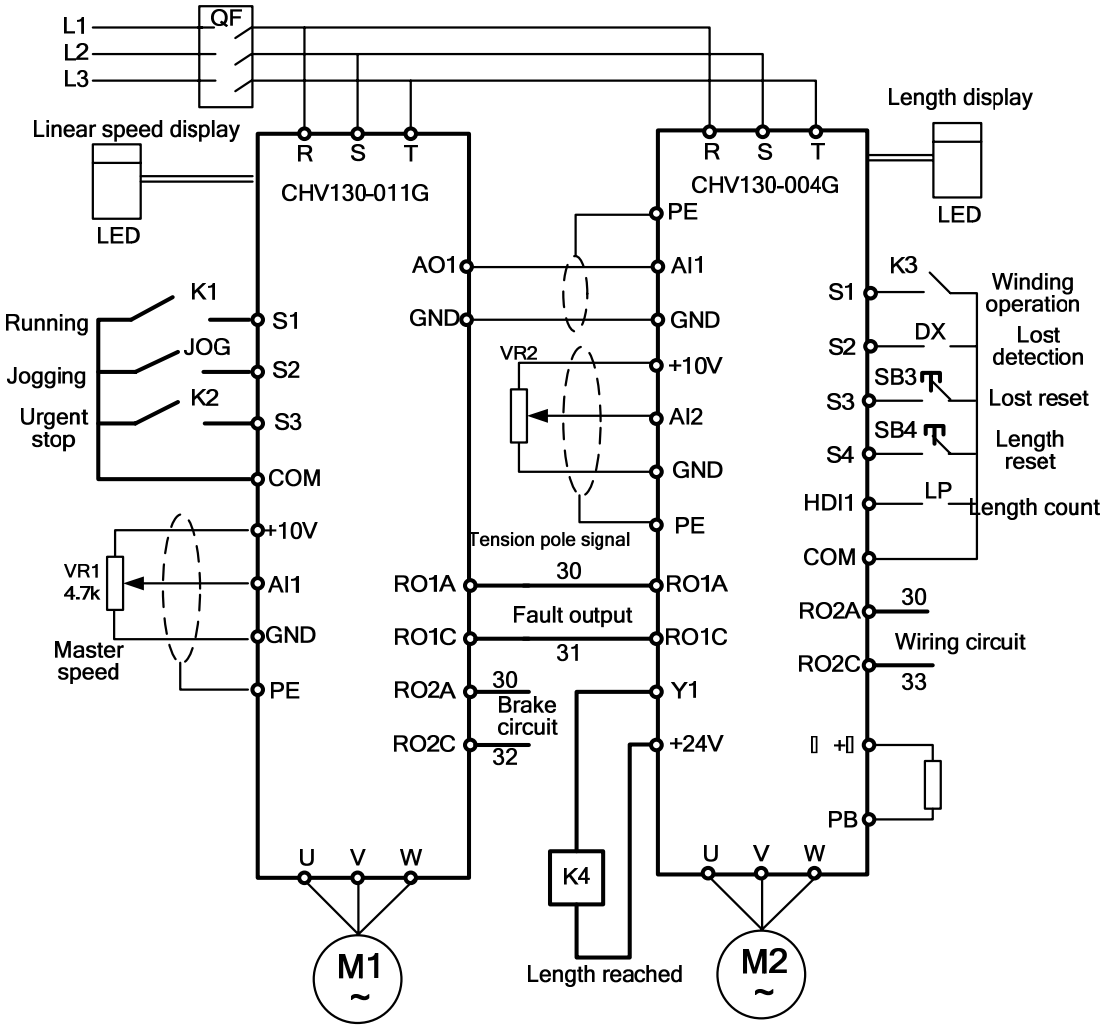
SB2: Urgently stop button

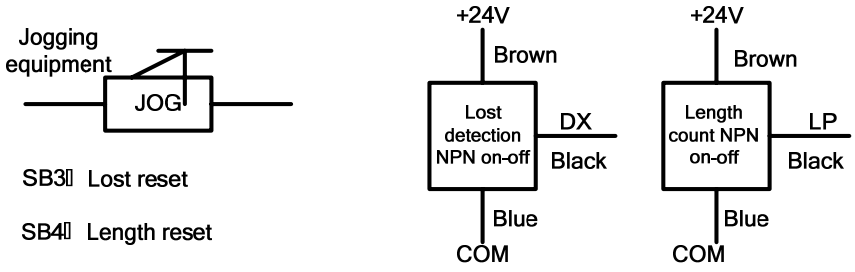


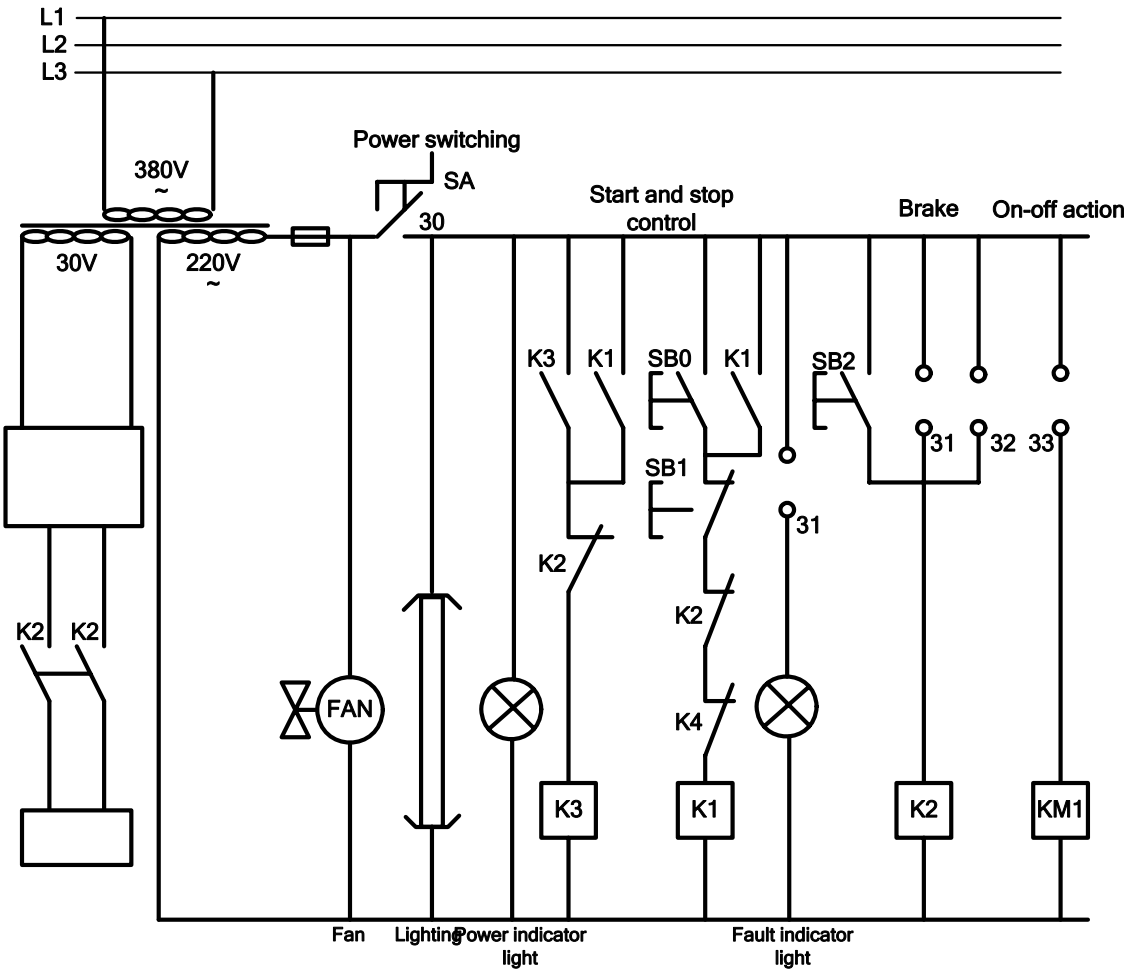

Power indicator light
Speed display
Length display
SB 3
SB0
Fault reset
Start
SB 1
SB 2
Control switching
Stop
Urgently stop
Potentiometer


+12V
CP
GND
Brown
Black
Blue
Length detect NPN on-off
35
OUT A
CNT
34
OUT B
+12V
RST
Length reset
AI
36
GND
37
Length digital readout
Linear speed digital readout

2. Control wiring diagram of inverter with digital readout



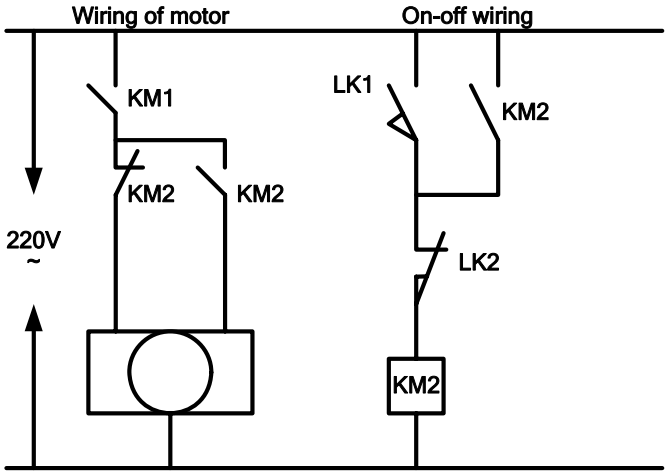


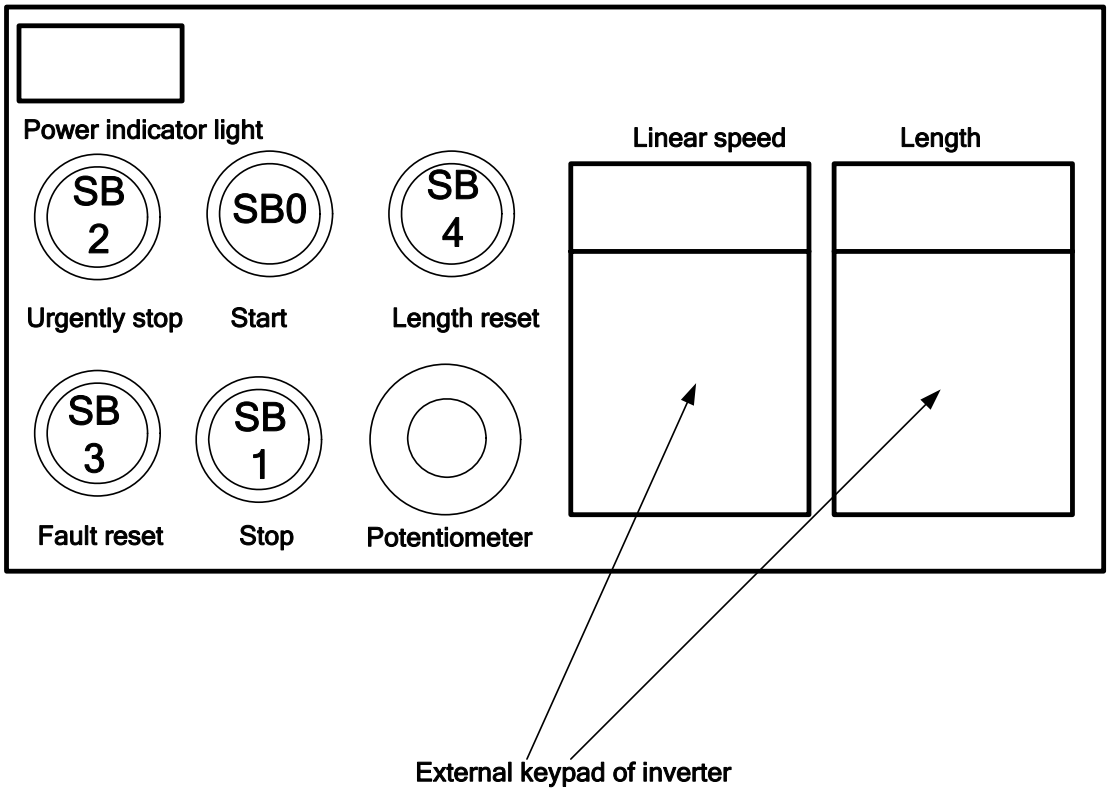


SB0: Start button

SB1: Stop button

SB2: Urgently stop button




Power indicator light
SB 2
SB0
SB 4
Linear speed
Length
Urgently stop
Start
Length reset
SB 3
SB 1
Fault reset
Stop
Potentiometer
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)

(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

(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**.