

Manual

Version V1.0

S200K lift integration special-purpose



Version: YEAR2016, V1.0

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1. Product description

1.1 Product features

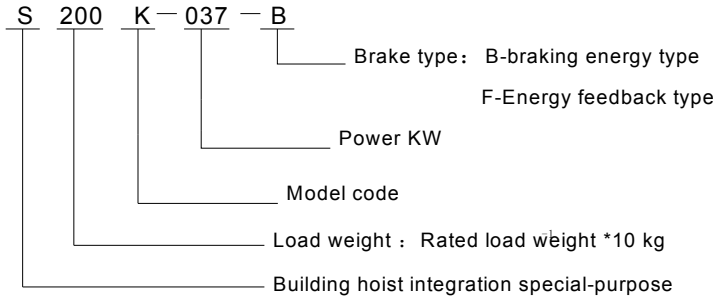
- Special-purpose model that integrates frequency inverter, brake unit, brake power module, logic control unit.
- combinations.
- The brake unit of traditional hoist without short-circuit protection, our S200 built-in brake unit have the function of short-circuit protection.
- Compare to the normal frequency control cabinet, our S200 compact, elegant appearance, adopting cage and cage embedded installation, convenient for transportation and save cost of wiring.
- Built-in starting-weight limiter(over weight protection),client no need purchase separately, display can show the weight(T) or percentage, comply with safety standards.(we own the certificate of approval from safety supervision)
- Built-in clock chip, and can set the privileged time for ease of management to customer.
- With the brake coil short-circuit protection function.
- Just need the right access of main power, limit switch, console and no need set the function parameter of frequency inverter, boot and will work well.
- Intelligent statue display panel can display a variety limit, command signal have a clear LED indication and silk-screen printing logo, easy for installation and inspection, great reduce the cost of service.
- Flexible mode of connection, adopting heavy-duty connector and terminal Comfortable in starting and stopping, no" weightless" feeling at open moment of downlink band-brake.
- Special 'S' curve acceleration and deceleration, solving "overshoot impulse" at the moment of the uplink loose brake.
- With torque holding at 0 speed function, no need any band-brake action to support the forward-reverse to across 0 speed.
- Braking circuit and braking logic employ double logic signal to control double braking contactor safety circuit respectively. Protecting crane in safety if when the contactor touch pin of contactor has problem can't be separated. It is conform to national GB26557-2011 standard.
- With zero dead zone compensation function when JOG frequently, without vibration and glide.
- Support GPS/GPRS communication interface, it can use satellite to positioning and remote monitor, lock and unlock, easy for customer management.
- Support conversion interface of power frequency and variable frequency.

- IP54, whole machine water-proof design.
- Anti-seismic test for the mechanical properties of the hoist/lift.
- Built-in charging protective circuit for the characteristic of frequent power off. Fast response, NOWAIT.

1.2 S200K drive appearance



1.3 Model explanation



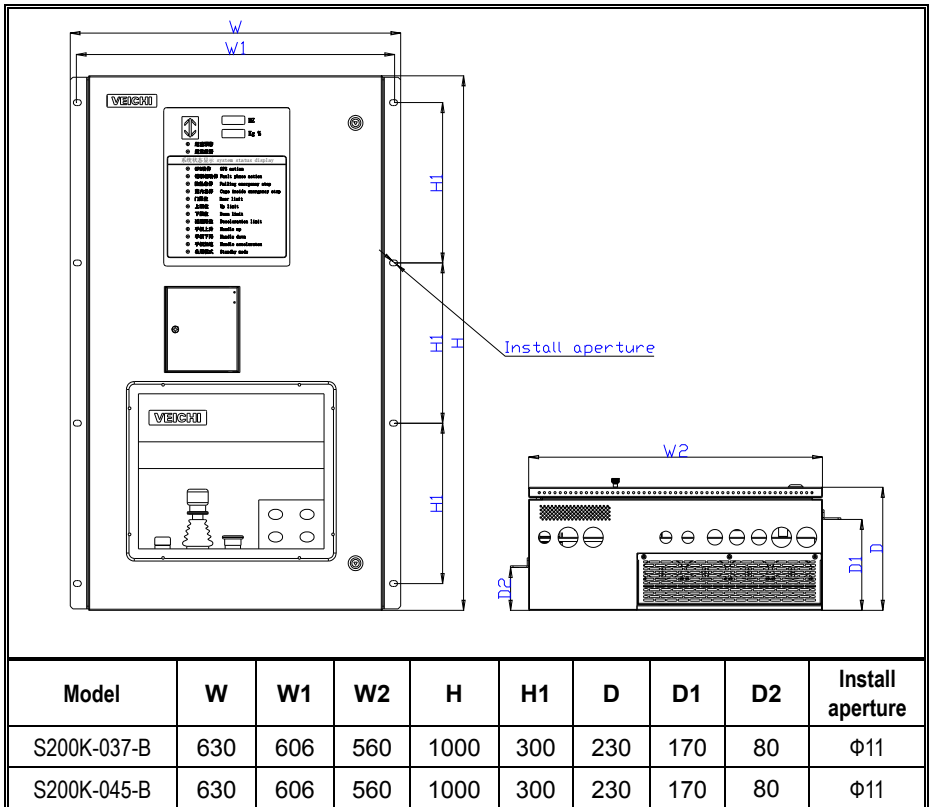
1.4 Model no. and rated output current

3 phase 380V

Model	Motor power	Rated input voltage	Rated current(A)	Remark
S200K-037-B	37KW	3 phase 380V	75A	11KW*3 - 15KW*2
S200K-045-B	45KW		90A	13KW*3 - 15KW*3

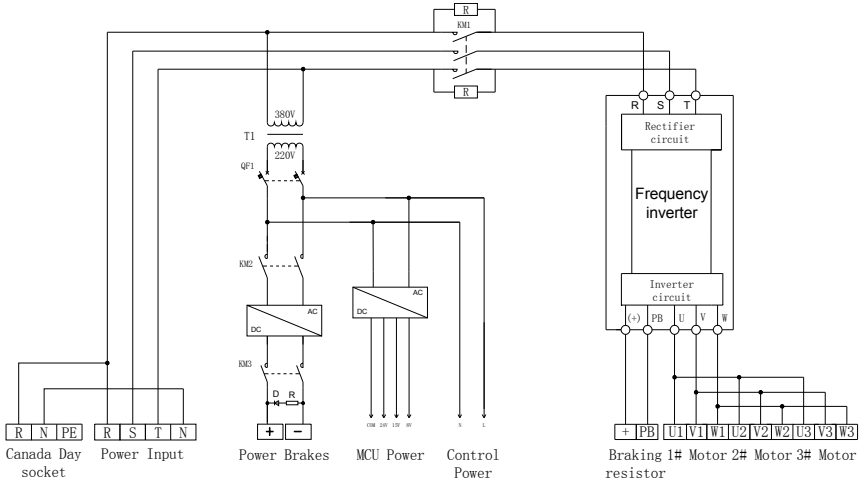
2. Product dimension and wiring

2.1 Dimension



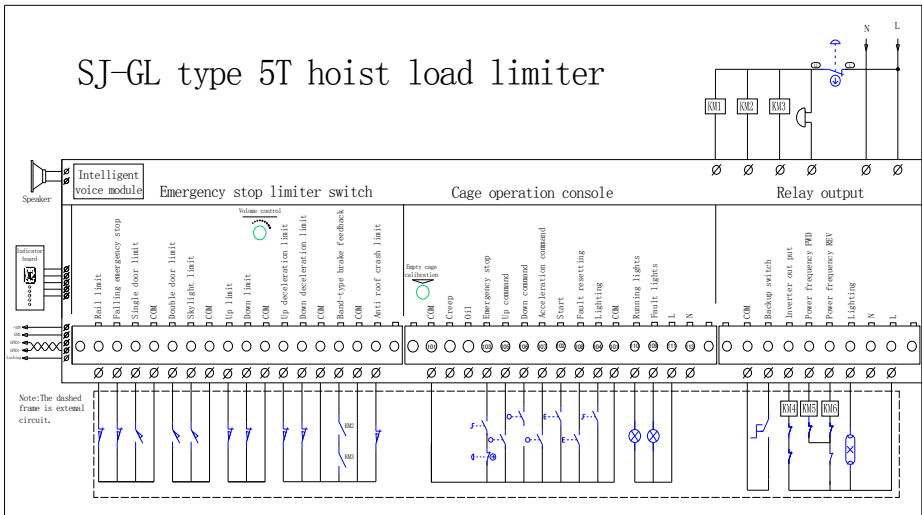
2.2 Wiring

* 37-45kw Main circuit connection diagram

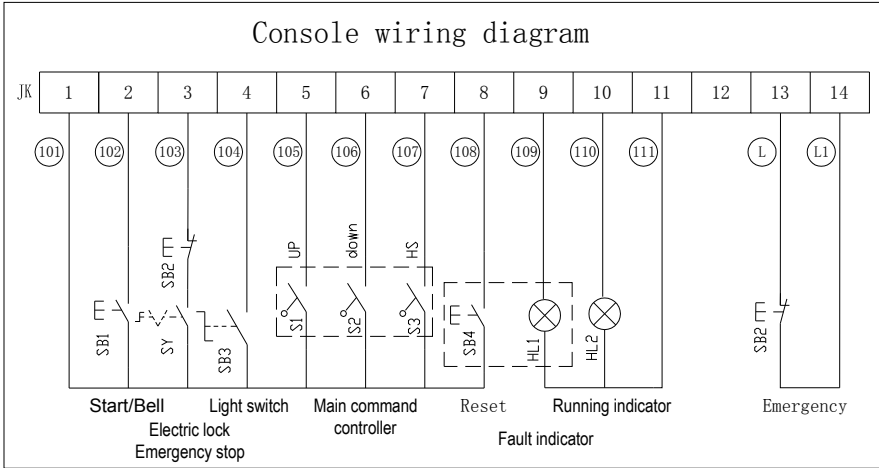


Note: T1 AC380 / 220V isolation transformer, R precharge resistors; KM1 Main contactor, KM2, KM3 brake contactor.

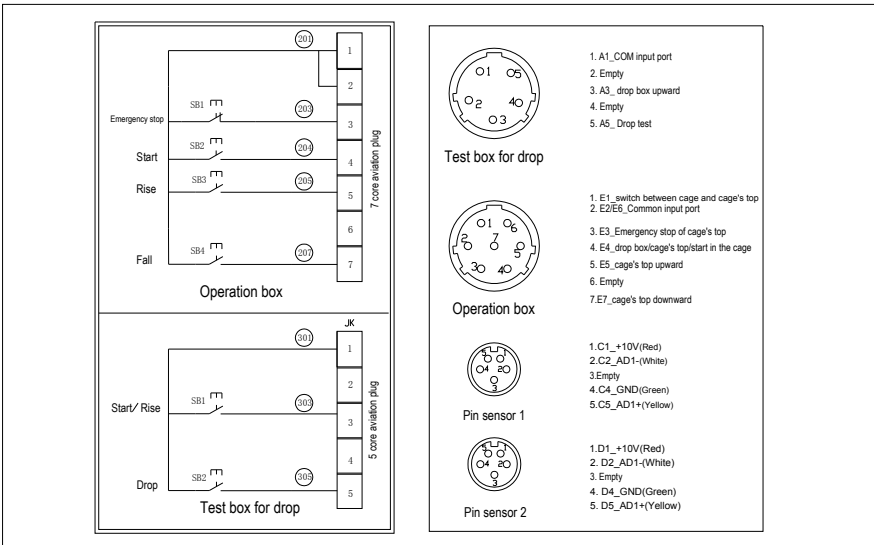
* Control unit (MCU) wiring diagram



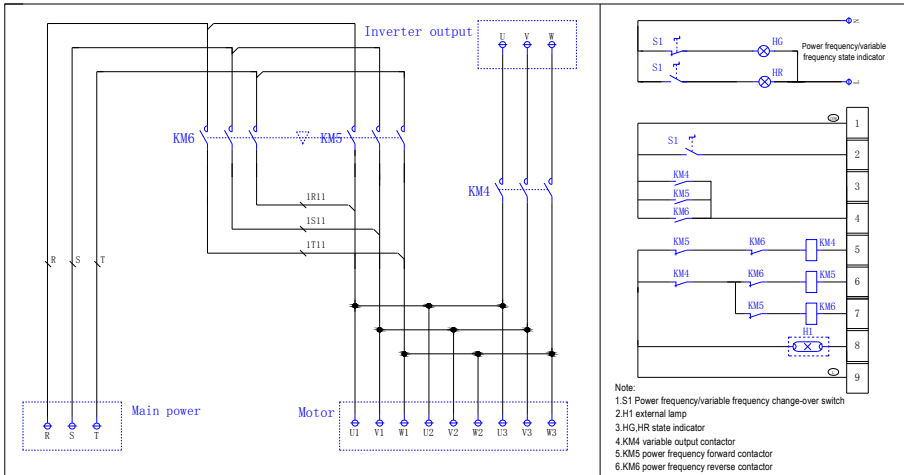
*** Console wiring diagram**



*** Wiring diagram for aviation plug**



*** Power frequency/frequency conversion back-up circuit(external power frequency back-up circuit)**



Special instruction:

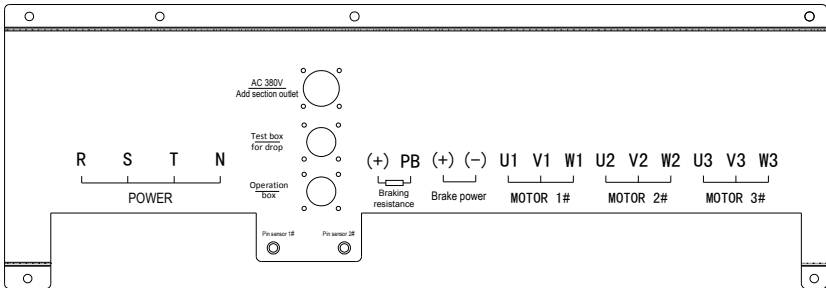
*** Note for on-site install and debug**

When motor drive plate and lift cage disjointed(pin not connected),use the handle to do the up/down jog operation ,if drive plate do the upward movement, than it is normal and wiring direction is right. If drive plate do the downward movement, than wiring direction is opposite and need to change the motor wire.

When GPS remote control and lock the machine, inverter will display “LIFE” fault, can not reset but can running in low speed.

2.3 Main circuit terminals array and definition

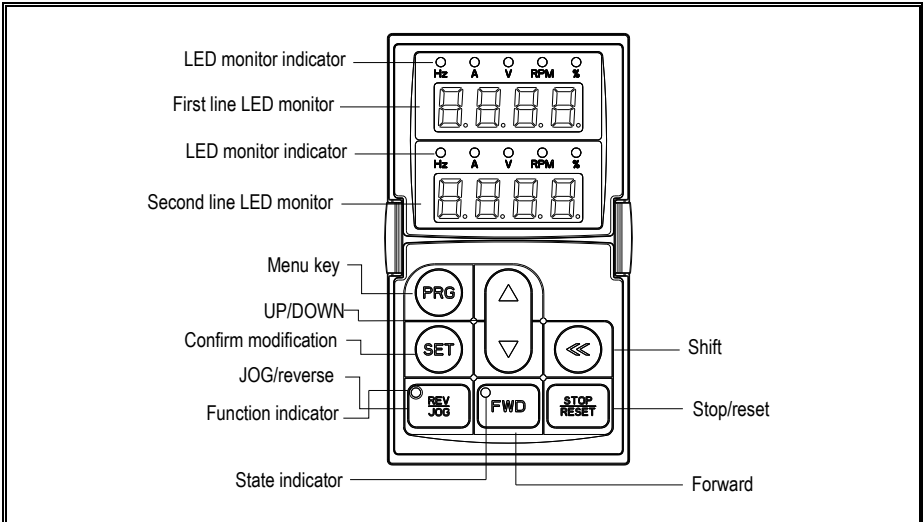
37~45kW main circuit terminals array:










Terminal symbols	Terminal name	Terminal function
(+)	Brake power output terminal	Output voltage DC195V,use for brake power supply
(-)		
(+)	Braking resistance terminal	Used for external braking resistance, recommend 15Ω/24KW.
PB		
R	Inverter input terminal	Used to connect 3 phase AC power supply
S		
T		
N		
U	Inverter output terminal	Used to connect the motor
V		
W		
⊕	Earth	Earth terminal, earth resistance<10 OHM
E		

3. Keyboard and operation

3.1 Keyboard appearance and function



Key	Name	Function
	Menu key	Enter menu while standby or running, Press this key to return while modify parameter. While standby or running, press for 1 sec to enter condition monitoring interface.
	Confirm/modify key	Press to modify parameter while in menu interface. Press again to confirm after modifying. While standby or running, press to change LED monitoring items at stop.
	Up/down key	Select parameter group in menu interface. Modify parameter while in modify interface.(If need set the given frequency or torque by keyboard, pls set parameter F4.03)
	Shift key	Used for select the function no.(changed by up/down key) when in menu interface. Used for select the parameter no.(changed by up/down key) when in modify parameter interface.

	Forward run key	While run/stop is controlled by keyboard, press this key, inverter forward rotate and the indicator is always on. While reverse, the indicator sparks.
	Jog/reverse key	This key function can be defined by parameter F4.01.Press it, machine reverse and indicator is off if this key is defined as REVERSE. Machine will Jog-indicator on if defined as JOG.
	Stop/reset key	Machine stop if press it while run/stop is controlled by key board. Its efficiency range is defined via function no.F4.02.Inverter reset if press it in fault state(no set if fault is not solved)

3.2 Indicator light meanings

Name	State	Meaning	
Unit indicator light	Hz	Spark	Digital display the given frequency.
	Hz	On	Digital display the output frequency.
	A	On	Digital display the actual output current.
	V	On	Digital display the input voltage.
	V	Spark	Digital display the output voltage.
	S	On	Time unit is second.
	S	Spark	Time unit is ms,min,or h.
State indicator light	FWD	On	Inverter running in FORWARD
	FWD	Spark	Inverter running in REVERSE
	FWD	Off	Inverter stops.
Function indicator light	REV/JOG	On	JOG.
	REV/JOG	Off	Reverse.

4. Function Parameter Table

“●”: Means that the parameter can be revised during frequency inverter in a running state

“○”: Means that the parameter can not be revised when in a running state

4.1 Basic parameter

No.	Function description	Range of setting and definition	Factory default	Property	Communication
F0.00	Control mode	0: VC without PG 0 1: VC without PG 1 2: VC with PG 0 3: VC with PG 1	1	○	
F0.02	Run command channel	0: Keyboard control 1: Terminal control 2: RS485 communication control 3: Optional card	1	○	
F0.03	Frequency given main channel selection	0: Keyboard no. given 6: RS485 communication port given	6	○	
F0.08	Keyboard no. setting frequency	0.00~Upper limit	15.00 Hz	●	
F0.09	Max. frequency output	0.00~320.00Hz	50.00 Hz	○	
F0.11	Upper limit frequency	High gear frequency	50.00		
F0.12	Low limit frequency	0.00~upper limit	0.00 Hz	○	
F0.14	ACC time 1	0.01~650.00s	6.5s	●	
F0.15	DCC time 1	0.01~650.00s	2.0s	●	
F0.17	Carrier frequency	0.6~2.0KHz	1.0	●	
F0.18	Carrier frequency characteristic selection	LED “0” digit: 0: Unrelated to temperature 1: Related to temperature LED “10” digit: 0: Unrelated to output frequency 1: Related to output frequency LED “100” digit: 0: Fixed carrier 1: Random carrier LED “1000”:	1000	●	

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		0: PWM mode 1 1: PWM mode 2 2: PWM mode 3			
F0.19	Parameter initialization	0: No action 1: Recovery factory setting 2: Clear malfunction records	0	○	
F0.20	AVR function selection	0: invalid 1: all valid 2: Invalid in DEC only	1	●	
F1.27	0 speed hold torque	0.0~150.0%	120.0%	●	
F2.00	Multifunction input terminal(X1)	0: No function 1: FWD 2: REV	1	●	
F2.01	Multifunction input terminal (X2)		2		
F2.29	Output terminal 1 (Y1)	0: No output 3:Fault trip alarm 1(alarm while fault self-recover)	20	●	
F2.30	Output terminal 2 (Y2)		20		
F2.31	Relay output terminal (TA/TC)	20:Hoist band-brake logic control 29: Phase fault output	29	●	
F2.32	Upward start frequency	0.00~1.00Hz	0.45	●	
F2.33	Upward start frequency delay time	0.00~10.00s	0.7	●	
F2.34	Upward loose-brake current value	0.00~200.00%	100.00	●	
F2.35	Upward loose-brake current hold time	0.00~10.00s	0.10	●	
F2.36	Downward start frequency	0.00~1.00Hz	0.40	●	
F2.37	Downward start frequency delay time	0.00~10.00s	0.50	●	
F2.38	Downward loose-brake current value	0.00~200.00%	100.00	●	
F2.39	Downward loose-brake current hold time	0.00~10.00s	0.10	●	
F2.40	Upward stop-band brake frequency	0.00~10.00Hz	2.00	●	
F2.41	Upward stop-band brake delay time	0.00~10.00s	0.40	●	
F2.42	Downward stop-band brake frequency	0.00~50.00Hz	2.00	●	

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F2.43	Downward stop-band brake delay time	0.00~10.00s	0.40	●	
F2.44	Loose-brake signal output delay	0.00~10.000s	0.150	●	Loose-brake delay
F2.45	Band-brake signal output delay	0.00~10.000s	0.0	●	Band-brake delay
F3.04	X2 terminal effective interval time	0.00~10.00s	0.80s	●	
F3.15	Vector 1 mode setting		0032	○	
F4.05	Function parameter copy	0: No operation 1: Upload parameter from inverter to keyboard and save 2: Upload parameter from keyboard to inverter and save	0	○	
F4.11	The display content of the first line at the running state	LED "0" digit: display the first group 0: Given frequency 1: Output frequency 2: Output current 3: Input voltage 4: Output voltage 5: Mechanical speed 6: Torque setting 7: Output torque 8: Load weight 9: Load weight display the percentage A: Output power B: DC bus voltage C: Module temperature 1 D: Module temperature 2 E: ON/OFF state of input terminal X F: ON/OFF state of output terminal Y LED "10" digit: display the second group LED "100" digit: display the third group LED "1000": display the fourth group	2011		

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F4.12	The display content of the first line at the stop-state	LED "0" digit: display the first group LED "10" digit: display the second group LED "100" digit: display the third group LED "1000": display the fourth group	2011		
F4.13	The display content of the second line at the running state	LED "0" digit: display the first group LED "10" digit: display the second group LED "100" digit: display the third group LED "1000": display the fourth group	1028		3208 show the weight in -T 3209 show the weight in-%
F4.14	The display content of the second line at the stop-state	LED "0" digit: display the first group LED "10" digit: display the second group LED "100" digit: display the third group LED "1000": display the fourth group	1028		
F4.15	Torque compensation coefficient	0.0~5000.0%	30.0%	●	
F5.01	Motor poles	2~48	4	○	
F5.02	Motor rated power	0.4~1000.0kW	33	○	
F5.03	Motor rated frequency	0.01~Max. frequency	50	○	
F5.04	Motor rated torque	0~65000rpm	1390	○	
F5.05	Motor rated voltage	0~1500V	380	○	
F5.06	Motor rated current	0.1~2000.0A	55.6	○	
F5.07	Motor no-load current	0.01~650.00A	20.97	○	
F5.08	Motor stator resistance	0.001~65.000	0.103	○	
F5.09	Motor Rotor resistance	0.001~65.000	0.083	●	
F5.10	Motor stator-rotor inductance	0.1~6500.0mH	33.2	●	
F5.11	Motor stator-rotor mutual inductance	0.1~6500.0mH	32.0	●	
F5.12	Motor parameter self-adjustment selections	0: No operation 1: Rotary self learning 2: Static self learning	0	●	
F5.13	Rated field voltage ratio	0~1000	200	○	

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F5.14	Torque component	0~1000	500	○	
F8.12	Torque boost	0.1~30%	0.0	○	
F8.14	V/F slip compensation	0.0~200.0%	50.0%	●	
F8.22	ASR(VF)switch frequency 1	0.00~50.00Hz	1.00Hz	●	Standby mode: Valid only in version above 1622.
F9.03	Upward start delay	0.000~1.000S	0.070		
F9.04	Upward stop delay	0.000~1.000S	0.200		
F9.05	Downward start delay	0.000~1.000S	0.070		
F9.06	Downward stop delay	0.000~1.000S	0.100		
F9.08	Hoist cage weight calibration	0:No operation 1: Empty cage calibration 2: Full load calibration	0		
F9.10	Body weight	0~500kg	70kg		
F9.11	Calibration weight	0~10000kg	2000kg		
F9.12	Load coefficient	0~5000kg	150.0%		
F9.13	Low speed frequency	0.00~50.00Hz	15.00		
F9.14	Running protection time after stop	0.000~10.000s	0.000		
F9.16	Open brake: multiples of lack phase	0~128	4		
F9.17	Open brake: 0 current threshold	0.0~100%	2.00		
FA.01	Protection function selection 2	LED "0" digit: DEC over-voltage protection selection 0: Invalid 1: Rating 1 over-voltage protection 2: Rating 2 over-voltage protection	0000	●	
FA.02	Protection function selection 3	LED "0" digit: Inverter OH protection selection 0: Emergency stop and alarm 1: Emergency stop and alarm 2: Limiting current and run LED "00" digit: Input lack phase protection selection 0: Invalid 1: Valid LED "000" digit: Output lack phase protection selection 0: Invalid 1: Lack phase detection valid,	0110	●	

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		no open brake signal 2: Lack phase detection valid, associated with open brake LED“0000”digi: Reserved			
FA.21	Motor overload protection coefficient	20.0~250.0%	100.0%	●	
FA.22	Malfuction recovery times	0~5	3		
FA.23	Malfuction auto-reset interval	0.1~100.0s	2.0		
FA.25	Malfuction types	Pls see malfuction code table	--	x	
FA.26	Malfuction running frequency	0.00~Max. frequency	--	x	
FA.27	Malfuction output voltage	0~1500V	--	x	
FA.28	Malfuction output current	0.1~2000.0A	--	x	
FA.29	Malfuction bus voltage	0~3000V	--	x	
FA.30	Malfuction module temperature	0~100℃	--	x	
FA.31	Malfuction inverter state	LED “0”digit: Running direction 0: Forward 1:Reverse LED “00”digit: Running state 0: Stop 1: Steady speed 2: ACC 3: DEC LED “000”digit: Reserved LED “0000”digit: Reserved	--	x	
FA.32	Malfuction input terminal state	See input terminal chart	--	x	
FA.33	Malfuction output terminal state	See output terminal chart	--	x	
FA.34	The last malfuction type	Pls see malfuction code table	--	x	
FA.35	The last malfuction running frequency	0.00~Max. frequency	--	x	
FA.36	The last malfuction output voltage	0~1500V	--	x	
FA.37	The last malfuction output current	0.1~2000.0A	--	x	

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FA.38	The last malfunction bus voltage	0~3000V	--	x	
FA.39	The last malfunction module temperature	0~100℃	--	x	
FA.40	The last machine state	LED "0" digit: Running direction 0: FWD 1: REV LED "00" digit: Running state 0: Stop 1: Steady speed 2: ACC 3: DEC LED "000" digit: Reserved LED "0000" digit: Reserved	--	x	
FA.41	The last malfunction input terminal state	See input terminal chart	--	x	
FA.42	The last malfunction output terminal state	See input terminal chart	--	x	
FA.43	The last two malfunction types	Pls see malfunction code table	--	x	
FA.44	The last three malfunction types	Pls see malfunction code table	--	x	
Fd.00	Main-slave machine selection	0: Main machine 1: Slave machine	0	○	
Fd.01	Machine address	1~247	1	○	
Fd.02	Communication baud rate selection	3: 9600bps	3	○	
Fd.03	Date format	0: (N 8 1) No checkout	0	○	
Fd.07	Communication fault action mode selection	0: Alarm and stop freely 1: No alarm and running 2: Stop and no alarm (Running command given by communication) 3: Stop and no alarm (Running command given by all channel) 4: Alarm and stop	4	●	
Fd.08	Transmission response dispose	0: Write operation with response 1: Write operation without response	1	●	

Note: Except the special definition function, more details for the rest functions, pls refer to the <AC80B series frequency inverter manual>.

*** The calibration weighing function:**

1. Only one person stand in the cage, and set the weight of the person into the parameter F9.10, unit: kg.

2. Calibration of cage weight: Set the F9.08 as 1 and do the calibration, after finished set F9.08 as 0.

3. Weight coefficient calibration: Add suitable weight to the cage (recommend 2000kg), set the weight to parameter F9.11, then set the parameter F9.08 as 2 to do the weight coefficient calibration, after finished set back F9.08 as 0, coefficient save in F9.12. If the value after calibration is meet the requirement, then no need do the calibration.

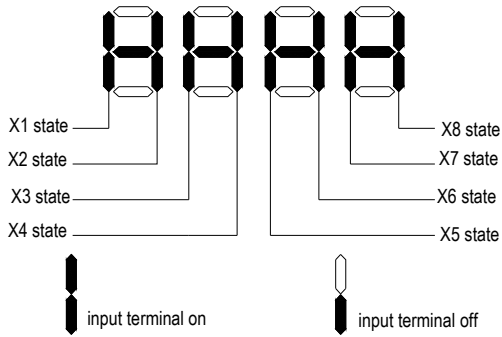
*Weight test: If not the full load calibration, can add the weight and refer to the C-08 and see if the parameter display is same with added weight or not, if same, then calibration success. Also can add the weight till the value of the add weight and the display number is the same.

4.2 Monitor code

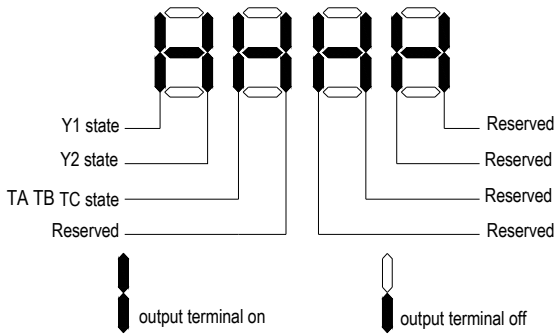
Press "PRG" key more than 2 seconds, enter "C" parameter group.

No.	Function name	Unit of setting and definition	Communication add.
C-00	Given frequency	0.01Hz	
C-01	Output frequency	0.01Hz	
C-02	Output current	0.1A	
C-03	Input voltage	0.1V	
C-04	Output voltage	0.1V	
C-05	Machinery speed	1RPM	
C-06	Setting torque	0.1%	
C-07	Output torque	0.1%	
C-08	Load display	1kg	
C-09	Load percentage display	0.1%	
C-10	Output power	0.1%	
C-11	Bus voltage	0.1V	
C-12	Module temperature 1	0.1°C	
C-13	Module temperature 2	0.1°C	
C-14	Input terminal X on- state	See input terminal state chart	
C-15	Output terminal Y on- state	See output terminal state chart	
C-25	Inverter power level	kW	
C-26	Inverter rated voltage	V	
C-27	Inverter rated current	A	
C-28	Software edition		
C-29	PG feedback frequency	0.01Hz	








Input terminal on/off show diagram



Output terminal on/off show diagram










5. Fault information and details

Keyboard display	Fault code	Fault type	Possible causes	Treatment
	L.U.1	Too low while stop	<ul style="list-style-type: none"> Power supply is too low Voltage detection circuit is abnormal 	<ul style="list-style-type: none"> Check input power, eliminate fault. Seek support from factory.
	E.LU2	Too low voltage in run	<ul style="list-style-type: none"> Power supply is too low Power capacitance is too small, or there is big impact current in the power grid. Inner DC main contactor is not closed. 	<ul style="list-style-type: none"> Check input input power, eliminate fault. Improve power-supply system. Seek support from factory.
	E.oU1	Acc over-voltage	<ul style="list-style-type: none"> Power voltage fluctuation over limit. Start running motor. 	<ul style="list-style-type: none"> Detect power voltage and eliminate fault. Restart motor until it totally stop. Set F1.00 as 1or 2.
	E.oU2	Dec over-voltage	<ul style="list-style-type: none"> Deceleration time is too short. Load potential energy or inertia is too large. Power voltage fluctuation over limit. 	<ul style="list-style-type: none"> Prolong deceleration time properly. Reduce load inertia or improve inverter capacitance or add braking unit. Detect input power and clear fault.
	E.oU3	Constant speed over-voltage	<ul style="list-style-type: none"> Power voltage fluctuation over limit. 	<ul style="list-style-type: none"> Detect input power voltage and eliminate fault. Install input reactor.
	E.oU4	Over-voltage while stop	<ul style="list-style-type: none"> Power voltage fluctuation over limit. 	<ul style="list-style-type: none"> Check input power, eliminate fault. Seek support from factory.
	E.oC1	Acc over-current	<ul style="list-style-type: none"> Acceleration time is too short. Start running motor. V/F curve setting is not suitable. Or torque boost too high. Inverter capacitance is too small. 	<ul style="list-style-type: none"> Prolong acc time. Restart motor until it totally stop. Set F1.00 as 1or 2. Reset V/F curve or torque boost value. Select inverter with right capacitance.

E.oC2	E.oC2	Dec over-current	<ul style="list-style-type: none"> Deceleration time is too short. Load potential energy or inertia is too large. Power voltage fluctuation over limit. 	<ul style="list-style-type: none"> Prolong deceleration time. Connect external braking resistance or braking unit. Select inverter with right capacitance.
E.oC3	E.oC3	Constant speed over-current	<ul style="list-style-type: none"> Sudden load change. Power grid voltage is too low. 	<ul style="list-style-type: none"> Check load change and eliminate it. Check input power, eliminate fault.
E.oL1	E.oL1	Motor over-load	<ul style="list-style-type: none"> V/F curve setting is not suitable. Or torque boost too high. Power grid voltage is too low. Unright overload protection setting. Locked-rotor run or too heavy load. Universal motor long time low speed run. 	<ul style="list-style-type: none"> Reset V/F curve or torque boost value. Check input power, eliminate fault. Unreasonable F5.06 setting. Adjust load or select inverter with right capacitance. If need long low-speed operation, please choose special motor for inverter.
E.oL2	E.oL2	Inverter over-load	<ul style="list-style-type: none"> Load is too heavy. Acceleration time is too short. Start running motor. V/F curve setting is not suitable. Or torque boost too high. 	<ul style="list-style-type: none"> Select inverter with right capacitance. Prolong acceleration time Restart motor until it totally stop. Set F1.00 as 1or2. Reset V/F curve or torque boost value.
E. SC	E. SC	System abnormality	<ul style="list-style-type: none"> Acceleration time is too short. Short circuit between inverter output phases or earth. Module is damaged. Electromagnetic disturb. 	<ul style="list-style-type: none"> Prolong acceleration time properly. Check periphery equipments and restart after fault eliminating. Seek support from factory. Check system wiring, earth, shield and deal as required.
E.oH1	E.oH1	Inverter over-heat	<ul style="list-style-type: none"> Temperature is too high. Air channel is blocked. Fan connection parts 	<ul style="list-style-type: none"> Make the environment meet the requirement. Clear the air channel. Check and reconnect the

			<p>is loose.</p> <ul style="list-style-type: none"> ● Fan is damaged. ● Temperature detection circuit fault 	<p>wire</p> <ul style="list-style-type: none"> ● Change the same new fan. ● Seek support from factory.
E.oH2	E.oH2	Rectifier over-heat	<ul style="list-style-type: none"> ● Temperature is too high. ● Air channel is blocked. ● Fan connection parts is loose. ● Fan is damaged. ● Temperature detection circuit fault 	<ul style="list-style-type: none"> ● Make the environment meeting the requirement. ● Clear the air channel. ● Check and reconnect the wire. ● Change the same new fan. ● Seek support from factory.
E.TE1	E.TE1	Motorstatic detection fault	<ul style="list-style-type: none"> ● Detection overtime ● Start static detection while motor is running. ● Capacitance difference is too big between motor and inverter. ● Motor parameter setting mistake. 	<ul style="list-style-type: none"> ● Check motor connection wire. ● Detect after motor stopping totally. ● Change inverter model. ● Reset parameter according to nameplate.
E.TE2	E.TE2	Moror rotation detection fault	<ul style="list-style-type: none"> ● Detect while motor is running. ● Detect with load. ● Detection overtime ● Capacitance difference is too big between motor and inverter. ● Motor parameter setting mistake. 	<ul style="list-style-type: none"> ● Detect after motor stop totally. ● Re-detect without load. ● Check motor connection wire. ● Change inverter model. ● Reset parameter according to nameplate.
E.EEP	E.EEP	Memory fault	<ul style="list-style-type: none"> ● Electromagnetic disturb in memory period. ● EEPROM damage. 	<ul style="list-style-type: none"> ● resume load and save. ● Seek support from factory.
LIFE	LIFE	Reserved	<ul style="list-style-type: none"> ● 	<ul style="list-style-type: none"> ● Seek support from factory.
E.ILF	E.ILF	Input side open phase	<ul style="list-style-type: none"> ● 3-phase input power open phase. 	<ul style="list-style-type: none"> ● Check 3-phase power supply and the phase. ● Check 3-phase power supply wiring.

	E.oLF	Output side open phase	<ul style="list-style-type: none"> ● 3-phase output power open phase 	<ul style="list-style-type: none"> ● Check 3-phase output voltage and current. ● Check wiring.
	E.Gnd	Output earth	<ul style="list-style-type: none"> ● Output earth terminal short circuit. 	<ul style="list-style-type: none"> ● Check wiring and insulation.
	E.HAL	Current detection fault	<ul style="list-style-type: none"> ● Detect circuit fault. ● Phase imbalance 	<ul style="list-style-type: none"> ● Seek for technic support. ● Check motor and wiring.
	E.EF	Inverter external fault	<ul style="list-style-type: none"> ● Peripheral equipment fault protection. 	<ul style="list-style-type: none"> ● Check peripheral equipment.
	E.PAn	Keyboard connect fault	<ul style="list-style-type: none"> ● Keyboard wire fault. ● Keyboard component damage. 	<ul style="list-style-type: none"> ● Check keyboard wire. ● Seek support from factory.
	E.CE	Rs485 communication fault	<ul style="list-style-type: none"> ● Unsuitable baud rate setting. ● Communication wire breaks. ● Communication format does not match upper machine. 	<ul style="list-style-type: none"> ● Set suitable baud rate setting. ● Check communication wire. ● Set right communication format.
	E.CPE	Parameter copy fault	<ul style="list-style-type: none"> ● Parameter copy communication is fault. ● Copy keyboard is not match the inverter. 	<ul style="list-style-type: none"> ● Check wire. ● Select the specified external keyboard model.

6. Quality Guarantee

Guarantee time

Users can enjoy the following “three guarantee” service from the day of buying products if meeting products quality problem:

- We guarantee for repair, return and replacement for one month after delivery;
- We guarantee for repair and replacement for two months after delivery;
- We guarantee for repair for eighteen months after delivery;
- The articles above do not apply to export.

Guarantee range

Installation and debugging: In principle, it should be carried by users. Our company provides technical support. But we can afford installation and debugging service with charge.

On-site diagnosis: In principle, it should be carried by users. Our company gives technical support. But we can afford on-site diagnosis service with charge. According to diagnosis, if it is our liability, it

will be free.

Malfunction maintain: While meeting malfunction, if it is quality problem and within guarantee time, we will repair free of charge. The malfunctions, caused by the reasons mentioned as follows, can only enjoy the paid service even if the product under warranty:

- The malfunctions caused by improper storage or faulty operation which are not in compliance with this user manual.
- The malfunctions caused by unauthorized transformation.
- The malfunctions caused by over-range operation.
- Have over guarantee time.
- The malfunctions caused by nature causes.

Liability exemption





Our company only takes on the liability according to our guarantee time and range. If you need more liability guarantee, you should buy proper commercial insurance from insurance company in advance. The other extended loss caused by malfunctions of our product is not within our guarantee range. Cases as follows, regardless of whether it is within guarantee time, it is not within our guarantee range. If need service, you has to pay for it.

- The malfunctions caused by improper storage or faulty operation.
- The malfunctions caused by unauthorized transformation.
- The malfunctions caused by over-range operation.
- Have been over guarantee time.
- The malfunctions caused by nature causes.
- User has not paid off the payment according to the contract.

Product application

- This product is not designed and produced for the case of vital importance.
- If need to apply this product in manned mobile machine, medical, aerospace, nuclear energy, electric power, devices or system for submarine communications transit, please contact the sales department of our company. We do not take on the liability of the accident while this product is used in these cases without authorization.
- This product is produced under strict quality management. But we can not ensure that there will be no malfunction. If the user requires more safety requirement and reliability, standby device should be deployed. If the user need more guarantee, proper commercial insurance should be considered.

Appendix 1: Lift common faults and maintenance

- **Press the start button but can not running**
 - A. Check the key switch if in “ON” state or not.
 - B. Check the emergency switch if unscrew pop- up or not.
 - C. Check the safety catcher is moving or not, or see the contactor is disconnect or not.
 - D. Check the monitor panel “Emergency stop in cage” “Emergency stop in case of drop” indicator is “on” or not.
 - E. Check the “start” button, and observe MCU board “start” is “on” or not.
- **Normal start, the main operating handle can not upward.**
 - A. Push the main handle to upward, and observe MCU board “start” is “on” or not.
 - B. Check the monitor panel “upper limit” indicator normal or not (on).
 - C. Check the monitor panel “threshold” indicator normal or not (on).
 - D. If above all is normal, then observe monitor panel , and see if have the upward state indicator or not.
- **Normal start, the main operating handle can not downward.**
 - A. Push the main handle to downward, and observe MCU board “start” is “on” or not.
 - B. Check the monitor panel “upper limit” indicator normal or not (on).
 - C. Check the monitor panel, “threshold” indicator normal or not.
 - D. If above all is normal, then observe monitor panel , and see if have the downward state indicator or not.
- **Upward or downward only have low speed ,no have high speed**
 - A. Push the main handle to the max. position(upward and downward),and observe monitor panel “Lord to accelerate” indicator normal or not.
 - B. Attention the cage still in low speed position or not, and observe monitor panel “decelerate limit” indicator normal or not.
 - C. If cage already away from the low speed position, “decelerate limit” indicator still not “on”, then check the speed limit switch if have bad contact or machinery reason.
- **Bad comfort level in running state, having drop and over pulse phenomenon when upward.**
 - A. “Caused by wrong connection between command “upward” and “downward”:When connect the main handle upward, make sure the lift is on “upward” state and the key  is always on “ON”state. When connect the main handle upward, make sure the lift is on “downward” state and the key  is always on “twinkle” state.
- **Power-on trip the cage or residual-current circuit breaker.**

- A. Motor have the “outside short circuit”, “case”, “water” phenomenon, check the motor insulation.
- B. External connection of brake resistor have the short circuit to earth, case.
- **rip the residual-current circuit breaker while in running occasionally.**
 - A. As for the output signal of inverter is high frequency PWM, so will generate a certain amount of high frequency leakage current, please choose residual-current circuit breaker which current sensitivity above 200mA, action time more than 0.1S.
 - B. Choose B type leakage protection switch, and pulse current sensitivity RCD which have high frequency filter and delay function.
 - C. Adjust parameter “F0.17=0.7-1.0, F0.18=1000” can reduce the trip time of leakage breaker, but motor noise will increase.
 - D. Please check if the branch line have connect other equipment or not, if connect, pls disconnect.
- **Power on but inverter no display**
 - A. First confirm input R,S,T, supply voltage if normal or not.
 - B. If R,S,T input normal, then show the soft starter resistance(20Ω/80W) broken.
 - C. The soft starter resistance broken have some reason: check the resistance if short circuit or form a circuit, on power-on moment and before contactor close, big current flow the soft starter resistance.
- **Running and display E.LF fault**
 - A. Check the 3 phase power if have phase loss or voltage unbalance phenomenon.
- **Running and display EoLF fault**
 - A. Check the motor connection line.
 - B. Measure inverter 3 phase output voltage if balance.
- Upward normal, but downward 60cm inverter display E.SC short circuit fault.
 - A. External brake resistance short circuit.
- **Main handle run the upward or downward, inverter display E.SC short circuit fault.**
 - A. Dismantle motor line, if get normal, then one of the motor winding have the short circuit fault.
 - B. Dismantle motor line, if get normal, then motor parameter have wrong setting.
 - C. Dismantle motor line, still in fault, then the inner part of inverter have the short circuit.
- **“under-voltage” fault while in running state**
 - A. Transformer capacity is too small, cable too long, wire diameter too thin, these caused

- big pressure drop while in running.
- B. Main contactor not closed.
- **“Over current” fault `E.o.C.1` and `E.o.C.3` while in running state**
 - A. Check the brake is open or not.
 - B. Check the machinery part have the phenomenon of stuck-locked or not.
 - C. Check the cable and see if have broken or short circuit.
 - D. Check the power voltage if too low or too high.
 - **“Over load” fault `E.o.L.1` and `E.o.L.2` while in running state**
 - A. Too heavy load, check if overload running or other machinery fault.
 - B. Brake is no action or not open, pls check.
 - C. Grid voltage too low.
 - **“Over heat” fault `E.o.H.1` and `E.o.H.2` while in running state**
 - A. Check fan is running or not, if not run,change the cooling fan.
 - B. If the air duct block or not.
 - C. If the environment temperature is too high or not.
 - **Downward while in running or main handle drop to zero `E.o.U.1` `E.o.U.2` `E.o.U.3` “over voltage” fault.**
 - A. Resistance broken or electric line disjointed.
 - B. Sheet resistance of the resistance is too high, power too low, easy to get error.