

Elevator Door Controller - AAD03020DKT01
Panasonic Door Driver NSFC01-01



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1、Special Precautions

- . Do not open or remove the front cover while the Variable Frequency Drive is running. You may get an electrical shock.
- . When necessary to perform inspections or when wiring the unit, switch power off and wait at least 3 minutes and until the bus charge light is off. Check for residual voltage.
- . Do not attempt to inspect or wire this unit unless fully competent to perform the work.
- . Be sure hands are dry before operating any switches.
- . Be sure cables do not have scratches, excessive stress,
- . Be sure all connections are in accordance with instructions in this manual
- . Check that cables are properly connected before turning equipment on.
- . Do not allow metal fragments, conductive bodies, oil or other flammable substance to enter the variable frequency drive.
- . Do not modify this equipment

2、Terminal Function

Name	Cable code (color)	Function description
L / N / PE	Brown /blue /(yellow&green)	Single phase power supply
U / V / W	U/V/W*	Motor terminal
1	2#	Input signal: open door (NO)
2	3#	Input signal: close door (NO)
3	--*	Input signal: open limit (NC)
4	--*	Input signal: close limit (NC)
8	1#	Input signal commonality (COM)
C2-C3	4#	Limit output commonality
B2	5#	Output signal: open limit (NC)
B3	6#	Output signal: close limit (NC)
C1	standby	Error output commonality (COM)
B1		\Error output signal :break contact (NC)
A1		Error output signal: make contact (NO)

Notice : the cable with sign *has been connected in door system , the 7 wires control cable should be connected to main control system by user

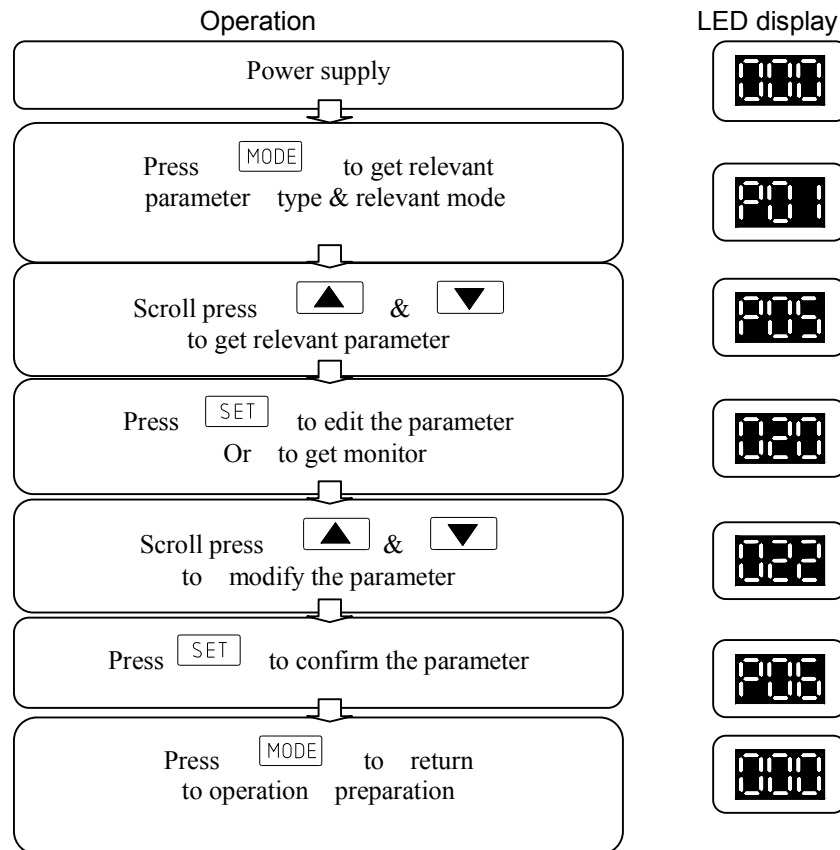
3、Keypad &Operation

3、 1 Keypad Definition

Name	Function
	To switch Mode:dr 、 fr & parameter type : p、 n
	Go down one level in menu navigation ;confirm values after editing
	scroll up numeric values & parameter
	scroll down numeric values & parameter
	Start key commands the drive to enable and start
	Stop key commands to stop and disable ,or reset error

3、 2 Keypad Basic Operation

Setting example : Change parameter P05 from 20 to 22



Notice : parameter type d is behind parameter type p . when get parameter **type p**, **continue to press ▲** button , can get parameter d.

4、Connection Diagrams

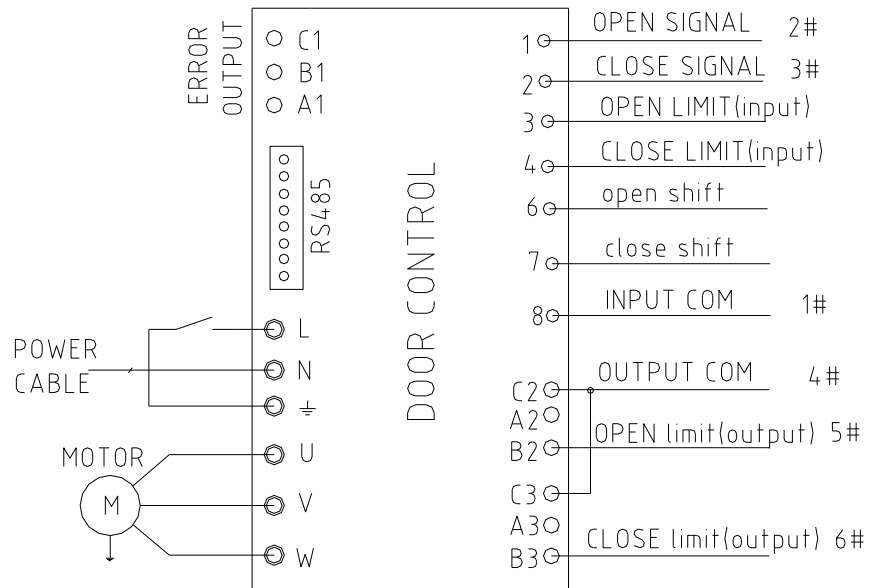


figure 1

Notice :

1. Make control line and power line separately when connect to main controller.
2. To be sure the match of the open/close door output logic of door controller and the Open/close door input signal logic of main controller, when connect to the signal of Open/close.

The initial status of door controller is normal close(NC).

User can select relevant logic status:

Terminal A2—open limit, normal open(NO).

Terminal A3—close limit, normal open(NO).

Terminal (C2-C3)---limit output, signal common terminal.

5、Door Run Description

5、 1 During(Course of) Open Door

- 1、 From DC torque boost level value P05、 acceleration time d28 ,accelerate to start open frequency P15, then start with target frequency d16 and acceleration time d29 to perform open door low-speed running.
- 2 when running time d47, start with acceleration time d30 running to high-speed target frequency d17, high-speed frequency be set a common section,d17=d19.
- 3、 when door arrive position of open shift switch, after delay time d48,then start with deceleration time d33 to decelerate to open door low-speed target frequency d20.
- 4、 when door arrive position of open door target position, start with keeping frequency d21, Keeping current d40,to keep torque of door in that position.

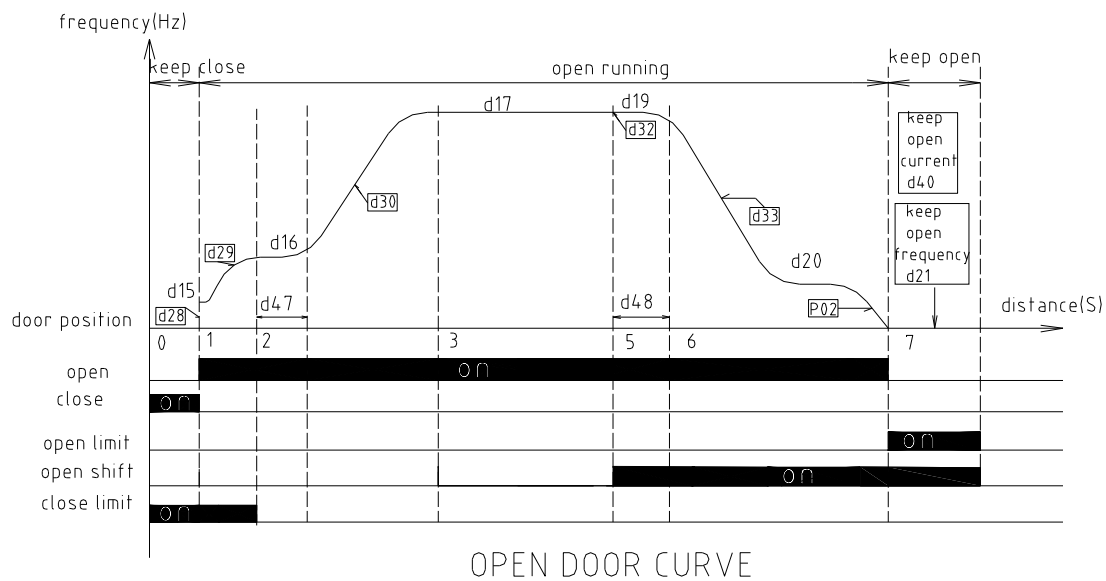


Figure 2

notice:

1. high-speed section of open usually is the same section as: d17=d19, at this point the acceleration/ deceleration parameter: d32 is void.
2. To keep frequency of door opening completed is d21 and the current is d40. Keep time is d42, and the range is 0.1 to 999(s), when d42 is set as 0, it will be keep forever.
3. If opening torque of low-speed is small, the value of P05 can be increased appropriately, but more current course system protect

5. 2 Course of close Door

- 1、 From torque boost level value P05、 acceleration time d34 ,accelerate to low -speed open frequency d22, to perform original close door running. Then start with target frequency d23 and acceleration time d35, to perform low-speed close door running
- 2 when running time d49, start with acceleration time d36 running to high-speed target frequency d24, high-speed frequency be set a common section,d24=d26
- 3、 when door arrive position of open shift switch, after delay time d50,then start with deceleration time d39 to decelerate to open door low-speed target frequency d27.
- 4、 when door arrive position of open door target position, start with keeping frequency d14, Keeping current d41to keep torque of door in that position.

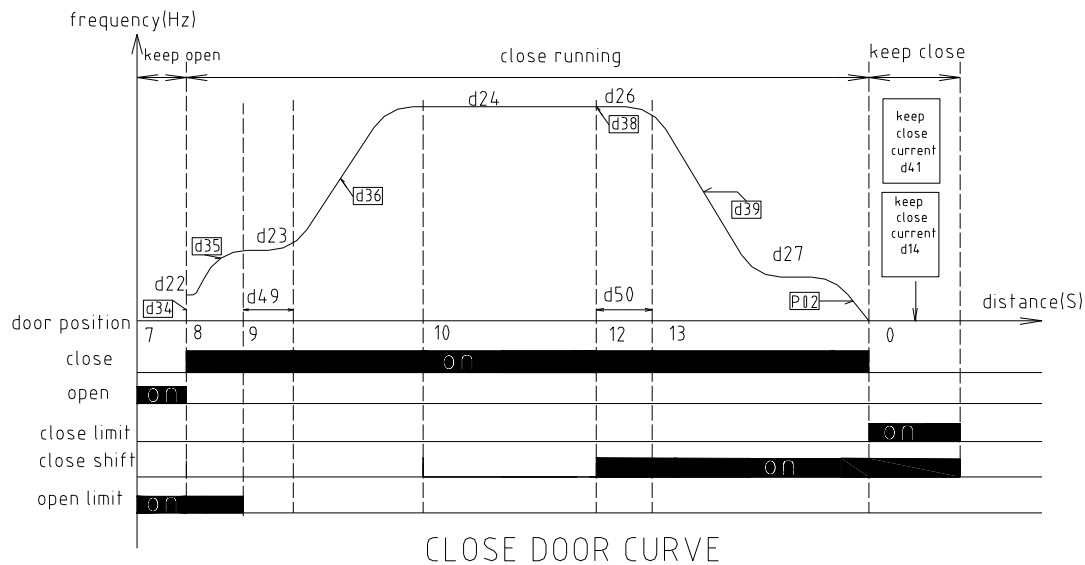


Figure 3

2. **Notice** : high-speed section of open usually is the same section as: d24=d26, at this point the acceleration/ deceleration parameter: d38 is void.
2. To keep frequency of door opening completed is d14 and the current is d41. Keep time is d42, and the range is 0.1 to 999(s), when d42 is set as 0, it will be keep forever.
3. If opening torque of low-speed is small, the value of P05 can be increased appropriately, but more current course system protect

6、 Basic procedure 1

Before the door controller is sent out from factory, the Autotune of door width pulses and function parameters are completed. If user requires getting preferable running curve, he can modify the corresponding parameters refer to fig.2 & fig. 3.

Procedure is:

1. To set control mode is keypad control: p08=1.
2. Refer to fig.2 & fig.3 and corresponding parameters (page:4,5), to get better capability through adjusting door running curve.
3. Press ▲+RUN or ▼+RUN (first press ▲button and then press RUN button, following operation is the same) to examine the running curve.
4. Set control mode become terminal control: P08=2(default)

NOTICE: if the controller is running, P08 can not be changed. first please press "STOP" key, then

press "MODE" key switch to parameter "P" and find P08 to modify

7、 Basic procedure 2

When the motor shift switch or logic of limit switch(NO/NC) is changed,
Or autotune the door width pulses is done again. The following procedure must to be sure.

7.1. Confirmation of the I/O signal (parameter n16,n17).monitor.

Parameter n16 is the monitor of input signal, it includes: ①~⑨。

Parameter n17 is the monitor of output signal, it includes: Open limit output signal, close limit output signal, error output signal.

- ①--open door signal(input)/ RY1 OUTPUT
- ②--close door signal(input)/ RY2 OUTPUT
- ③--open limit signal(input)/ RY3 OUTPUT
- ④--close limit signal(input)
- ⑤--safety edge signal (input)
- ⑥-- open switch speed signal(input)
- ⑦-- close switch speed signal(input)

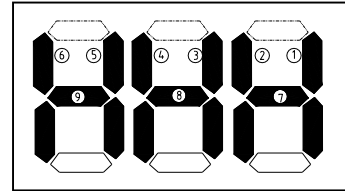


figure 4

notice: the terminal⑤,⑧,⑨is not defined,
So monitor signal⑤,⑧,⑨ is not work

Press MODE button to switch the parameter n mode ,and press▲or▼ button To get relevant monitor parameter, then press SET , can know the state of signal refer to figure 4 .

7、 2 Confirmation of the logic of input signal (NO/NC)

The logic of input signal parameter---P43

- 1、 setting value:0----the signal terminal connect to common terminal of input signal ,the signal is enable (NO) .

1----the signal terminal disconnect to common terminal of input signal, the signal is enable (NC) .

- 2、 setting way: Input of the decimal data of 0 to 15 bit.

Setting value×weights=total (as the setting value)

For example: the open limit input signal and the close limit input signal are set as NC, and others are set as NO.

So the setting value P43=0×16+0×8+0×4+1×2+1×1=3

Signal	(NULL)	Open change signal	Close change signal	Safety edge signal	Open limit signal	Close limit signal
Terminal	-----	7	6	5	4	3
power (BIT)	5—15	4	3	2	1	0
value	0	0/1	0/1	0/1	0/1	0/1
Total	0	16	8	4	2	1

7.3 affirm of the motor rotation direction

condition: The frequency is set as about 3Hz(in the mode Fr), and P09=0

process: press ▲+RUN button, to sure open of the door;

press ▼+RUN button, to sure close of the door.

notice: 1. If motor dose not run, to increase properly the value of parameter P05.

2. If the rotation direction is not right, to change motor phases.

7、 4control mode must to be sure

The value of	Mode
--------------	------

P08	
0	Keypad mode (RUN/STOP)
1	Keypad mode (▲+RUN—open, ▼+RUN—close, STOP)
2	Terminal mode (NO: 1--open, 2--close)
3	Communication (RS 485)

7、5running mode must to be sure

The value of P09	Control mode
0	manual(the frequency be set in the Fr mode)
1	Encoder mode
2	Encoder circle mode
3	Door width pulse autotune
4	4 position switch mode
5	4 position switch circle mode
6	Communication mode

8、Function Parameter Description

NO	Name	Default	Range	Multiple	Unit	edit
P00	CHECK MODE	0	0-3	1	-	R
P01	1 st ACCELERATION TIME	0.5	0-999	10	s	R/W
P02	1 st DECELERATION TIME	0.5	0-999	10	s	R/W
P03	FREQUENCY RANGE	0	0-2	1	s	R
P04	V/F CURVE	0	0-1	1	Code	R
P05	DC BOOST LEVEL	15	0-40	1		R/W
P06	OVERLOAD FUNCTION	2	0-3	1	%	R
P07	OVERLOAD CURRENT	3.6	0.1-100	10	-	R
P08	CONTROL MODE	2	0-3	1	A	R
P09	RUNNING MODE	4	0-6	1		R
P10	STOP MODE SELECT	0	0-1	1	-	R
P11	STOP FREQUENCY	0.5	0.50-60	100	-	R
P12	DC BRAKE TIME	0.5	0-120	10	Hz	R
P13	DCBRAKE LEVEL	0.0	0-100	0.2	s	R
P14	MAX. FREQUENCY	50.00	50-250	100	-	R
P15	BASE FREQUENCY	50.00	45-250	100	Hz	R
P16	PREVENT OVERCURRENT STALL	1	0-1	1	Hz	R
P17	PREVENT OVERVOLTAGE STALL	1	0-1	1	Hz	R
P18	SKIP FREQUENCY 1	0.00	0.0.5-250	100	Hz	R
P19	SKIP FREQUENCY 2	0.00	0.0.5-250	100	s	R
P20	SKIP FREQUENCY 3	0.00	0.0.5-250	100	-	R
P21	SKIP FREQUENCY BAND WIDTH	0	0-10	1	-	R
P22	CURRENT LIMIT FUNCTION	0.0	0-9.9	10	s	R
P23	POWER LOSS START MODE	0	0-3	1	-	R
P24	RIDE-THROUGH RESTART	0	0-2	1	-	R
P25	WAIT TIME	0.1	0-0.1-1002	10	s	R
P26	SELECT RETRY	0	0-3	1	-	R
P27	RETRY TIMES	1	1-10	1	Times	R
P28	LOWER FREQUENCY CLAMP	0.5	0.5-250	100	Hz	R
P29	UPPER FREQUENCY	250	0.5-250	100	Hz	R

	CLAMP					
P30	MONITOR SELECT	0	0-1	1	-	R
P31	LINE	3.0	0.1-100	10	Multiple	R/W
P32	MAX.OUTPUT VOLTAGE	0	0-500	1	VAC	R
P33	OCS LEVEL	140	1-200	1	%	R
P34	CARRIER FREQUENCY	5	0-8	1	Code	R
P35	COMMUNICATION STATION	1	1-31	1	-	R
P36	COMMUNICATION SPEED	5	4-6	1	Code	R
P37	STOP BIT	1	1-2	1	Bit	R
P38	PARITY BIT	0	0-2	1	-	R
P39	COMMUNICATION	0.0	0.0-60.0	10	s	R
P40	COMMUNICATION RESPOND TIME	1	1-999	1	ms	R

P41	PASSWORD	0	0-999	1	-	R
P42	RESET DATA	0	0-1	1	-	R
P43	SELECT INPUT SIGNAL LOGIC	27	0-31	1	-	R
P44	SAFETY EDGE RESPOND TIME	10	0-999	1	ms	R
P45	POSITION SIGNAL RESPOND TIME	10	1-999	1	ms	R
P46	ENCODE ERROR RESPOND TIME	0.0	0-2.0	10	s	R
P47	PROSITION SIGNAL ERROR RESPOND TIME	0.0	0-10.0	10	s	R
P48	RY1 OUTPUT FUNCTION SELECT	7	0-15	1	-	R
P49	RY2 OUTPUT FUNCTION SELECT	4	0-15	1	-	R
P50	RY3 OUTPUT FUNCTION SELECT	5	0-15	1	-	R
P51	MOTOR PHASE	6	2-6	0.5	Pole	R
P52	ENCODE LINE	----	100-999	1	Pulse	R
P53	SYSTEM PARAMETER (DON'T CHANGE)	0	0-1	1	-	R
P54	SYSTEM PARAMETER (DON'T CHANGE)	1.0	0.1-999	10	Multiple	R/W
P55	SYSTEM PARAMETER (DON'T CHANGE)	0.0	0-999	10	s	R/W
P56	SYSTEM PARAMETER (DON'T CHANGE)	0.1	0.1-999	10	Multiple	R/W
P57	SYSTEM PARAMETER (DON'T CHANGE)	0.0	0-999	10	s	R/W
P58	SYSTEM PARAMETER (DON'T CHANGE))	5.00	0.5-250	100	Hz	R/W
P59	OVERLOAD FREQUENCY 1	10.00	0.5-250	100	Hz	R/W
P60	OVERLOAD FREQUENCY 2	50.00	0.5-250	100	Hz	R/W
P61	OVERLOAD CURRENT 1	1.2	0.1-100	100	A	R/W
P62	OVERLOAD CURRENT 2	1.2	0.1-100	100	A	R/W
P63	OVERLOAD RESPOND TIME	0	0-999	1	ms	R/W
P64	OVERLOAD FREQUENCY RATE (LOW SPEED)	50.00	0-100	100	%	R/W
P65	OVERLOAD FREQUENCY RATE (HIGH SPEED)	70.00	0-100	100	%	R/W

P66	OVERLOADSWITCH FREQUENCY	5.00	0.5-250	100	Hz	R/W
P67	OVERLOAD RESPOND TIME	100	0-999	1	ms	R/W
P68	BEGIN RUN RESPOND TIME	200	100-999	1	ms	R/W
P69	FORCE TO OPEN DOOR RESPOND TIME	0.0	0-500	10	s	R/W
P70	ABNORMAL OPEN RESPOND TIME	0.0	0-500	10	s	R/W
P71	ABNORMAL OPEN COMPLETE WAITE TIME	0.0	0-10.0	10	s	R/W
P72	KEEP OPEN TIME (RECYCLE MODE)	3.0	0-10	10	s	R/W
P73	KEEP CLOSE TIME (RECYCLE MODE)	3.0	0-10	10	s	R/W
P74	ACCLE/DECELE CURVE SELECT	1	0-2	1	-	R/W
P75	OPEN/CLOSE STOP MODE SELECT	0	0-1	1	-	R/W
D00	CHECK PARAMETER D PASSWORD	0	0-999	1	-	R/W
D01	DOOR WIDTH PULSE	DEP	0-65535	1	-	R/W
D02	CLOSE COMPLETE POSITION	0.00	0-100	100	%	R/W
D03	OPEN CHANGE SPEED POSITION 1	1.50	0-100	100	%	R/W
D04	OPEN CHANGE SPEED POSITION 2	16.00	0-100	100	%	R/W
D05	OPEN CHANGE SPEED POSITION 3	50.00	0-100	100	%	R/W
D06	OPEN CHANGE SPEED POSITION 4	70.00	0-100	100	%	R/W
D07	OPEN CHANGE SPEED POSITION 5	80.00	0-100	100	%	R/W
D08	OPEN COMPLETE POSITION	100.00	0-100	100	%	R/W
D09	CLOSE COMPLETE POSITION 1	95.00	0-100	100	%	R/W
D10	CLOSE COMPLETE POSITION 2	75.00	0-100	100	%	R/W
D11	CLOSE COMPLETE POSITION 3	55.00	0-100	100	%	R/W
D12	CLOSE COMPLETE POSITION 4	15.00	0-100	100	%	R/W
D13	CLOSE COMPLETE POSITION 5	13.00	0-100	100	%	R/W
D14	KEEP CLOSE DOOR FREQUENCY	2.00	0-250	100	Hz	R/W
D15	OPEN DOOR FREQUENCY 1	2.00	0-250	100	Hz	R/W
D16	OPEN DOOR FREQUENCY 2	2.00	0-250	100	Hz	R/W
D17	OPEN DOOR FREQUENCY 3	23.00	0-250	100	Hz	R/W
D18	OPEN DOOR FREQUENCY 4	21.00	0-250	100	Hz	R/W
D19	OPEN DOOR FREQUENCY 5	23.00	0-250	100	Hz	R/W
D20	OPEN DOOR FREQUENCY 6	3.00	0-250	100	Hz	R/W
D21	KEEP OPEN DOOR FREQUENCY	3.00	0-250	100	Hz	R/W
D22	CLOSE DOOR FREQUENCY 1	3.00	0-250	100	Hz	R/W
D23	CLOSE DOOR FREQUENCY 2	3.00	0-250	100	Hz	R/W
D24	CLOSE DOOR FREQUENCY 3	19.00	0-250	100	Hz	R/W
D25	CLOSE DOOR FREQUENCY 4	20.00	0-250	100	Hz	R/W
D26	CLOSE DOOR FREQUENCY 5	19.00	0-250	100	Hz	R/W
D27	CLOSE DOOR FREQUENCY 6	2.00	0-250	100	Hz	R/W
D28	OPEN ACCE/DECE TIME 1	0.5	0.0-999	10	s	R/W
D29	OPEN ACCE/DECE TIME 2	0.5	0.0-999	10	s	R/W

D30	OPEN ACCE/DECE TIME 3	1.20	0.0-999	10	s	R/W
D31	OPEN ACCE/DECE TIME 4	0.5	0.0-999	10	s	R/W
D32	OPEN ACCE/DECE TIME 5	0.5	0.0-999	10	s	R/W
D33	OPEN ACCE/DECE TIME 6	1.00	0.0-999	10	s	R/W
D34	CLOSE ACCE/DECE TIEM 1	0.5	0.0-999	10	s	R/W
D35	CLOSE ACCE/DECE TIEM 2	0.5	0.0-999	10	s	R/W
D36	CLOSE ACCE/DECE TIEM 3	1.00	0.0-999	10	s	R/W
D37	CLOSE ACCE/DECE TIEM 4	0.5	0.0-999	10	s	R/W
D38	CLOSE ACCE/DECE TIEM 5	0.5	0.0-999	10	s	R/W
D39	CLOSE ACCE/DECE TIEM 6	1.00	0.0-999	10	s	R/W
D40	KEEP OPEN DOOR CURRENT	0.5	0-100	10	A	R/W
D41	KEEP CLOSE DOOR CURRENT	0.4	0-100	10	A	R/W
D42	KEEP OPEN/CLOSE DOOR TIME	0	0-999	10	s	R/W
D43	OPEN COMPLETE STAY FREQUENCY	0.50	0.5-250	100	Hz	R/W
D44	CLOSE COMPLETE STAY FREQUENCY	0.50	0.5-250	100	Hz	R/W
D45	OPEN COMPLETE STAY TIME	0	0-10	10	s	R/W
D46	CLOSE COMPLETE STAY TIME	0	0-10	10	s	R/W
D47	BEGIN OPEN DOOR TIME (4SW MODE)	0.30	0-3	100	s	R/W
D48	BEGIN OPEN DOOR CHANGE SPEED TIME (4SW MODE)	0.00	0-3	100	s	R/W
D49	BEGIN CLOSE DOOR TIME (4SW MODE)	0.30	0-3	100	s	R/W
D50	BEGIN OPEN DOOR CHANGE SPEED TIME (4SW MODE)	0.00	0-3	100	s	R/W
D51	THE FREQUENCY OF POWER ON	3.00	0.5-250	100	Hz	R/W
D52	DOOR WIDTH AUTOTONE	2.00	0.5-250	100	Hz	R/W
D53	PARAMETER D PASSWORD	0	0-999	1	-	R/W

9、Troubleshooting

9、 1 Surveillant parameter

NO	NAME	PRECISION	UNIT	REMARK
n00	SOFTWARE NO.		CODE	
n01	OUTPUT FREQUENCY	0.001	Hz	
n02	OUTPUT CURRENT	0.1	A	
n03	OUTPUT VOLTAGE	0.1	Vac	
n04	INPUT DC VOLTAGE	0.1	Vdc	
n05	THE SET FREQUENCY	0.01	Hz	
n06	REBACK FREQUENCY	0.01	Hz	MUST TO MOTOT PHASE ,ENCODE LINES
n07	DOOR POSITION AREA	1		0-7: OPEN DOOR AREA; 8-13: CLOSE DOOR AREA
n08	DOOR WIDTH (PULSE)	0.01		0.01=1; 100=10000

n09	DOOR COMPLETE POSITION (DATA)	0.01		
n10	DOOR RUN TIMES	1	TIME	0.01=1 TIME; 100=10000TIME
n11	ENCODE REBACK STATE	0.1	kHz	F: (OPEN) R: (CLOSE)
n12	ERROR 1		CODE	
n13	ERROR 2			
n14	ERROR 3			
n15	ERROR 4			
n16	INPUT SIGNAL STATE			
n17	OUTPUT SIGNAL STATE			

9、2 Error Code

PANEL SHOW	ERROR CONTENT	REASON	REMEDY	Relevant parameter
SC1	Over current or abnormal heating	Output .earth short ambient temperature Is too high Acceleration time is Too short	Check for output short circuits and ground faults Check ambient temperature and fan operation Increase the acceleration time	Acceleratio n time
SC2				
SC3				
OC1	Over current	Output less phase Dc boost level is too High Acceleration is too short	Check for open circuit output phases Increase the acceleration time Adjust the boost level	Acceleratio n/deceleratio n time P05
OC2				
OC3				
OV1	Excessive internal DC voltage during deceleration(overv oltage)	Deceleration time is too short	Increase the acceleration time Connect a brake resistor	Acceleratio n/deceleratio n time P17
OV2				
OV3				
LV	Supply voltage drops to 85% or less of rating (undervoltage)	Voltage supply is low Instantaneous power Cut	Measure the supply voltage Consider the ride-through restart function	P23-25
OL	An output current that is 125% or more of the electronic thermal setting current or 150% or more of the inverter's rated current continued for one minute or more.(overload)	Actuating of Thermal relay Overload	Check the electronic thermal setting current Reduce the load	P05 P06,P07
AU	An auxiliary fault stop signal was	Emergency stop signal	Inspect the sequence circuit to	

	input from control circuit terminal (auxiliary stop)	is send	confirm that the auxiliary signal is correct	
OP	The operation panel was input from control circuit terminal (auxiliary stop)	When power is, the run signal is ON When running, the keypad is shell Communication is overtime	Take care with the handing of the operation panel Check the run signal when the data is being set Check the POWER LOSS START MODE	P23 P39
Er1	Encode no pulse input	Encode is not pulse input	To sure the encode power ,the encode connect	P51,P52 P46
Er2	Encode phase is wrong	Encode A/B phase is Not right	To sure the encode A/B phase	P51,P52 P46
Er3	The open/close Complete input are ON	The open/close complete input are ON	To sure the open/close input signal	P43 P45
Er4	The open complete input is not receive	Door width pulse is show the door open complete ,but the open complete signal is not receive	To sure the open Complete signal	P43 P45
Er5	The close complete input is not receive	Door width pulse is show the door close complete ,but the close complete signal is not receive	To sure the close Complete signal	P43 P45

Annotations:

After the parameter had been setted completely, in order to prevent change the parameter by accident, you can set password.

Parameter P41: full section password (include all the parameter of Pand d) to set

The range of password is 1 to 999 (if you set as 000, it means no password)

When you have setted password, if you want to change the parameter, you should following this:

First press "STOP" key to stop the controller, then press "MODE" key 4 times

If you see word "ps" is glittering, please press ▲ or ▼ key to input your password

Press "SET" key, you can change the parameter.

(the controller is no password from factory, if you want to set, please record password to prevent forget)