Application parameters setting of KD200E inverter special for elevator

Function Code	Name	Description	Setting	Modify
Group F00 Basic Function Group				
F00.00	Motor 1 control mode	0：V/F control 1：Speed sensorless vector control 2：Speed sensor vector control	2	◎
F00.12	Acc-time 1	0.0~6000.0s	1.8s	○
F00.13	Dec-time 1	0.0~6000.0s	1.8s	○
F00.15	Carrier frequency setting	2.0~10.0kHz	5.0	○
Group F01 Startup and stop Control				
F01.01	Starting frequency of direct start	0.00~10.00Hz	0.00Hz	◎
F01.02	holding time of the starting frequency	0.0~100.0s	0.6s	○
F01.05	ACC/DEC selection	0：Linear type 1：S-curve type	1	◎
F01.06	**S curve start-acc-time1**	**0.0~50.0s**	**1.0s**	○
F01.07	**S curve end-dec-time1**	**0.0~50.0s**	**0.6s**	○
Group F02 Motor 1 Parameter Group				
F02.02	Rated power of motor1	0.1~1000.0Kw	7.5Kw	◎
F02.03	Rated voltage of motor1	0.1~1200V	380V	◎
F02.04	Rated current of motor1	0.8~6000.0A	17.0A	◎
F02.05	Rated frequency of motor1	0.01~F00.03(maximum Freq)	50.00Hz	◎
F02.06	Rated speed of motor1	1~36000rpm	1420rpm	◎
F02.07	Stator resistance of motor1	0.640Ω	Through motor paramters autotunning	◎
F02.08	Rotor resistance of motor1	0.480Ω		◎

F02.09	Leakage inductance of motor1	3.4mH		◎
F02.10	Mutual inductance of motor1	98.0mH		◎
F02.11	No-load current of mtoro1	8.2A		◎

Function Code	Name	Description	Setting	Modify
F02.20	Encoder low speed filtering times	0~10	2	○
Group F03 Vector Control Group				
F03.00	Speed loop proportional gain 1	0~100.0	40	○
F03.01	Speed loop integral time 1	0.001~10.000s	0.100	○
F03.02	Low switching frequency	0.00Hz~F03.05	3.50Hz	○
F03.03	Speed loop proportional gain 2	0~100.0	15	○
F03.04	Speed loop integral time 2	0.001~10.000s	0.200	○
Group F05 Input Terminal Group				
F05.00	HDI1 input selection	0: High pulse input (see F05.29 ~ F05.34) 1: Digital inputs (see F05.08)	1	◎
F05.01	DI1 terminals function selection	43：Emergency running（EMER） 44：Examine running（EXM） 45：Forcing deceleration stop 46：Inverter enable (ENA) 47： 48：Contactor feedback signal (TB) 49：Brake feedback signal (FB)	1	◎
F05.02	DI2 terminals function selection		2	◎
F05.03	DI3 terminals function selection		16	◎
F05.04	DI4 terminals function selection		49	◎
F05.05	DI5 terminals function selection		46	◎
F05.06	DI6 terminals function selection（extended function）		43	◎

F05.07	DI7 terminals function selection（extended function）		17	◎
F05.08	HDI1 terminals function selection		18	◎
Group F06 Output Terminal Group				
F06.03	Relay T1 output	0：No output 1：Elevator running（LR） 2~28: As the same as SD300 32：Holding-brake control（FC） 33：Contactor control（TC） 34：Elevator running 1（LR1） 35：Holding-brake output（FO） 36：Elevator Zero speed runing	5	○
F06.04	Relay T2 output		32	○

Function Code	Name	Description	Setting	Modify
Group F08 Strengthen function Groups				
F08.09	Fault auto-reset times	0~10	5	
F08.10	Interval time of fault auto-reset	0.1~100.0s	5.0s	
F0B group Simple PLC and Multi-speed Control Group				
F0B.02	Multi-step speed 0	0.000~A04.00(Elevator rated speed)	0.070m/s	○
F0B.04	Multi-step speed 1	0.000~A04.00(Elevator rated speed)	1.000m/s	○
F0B.06	Multi-step speed 2	0.000~A04.00(Elevator rated speed)	0.040m/s	○
F0B.08	Multi-step speed 3	0.000~A04.00(Elevator rated speed)	0.000m/s	○
F0B.10	Multi-step speed 4	0.000~A04.00(Elevator rated speed)	0.184m/s	○

F0B.12	Multi-step speed 5	0.000~A04.00(Elevator rated speed)	0.000m/s	○
F0B.14	Multi-step speed 6	0.000~A04.00(Elevator rated speed)	0.500m/s	○
		` Group A00		
A00.12	S-curve type selection	0:standerd s-curve 1:special s-curve for elevator	1	◎
		Group A04 Special parametes group for elevator		
A04.00	Elevator rated speed	0.100~4.000m/s	1.000m/s	◎
A04.01	Traction motor wheel diameter	100~2000mm	480mm	◎
A04.02	Reduction ratio	1.00~100.00	41.00	◎
A04.03	Hoist rope hanging ratio	1~8	1	◎
A04.04	Overhaul running speed	0.000~A04.00	0.250m/s	○
A04.05	Overhaul running acceleration time	0.001～10.000 m/s2	0.301m/s2	○

Function Code	Name	Description	Setting	Modify
A04.06	Overhaul running deceleration time	0.001～10.000 m/s2	0.301m/s2	○
A04.07	Emergency running speed	0.000~A04.00	0.040m/s	○
A04.08	Emergency running acceleration time	0.001～10.000 m/s2	0.201m/s2	○
A04.09	Emergency running deceleration time	0.001～10.000 m/s2	0.201m/s2	○

A04.10	Holding brake, Contactor control selection	0: Holding brake and contactor are controlled by exterior controller, not inverter. 1: Holding brake is controlled by inverter, and contactor is controlled by exterior controller. 2: Holding brake is controlled by exterior controller, and contactor is controlled by inverter. 3: Both holding brake and contactor is controlled by inverter.	1	◎
A04.11	Stop contracting brake frequency	0.00~5.00Hz	0.90Hz	◎
A04.12	Close brake delay time	0.00～5.00s	0.10s	○
A04.13	Open brake delay time	0.00～5.00s	0.10s	○
A04.14	Contracting brake feedback inspecting interval time	0.1～5.0s	2.00s	○
A04.15	Contactor feedback inspecting interval time	0.1～5.0s	2.00s	○
A04.16	Close brake stop delay time	0.0～5.0s	0.30s	○
A04.17 ~A04.18	Rserved	0	0	●
A04.19	Brake and Contactor feedback signal select	0x00 ～0x11	0x11	○
A04.20	**dec-time of s-curve stop stage**	**0.0~6000.0s (Valid when A00.12=1)**	**1.8s**	○
A04.21	**start-acc-time of s-curve stop stage**	**0.0~50.0s (Valid when A00.12=1)**	**1.0s**	○
A04.22	**end-dec-time of s-curve stop stage**	**0.0~50.0s (Valid when A00.12=1)**	**1.0s**	○

Function Code	Name	Description	Setting	Modify
A04.23	**S curve start-acc-time2**	**0.0~50.0s**	**1.0s**	○

A04.24	**S curve end-dec-time2**	**0.0~50.0s**	**0.6s**	○
		roup F0F Factory Setting		
F0F.00	Factory password	0~65535	20326	○
F0F.07	**Low voltage error Protection level**	**0~1200V**	**200V (adapt to UPS input)**	◎

DETAILED FUNCTION DESCRIPTIONT OF A04 GROUP

Group A04 Special parameters group for elevator

Function Code	Name	Setting Range	Factory Setting	Modify
A04.00	Elevator rated speed	0.100~4.000m/s	1.000m/s	◎

A04.00 is the rating speed on the elevator nameplate, the setting value should be less than the elevator rating speed. The relationship of the inverter's output frequence and the elevator's running line speed is linear. The expression is as follow:

$$f = \frac{60ikf_N}{3.14Dn_N}v$$

Thereinto, **f** represents output frequency of elevator, **v** represents running line speed of elevator, **D** represents diameter of tractor (A04.01), **i** represents reduction ratio(A04.02), **k** represents hoist hanging ratio(A04.03), $f_N$represents rated frequency of motor (F02.05), $n_N$represents rated rotational speed of motor (F02.06).

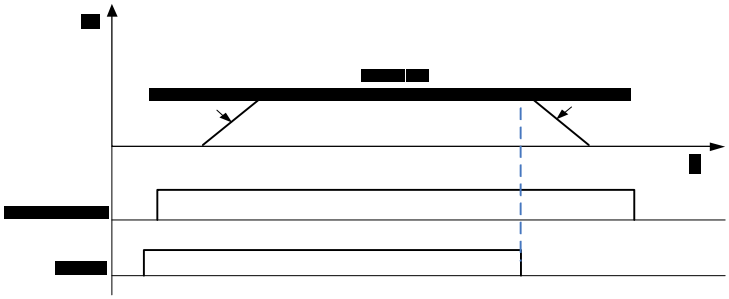
Notice: The speed of elevator is limited by A04.00, and the maximum output frequency of inverter is limited by F00.03, so the maximum running line speed of elevator is limited by both F00.03 and A04.00.

A04.01	Traction motor wheel diameter	100~2000mm	480mm	◎
A04.02	Reduction ratio	1.00~100.00	41.00	◎
A04.03	Hoist rope hanging ratio	1~8	1	◎

A04.01、A04.02、A04.03 are parameters of the elevator traction motor, only when parameters are set correctly, the inverter running-speed can be right parallelism with elevator's factual speed. Frondose connection refers to A00.00.

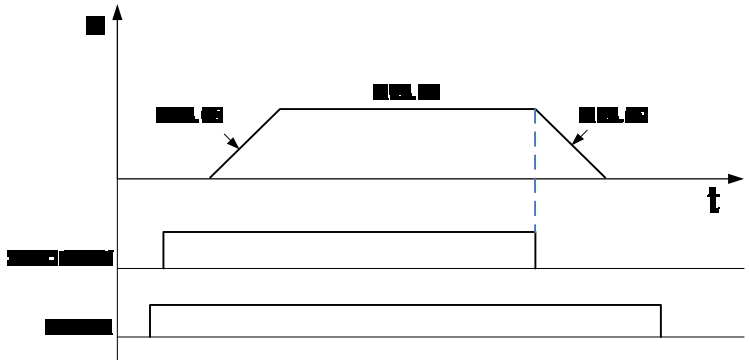
A04.04	Overhaul running speed	0.000~A04.00	0.300m/s	○
A04.05	Overhaul running acceleration time	0.001～10.000 m/s2	0.301m/s2	○
A04.06	Overhaul running deceleration time	0.001～10.000 m/s2	0.301m/s2	○

Setting overhaul running speed, acceleration and deceleration. The curve is as follow:



A04.07	Emergency running speed	0.000~A04.00	0.300m/s	○
A04.08	Emergency running acceleration time	0.001～10.000 m/s2	0.201m/s2	○
A04.09	Emergency running deceleration time	0.001～10.000 m/s2	0.201m/s2	○

Setting speed, acceleration and deceleration of emergency running. The curve and sequence chart of emergency running is as follow:



A04.10	Holding brake, Contactor control selection	0~3	1	◎

0: Holding brake and contactor are controlled by exterior controller, not inverter.

1: Holding brake is controlled by inverter, and contactor is controlled by exterior controller.

2: Holding brake is controlled by exterior controller, and contactor is controlled by inverter.

3: Both holding brake and contactor is controlled by inverter.

A04.11	Stop contracting brake frequency	0.00~5.00Hz	0.90Hz	◎
A04.12	Close brake delay time	0.00～5.00s	0.10s	○

The frequency adjusts that contracting brake is carried out at which frequency point. If set A04.12,and it starts timing when the inverter output frequency reaches the frequency point, output the contracting brake signal when the time is over. The closing brake and contracting brake of multi-function output signal also is stop. If A04.12 is set to be 0,when the inverter output frequency reaches setting frequency point, contracting brake is carried out immediately.

Close brake delay time is from the ouput frequency reaches A04.11 to close brake output command. This paremeter can enhance stop comfortable.

A04.13	Open brake delay time	0.00～5.00s	0.10s	○

Open brake delay time is from 0 speed running to output Open brake command. This parameter let inverter prevent starting concussion, before open brake.

A04.14	Contracting brake feedback inspecting interval time	0.1～5.0s	2.00s	○

After selecting contracting brake control, the fault time of elevator contracting brake action is greater than A04.14, inverter will report brake feedback fault **(E.FAE).**

A04.15	Contactor feedback inspecting interval time	0.1～5.0s	2.00s	○

After selecting contactor control, the fault time of elevator relay action is greater han A04.15 inverter will report contactor feedback fault **(E.TcE).**

A04.16	Close brake stop delay time	0.0～5.0s	0.00s	○

The function is primarily to avoid that the brake is not closed steadly enough when inverter stop.When F01.08 is set to be 1,in the process of running normally, then there is a signal of coast to stop ,inverter brake immediately to block output without stop delay time.

When F01.08 is set to be 0(deceleration to stop), inverter will block output after the delay time whenever inverter decelerate to stop.

A04.19	Brake and Contactor feedback signal select	0x00 ～0x11	0x11	○

LED ones：brake feedback signal select

0: disable brake feedback signal

1: enable brake feedback signal

LED tens：contactor feedback signal select

0: disable contactor feedback signal

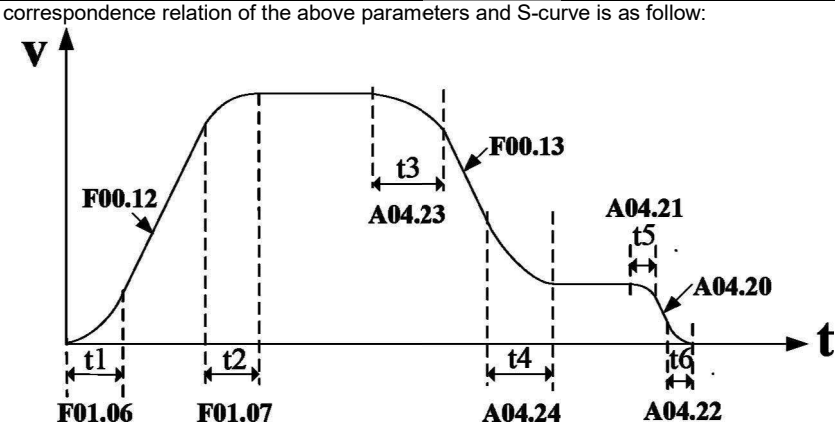
1: enable contactor feedback signal

Parameters description of s-curve

Function Code	Name	Setting Range	Factory Setting	Modify

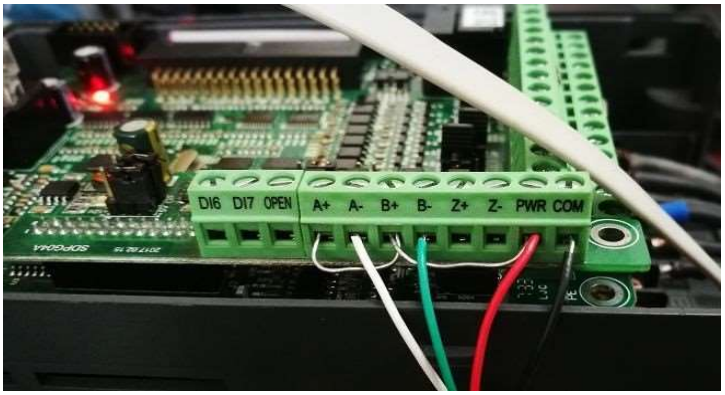
F01.05	ACC/DEC selection	0：Linear type 1：S-curve type	1	◎
F01.06	**S curve start-acc-time1**	0.0~50.0s	1.0s	○
F01.07	**S curve end-dec-time1**	0.0~50.0s	0.6s	○
A00.12	S-curve type selection	0:standerd s-curve 1:special s-curve for elevator	1	◎
A04.20	Stop dec-time of s-curve	0.0~6000.0s (Valid when A00.12=1)	1.8s	○
A04.21	**start-acc-time of s-curve stop stage**	**0.0~50.0s (Valid when A00.12=1)**	**1.0s**	○
A04.22	**end-dec-time of s-curve stop stage**	**0.0~50.0s (Valid when A00.12=1)**	**1.0s**	○
A04.23	**S curve start-acc-time2**	**0.0~50.0s**	**1.0s**	○
A04.24	**S curve end-dec-time2**	**0.0~50.0s**	**0.6s**	○

The correspondence relation of the above parameters and S-curve is as follow:

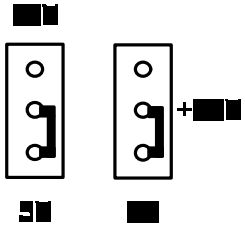


Connection and correct confirmation of encoder

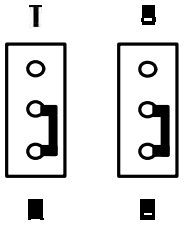
Setp1, connect encoder as the following picture shows:



Step2, set encoder power voltage jumper and terminal DI6、DI7 jumper as follows:



Step3, set the control btoard T/A, S/B terminal jumper as follows:

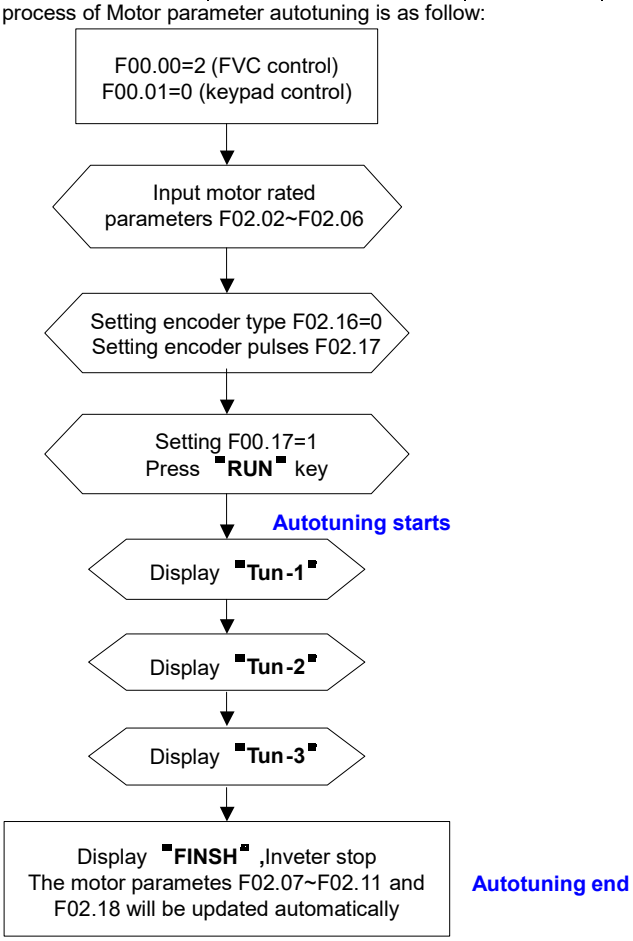


Motor parameter autotuning operation process

Function Code	Name	Setting Range	Factory Setting	Modify

F00.17	Motor parameter autotuning	0：No operation 1：Rotation autotuning 2：Static autotuning	0	◎

The operation process of Motor parameter autotuning is as follow:



The fiture of data when motor is running