

NICE900
Application Manual V0.0

NICE900

Asynchronous Motor Speed Control Mode



Data code: 19010232

Preface

The door machine integrated products are the drive controller of the lift door, ice-house door, and metro doors, which integrate the door logic control and motor drive control. The external system only needs to give door command to realize the control for the complete door system.

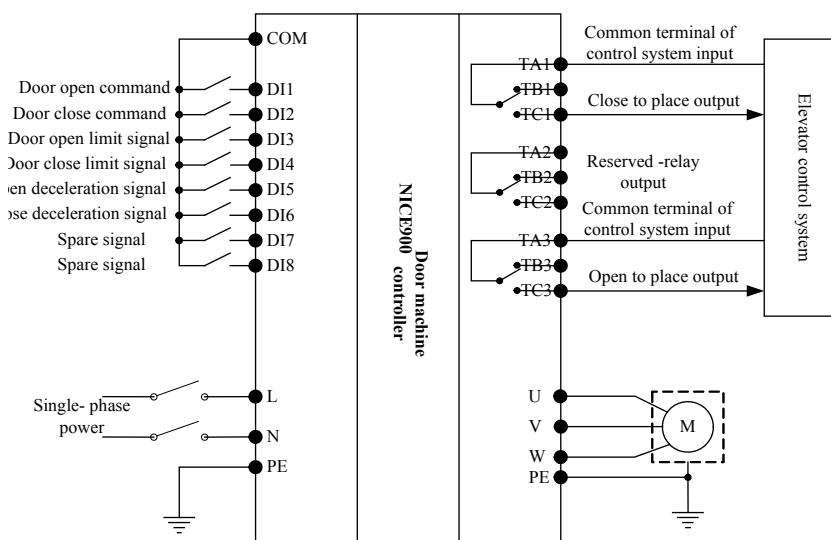
The product can drive AC asynchronous/sync motors, and also support speed control mode and distance control mode. The wide application range can satisfy various customer needs.

Remark: This manual is focus in the Asynchronous motor speed control mode

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Remark: This manual is applied to the door-machine with the software version of 1.07 or the above.

1. Typical application



2. I/O function parameter setting

Travel switch input point:

Function Code	Name	Setting range	N.O point travel switch	N.C point travel switch
F901	Switch input terminal DI1	1-116	13 (Close-door limit)	113
F902	Switch input terminal DI2	1-116	15 (Close-door deceleration)	115
F903	Switch input terminal DI3	1-116	14 (Open-door deceleration)	114
F904	Switch input terminal DI4	1-116	12 (Open-door limit)	112

Command input point:

Function Code	Name	Setting range	Setting
F905	Switch input terminal DI5	1-116	1 (Door opening command)
F906	Switch input terminal DI6	1-116	2 (Door closing command)

Output point:

Function Code	Name	Setting range	Setting
F909	Programmable relay output TA1/TB1/TC1	1-11	2 (Close-door arrival output)
F911	Programmable relay output TA3/TB3/TC3	1-11	1 (Open-door arrival output)

Remark】 Among relay output, TA\TB is N.C point; TA\TC is N.O point;

3. Wiring inspection

Indicate NO.	When manual opening, each LED "light" meaning
D1	DI1 signal is valid (low level effective)
D2	DI2 signal is valid (low level effective)
D3	DI3 signal is valid (low level effective)
D4	DI4 signal is valid (low level effective)

4. Can not open or open arrival

1) Can not open

F210	Over-excitation gain	0~30.0%	10.0%	☆
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Increase the parameter slightly;

2) Exert not enough to open arrival

F307	Open door locked-rotor to torque holding switch point setting	0.0%~150.0% motor rated torque	50.0%	★
F308	Open-door arrival torque holding	0.0%~F307	50.0%	★

Increase the parameters properly;

5. Asynchronous machine skate withdraw

Change parameter according to the form below:

F408	Close-door arrival low speed running time	1~9999ms	300ms	☆
F409	Skate withdraw speed setting	0.00Hz~F403	6.00Hz	☆
F410	Skate withdraw running time	1~9999ms	1500ms	☆

Before skate withdraw, if landing door knocks the door lightly, increase F408 slightly to insure

it could not knock , then adjust close-door skate withdraw speed and time.

6. Close-door blocked adjustment

1) Adjustment base on time (recommend)

F502	Door closing time limit	0.00~999.9s	4.5s	☆
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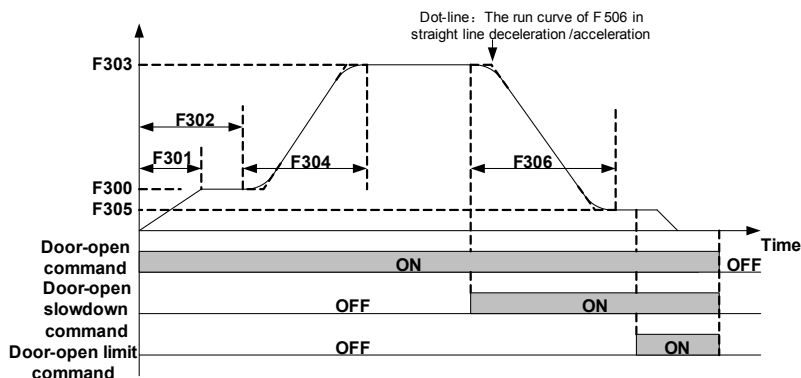
If door closing arrival is not normal without obstruct, increase F502 properly to insure door closing arrival is normal without obstruct.

2) Adjustment base on torque

F417	Close-door blocked high speed setting	F418~F104	12.00Hz	☆
F418	Close-door blocked low speed setting	0.00Hz~F104	2.00Hz	☆
F419	High speed blocked torque setting	0.00~150.0%	10.0%	☆
F420	Low speed blocked torque setting	0.00~150.0%	35.0%	☆

If it could not reopen door when in low speed, then decrease F420; (Setting base on locked-rotor to output torque in low speed, below the output torque a little. It will arise miss operation if setting too low.)

➤ Door-opening curve adjusting

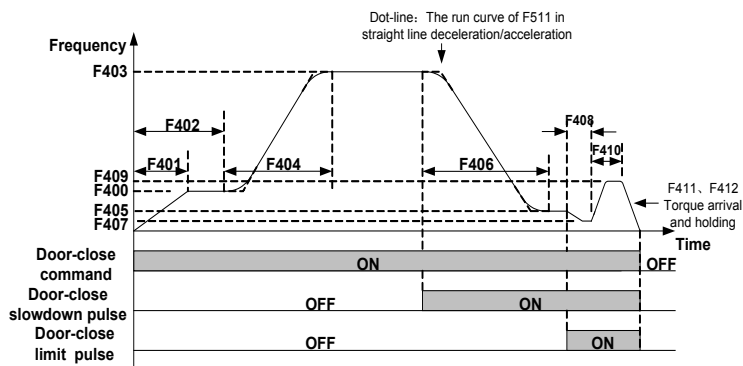


Travel-switch mode, door-opening process introduction

- 1) When the door-opening command is valid, the machine accelerates to the speed of F300 by the time of F301.
- 2) When the low-speed door-opening running time reaches F302, the machine accelerates to the F303, the speed-up time is F304.
- 3) When the door-opening slowdown signal is valid, the machine slowdown to the speed of F305, the slowdown time is F306.
- 4) When the door-opening limit signal is valid, enter the door-open holding state with the torque of F308.

5) Increase the F504 if the torque holding is needed.

➤ Door-closing curve adjusting



Travel-switch mode, door-close process introduction

- 1) When the door-close command is valid, the machine run at the speed of F400 with the time of F401.
- 2) When the low-speed door-close running time reaches the one of F402, the machine accelerates to the speed of F403, and the accelerating time is F404.
- 3) When the door-closing slowdown signal is valid, the machine creep with the speed of F405, and the slowdown time is F406.
- 4) When the door-closing limit signal is valid, the machine slowdown to the speed of F407.
- 5) When the door-closing limit signal is valid and continues to run over the time of F408, then withdraw the skate, the speed is F409 and time is F410. After the skate withdrawing, the machine enter the holding state with the speed of F407 and torque of F412.

7. Torque holding setting

F504	External open command delay time	0~999.9s	0.0s	☆
F505	External close command delay time	0~999.9s	0.0s	☆

【Remark】 After the door open or close arrival, when torque holding function is needed, the function parameters above can be increased properly. When set as 999. 9s, the time-delay function will be valid all the time.

8. Commonly used parameter

【Remark】 property list:

★: the parameter can not be modified while the controller is running;

☆: the parameter can be modified while the controller is running or stopping;

1) Control mode parameter and motor parameter

Function Code	Name	Setting range	Set as	Properties
F000	Control mode	0: Magnetic flux vector control 1: Close-loop vector control	0	★
F001	Open/close door mode selection	0: Speed control 1: Distance control	0	★
F002	Command source selection	0: Operation panel control mode 1: Door machine terminal control mode 2: Door machine manual adjusting mode 3: Door machine auto demonstrating mode	1	★
F100	Motor type selection	0: Asynchronous motor 1: Synchronous motor	0	★
F101	Motor rated power	0~750W	Model determined	★
F102	Motor rated voltage	0~250V	Model determined	★
F103	Motor rated current	0.001A~9.900A	Model determined	★
F104	Motor rated freq.	1.00Hz~99.00Hz	Model determined	★
F105	Motor rated rotation speed	1~9999rpm	Model determined	★

2) Open door speed and Blocked parameter

F300	Open door startup low speed setting	0.00Hz~F303	5.00Hz	☆
F301	Open door startup acceleration time	0.1~999.9s	1.0s	☆
F302	Speed control open door startup low speed run time	0.1~999.9s	1.0s	☆
F303	Open door high speed setting	0.00Hz~F104	15.00Hz	☆
F304	Open door acceleration time	0.1~999.9s	2.0s	☆
F305	Open door end low speed setting	0.00Hz~F303	3.00Hz	☆
F306	Open door deceleration time	0.1~999.9s	1.5s	☆
F307	Open door locked-rotor to torque holding switch point setting	0.0%~150.0% motor rated torque	50.0%	★
F308	Open door arrival torque holding	0.0%~F307	50.0%	★

3) Close door speed and Blocked parameter

F400	Close-door startup low speed setting	0.00Hz~F403	4.00Hz	☆
F401	Close-door startup acceleration time	0.1~999.9s	1.0s	☆
F402	Speed control close door startup low speed run time	0.1~999.9s	1.0s	☆
F403	Close-door high speed setting	0.00Hz~F104	12.00Hz	☆
F404	Close-door acceleration time	0.1~999.9s	2.0s	☆
F405	close-door end low speed setting	0.00Hz~F403	2.00Hz	☆
F406	Close-door deceleration time	0.1~999.9s	1.5s	☆
F407	Close-door arrival low speed setting	0.00Hz~F403	1.00Hz	☆
F408	Close-door arrival low speed running time	1~9999ms	300ms	☆
F409	Skate withdraw speed setting	0.00Hz~F403	2.00Hz	☆
F410	Skate withdraw running time	1~9999ms	500ms	☆
F411	Close-door locked-rotor to torque holding switch point setting	0.0%~150.0% motor rated torque	50.0%	★
F412	Close-door arrival torque holding	0.0%~F411	30.0%	★
F415	Close-door blocked judgment time	0~9999ms	500ms	☆

