

NICE900
Application Manual V0.0

NICE900

Synchronous Motor Distance Control Mode



Data code: 19010364

Preface

The NICE900 series integrated door machine product is a variable controller specialized for driving the door machine systems such as elevator doors, cold storage doors, and subway doors. It integrates the door open/close logic control and motor drive, and implements control on the entire door system with door open/close commands from the external system.

The NICE900 can drive the AC asynchronous motor and permanent synchronous motor (PMSM), and supports two control modes, namely, speed control and distance control. Applicable to various applications, it can meet drive and control requirements of most door systems.

The *NICE900 Integrated Door Machine Controller User Manual* is refined according to different user comments and application modes. This document describes only the application scheme of the synchronous motor in distance control mode.

If you have any questions, please call us.

[!] The commissioning, maintenance, or check on the controller must be performed by qualified persons under the guidance of this document. Otherwise, unexpected danger may occur and cause human injuries and device damages.

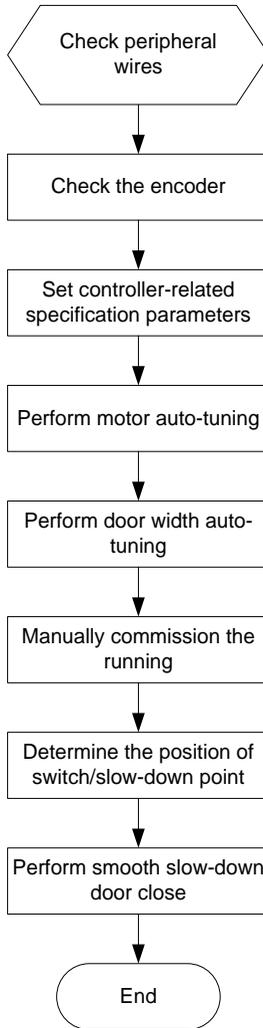
[Note] This document is applicable to the door machine controller in version 1.07 or later.

NICE900 Synchronous Motor Distance Control Mode

★ The door machine controller has been commissioned according to the following steps before delivery. It can perform door open or close operations after you correctly connect the cables.

[Note] To ensure successfully commissioning of the door machine controller, perform the operations according to the following steps:

NICE900 Synchronous Motor Distance Control Mode

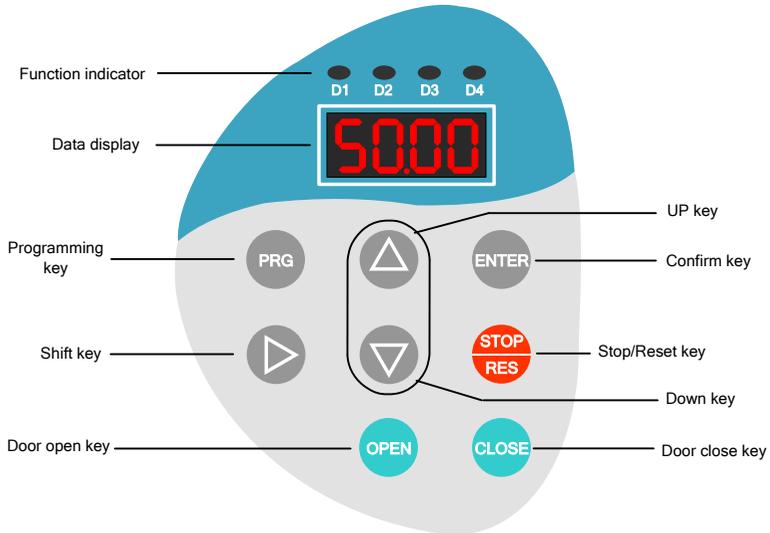


Contents

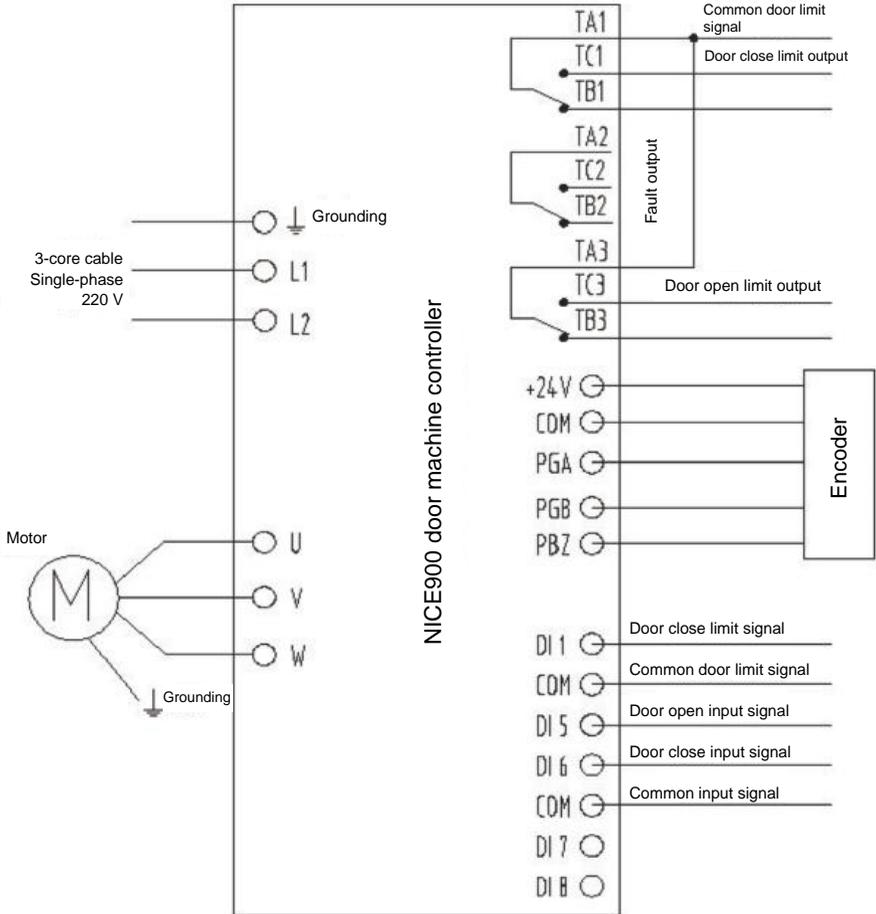
| | |
|--|----|
| Preface | 1 |
| 1. Operation and Display | 5 |
| 2. Typical Application (Distance Control Pulse + Limit Switch)..... | 6 |
| 3. Cable Connection Check and Motor Auto-tuning | 7 |
| 3.1 Checking the Encoder Signal (Ensuring F000 = 1 and F001 = 1) | 7 |
| 3.2 UVW Output Cable Detection | 7 |
| 3.3 Tuning Procedure | 8 |
| 4. Door Width Auto-tuning..... | 9 |
| 5. Setting the Input and Output Signals | 10 |
| 6. Faults and Parameter Setting | 11 |
| 1) Door Failed to Be Opened or Opened to the Limit | 11 |
| 2) Asynchronous Door Vane Retraction..... | 11 |
| 3) Door Close Hindered Commissioning | 12 |
| 4) Torque Holding Settings | 12 |
| 7. Curve Commissioning..... | 13 |
| 7.1 Door Open Curve Commissioning..... | 13 |
| 7.2 Door Close Curve Commissioning..... | 14 |
| 8. Common Parameters..... | 15 |
| 8.1 Control Mode Parameters and Motor Parameters | 15 |
| 8.2 Door Open Speed Parameters | 16 |
| 8.3 Door Close Speed and Hindered Parameters | 17 |
| 8.4 Distance Control Parameters..... | 18 |
| 9. Basic Operation and Troubleshooting..... | 19 |
| 9.1 Operation Methods of Operation Panel | 19 |
| 9.2 Fault Information and Troubleshooting | 22 |

1. Operation and Display

You can modify the parameters, monitor the working status, and run or stop the controller by operating the operation panel shown as below.



2. Typical Application (Distance Control Pulse + Limit Switch)



★ [Note] Among the relay output terminals, TA/TB is normally open (NO), and TA/TC is normally closed (NC).

If the controller displays fault code Er33, check the limit switch.

3. Cable Connection Check and Motor Auto-tuning

[Note] Before motor auto-tuning, check whether the ABZ signal of the encoder is correct.

3.1 Checking the Encoder Signal (Ensuring F000 = 1 and F001 = 1)

- 1) AB phase signal detection

When you manually pull to open the door, the D2 indicator is steady on, indicating that the AB signal access is correct. Otherwise, AB phase signals are switched.

- 2) Z phase signal detection

When you manually pull to open the door, the D3 indicator blinks, indicating that the D3 signal access is correct.

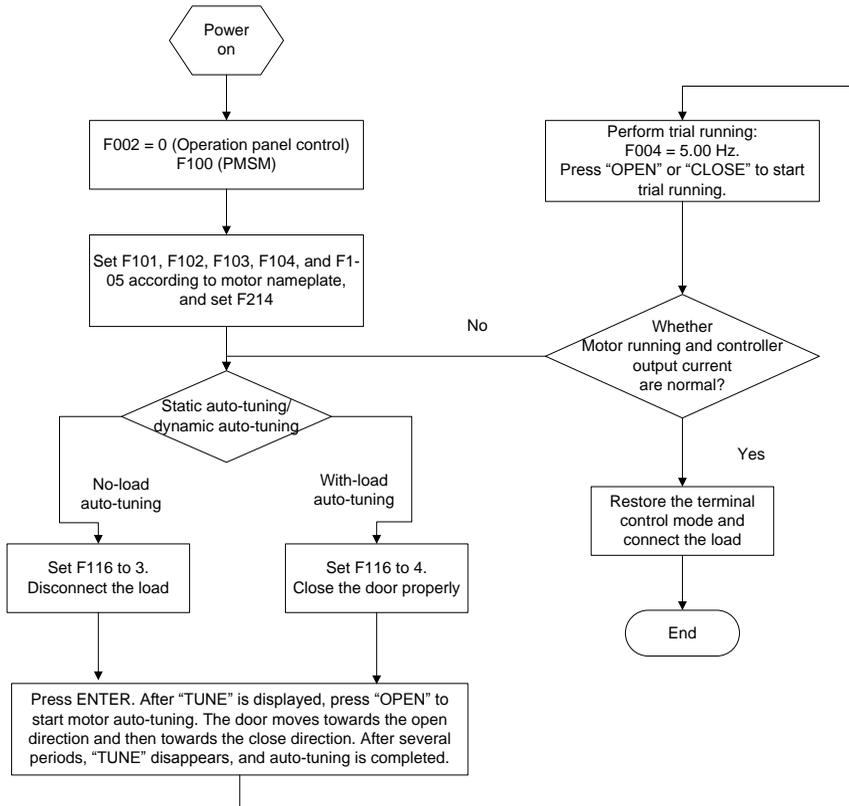
3.2 UVW Output Cable Detection

After the cable connection check for the encoder is complete, enter the motor parameters (F100-F105) and encoder PPR (F214) to perform motor auto-tuning.

(The panel displays "TUNE". You can press  to enable motor auto-tuning when the door close limit is reached.)

- 1) If the rotor of the motor is locked constantly, replace any two phases of the UVW to perform motor auto-tuning again.
- 2) The motor travels towards the door open direction for a certain distance and then travels towards the door close direction for a certain distance. After three times of travelling, "TUNE" disappears and the tuning is complete.

3.3 Tuning Procedure

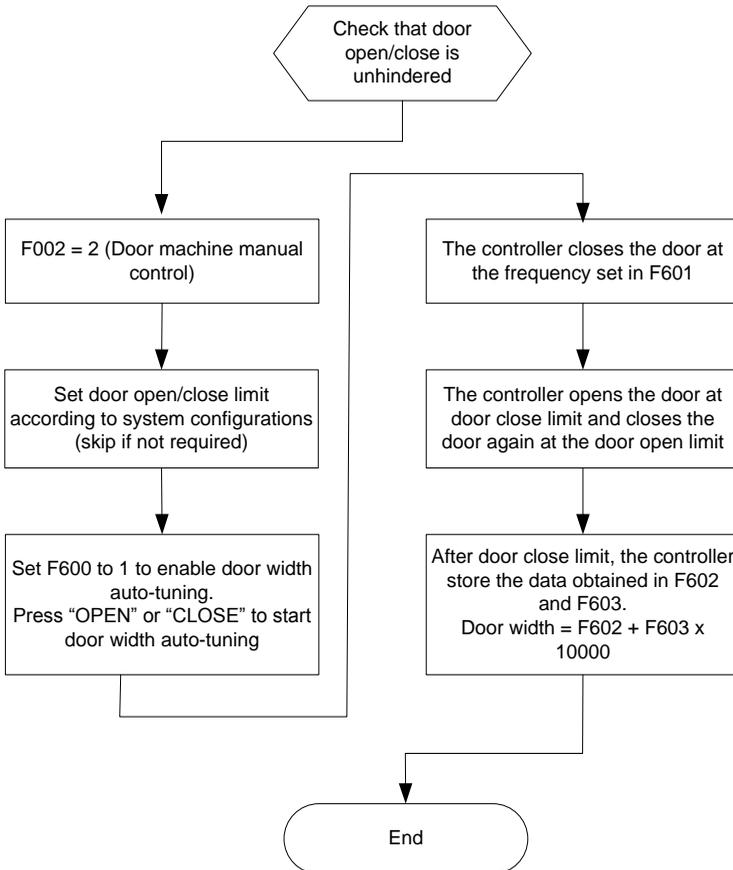


[Note]

1. Before motor auto-tuning, ensure that the operators and devices are in safe conditions.
2. The no-load tuning has a better effect than the load tuning. Therefore, no-load tuning is recommended.

4. Door Width Auto-tuning

[Note] F614 is used for torque setting for door width auto-tuning. If the auto-tuning cannot be performed or door close limit cannot be reached, increase the value of F614. If the belt is slipped after the door close limit is reached, decrease the value of F614.



After the door width auto-tuning is complete, set F002 to 1, indicating the terminal control mode of the door machine controller.

5. Setting the Input and Output Signals

Parameters of the input signals:

| Function Code | Parameter Name | Range | Value |
|---------------|--|-------|------------------------|
| F901 | Input terminal of the door close limit DI 1 | 1–116 | 113 (door close limit) |
| F905 | Input terminal of the door open signal DI 5 | 1–116 | 1 (door open command) |
| F906 | Input terminal of the door close signal DI 6 | 1–116 | 2 (door close command) |

Parameters of the output signals:

| Function Code | Parameter Name | Range | Value |
|---------------|--------------------------|-------|-----------------------------|
| F909 | Relay output TA1\TB1\TC1 | 1–11 | 2 (door close limit output) |
| F911 | Relay output TA3\TB3\TC3 | 1–11 | 1 (door open limit output) |
| F910 | Relay output TA2\TB2\TC2 | 1–11 | 5 (fault output) |

6. Faults and Parameter Setting

1) Door Failed to Be Opened or Opened to the Limit

The door cannot be opened.

| | | | | |
|------|--------------|---------|-------|---|
| F210 | Torque boost | 0–30.0% | 12.0% | ☆ |
|------|--------------|---------|-------|---|

Slightly increase the value of this parameter.

The door cannot be opened to the limit due to insufficient force.

| | | | | |
|------|--|---|-------|---|
| F307 | Torque switchover threshold at door open limit | 0.0% to 150.0% of the rated torque of the motor | 50.0% | ☆ |
| F308 | Door open limit holding torque | 0.0% to F307 | 80.0% | ☆ |

Properly increase the values of these parameters.

2) Asynchronous Door Vane Retraction

Modify the parameters according to the following table:

| | | | | |
|------|--|-----------------|--------|---|
| F408 | Low speed running time at door close limit | 1–9999 ms | 300ms | ☆ |
| F409 | Door vane retraction speed | 0.00 Hz to F403 | 2.00Hz | ☆ |
| F410 | Door vane retraction running time | 1–9999 ms | 500ms | ☆ |
| F620 | Pulse at door close limit output | 0%–99.9% | 0.0 | ☆ |

3) Door Close Hindered Commissioning

Commissioning based on time (recommended)

| | | | | |
|------|-----------------------|-------------|----|---|
| F502 | Door close time limit | 0.00–999.9s | 0s | ☆ |
|------|-----------------------|-------------|----|---|

When F502 is set to 0, no door close time limit is set. The value of F502 should be greater than the required door close time.

Commissioning based on torque

| | | | | |
|------|-----------------------------------|-----------------|----------|---|
| F417 | High speed at door close hindered | F418 to F104 | 12.00 Hz | ☆ |
| F418 | Low speed at door close hindered | 0.00 Hz to F104 | 2.00 Hz | ☆ |
| F419 | High speed torque | 0.00%–150.0% | 100.0% | ☆ |
| F420 | Low speed torque | 0.00%–150.0% | 100.0% | ☆ |

It is suggested not to set F419 and F420 to smaller value. Otherwise, malfunction may be caused.

These parameters can be set according to the output torque at the door limit. The values can be slightly lower than the output torque. If the values are too small, malfunction may be caused.

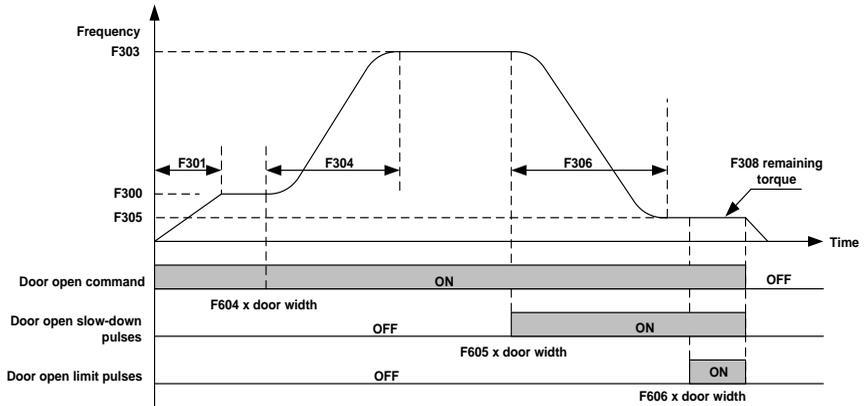
4) Torque Holding Settings

| | | | | |
|------|--------------------------------------|----------|--------|---|
| F504 | Delay of external door open command | 0–999.9s | 999.9s | ☆ |
| F505 | Delay of external door close command | 0–999.9s | 999.9s | ☆ |

[Note] At the door open limit or door close limit, if the torque holding function is required, properly increase the values of these parameters. When the values are set to 999.9s, the delay is unlimited.

7. Curve Commissioning

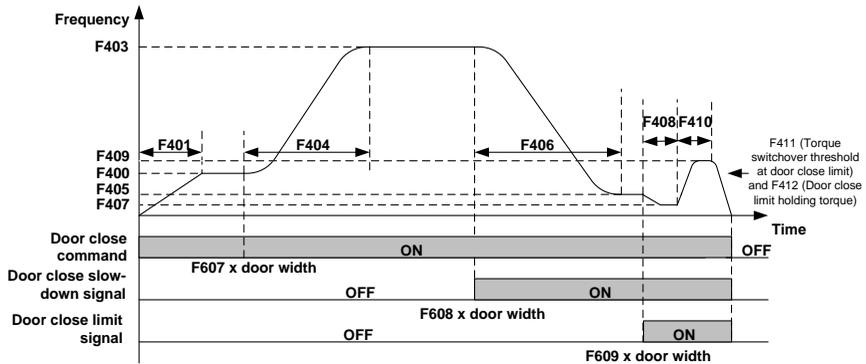
7.1 Door Open Curve Commissioning



The door open process in distance control is as follows:

1. After the door open command becomes active, the door machine accelerates to the speed set in F300 within the acceleration time set in F301.
2. When the door open position reaches F606 x door width, the door machine accelerates to the speed set in F303 within the acceleration time set in F304.
3. When the door open position reaches F605 x door width, the door machine decelerates to creep, with the speed being set in F305 and deceleration time set in F306.
4. When the door open position reaches F606 x door width, the door machine continues low speed creeping, and then enters the door open holding state, with the holding torque set in F308. The door position is reset to 100%.
5. After the command is cancelled, the torque holding state ends. If torque holding needs to continue, increase the delay time set in F504.

7.2 Door Close Curve Commissioning



The door close process in distance control is as follows:

1. After the door close command becomes active, the door machine accelerates to the speed set in F400 within the acceleration time set in F401.
2. When the door close position reaches F607 x door width, the door machine accelerates to the speed set in F403 within the acceleration time set in F404.
3. When the door close position reaches F608 x door width, the door machine decelerates to the speed set in F405 within the acceleration time set in F406.
4. After the door close position reaches F609 x door width, the door machine decelerates again to the speed set in F407. It is suggested to set the value of F609 equal to or larger than 95.0%. If pulse is lost during door open or door close, decrease the value of F609. Set the threshold for retracting the door vane in F620.
5. After the door is retracted and door limit is reached, the door machine enters the torque holding state, with the speed set in F407, and holding torque set in F412. The door position is reset to 0.
6. After the door close command is cancelled, the torque holding state ends. If torque holding needs to continue, increase the delay time set in F505.

8. Common Parameters

[Note]

★ The parameters cannot be modified during the running of door machine.

☆ The parameters can be modified when the system is stopped or running.

8.1 Control Mode Parameters and Motor Parameters

| Function Code | Name | Range | Value | Property |
|---------------|--------------------------------|--|-------------------------|----------|
| F000 | Control mode | 0: Sensorless vector control (SVC) 1: Closed-loop vector control (SVC) | 1 | ★ |
| F001 | Door open/close mode selection | 0: Speed control 1: Distance control | 1 | ★ |
| F002 | Command source selection | 0: Operation panel control 1: Door machine terminal control 2: Door machine manual control 3: Door machine auto demonstration | 1 | ★ |
| F007 | Carrier frequency | 2.0 kHz to 16.0 kHz | 12.5 | ☆ |
| F100 | Motor type | 0: Asynchronous motor 1: PMSM | 1 | ★ |
| F101 | Rated motor power | 0–750 W | 50 (motor dependent) | ★ |
| F102 | Rated motor voltage | 0–250 V | 50 (motor | ★ |

NICE900 Synchronous Motor Distance Control Mode

| Function Code | Name | Range | Value | Property |
|---------------|-----------------------|---------------------|-----------------------------|----------|
| | | | dependent) | |
| F103 | Rated motor current | 0.001–9.900 A | 1.35 (motor dependent) | ★ |
| F104 | Rated motor frequency | 1.00 Hz to 99.00 Hz | 24 (motor dependent) | ★ |
| F105 | Rated motor speed | 1–9999 RPM | 180 (motor dependent) | ★ |
| F214 | Encoder PPR | 1–9999 | 1024 (Encoder dependent) | ★ |
| F210 | Torque boost | 0%–30.0% | 12.0% | ☆ |

8.2 Door Open Speed Parameters

| Function Code | Name | Range | Value | Property |
|---------------|---|-----------------|----------|----------|
| F300 | Door open startup low speed | 0.00 Hz to F303 | 5.50 Hz | ☆ |
| F301 | Door open startup acceleration time | 0.1–999.9s | 0.5s | ☆ |
| F302 | Low speed running time for door open startup in speed control | 0.1–999.9s | 0.5s | ☆ |
| F303 | Door open high speed | 0.00 Hz to F104 | 18.00 Hz | ☆ |
| F304 | Door open acceleration time | 0.1–999.9s | 1.1s | ☆ |
| F305 | Door open ending low | 0.00 Hz to F303 | 5.00 Hz | ☆ |

| Function Code | Name | Range | Value | Property |
|---------------|--|-------------|-------|----------|
| | speed | | | |
| F306 | Door open deceleration time | 0.1–999.9s | 0.7s | ☆ |
| F307 | Torque switchover threshold at door open limit | 0.0%–150.0% | 50.0% | ☆ |
| F308 | Door open limit holding torque | 0.0%–150.0% | 80.0% | ☆ |

8.3 Door Close Speed and Hindered Parameters

| Function Code | Name | Range | Value | Property |
|---------------|--|-----------------|----------|----------|
| F400 | Door close startup low speed | 0.00 Hz to F403 | 5.00 Hz | ☆ |
| F401 | Door close startup acceleration time | 0.1–999.9s | 0.5s | ☆ |
| F402 | Low speed running time for door close startup in speed control | 0.1–999.9s | 0.5s | ☆ |
| F403 | Door close high speed | 0.00 Hz to F104 | 15.50 Hz | ☆ |
| F404 | Door close acceleration time | 0.1–999.9s | 0.6s | ☆ |
| F405 | Door close ending low speed | 0.00 Hz to F403 | 2.00 Hz | ☆ |
| F406 | Door close deceleration time | 0.1–999.9s | 1.0s | ☆ |
| F407 | Door close limit low speed | 0.00 Hz to F403 | 1.00 Hz | ☆ |
| F408 | Low speed running time at door close limit | 1–9999 ms | 300 ms | ☆ |

NICE900 Synchronous Motor Distance Control Mode

| Function Code | Name | Range | Value | Property |
|---------------|---|-----------------|---------|----------|
| F409 | Door vane retraction speed | 0.00 Hz to F403 | 2.00 Hz | ☆ |
| F410 | Door vane retraction running time | 1–9999 ms | 500 ms | ☆ |
| F411 | Torque switchover threshold at door close limit | 0.0%–150.0% | 50.0% | ☆ |
| F412 | Door close limit holding torque | 0.0%–150.0% | 30.0% | ☆ |
| F415 | Door close hindered judging time | 0–9999 ms | 500 ms | ☆ |
| F421 | Extensive amount at door close limit | 0.0%–10.0% | 4.0% | ☆ |

8.4 Distance Control Parameters

| Function Code | Name | Range | Value | Property |
|---------------|--|-------------|-------|----------|
| F604 | Low speed running distance of door open startup in distance control | 0.0%–30.0% | 10.0% | ☆ |
| F605 | Door open slow-down point in distance control | 60.0%–90.0% | 70.0% | ☆ |
| F606 | Door open limit point in distance control | 80.0%–99.0% | 96.0% | ☆ |
| F607 | Low speed running distance of door close startup in distance control | 0.0%–30.0% | 8.0% | ☆ |
| F608 | Door close slow-down point in distance control | 60.0%–90.0% | 70.0% | ☆ |
| F609 | Door close limit point in distance control | 80.0%–99.0% | 95.0% | ☆ |

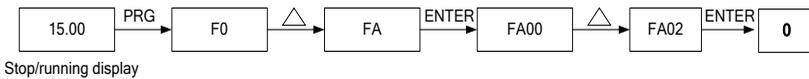
In Level III menu, if the parameter has no blinking digit, it means that the parameter cannot be modified. This may be because:

- Such a function code is only readable, such as actually detected parameter and running record parameter.
- Such a function code cannot be modified in the running state and can only be changed at stop.

c. Viewing fault information

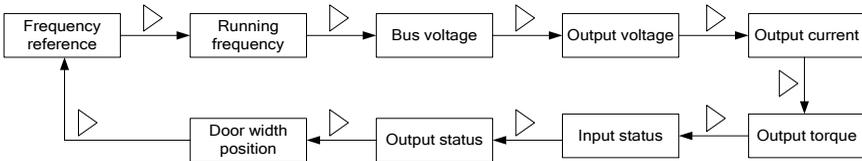
When a fault occurs on the controller, the operation panel displays the fault code, based on which, you can find the cause of the fault and rectify the fault quickly.

The controller saves the last four fault codes, and details of the frequency, current, bus voltage, and DI/DO status at the latest fault.



d. Viewing display at running or stop

In the stop/running state without fault, you can view the parameters circularly by pressing the  key. The parameters to be displayed are set in by setting FA00 and FA01.

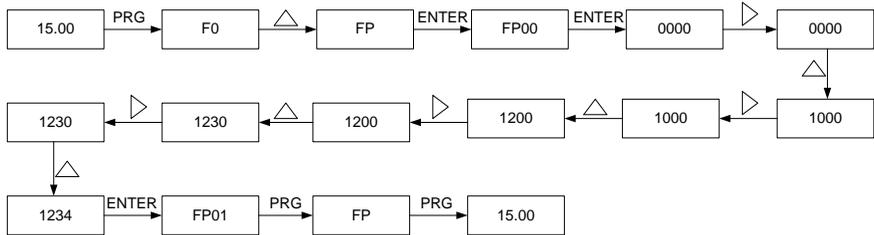


e. Setting user passwords

To effectively protect parameters, the NICE900 series door machine controller provides the password protection function.

The following figure shows the process for changing the password to 1234

(characters **bolded** indicating the blinking digits).



After the user password (that is, the user password **FP00** is not set to 0) is set, when

you press  to enter the edit mode of the function code, the system verifies the user password first, displaying "- - -". You can enter the edit mode only after correctly entering the password. For the factory-setting parameter areas, you also need to enter the correct password to access. (Do not attempt to modify the factory-setting parameters. If the parameters are improperly configured, the system may be instable or abnormal.)

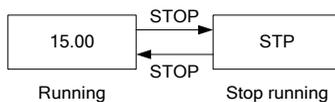
You can modify the user password when the password protection is unlocked, and the final password is subject to the last entered password. To cancel the password protection function, enter the password and set **FP00** to 0. Upon powering up, if **FP00** is not 0, the parameters are protected by password.

f. Setting the pause function

In the terminal control mode (**F002** is set to 1), during the door open or door close

running process, you can press the  button to pause the running. At this time,

the panel of the door machine displays "STP". If you press  again, the running status is resumed.



9.2 Fault Information and Troubleshooting

The controller provides almost 32 pieces of alarm information and corresponding protection functions. It monitors all types of input signals, running conditions, and external feedback. If any abnormality occurs, the controller implements the corresponding protection function and displays the fault code.

If a fault occurs, the controller performs the corresponding processing based on the error code. You can analyze the fault based on the information provided in the following table, find out the causes, and rectify the fault.

| Fault Code | Description | Cause | Troubleshooting | Remarks |
|------------|---------------------------------|--|---|---------|
| Er02 | Overcurrent during acceleration | <ol style="list-style-type: none"> 1. The main circuit output is grounded or short-circuited. 2. Motor auto-tuning is performed improperly. 3. The load is too heavy. | <ol style="list-style-type: none"> 1. Eliminate external faults such as wiring error. 2. Perform motor auto-tuning again. 3. Reduce the burst load. | |
| Er03 | Overcurrent during deceleration | <ol style="list-style-type: none"> 1. The main circuit output is grounded or short-circuited. 2. Motor auto-tuning is performed improperly. 3. The load is too heavy. 4. The deceleration rate is too short. | <ol style="list-style-type: none"> 1. Eliminate external faults such as wiring error. 2. Perform motor auto-tuning again. 3. Reduce the burst load. 4. Modify the related parameters. | |
| Er04 | Overcurrent at constant speed | <ol style="list-style-type: none"> 1. The main circuit output is grounded or short-circuited. 2. Motor | <ol style="list-style-type: none"> 1. Eliminate external faults such as wiring error. 2. Perform motor | |

NICE900 Synchronous Motor Distance Control Mode

| Fault Code | Description | Cause | Troubleshooting | Remarks |
|------------|---------------------------------|--|--|---|
| | | auto-tuning is performed improperly. 3. The load is too heavy. 4. Strong interference exists on the encoder. | auto-tuning again. 3. Reduce the burst load. 4. Choose a proper encoder and uses a shielded cable for the encoder. | |
| Er05 | Overvoltage during acceleration | 1. The input voltage is too high. 2. The braking resistance is too large. 3. The acceleration rate is too short. | 1. Reduce the input voltage. 2. Choose a proper brake resistor. 3. Modify the related parameters. | |
| Er06 | Overvoltage during deceleration | 1. The input voltage is too high. 2. The braking resistance is too large. 3. The deceleration rate is too short. | 1. Reduce the input voltage. 2. Choose a proper brake resistor. 3. Modify the related parameters. | |
| Er07 | Overvoltage at constant speed | 1. The input voltage is too high. 2. The braking resistance is too large. | 1. Reduce the input voltage. 2. Choose a proper brake resistor. | |
| Er09 | Undervoltage protection | 1. Instantaneous power failure occurs on the input power supply. | 1. Eliminate external power supply issues. 2. Contact the agent or the | The controller resets automatically after the voltage becomes |

NICE900 Synchronous Motor Distance Control Mode

| Fault Code | Description | Cause | Troubleshooting | Remarks |
|------------|----------------------------|--|---|---|
| | | <ol style="list-style-type: none"> 2. The input voltage is too low. 3. The control board is abnormal. | <p>vendor.</p> | <p>normal.</p> |
| Er10 | System overloaded | <ol style="list-style-type: none"> 1. The guide rail of the elevator door is blocked by stuff. 2. The load is too heavy. | <ol style="list-style-type: none"> 1. Check the guide rail of the elevator door. 2. Reduce the load. | |
| Er13 | Power output phase loss | <ol style="list-style-type: none"> 1. The wiring of the main circuit is loose on the output side. 2. The motor is damaged. | <ol style="list-style-type: none"> 1. Check the wiring. 2. Rectify faults of the motor. | <p>The controller decelerates and stop.</p> |
| Er14 | Module overheat | <ol style="list-style-type: none"> 1. The ambient temperature is too high. 2. The fan is damaged. 3. The air filter is blocked. | <ol style="list-style-type: none"> 1. Reduce the ambient temperature. 2. Clear the air filter. 3. Replace the fan. | <p>The controller automatically resets.</p> |
| Er16 | EEPROM fault | <p>An EEPROM reading or writing abnormality occurs.</p> | <p>Contact the agent or the vendor.</p> | |
| Er18 | Current detection fault | <p>The control board is abnormal.</p> | <p>Contact the agent or the vendor.</p> | |
| Er19 | Motor auto-turning timeout | <ol style="list-style-type: none"> 1. The motor parameters are incorrectly set. 2. The parameter identification | <ol style="list-style-type: none"> 1. Enter the motor parameters correctly. 2. Check the lead wire of the | |

NICE900 Synchronous Motor Distance Control Mode

| Fault Code | Description | Cause | Troubleshooting | Remarks |
|------------|----------------------------------|---|--|---|
| | | times out. 3. The encoder for the PMSM is abnormal. | motor. 3. Check wiring of the encoder and ensure that the PPR is set correctly. | |
| Er20 | Encoder fault | 1. The encoder model is improper. 2. Wiring of the encoder is incorrect. | 1. Use an open-collector ABZ phase encoder. 2. Eliminate wiring issues. | |
| Er21 | Initial position detection fault | The motor parameters are not properly configured. | Properly configure the motor parameters. | |
| Er25 | Overspeed | 1. The door open and close running speed is 20% higher than the preset speed for 50 ms. | 1. Check the wiring of the encoder. | |
| Er26 | Parameter setting error | 1. During door width auto-tuning, F002 (Command source selection) is not set to 2 (Door machine manual control), or F001 (Door open/close control mode) is not set to 1 (Distance control). 2. F000 (Control mode) is set to 0 | 1. During door width auto-tuning, set F002 (Command source selection) to 2 (Door machine manual control), or F001 (Door open/close control mode) to 1 (Distance control). 2. Set F002 to 2 or F001 to 1 | It is only a prompt, and not recorded as a fault. |

NICE900 Synchronous Motor Distance Control Mode

| Fault Code | Description | Cause | Troubleshooting | Remarks |
|------------|------------------------------|--|--|--------------------------------------|
| | | (SVC) when the controller drives a PMSM. | during door width auto-tuning. | |
| Er27 | Door width auto-tuning fault | <ol style="list-style-type: none"> 1. The door width obtained through door width auto-tuning is smaller than 20 pulses. 2. Distance control running is performed before door width auto-tuning. | <ol style="list-style-type: none"> 1. Check wiring of the encoder and related parameters. 2. Check the mechanical system of the door machine. 3. Perform door width auto-tuning before starting distance control running. | |
| Er28 | Door open timeout | <ol style="list-style-type: none"> 1. The door open limit signal is abnormal or incorrectly set. 2. The wire to the pulse encoder is broken. | <ol style="list-style-type: none"> 1. Check the door open limit signal. 2. Check the wiring of the encoder. | The controller automatically resets. |
| Er29 | Door close timeout | <ol style="list-style-type: none"> 1. The motor running direction is opposite to the door open definition. 2. The door close limit signal is abnormal or incorrectly set. 3. The wire to the pulse encoder is broken. | <ol style="list-style-type: none"> 1. Set F004 to 1. 2. Check the door close limit signal. 3. Check the wiring of the encoder. | The controller automatically resets. |
| Er30 | Low speed | <ol style="list-style-type: none"> 1. The door | <ol style="list-style-type: none"> 1. Check the door | The controller |

NICE900 Synchronous Motor Distance Control Mode

| Fault Code | Description | Cause | Troubleshooting | Remarks |
|------------|-------------------------------|--|--|--------------------------------------|
| | door open/close timeout | open/close limit signal is abnormal or incorrectly set. 2. The wire to the pulse encoder is broken. | close limit signal. 2. Check the wiring of the encoder. | automatically resets. |
| Er31 | Door open hindered protection | 1. The guide rail of the elevator door is blocked by stuff. 2. The door open hindering parameters are incorrectly configured. | 1. Clear the stuff in the guide rail. 2. Set the upper limit of door open torque to a proper value. 3. Set F311 (Door open hindered judging time) to a proper value. | The controller automatically resets. |
| Er32 | Speed deviation protection | 1. Acceleration or deceleration is too abrupt. 2. The motor angle obtained through auto-tuning is incorrect, causing runaway. 3. The speed deviation setting and time are too small. | 1. Increase the acceleration or deceleration time. 2. Perform angle auto-tuning again. 3. Change the value of F516 and F517 to 0. | |
| Er33 | Door limit switch abnormal | The door limit switch is abnormal or damaged. | Replace the door limit switch. | |

