

SUD-DT-04-0175 (1/8)
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How to Upgrade IE-78K0-NS, IE-78K0-NS-A

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1. Overview

This document describes how to upgrade IE-78K0-NS or IE-78K0-NS-A.

Target products: IE-78K0-NS control code **M, N, n**^{Note 1}
 IE-78K0-NS-A control code **F, G**^{Note 2}

- Notes**
1. Products with control code **A** to **L** can be upgraded by sending the product to NEC Electronics. Consult an NEC Electronics sales representative or distributor. The control code will be **p** after upgrade.
 2. Products with control code **A** to **E** can be upgraded by sending the product to NEC Electronics. Consult an NEC Electronics sales representative or distributor. The control code will be **h** after upgrade.

Product	Version Confirmation		How to Upgrade	Control Code After Upgrade
IE-78K0-NS	2nd digit from the left in the serial number is any of A to L	Control code n	Firmware can be upgraded.	Control code p
		Other than control code n	Upgrade by sending the product to NEC Electronics	Control code p
	2nd digit from the left in the serial number is none of A to L	Control code M Control code N	Firmware can be upgraded.	Control code P
IE-78K0-NS-A	Control code A to E		Upgrade by sending the product to NEC Electronics	Control code h
	Control code F		Firmware can be upgraded.	Control code h
	Control code G			Control code H

Note The “control code” is the second digit from the left in the 10-digit serial number in the warranty supplied with the product you purchased (if it has not been upgraded). If the product has been upgraded, a label indicating the new version is attached to the product and the x in V-UP LEVEL x on this label indicates the control code.

<IE-78K0-NS>

- In addition to control code **M**, products with 78K0 Executer V2.7 are control code **N** products.
- In addition to control code **M/N**, products with 78K0 Executer V2.8 are control code **P** products.
- In addition to control code **n**, products with 78K0 Executer V2.8 are control code **p** products.
- Control code **n** and control code **N** are functionally compatible.
- Control code **p** and control code **P** are functionally compatible.
- Refer to IE-780148-NS-EM1 Operating Precautions (SUD-DT-04-0036) concerning control code **n**.

<IE-78K0-NS-A>

- In addition to control code **F**, products with 78K0 Executer V2.8 are control code **h** products.
- In addition to control code **G**, products with 78K0 Executer V2.8 are control code **H** products.
- Control code **h** and control code **H** differ in terms of the following function.

Function	Control Code h	Control Code H
High-speed specification (12 MHz operation)	Not supported	Supported

The version of the 78K0 Executer is indicated in the [About...] window on the [Help] menu in the integrated debugger ID78K0-NS. Control code “**I**” and “**O**” are not available.

[Details of IE-78K0-NS upgrade from control code **M** to **N**]

Specification change in the following target devices (high-speed specification: @ 12 MHz operation) is now supported.

Target devices:

μ PD780024A, μ PD780024AY, μ PD780034A, μ PD780034AY Subseries

μ PD780078, μ PD780078Y Subseries

μ PD780988 Subseries

Target emulation boards:

IE-780034-NS-EM1 control code **J** or later

IE-780078-NS-EM1 control code **D** or later

IE-78K0-NS-P01 control code **D** or later and IE-780988-NS-EM4 control code **B** or later

[Details of upgrading IE-78K0-NS from control code **N** to **P** and IE-78K0-NS-A from control code **G** to **H**]

Addition of the following specifications:

- (1) The bank switch function of the device is now supported by the IE-78K0-NS-PA and IE-78K0-NS-A.
- (2) Software break for the bank memory is now supported by the IE-78K0-NS-PA and IE-78K0-NS-A.

Correction of the following bugs:

- (1) Emulation with a clock of 10 MHz or higher is not possible when using the IE-78K0-NS-A.
- (2) The error message “EX_SE_NONTIMER” may be output in the IE-78K0-NS-PA or IE-78K0-NS-A when the execution time is measured by the timer event, the Initialize button is clicked to erase the result, the program is resumed, and a break occurs.
- (3) When a CPU reset is executed in a ROMless microcontroller (such as the μ PD78070), the program jumps to the reset vector set to the emulation ROM.

2. Software Environment Conditions

The following software tools are necessary.

Download the data "FwK0V28.bin" and download tool "IENSUTL.exe" from the Online Delivery Service (ODS) on the NEC Electronics Microprocessor homepage, which is registered under "Development Tool Download", with the name "k0ns_firmware".

(URL: <http://www.necel.com/micro/ods/eng/>)

- Integrated debugger ID78K0-NS V2.31 or later (recommended)
- Download tool "IENSUTL.exe" (this tool is included in the integrated debugger)
- Data "FwK0V28.bin"

3. Hardware Environment Conditions

The following hardware tools are necessary.

- IE-78K0-NS or IE-78K0-NS-A
- Any emulation board
- AC adapter IE-70000-MC-PS-B
- Interface board (interface card) that is supported by the host machine
 - IE-70000-PCI-IF-A
 - IE-70000-CD-IF-A
 - IE-70000-PC-IF-C
 - IE-70000-98-IF-C

4. Upgrade Procedure

4.1 Confirmation of current version before upgrade

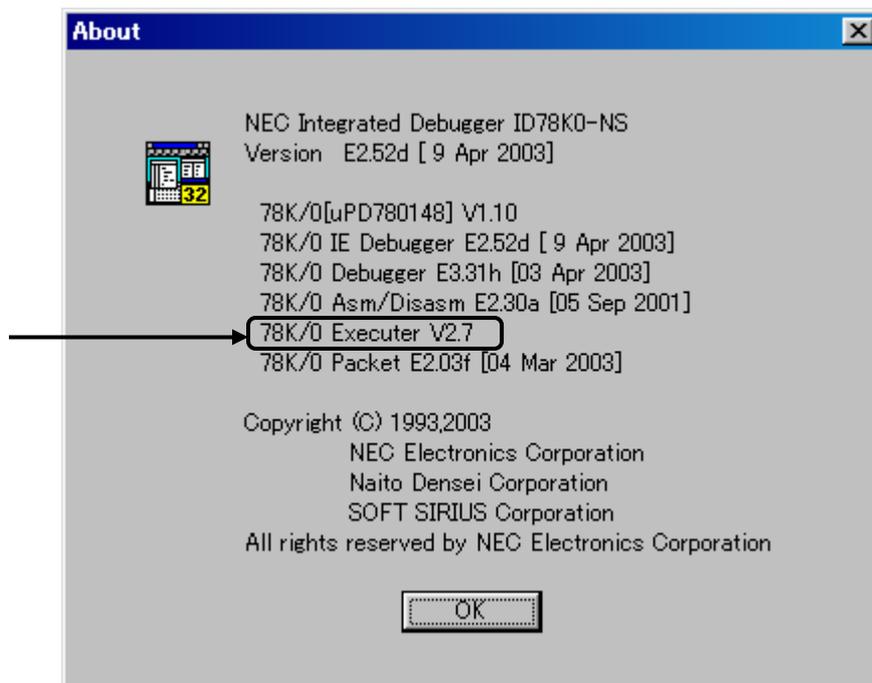
(1) Turn on the power to the IE-78K0-NS or IE-78K0-NS-A to activate the integrated debugger ID78K0-NS.

(2) Check the version of the 78K/0 Executer in the About dialog box.

At this time, upgrading is not necessary if the version of the 78K/0 Executer is already V2.8.

Display the About dialog box in any of the following ways.

- Select [About...] under [Help] from the menu bar on the main window.
- Press the [GRPH] + [H] and [A] keys at the same time.



Remark This is the screen of the ID78K0-NS development version, so it may be different from the actual screen.

- (3) Turn off the power to the IE-78K0-NS or IE-78K0-NS-A and terminate the integrated debugger ID78K0-NS.

4.2 Downloading data

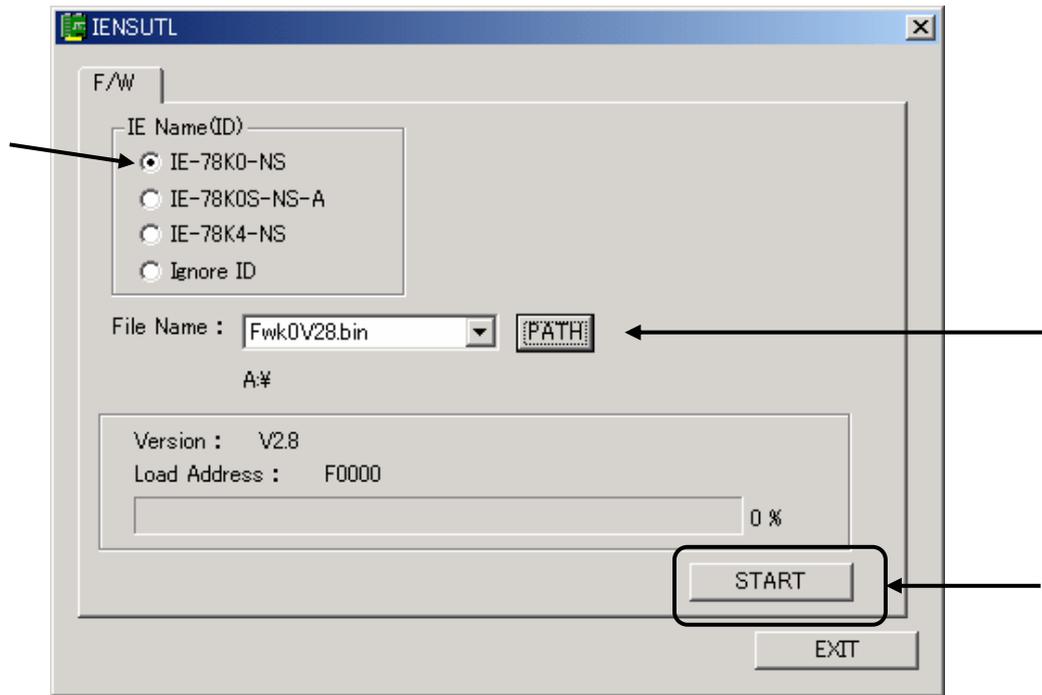
- (1) Set the JP2 jumper of the IE-78K0-NS or IE-78K0-NS-A to 1-2 shorted. It is not required to change other jumper settings.

JP2: 1-2 shorted

- (2) Download “FwK0V28.bin” and “IENSUTL.exe” from the NEC Electronics Microprocessor homepage, which is registered under “Development Tool Download”, with the name “k0ns_firmware”. (URL: <http://www.necel.com/micro/ods/eng/>)

The file downloaded from the site is the self-extracting type file “k0ns_firmware_v28.exe”. Execute k0ns_firmware_v28.exe first to extract FwK0V28.bin and IENSUTL.exe.

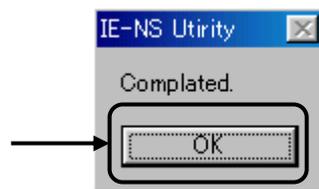
- (3) Turn on the power to the IE-78K0-NS or IE-78K0-NS-A.
- (4) Activate IENSUTL.exe.
- (5) Select the following settings and then click the START button.
 - Select “IE-78K0-NS” in the IE Name(ID) field.
 - Click the PATH button and select “FwK0V28.bin” in the File Name field.



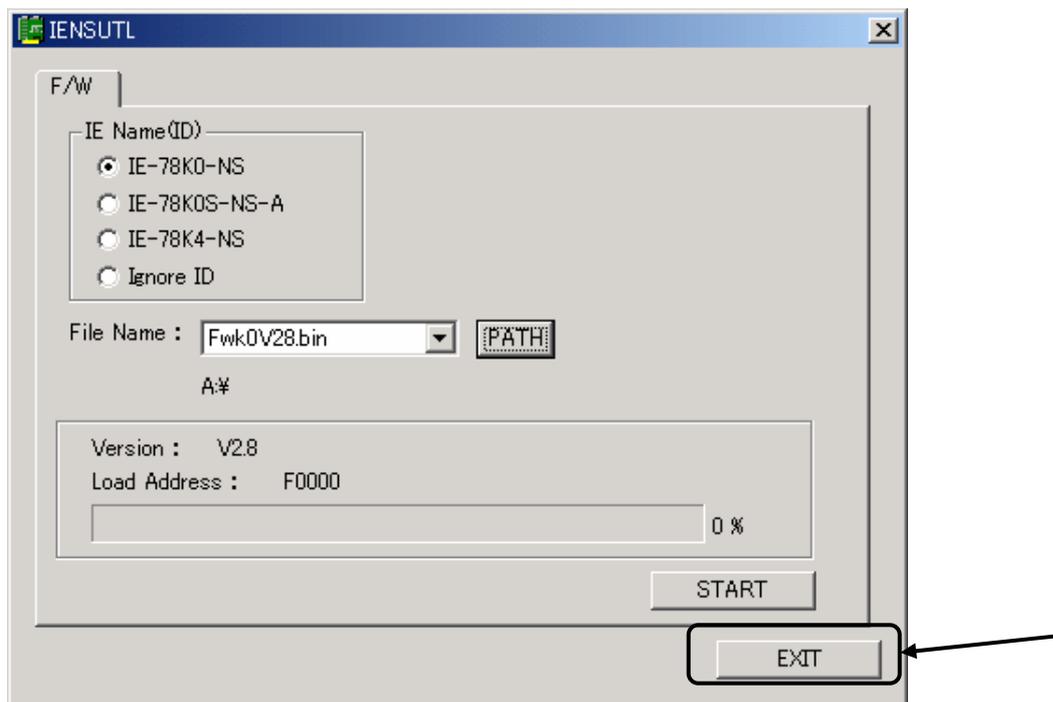
- (6) The following message will be displayed. Click the OK button.
Do not turn off the power to the IE-78K0-NS or IE-78K0-NS-A during downloading; otherwise the IE-78K0-NS or IE-78K0-NS-A cannot be activated.



- (7) The following message will be displayed when downloading is complete. Click the OK button.



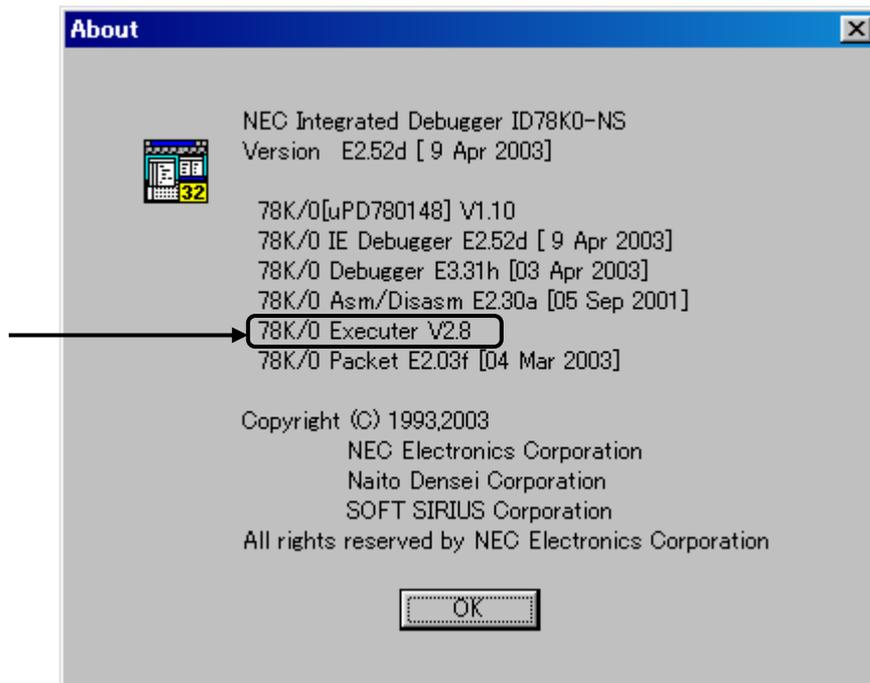
- (8) Click the EXIT button.



- (9) Turn off the power to the IE-78K0-NS or IE-78K0-NS-A.
- (10) Set the JP2 jumper of the IE-78K0-NS or IE-78K0-NS-A to 2-3 shorted. It is not required to change other jumper settings.
JP2: 2-3 shorted

4.3 Confirmation of version after upgrade

- (1) Turn on the power to the IE-78K0-NS to activate the integrated debugger ID78K0-NS.
- (2) Confirm that the version of the 78K/0 Executer is V2.8 in the About dialog box.
Display the About dialog box in any of the following ways.
- Select [About...] under [Help] from the menu bar on the main window.
 - Press the [GRPH] + [H] and [A] keys at the same time.



Remark This is the screen of the ID78K0-NS development version, so it may be different from the actual screen.

- (3) Turn off the power to the IE-78K0-NS or IE-78K0-NS-A and terminate the integrated debugger ID78K0-NS.

5. Revision History

Revision	Page	Description
1st (SUD-TT-0226-1-E)	–	Newly created.
2nd (SUD-TT-0226-2-E)	4	Change of k0ns_firmware.exe to k0ns_firmware_v27.exe
3rd	2	Addition of details of upgrade in 1. OVERVIEW
(SUD-DT-03-0208-1-E)	2, 4	Correction of erroneous description and modification of company name
4th (SUD-DT-04-0175)	1 to 9	Addition of description on IE-78K0-NS-A
	3, 5	Change of FwK0V27.bin to FwK0V28.bin
	5	Change of k0ns_firmware_v27.exe to k0ns_firmware_v28.exe
	3	Update of upgraded items
	4, 7	Update of 78K/0 Executer version
	2, 3	Update of control code
	4	Modification of condition for emulation board