NO: PC-365	**PRODUCT:** NJ
DATE: October 2018	**TYPE:** Modification Notice

Notice of Hardware Revisions for the Sysmac NJ101, NJ301 and NJ501-Reissue-Change to Release Dates and Firmware Matrix

Hardware revisions will be made to the Sysmac NJ series of controllers. These changes will increase performance and improve manufacturability.

NJ101 and NJ301 Series. Due to component life issues, new hardware versions will be released. This release will also increase performance.
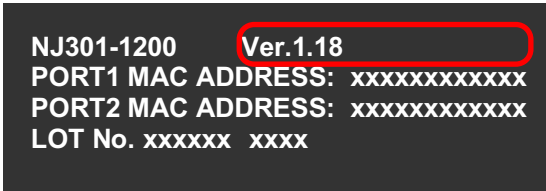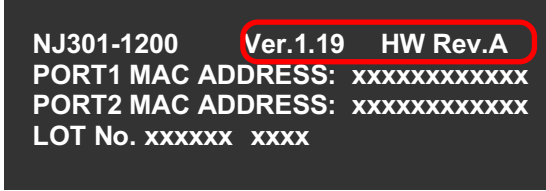
NJ501 Series. Changes will be made in this series of controllers to allow use of 2GB SD cards.

The changes will be effective for NJ501 series product manufactured after September 1, 2018 and for series NJ101 and NJ103 after October 1, 2018

NJ101 and NJ301 Series Revisions

Current hardware platform	New hardware platform

Changes of Instruction execution times
    Instruction execution times are improved with the change as below.
    There will be no change in user controller program operation	

Instruction execution times
    ・NJ301 Series
LD instruction: 2.0ns (3.0ns or less)
  Math instructions (for long real data): 42ns or more
 	
    ・NJ101 Series
LD instruction: 3.3ns (5.0ns or less)
  Math instructions (for long real data): 70ns or more
	・NJ301 Series
	LD instruction: 1.6ns (2.5ns or less)
	  Math instructions (for long real data): 34ns or more
	
	・NJ101 Series
	LD instruction: 3.0ns (4.5ns or less)
	  Math instructions (for long real data): 62ns or more

Current hardware platform	New hardware platform
Changes of display specifications The display specifications of hardware revision will be changed as below.	

Change in display of unit version on the label.
Add display of hardware revision on the label.

・Unit version: Ver.1.18
・Hardware revision: No HW Rev.

```
NJ301-1200      Ver.1.18
PORT1 MAC ADDRESS:  xxxxxxxxxxxx
PORT2 MAC ADDRESS:  xxxxxxxxxxxx
LOT No. xxxxxx  xxxx
```

(Example: NJ301-1200)

・Unit version: Ver.1.19
・Hardware revision: HW Rev.A

```
NJ301-1200      Ver.1.19    HW Rev.A
PORT1 MAC ADDRESS:  xxxxxxxxxxxx
PORT2 MAC ADDRESS:  xxxxxxxxxxxx
LOT No. xxxxxx  xxxx
```

(Example: NJ301-1200)

Change in display of unit version on the label of Box.
Add display of hardware revision on the label of Box.

・Unit version: Ver.1.18
・Hardware revision: No HW Rev.

(Example: NJ301-1200)

・Unit version: Ver.1.19
・Hardware revision: HW Rev.A

(Example: NJ301-1200)

Models Affected

Models	Specification
NJ301-1200	Maximum number of controlled axes: 8 axes
NJ301-1100	Maximum number of controlled axes: 4 axes
NJ101-1000	Maximum number of controlled axes: 2 axes
NJ101-9000	Maximum number of controlled axes: 0 axes

Models	Specification
NJ101-1020	Maximum number of controlled axes: 2 axes (Database connection series)
NJ101-9020	Maximum number of controlled axes: 0 axes (Database connection series)

NJ501 Series Revisions

Current hardware platform	New hardware platform
Hardware Version A	Hardware Version B
Unit Firmware Version 1.15 and later	Unit Firmware Version 1.19 and later
2GB SD Card (HMC-SD291) **Not Supported**	2GB SD Card (HMC-SD291) **Supported**
4GB SD Card (HMC-SD491) **Supported**	4GB SD Card (HMC-SD491) **Supported**
Supported memory card 　　HMC-SD491 only 　　* The "Ver.1.15" or later version of NJ501 CPU Unit of hardware revision "A" supports 4GB SDHC card (HMC-SD491) only.	**Supported memory card** 　　**HMC-SD291,** HMC-SD491 　　* NJ501 CPU Unit of hardware revision "B" supports 2GB SD card (HMC-SD291) and 4GB SDHC card (HMC-SD491).

Current hardware platform	New hardware platform
Change in display of unit version and hardware revision on the label. 　・Unit version: Ver.1.18 　・Hardware revision: HW Rev.A **NJ501-1500 Ver.1.18 HW Rev.A** **PORT1 MAC ADDRESS: xxxxxxxxxxxx** **PORT2 MAC ADDRESS: xxxxxxxxxxxx** **LOT No. xxxxxx xxxx** (Example: NJ501-1500)	 　・Unit version: Ver.1.19 　・Hardware revision: HW Rev.B **NJ501-1500 Ver.1.19 HW Rev.B** **PORT1 MAC ADDRESS: xxxxxxxxxxxx** **PORT2 MAC ADDRESS: xxxxxxxxxxxx** **LOT No. xxxxxx xxxx** (Example: NJ501-1500)

Current hardware platform	New hardware platform
Change in display of unit version and hardware revision on the label. ・Unit version: Ver.1.18 ・Hardware revision: HW Rev.A NJ501-1500　　Ver.1.18　HW Rev.A PORT1 MAC ADDRESS: xxxxxxxxxxxx PORT2 MAC ADDRESS: xxxxxxxxxxxx LOT No. xxxxxx　xxxx (Example: NJ501-1500)	・Unit version: Ver.1.19 ・Hardware revision: HW Rev.B NJ501-1500　　Ver.1.19　HW Rev.B PORT1 MAC ADDRESS: xxxxxxxxxxxx PORT2 MAC ADDRESS: xxxxxxxxxxxx LOT No. xxxxxx　xxxx (Example: NJ501-1500)
Change in display of unit version and hardware revision on the label of Box. Unit version: Ver.1.18 Hardware revision: HW Rev.A TYPE　NJ501-1500 CPU UNIT　(Ro) Ver.1.18 HW Rev.A　KCC-REM-OMR-NJ5-00001 LOT No.　DDMYYA　QTY. 1 4536854290411 OMRON Corporation　MADE IN JAPAN **OMRON** (Example: NJ501-1500)	Unit version: Ver.1.19 Hardware revision: HW Rev.B TYPE　NJ501-1500 CPU UNIT　(Ro) Ver.1.19 HW Rev.B　KCC-REM-OMR-NJ5-00001 LOT No.　DDMYYA　QTY. 1 4536854290411 OMRON Corporation　MADE IN JAPAN **OMRON** (Example: NJ501-1500)

Models Affected

Models	Specifications
NJ501-1500	Maximum number of controlled axes: 64 axes
NJ501-1400	Maximum number of controlled axes: 32 axes
NJ501-1300	Maximum number of controlled axes: 16 axes
NJ501-1520	Maximum number of controlled axes: 64 axes (database connection series)
NJ501-1420	Maximum number of controlled axes: 32 axes (database connection series)
NJ501-1320	Maximum number of controlled axes: 16 axes (database connection series)
NJ501-1340	Maximum number of controlled axes: 16 axes (SECS/GEM series)

Models	Specifications
NJ501-4500	Maximum number of controlled axes: 64 axes (Robotics series)
NJ501-4400	Maximum number of controlled axes: 32 axes (Robotics series)
NJ501-4300	Maximum number of controlled axes: 16 axes (Robotics series)
NJ501-4310	Maximum number of controlled axes: 16 axes (Robotics series)
NJ501-4320	Maximum number of controlled axes: 16 axes (Robotics/database connection series)
NJ501-5300	Maximum number of controlled axes: 16 axes (NNC Integrated Controller)

Because of the nature of these changes, there will be some limitations in the ability to upgrade and downgrade the firmware.

NJ Controller CPU Hardware/Firmware Compatibility July 2018 --Supecedes April 2018 version										
NJ501 CPU										Important
Hardware Revision	**Firmware Version**	**Production Date**	**2GB SD Card**	**4GB SD Card**	**Ability to Downgrade Firmware**	**Ability to Upgrade Firmware**	**Notes**			Alert
Not Indicated	1.09 and earlier	March 1, 2016 and earlier (Lot Code 01316 or earlier)	YES	YES	YES	Yes, up to Version 1.18				OK
A	1.10 to 1.14	March 2, 2016 to May 22, 2017 (Lot Code 02316 to 22517)	YES	YES	Cannot downgrade below 1.10	Yes, up to Version 1.18	Due to Latent Power Up and SD Card Read/Write issue this version may fail after 18 months of operation. Remedy is to upgrade to firmware version 1.15 1.17 for OPC-UA 1300,1400,1500			
A	1.15	May 23, 2017 and later (Lot Code 23517)	NO	YES	Cannot downgrade below 1.10	Yes, up to Version 1.18	Due to Latent Power Up and SD Card Read/Write issue, do not downgrade to V 1.10 through 1.14			
B	1.19 and later	After August 2018	YES	YES	NO	Yes, versions beyond 1.19	Due to new hardware design, older firmware will not work			
NJ101 and NJ301 CPU										
Hardware Revision	**Firmware Version**	**Production Date**	**2GB SD Card**	**4GB SD Card**	**Ability to Downgrade Firmware**	**Ability to Upgrade Firmware**	**Notes**			
Not Indicated	1.18 and earlier	Before August 2018	YES	YES	YES	Yes, up to Version 1.18				
A	1.19 and later	After August 2018	YES	YES	NO	Yes, versions beyond 1.19	Due to new hardware design, older firmware will not work			