

## Sales and Service

### Precautions for Using a Rotary Encoder on the Load-Side in the MR-J4(W)-B Fully Closed Loop System

Thank you for your continued patronage of the Mitsubishi general-purpose AC servo and FA products. For using AC servo amplifiers manufactured in May 2014 or later, the following restriction exists in the specific conditions. We ask for your understanding in this matter.

#### 1. Target Models

MR-J4-10B to 37KB(RJ), MR-J4-10B1 to 40B1(RJ), MR-J4-60B4 to 55KB4(RJ), MR-J4W2-22B to 1010B

#### 2. Target Period

Products manufactured between May 2014 and September 2014 (software versions BCD-B46W300 B3 and B4)

For how to check the year and month of manufacture, refer to the attachment.

#### 3. Restriction on Specific Conditions

When all the following conditions are satisfied in the above target models:

- (1) Use of the fully closed loop system
- (2) Use of a rotary encoder (HG-KR or HG-MR) as the load-side encoder
- (3) The setting value of the fully closed loop control - Feedback pulse electronic gear - Numerator (FBN = [Pr.PE04] × [Pr.PE34]) satisfies the following occurrence condition.

Occurrence condition

$$\text{FBN} = [\text{Pr.PE04}] \times [\text{Pr.PE34}] \geq 512$$

When all the above conditions are satisfied, AL37.1 (parameter setting range error) will occur in the servo amplifier.

However, even if the above FBN occurrence condition is satisfied, AL37.1 may not occur depending on the calculated result obtained by reducing FBN/FBD (FBN: the above equation, FBD: the setting value of the fully closed loop control - Feedback pulse electronic gear – Denominator (FBD = [Pr.PE05] × [Pr.PE35])).

<b>Date of issue</b>	August 2014	<b>Title</b>	Precautions for Using a Rotary Encoder on the Load-Side in the MR-J4(W)-B Fully Closed Loop System	<b>Mitsubishi Electric Corp., Nagoya Works</b> 5-1-14 Yada-minami, Higashi-ku, Nagoya 461-8670 Tel.: +81 (52) 721-2111 Main line
----------------------	-------------	--------------	--	--

In that case, customers who use the position board should check the "Phenomenon" in the following Table 1.

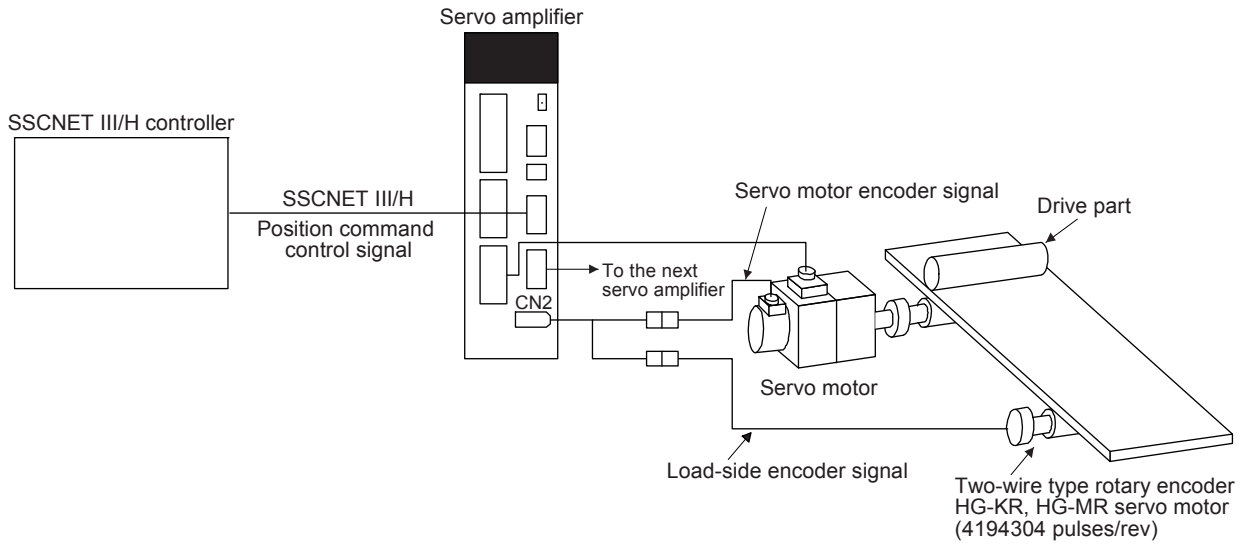


Figure 1 System configuration (for MR-J4-B servo amplifier)

Note. No problem exists when the linear scale or A/B/Z-phase differential encoder is used for load-side encoder.

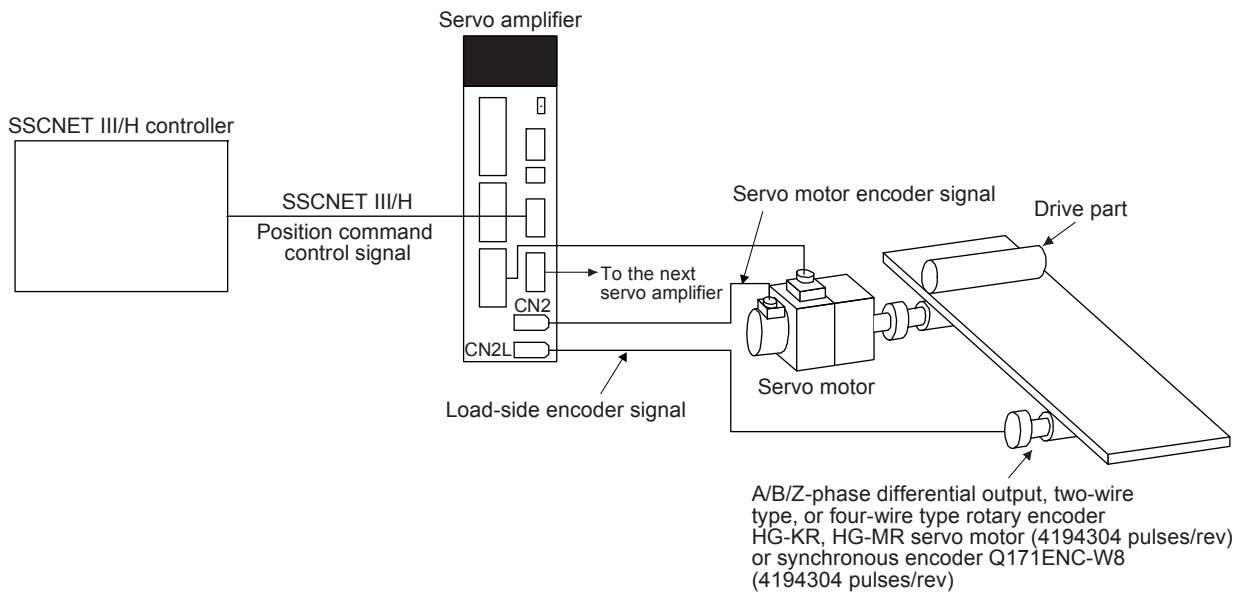


Figure 2 System configuration (for MR-J4-B-RJ servo amplifier)

Table 1 Controller type, model and phenomenon

Controller type	Controller model	Phenomenon
Motion controller	Q172DSCPU/Q173DSCPU Q170MSCPU R16MTCPU/R32MTCPU	AL37.1 occurs.
Simple Motion module	QD77MS (2/4/16) LD77MS (2/4/16) RD77MS (2/4/8/16)	AL37.1 occurs.
Position board	MR-MC210/MR-MC211 Q173SCCF	AL37.1 occurs. (Note) When the electronic gear ratio (FBN/FBD) is less than 1, and AL37.1 does not occur, the maximum motor speed is limited by the value of the maximum motor speed × FBN/FBD.

Note. This function is not available in the J3 compatibility mode.

#### 4. Measures to Specific Conditions

When the above specific conditions are satisfied, contact our sales representative. We will deal with the matter individually.

We ask for your understanding and arrangement in this matter.

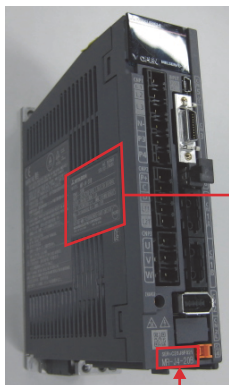
#### 5. How to Check Target Unit

(1) How to check the year and month of manufacture

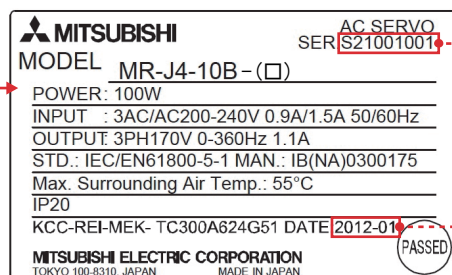
The year and month of manufacture can be checked with the SERIAL number (production number: nine-digit alphanumeric characters) printed on the side or front of the unit. You can also check the number on the packaging box.

[Example of SERIAL number]	1) Product version 2) The last digit of the year ("4" in 2014) 3) Month (1 to 9, X = October, Y = November, and Z = December) 4) Our management number (rating plate: six digits, and package plate: three digits)
N 4 5 L 6 9 0 2 5 1) 2) 3)                      4)	
→ This SERIAL number is for "May 2014 production".	

- SERIAL number (and the year and month of manufacture) on the unit



Rating plate (side or front of the unit)



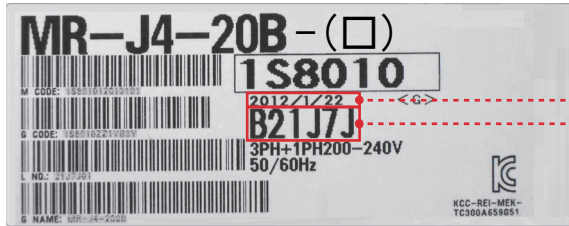
--- SERIAL number  
(production number: nine-digit alphanumeric characters)

--- The year and month of manufacture

(For the capacity range having the rating plate on the side of the unit, the SERIAL number is also printed on its front.)

- SERIAL number (and the year and month of manufacture) on the packaging box

Package plate

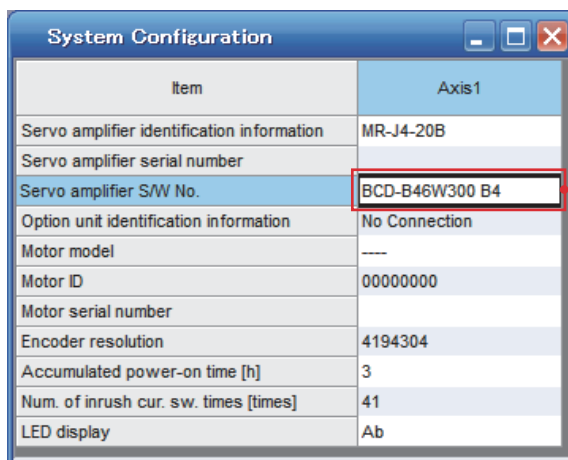


The year and month of manufacture  
 SERIAL number  
 (production number: first six digits of the alphanumeric characters)

(2) How to check software version

Use MR Configurator2 to check the version as shown below.

- Select "Diagnosis", then "System Configuration" to check the servo amplifier's S/W number.



Version (last two digits) = Version B4